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INNOVATIVE DEVELOPMENT OF THE RAILWAY SERVICE

One of the main trends of modern reality is the rapid growth rate of the service sector. The modern level of development of the leading countries of the world shows the dynamic development of the service sector and their market, and the level of development of the service sector is a criterion of social progress.

The development of the service sector and its improvement in meeting the needs of society are directly related to innovation. Also one of the indicators of the development of the service sector is the competitiveness of services, which is associated with the level of innovation in each service enterprise. The purpose of the study is to determine the prospects for the development of new forms and methods of customer service of JSC «Kazakhstan Temir Zholy» on the basis of innovative activity.

The processes of globalization and changing technological structures form modern challenges for railway transport.

The development of information and telecommunication systems, high-speed rail transportation technologies, globalization and optimization of logistics chains with the integration of various types of transport create the prerequisites and opportunities for a fundamental transformation of railway transport.

When writing the article, the works of domestic and foreign scientists, materials of scientific and practical conferences, information resources of the Internet were used. The article discusses the innovative activity of the enterprise, innovative forms of service of JSC «Kazakhstan Temir Zholy». Proposed measures to improve the innovative forms of service JSC «Kazakhstan Temir Zholy».

Key words: innovation, innovation activity, rail transport, lean manufacturing, innovative technologies, catering services.

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Темір жол көлігімен тасымалдаудағы инновациялық даму

Заманауи үрдістердің негізгі бағыттарының бірі қызмет көрсету секторының қарқынды өсуі болып табылады. Әлемнің жетекші елдерінің қазіргі заманғы даму деңгейі сервистік сектордың және олардың нарығының қарқынды дамып келе жатқанын көрсетеді және қызмет көрсету саласының даму деңгейі әлеуметтік прогрестің критерийі болып табылады.

Қызмет көрсету секторын дамыту және оның қоғам қажеттіліктерін қанағаттандыру үшін жетілдіру инновациялармен тікелей байланысты. Сондай-ақ, қызмет көрсету саласының даму көрсеткіштерінің бірі қызмет көрсетудің бәсекеге қабілеттілігі болып табылады, бұл әр қызмет кәсіпорындағы инновациялық деңгейге байланысты. Зерттеу мақсаты даму инновациялық қызмет негізінде «Қазақстан Темір жолы» ұлттық компаниясы» АҚ клиенттеріне қызмет көрсетудің жаңа нысандары мен тәсілдерін даму перспективаларын айқындау болып табылады.

Жаһандану үдерістері мен технологиялық құрылымдардың өзгеруі темір жол көлігі үшін қазіргі заманғы проблемаларды тудырады. Ақпараттық және телекоммуникациялық жүйелерді дамыту, теміржол көлігінің жоғары жылдамдықты технологияларын дамыту, жаһандану және логистикалық тізбектерді оңтайландыру көлік түрлерінің әртүрлі түрлерін біріктіру арқылы теміржол көлігін түбегейлі трансформациялау үшін алғышарттар мен мүмкіндіктерді қалыптастырады.

Мақала жазу кезінде отандық және шетелдік ғалымдардың еңбектері, ғылыми-тәжірибелік конференциялардың материалдары, Интернеттің ақпараттық ресурстары пайдаланылды. Мақалада кәсіпорынның инновациялық қызметі, «Қазақстан темір жолы» ұлттық компаниясы» АҚ қызмет көрсетудің инновациялық формалары талқыланды. «Қазақстан Темір жолы» ұлттық компаниясы» АҚ қызмет көрсетудің инновациялық нысандарын жетілдіру бойынша іс-шаралар ұсынылды.

Түйін сөздер: инновация, инновациялық қызмет, теміржол көлігі, ұқыпты өндіріс, инновациялық технологиялар, кейтерингтік қызмет көрсету.

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Инновационное развитие
в сфере обслуживания железнодорожного транспорта

Одной из основных тенденций современной действительности является быстрый темп роста сферы услуг. Современный уровень развития ведущих стран мира показывает динамичное развитие сферы услуг и их рынка, а уровень развития сферы услуг выступает критерием социального прогресса.

Развитие сферы услуг и повышение ее эффективности удовлетворения потребностей общества напрямую связаны с инновациями. Также одним из показателей развития сферы услуг является конкурентоспособность услуг, которая связана с уровнем инновационной деятельности на каждом сервисном предприятии. Цель исследования заключается в определении перспектив развития новых форм и способов обслуживания клиентов АО НК «Қазақстан Темір жолы» на основе инновационной деятельности.

Процессы глобализации и смены технологических укладов формируют современные вызовы для железнодорожного транспорта. Развитие информационных и телекоммуникационных систем, технологий высокоскоростных железнодорожных перевозок, глобализация и оптимизация логистических цепочек с интеграцией разных видов транспорта создают предпосылки и возможности для кардинальной трансформации железнодорожного транспорта. При написании статьи использованы труды отечественных и зарубежных ученых, материалы научно-практических конференций, информационные ресурсы сети Интернет. В статье рассматривается инновационная деятельность предприятия, инновационные формы обслуживания АО Национальная компания АО НК «Қазақстан Темір жолы»». Предложены мероприятия по совершенствованию инновационных форм обслуживания АО Национальная компания АО НК «Қазақстан Темір жолы».

Ключевые слова: инновация, инновационная деятельность, железнодорожный транспорт, бережливое производство, инновационные технологии, кейтеринговое обслуживание.

Introduction

One of the most common sectors of the transport system on the market of the Republic of Kazakhstan is a railway. The development of a modern transport system in Kazakhstan is based on existing government support programs and includes the introduction of new innovative technologies that will create an efficient transport infrastructure. Therefore, specific target indicators are provided within the framework of the implementation of the Strategic Development Plan of the Republic of Kazakhstan 2020, the State Program for Forced Industrial-Innovative Development of the Republic of Kazakhstan for 2015-2019 and the Sectoral Program for the Development of Transport Infrastructure. It will direct the company not only to technical modernization but also ensuring its competitiveness through new forms of service (Nesipbekov, 2012).

Innovations currently include not only technical and technological developments, but also the search

and use of new forms of business, new methods of work in the market, new products and services.

The purpose of the study is to determine the prospects for the development of new forms and methods of customer service of JSC «Kazakhstan Temir Zholy» on the basis of innovative activity.

The main task of the innovation policy in railway transport is the development and implementation of modern transport and logistics technologies that would bring it to a qualitatively new level of innovative development and improve transport services for the population.

The object of the research is the JSC «Kazakhstan Temir Zholy».

The relevance of the investigated problem is predetermined, firstly, by the growing demand of the country's population for high-quality and timely transportation; secondly, the need to use new forms of business, new products and services in passenger transportation; thirdly, expansion of the range of transportation services provided; development of an automated transport management system, introduction of new mobile forms of fare payment.

The existing transport infrastructure of Kazakhstan provides the railway with the ability:

– to increase the capacity required in all directions of transportation, taking into account the fact that they are increasing and oriented to transit in all directions;

– update the fleet of vehicles, expand its composition and quality;

– improve technological processes in the railway transportation.

Literature review

When writing the article, the works of domestic and foreign scientists, materials of scientific and practical conferences, information resources of the Internet were used. The article discusses the innovative activity of the enterprise, innovative forms of service of JSC «Kazakhstan Temir Zholy».

This article includes official documents, regulatory and interdepartmental documents, such as: The Strategic Plan for the Development of the Republic of Kazakhstan until 2025, the State Program on Forced Industrial-Innovative Development of the Republic of Kazakhstan for 2015-2019, Sectoral Program for the Development of Transport Infrastructure. The information is based on the Transport Committee under the Ministry of Investment and Development of the Republic of Kazakhstan, the Nurly Zhol Program, the Law of the Republic of Kazakhstan on Transport, the State Program for the Development and Integration of the Infrastructure of the Transport system until 2020.

Information base when writing the article were:

1) periodical publications in scientific journals such as: «Implementation of innovative projects in the railway infrastructure», «Use of Navstar GPS and GLONASS satellite radio navigation systems when photographing railway infrastructure facilities», «Intellectual support of innovative activities of industrial enterprises: techno-economic and methodological aspects», «The study of international and domestic trends of modern trends and innovations in a transport complex».

2) materials of scientific and practical conferences, such as: «The perspective of using innovations in the provision of transport services», «Study of international and domestic trends of modernization and innovations in the transport sector», «Lean manufacturing: concepts, principles, mechanisms».

3) also, the abstracts of scientific theses: «Evaluation of the economic efficiency of new forms and methods of transport services on the basis of innovation», as well as official reporting and statistics of JSC «Kazakhstan Temir Zholy», official informational websites in the field of transport services.

The article also used materials from domestic authors, for example, T.A. Ashimbaeva, U.B. Baimuratova, O.S. Sabden, who made the greatest contribution to the formation and development of theoretical concepts in the management of commodity flows, management of material and technical support. Also, problems of the development of market infrastructure and innovations in the field of transport services have been investigated in the works of domestic scientists, which are O.S. Sabden, A.B. Aydarova (production infrastructure), N.K. Isingarin (logistics of international transport) J.S. Raimbekova (industrial logistics infrastructure), B.U. Syzdykbaeva, E.N. Nesipbekova, A.N. Tulembaeva (transport and logistics infrastructure).

Among the works of foreign authors from reference database, mention should be made of the work of Dennis P. Hobbs, Andrea Chiarini, who drew attention to the introduction of resource-saving technologies (Lean) and modern, cost-effective equipment in railway transport. Hence, it will reduce operating costs, improve the performance of technical equipment and strengthen competitive advantages of the enterprises. Such foreign authors as Glaister S., Gomez-Ibanez, J. and de Rus G.

contributed to the development and competition of the railway industry.

Transport scientists, such as M.O. Suraev and A.N. Fomichev proposed several ways to improve transport services on a scientific basis, given the exceptional importance of solving the problems of improving the competitiveness of rail transport by ensuring the quality of transport products required by customers. The theory of modernization of transport services is a subject to the theory of business and scientific and technological development cycles. It is known that the renewal of the scientific and technical base of production is a subject to the laws of a cyclical nature. In society, as in nature, all processes develop according to the laws of cyclical wave-spiral movement. This has been justified and confirmed by many researchers, including: N.D. Kondratyev, I. Schumpeter, W. Mitchell, and others.

Methodology

Theoretical and methodological basis of the study are the fundamental principles of economics, the publication of domestic and foreign experts in the field of theory and practice of innovation management, quality management, marketing and management. The article uses general scientific (analysis, synthesis, induction, deduction, etc.) and special scientific (index analysis, factor analysis, expert estimation method, as well as modern methods of collecting and processing statistical information) methods.

The information was based on the financial statements of the JSC National Company «Kazakhstan Temir Zholy» management documentation and plans for innovative development of the company.

Results and discussions

With the reform of railway transport, the creation of operating companies, and freight forwarding organizations, competition has rapidly increased, both within railway transport and between other types of transport. Therefore, it is necessary to focus on the search for new solutions and specific ways to form effective relationships with users of railway transport services.

According to the strategy of innovative and technological development in the company, for 2015-2018 the costs for innovative programs in the following areas were planned:

Table 1 – Analysis of the costs incurred in innovation activities for 2015-2018

Indicators	2016	2017	2018	Growth rate to the previous year,%	
				2017	2018
Total costs of innovative projects, million tenge	264989	245590	226446	92,68	92,20
Modernization of the superstructure, million tenge	38497	43250	41270	112,35	95,42
Innovative technologies for the construction of railway lines, million tenge	180329	135596	131064	75,19	96,66
Modernization of freight infrastructure, million tenge	31501	44814	25430	142,26	56,75
Innovations in the development of station and passenger services, million tenge	212	4703	7486	2218,40	159,17
Innovations to improve train safety, million tenge	4562	2224	6366	48,75	286,24
Innovations in the field of information and communication development, million tenge	9888	15003	14830	151,73	98,85
The share of costs for innovative projects of all,%	100	100	100	-	-
- modernization of the superstructure,%	14,53	17,61	18,23	3,08	0,61
- innovative technology of construction of railway lines,%	68,05	55,21	57,88	-12,84	2,67
- modernization of freight infrastructure,%	11,89	18,25	11,23	6,36	-7,02
- development of station and passenger services,%	0,08	1,91	3,31	1,83	1,39
- increase the level of train traffic safety,%	1,72	0,91	2,81	-0,82	1,91
- informatization and development of communication,%	3,73	6,11	6,55	2,38	0,44
Note – compiled by authors on the basis of data from official website of the National Company «Kazakhstan Temir Zholy» JSC)					

An analysis of the costs of innovative projects showed that over the analyzed period there was a dynamics of a reduction in investments in the innovative activity of the holding.

This is due to the fact that according to the financing plan for projects developed in accordance with the Strategy for Innovation and Technological Development, the bulk of investments was provided for in 2016, with a gradual reduction as strategic projects are implemented.

In 2017, investment costs decreased by 19,399 million tenge, or 7,32%, and in 2018, by 19,144 million tenge, or 4,58%.

In 2017, costs were increased in the following areas of innovation and technological development: development of station and passenger services (more than 22 times), informatization and development of communications (by 51,73%), modernization of the infrastructure of freight traffic (by 42.26%) and modernization of freight transport infrastructure (11,23%).

In 2018, the costs of innovative projects to improve the level of train traffic safety were increased by 4,142 million tenge, or almost three times, as well as the development of passenger and station service by 2,783 million tenge, or 59,17%

The share of costs of JSC «Kazakhstan Temir Zholy», carried out on innovation activities in 2018, by types of projects, is presented in Figure 1.

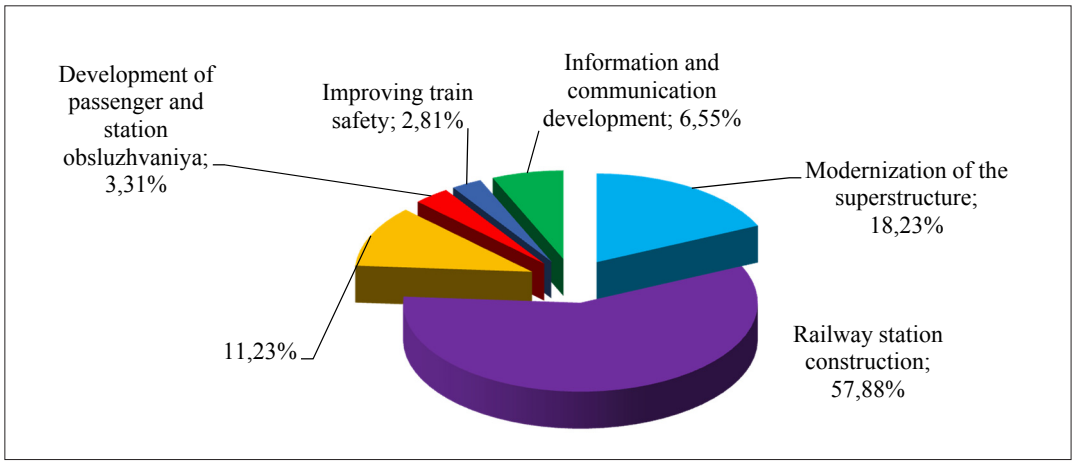

Figure 1 – The cost structure of JSC «Kazakhstan Temir Zholy», carried out by innovation activity in 2016, by types of projects
Note – compiled by authors on the basis of Table 1

The largest share of costs for 2016-2018 was directed to innovative technologies for the construction of railway lines, since the main strategic direction of development of the holding as a whole is the expansion of the main railway network of Kazakhstan. In 2018, the share of the cost of building railway lines was 57,88%.

Also, a significant share of innovative projects is the cost of upgrading the upper structure of the track (18,23%) and upgrading the infrastructure of freight transportation (11,23%).

Thus, JSC «Kazakhstan Temir Zholy» pays serious attention to the development of innovative activities of the holding.

In this regard, the railway transport as the main link should conduct an effective innovation policy. Innovation activity is carried out in the following areas at transport enterprises, shown in Figure 2.

Innovation in transport is associated with the creation and use of new means of labor (new equipment, machinery, equipment, facilities, and mechanisms), objects of labor (materials, fuel, energy) and consumption (products to meet the needs of the population; technological processes; ways and methods of organizing production, labor and management). In addition, innovations in transport can be associated with changes in the number of jobs, improvement of working conditions of workers, increasing the level of education and skills of workers, rational use of natural resources, saving free time of the population, as well as improving quality performance indicators, road safety and reliability of technical means of transport.

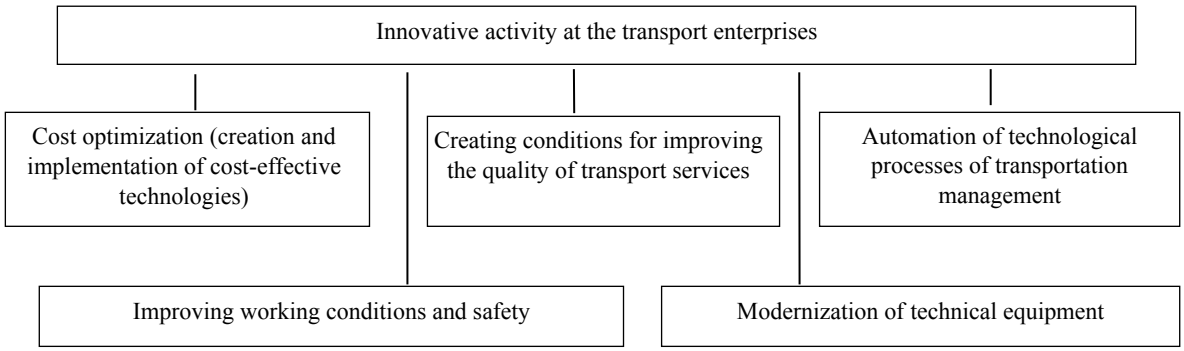

Figure 2 – Directions of innovation activity at transport enterprises
Note – compiled by authors on the basis of source (Kulichenko, 2012)

Work on the development of innovations in the field of transport and infrastructure should be permanent, open to best practices in the field of transport management. One of the largest consumers of innovation in transport enterprises is the locomotive economy.

The main innovative directions of locomotive economy are:

– improvement of the technology of the overhaul of electric locomotives, diesel locomotives and electric trains;

– saving energy, fuel and oil, labor and materials; development of design documentation for equipment, parts;

– improvement of technology and equipment for the maintenance and repair of traction rolling stock;

– creation of diagnostic tools, monitoring and measurement;

– development of specialized technological equipment for the repair and maintenance of specialized traction rolling stock.

The main objectives of the implementation of innovation policy in the wagon farm are: the creation of a new generation of rolling stock, improving the system of maintenance and repair of freight cars for the actual amount of work (mileage in km), the introduction of resource-saving technologies.

The main direction of innovation in travel facilities is to increase the reliability of the track and facilities, ensuring uninterrupted and safe train traffic and reducing the cost of maintaining and repairing the track.

The main task of the innovation policy of signaling and communication management is the renewal and development of railway automation and remote control equipment.

The priority tasks of the innovation policy in the field of freight transportation are: the creation of resource-saving technologies, the improvement of the freight tariff system, the creation and implementation of a complex of automated control systems, technical tools and technologies of the new generation. In the field of passenger traffic, the main are the development and production of new generation cars, designed to guarantee high traffic safety, the creation and introduction of new products for the movement and maintenance of passengers.

Thus, the implementation of the above areas will create conditions for the expansion of the services market, strengthen the competitive position and the advantages of enterprises in the sphere of transport services. Today, the role of rail transport in the economy is an important component of the production infrastructure of the Republic of Kazakhstan. In order to promote the railway industry in Kazakhstan, an intensive search and development of new ideas, their implementation, introduction into industrial and administrative structures is being conducted.

At present, innovations are presented as the basis of the strategic development for JSC Kazakhstan «Temir Zholy» and it includes not only new developments in the field of science and technology, but also should be based on the search and use of new forms of business, the application of new working methods in the market of transport and logistics services.

At the moment National Company JSC «Kazakhstan Temir Zholy» is a leader in Kazakhstan in the development and implementation of innovative technologies.

Within the framework of innovation activity, JSC «Kazakhstan Temir Zholy» is implementing innovative projects, presented in Figure 3.

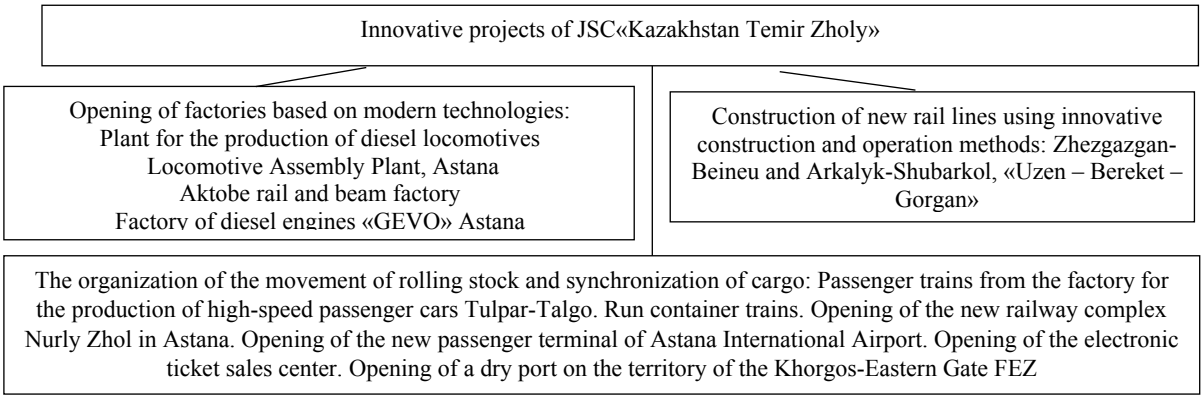

Figure 3 – Innovation projects of JSC «Kazakhstan Temir Zholy»
Note – compiled by authors on the basis of data from official website of the «Kazakhstan Temir Zholy» JSC, 2017

The opening of several factories based on modern technologies, the introduction of modern cars and locomotives, the construction of new railway lines using innovative methods of erection and operation, the organization of the movement of rolling stock and the synchronization of freight traffic, cooperation with world scientific institutions. All this confirms the great work on the introduction and use results of innovation.

JSC «Kazakhstan Temir Zholy» pays great attention to the development of innovative forms of service. The types of innovative forms of service of the holding are presented in Figure 4.

In order to improve the quality of passenger service in the Passenger Transportation of JSC, passenger cars Tulpar-Talgo are operated. The cars are highly comfortable, have a light construction and are made using modern technologies, equipped with a special vacuum cleaning system that allows you to accumulate waste. The cars have a centralized system of energy supply, air conditioning and security control.

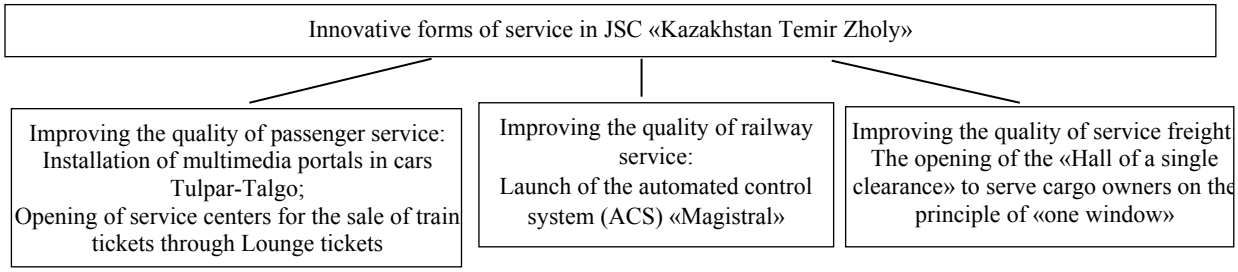

Figure 4 – Types of innovative forms of service of JSC «Kazakhstan Temir Zholy»
Note – compiled by authors on the basis of data from official website of the «Kazakhstan Temir Zholy» JSC, 2017

A multimedia entertainment portal has been launched in the cars. The portal provides passengers with access to an extensive media library with films of various genres, games and many other interesting services. In addition, passengers through the portal can get acquainted with the train schedule, get information about the taxi services and hotels, read the news, as well as leave feedback and suggestions about the service and quality of service.

General access to the multimedia portal for passengers of all classes «Gran», «Business» and «Tourist» is free. Passengers of Grand and Business class cars browse the video library for free. It is available for an additional fee for and for passengers of Tourist class.

In order to improve the quality of passenger service at the stations, the transition to new forms of service was carried out, which is determined by the customer-oriented policy. Lounge railway ticket sales centers have been opened at the railway stations in Astana and Almaty. Modern lounge checkout can significantly reduce the time to service

of each client. Both electronic and traditional train tickets are being sold.

In the service centers, customers are provided with free WI-FI service. For a pleasant wait, there are video monitors, a drinking water dispenser, hot drinks and snack foods in the room.

Thus, the opening of the Lounge Cass allowed solving all issues related to services for the design and sale of train tickets in one place. Taking into account the volume of passenger traffic, the Lounge Ticket Office operates around the clock, with no days off and breaks and their maximum technical equipment will help prevent queues.

The opening of railway ticket sales centers on the «Lounge» principle at Astana, Almaty-1 and Almaty-2 stations allowed the creation of more than 100 new jobs. The «Kazakhstan Temir Zholy» plans to open similar universal lounge halls in other regions of the Republic of Kazakhstan.

The next form of national service innovation in the service sector is the social project «Surdo-online», which is launched at the Almaty-1 railway station. When contacting the reference station, people with hearing disabilities will be able to receive online sign language professional services.

The essence of the project lies in the fact that an employee of the station's help desk can, if necessary, contact the sign language specialist of the Surdo-online service and, through a two-way video conference, provide the interpreter with a sign language translation. In the future, the services of a sign language interpreter will also appear at other stations in Kazakhstan.

The next form of innovation activities of the national company in the service sector is implemented in the framework of improving the quality of customer service for cargo transportation services. Previously, the workplaces of customs officers were located in various places, which in many respects made it difficult to work and increased the processing time of transportation documents and the acceptance and delivery of cars. Therefore, for servicing cargo owners on the principle of «one window» at the station Dostyk – a branch of JSC «Kazakhstan Temir Zholy», a «Hall of single clearance» was opened.

The activity of the «Hall of single clearance» is aimed to increase the transparency, efficiency and quality of the services provided during the processing of shipping, which greatly reduces the processing time of documents by transport, veterinary and sanitary-epidemiological control, eliminates corruption and eliminates non-physical administrative barriers.

In order to improve the quality of railway service, JSC «Kazakhstan Temir Zholy» launched a new diagnostic technology for railway tracks. This innovation was introduced as part of the implementation of an innovative project – the Automated Control System (ACS) «Magistral».

In the process of its creation, the necessary analysis was carried out; recommendations on the implementation and modernization of advanced technical solutions were provided. One of the main objectives of this project is the transition from the system of planned maintenance of the path to the system of repair according to its actual condition and a gradual departure from obsolete standards.

The use of new diagnostic tools for the state of the railway track contributes to improvement the quality of control and ensuring accuracy in diagnosis. A new diagnostic complex is used on cargo-loaded sections and on sections of container transit traffic on trains connecting China-Europe-China. In general, the implementation of the project of the ACS «Magistral» is aimed at ensuring a high level of train traffic safety.

The introduction of innovations always requires investments that are often long-term and in most cases return with a profit. Based on this, we can assume that the share of innovative solutions in the development of innovative forms of development of railway transport in Kazakhstan should be as large as possible. Sustainable development of transport is a guarantee that investments will be returned, and innovative services will be in demand.

Innovations in the field of railway transport services in general represent a complex process, which results in the updating of all aspects of activity (operations, work) with customers, to which employees of JSC «Kazakhstan Temir Zholy» should be oriented when looking for the new, effective and original on technology ways in order to interact with different customers.

It should be noted that it is the Development Strategy of Kazakhstan until 2020 that determines the importance of such a direction as the innovative development of human resources. The human factor in railway transport must be provided with a highly professional potential.

Rail transport needs to pay attention to the introduction of information technology. This technology in transport services provides quality and control over all aspects of the relationship between the user of railway services:

– accounting for the presence of contracts for the transport of goods;

– determination of the client's solvency;

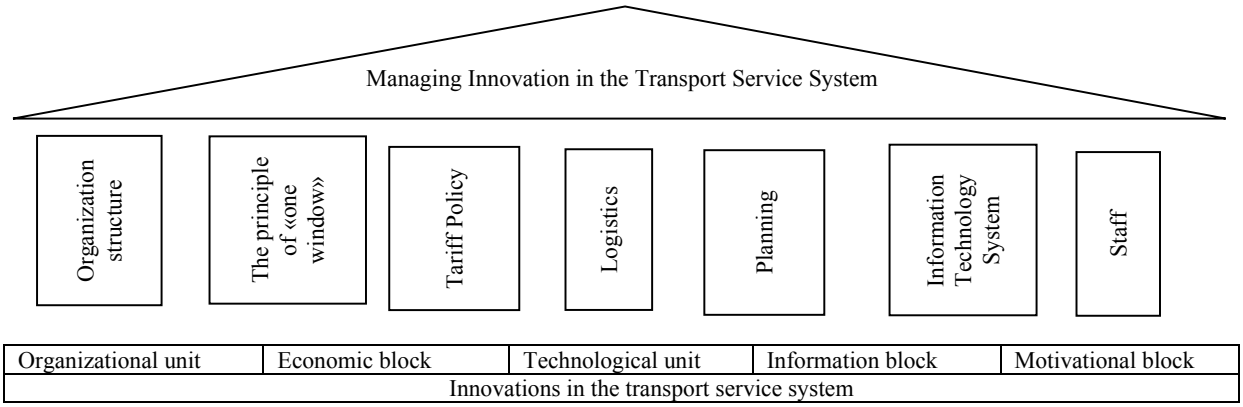

Figure 5 – System-integrated approach to innovations in the service system in transport
Note – compiled by authors on the basis of source (Balakina, 2006)

Ensuring the absence of restrictions on the movement of this type of cargo.

In this regard, it is possible to propose a system-integrated approach that allows you to cover new ways and forms of customer service, according to Figure 5.

Thus, for innovative development in the service sector of the JSC «Kazakhstan Temir Zholy» a number of activities have been proposed:

1) The introduction of the «Lean Production» system, which is an innovative management technology aimed at eliminating losses in all production processes. It is focused on the rolling stock repair and operation units that provide the «Just-in-time» system, which is important for the client («Lean Manufacturing»: concepts, principles, mechanisms, 2012). The founder of lean manufacturing technology is considered to be a Japanese engineer and director of the Toyota Corporation – Ono Taichi. Currently, this technology is used by world-famous corporations and companies, such as Toyota, Nissan, Nike, Adidas, etc.

The target state of Lean production in the JSC «Kazakhstan Temir Zholy» should be ensured through the measures listed below:

– Lean manufacturing of transport services;

– development and updating of reliable technological processes of repair and operation of cars, taking into account local conditions and risks, complete sets of technological documentation, visual aids, including electronic repair manuals;

– maintaining the optimal ratio of scheduled preventive maintenance and repairs as of the state, taking into account the actual condition of the cars;

– organization of an effective process control system;

– timely detection of inconsistencies in the process documentation and their elimination;

– The use of advanced technologies of operational management of production.

Expected results and performance indicators: reduction of unproductive losses during the repair of cars eliminates the problem of prolonged downtime of cars in repair, replacement of spare parts by the contractor, reduced cost of repair.

At the first stage of the implementation of Lean production technology, it is necessary to train employees, further to introduce the 5S concept (Lean Manufacturing, 2017). At the same time, work is being done on delegation of authority, in bringing strategic goals from top-level managers to lower level, according to level, abilities and qualifications.

The developed sequence of actions leads to the fact that everything for the enterprise begins to work in the system of complete cost reduction and quality assurance. At the same time, all employees direct their forces to eliminate the causes of possible inconsistencies and unnecessary costs, periodically carrying out activities aimed at improving, in order to create Lean production through joint efforts.

Thus, the introduction of «Lean production» at the enterprise will reduce costs and at the same time, improve the quality of its production.

2) It is necessary to create an organizational model of the company Corporate Center for the development of innovative labor potential of the enterprise. The elements of the organizational model of education industry will be JSC «Kazakhstan Temir Zholy» and university complexes, including universities, institutes, colleges, technical schools and colleges («Lean Production»: concepts, principles, mechanisms, 2012). The development of the management structure in the JSC «Kazakhstan

Temir Zholy» and the industry vocational education will allow directing efforts to the management of human resources.

Preserving and strengthening ties between the industry and education allows us to achieve optimal results both in the process of training specialists and in further work in production.

Development of innovative labor potential in the following areas:

– in the design of projects for the development of transport systems and the implementation of these projects;

– in the field of operation of vehicles and infrastructure created in the process of implementing the innovation strategy;

– in the provision of transport, logistics and other types of transport services;

– in the management of the railway complex and its development;

– development of labor resources (technical, technological and other types of knowledge) to a level that ensures the implementation of the goals of the innovation strategy;

– to assess the complex needs of the enterprise in the workforce;

– participate in the development of curricula for transport specialties (managers and specialists of JSC «Kazakhstan Temir Zholy»);

– based on the forecast (socio-economic and scientific-technical) development of the industry, determine future needs for specialists.

The above areas should allow the company to create an organizational model of the Corporate Center, incorporated in the strategy until 2025.

Expected results and performance indicators: the creation of an educational cluster, which is a multi-stage system: lyceum – vocational school – technical school – college – university (institute).

The effectiveness of the direction for training innovative personnel for railway transport will be ensured if this direction is laid not only in the innovation strategy of JSC «Kazakhstan Temir Zholy», but also in the concept of innovative development in the medium and long-term transport industry of the country.

Creating an organizational model of the Corporate Center will preserve and strengthen the relationship between the industry and education and will allow you to achieve optimal results, both in the process of preparing highly professional specialists who know how to work on a new equipment and who own new technologies in the field of management, marketing and production work in order to ensure its effectiveness.

3) The introduction of satellite and digital technologies in the JSC «Kazakhstan Temir Zholy».

Telecommunications is one of the most high-tech areas, which is based on modern high-speed optical and wireless technologies and focused on the provision of multimedia services for people and organizations (Strategic Development Plan of the Republic of Kazakhstan until 2025)

Clients of the communication network are participants in the transportation process (station attendants, dispatchers), units of JSC «Kazakhstan Temir Zholy» (depot, stations, control centers), as well as other units and persons who are provided with communication services. The directions of development of the technological segment of a communication network are: replacement of analog information transmission systems and switching systems with digital systems.

Expected result and effect from the introduction of satellite technologies: directly affect the efficiency of railway transport and train traffic safety. A major role in organizing the management of the transportation process and the safety of train traffic is played by constant technological radio communication.

Also, a promising vector for the development of railway technologies within the Digital Railway project is the implementation of the smart locomotive and smart train concepts, whose main task is to replace the driver with an automatic control system in trains (Navstar GPS and GLONASS satellite navigation systems when shooting infrastructure facilities of a railway track, 2005). Such solutions are already applied in a number of countries where even the driver's cab is completely absent in electric trains (subway). The introduction of such technologies has become part of the implementation of digital technologies on a number of railways around the world.

The system implements a high-precision coordinate network and a digital model of the track, ensuring high accuracy of positioning of the electric train and other railway infrastructure facilities, the mode of driving trains, the use of digital communication systems, which will organize the movement of electric trains in the Auto mode in accordance with the established traffic safety requirements.

4) The introduction of information technologies: the integrated information system «Smart Stop» (Avdeychik, 2007) with the needs of persons with disabilities is designed to provide:

– informing passengers about the time of arrival of passenger transport to a stop in real time;

– informing passengers about the numbers of routes and types of public transport plying on this line;

– informing passengers about the work of public transport:

– changes in timetables, routes;

– changes in fare rates;

– the occurrence of criminal and emergency situations;

– CCTV system will be introduced on public transport and at bus stops, with the ability to call the dispatcher of the situational center and emergency services using the panic button;

– a fare payment system was introduced, booking tickets using mobile devices (tickets will be equipped with bar codes and bar codes, which makes it possible to present a ticket electronically on a mobile phone, and controllers or guides will check tickets with special readers).

Expected results and effect: at present, the important role of information services is noted in the innovation process both in technological indicators and profitability.

5) Customer-oriented service forms.

Taking into account the experience of European countries (Italy, Germany), we offer to organize innovative catering services on the railway transport in Kazakhstan. Catering deals with the customer service on the road (Catering: nine basic services, 2018). Nowadays, passengers in European countries use the services of catering. The main purpose of catering is to make the journey of passengers more comfortable and safe, using advanced technologies and well-trained staff.

Catering has its own characteristics in terms of off-site cases. In most foreign countries, meals during travel are ranked according to the comfort class of the passenger seat. Examples of the countries such as England, Belgium, Switzerland and France as an example, one can offer passengers not only a full breakfast, lunch, dinner, and a five-hour tea ceremony, but also a kind of alcoholic drinks, hookah and cigar room services, and pantry products as well.

At the company's office, which should be at the train station, a passenger can get acquainted with the menu, select dishes and book a service by paying with a credit card. The menu includes dietary and vegetarian dishes, halal and specialties.

You can create your on-train catering company or enter into an agreement with other on-train catering companies. The on-train meals are carried out in two ways:

– VIP service, which is carried out using blanks received from the kitchen factory at the loading point of the restaurant car; on technology «from under the knife». VIP – passenger service is often given to professional catering companies, who are provided with a part of the dining car for rent.

– Complex rations are prepared at the factory, which is the kitchen and loaded into special refrigeration compartments of conductors or into a special gondola (part of the freight car) equipped with a medium-temperature or low-temperature chamber.

– Serving passengers is carried out by the method of separation of the compartment of drinks and snacks.

The canteens of the trains offer drinks as well as ready meals, which are prepared using cook & chill technology and packed in lunch boxes or trays in a protective atmosphere. The technology of catering in transport using the capabilities of on-train catering companies is presented in Figure 6.

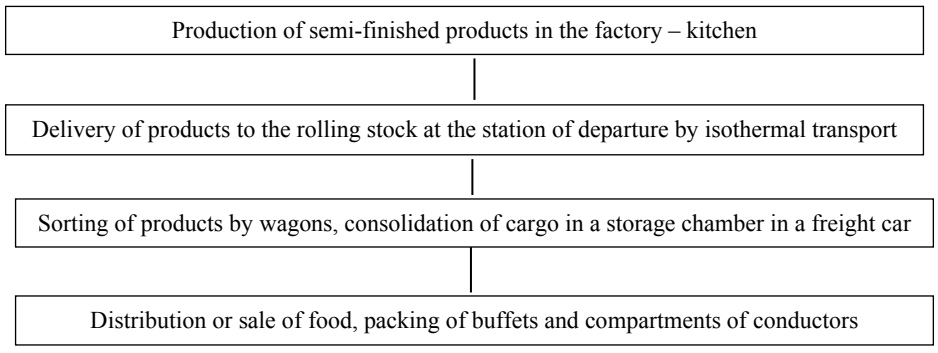

Figure 6 – Transport catering technology using on-train catering companies
Note – compiled by authors

Expected result and effect: the application of these innovative technologies allows attracting customers to this type of transport and will increase the competitiveness and efficiency of railway transport in terms of obtaining part of the profits from clearing companies. It will allow forming a more attractive image of railway transport providing the passenger with the highest level of service. Also, it will increase the efficiency of the work of passenger services.

Conclusion

Thus, innovations in the field of railway transport service represent an active process aimed at updating all aspects of working with clients, and at directing employees in order to find a new and original way for working with clients. It should be understood that the development of innovative development goals, principles and innovation policies, as well as the mechanism of innovative development of railway transport enterprises are affected by government regulation.

JSC «Kazakhstan Temir Zholy» proposed the following activities as a recommendation for improving the innovative forms of service:

– providing innovative human resources for the development of rail transport. The innovative potential of human resources is a fundamental factor among the competitive advantages of an enterprise and is the most important condition for successful leadership;

– the introduction of innovative forms of management is based on «Lean production» and the introduction of optimal transport schemes for the delivery of goods with the principles of «Just-in-time» and «door-to-door» delivery;

– introduction of innovative customer-oriented forms of service («one-stop service», organization of catering to improve the quality of passenger service, interaction with operators' companies, etc.);

– the use of innovative technologies that allow reducing the interval of the movement of trains, increase the speed of transportation and ensure the regular movement of trains at critical sites.

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