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10 MARKETING MANAGEMENT AT RAILWAY TRANSPORT ENTERPRISES

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ABSTRACT

For railway transport enterprises, which have now experienced devastating crises, the issue of forming competitive advantages and ensuring their sustainable development is gaining relevance. One of these tools is marketing management, which is a modern concept of supporting customer-oriented business and the development of companies in a dynamic environment. Researchers associate its appearance with the development of markets, the expansion of the product range and the first awareness of the need to influence the consumer to maintain competitiveness. The application of marketing management in railway transport, which is based on the active implementation of digital solutions, will allow to achieve a number of economic and social effects, including saving operating costs, improving the quality of services based on the criteria of customer orientation, reliability and safety, and as a result, achieving the stabilization of the activities of enterprises railway industry and improving their competitive positions in the market of transport and logistics services.

KEYWORDS

Competitive advantages, marketing management, customer-oriented business, transport and logistics services, digital platforms.

10.1 EVOLUTION OF THE DEVELOPMENT OF MARKETING MANAGEMENT

Considering the evolution of the development of marketing management, it is worth pointing out that today, under the influence of the processes of digital development of the world economy, the concept of marketing management is also undergoing transformation. Implementation of the information (digital) economy objectively determines the need for radical digital changes in society aimed at the development of robotics, artificial intelligence, the Internet of Things, nanotechnology, synthetic biology, quantum computers, and "smart cities". After all, as it is commonly believed, artificial intelligence and digital technologies create an incredible impetus for the development of non-standard types of activities, transforming the entire system of social values and consumer preferences. These statements are the basis of the theory about the approaching era of the technological singularity, the content of which is revealed by Vernor Vinge, and his concepts were picked up by Ray Kurzweil and others [1]. Already today, digital technologies are being actively introduced into all spheres of social life. It is common to use fire fuel cell trains operating in France, which

has signed a contract to purchase 12 trains from the engineering company Alstom, which will be tested in 2023, and from 2025 the new express trains will start carrying passengers. In places where sections of the road are not electrified, the train will run on hydrogen fuel cells that convert hydrogen energy into electric current. Alstom notes that the hydrogen reserve, located in a special tank on the roof, is calculated on 600 km of the way.

In fact, cloud technologies and the so-called Internet of Things (IoT) have formed a very strong tandem, which is increasingly influencing and will influence all spheres of economic life in the future, significantly simplifying the processes of managing relationships between business entities. Cloud technologies create an opportunity for remote access to shared computer resources, because they allow storing and processing information, providing various digital services [2]. Technologies of the Internet of Things form the basis of the activities of economically developed companies, because they allow not only to organize the production process with lower costs, but also to develop effective management solutions to support favorable communications with customers.

The huge potential is for the modern economy of robotics, which is experiencing an era of prosperity, and thanks to the emergence of a large international market, the state and the corporate world began to actively invest in this industry, gradually receiving a radical return. Leading global companies not only buy robots, but also independently create new types of them, producing new areas of application for them, thus increasing competition and stimulating the development of innovations [3]. It is clear that the development of the field of robotics will depend on the international regulatory framework and on the extent to which engineers, designers and manufacturing firms will practice a socially responsible approach. The huge impact on the development of robotics will be exerted directly by consumers, increasingly increasing the requirements for quality and technical parameters of products.

A revolution in neurotechnology describes a wide set of approaches that gives a clear idea of the work of the human brain, allowing to obtain information about the outlook and preferences of consumers, expanding their feelings, changing behavior and principles of interaction in society. Neurobiology is gradually moving beyond the boundaries of medical and scientific laboratories, penetrating into everyday life, providing an opportunity to create new value systems, and at the same time generating serious risks and management tasks [4]. These technologies involve deciphering thoughts at fine levels of detail through new chemicals and interventions capable of influencing consumers' brains to correct errors and display functionality. Innovations in this field help to find new ways of communication and interaction with consumers, as well as to significantly expand the capabilities of the senses. First, the ability to correct shortcomings or multiply positive traits will be a huge advantage for those who can afford to buy or sell neurotechnologies and related services. At the same time, being able to access the innermost thoughts and influence thinking is a huge challenge in a world driven by algorithms and ubiquitous data collection. Secondly, neurotechnologies are the driving forces of this time, providing new forms of cognitive computing and improving the design of machine learning algorithms. The more neurotechnologies create opportunities for understanding consumer consciousness, the easier the process of managing consumer behavior will be [5]. Thirdly, neurotechnologies make it possible to directly influence the brain in more precise ways, thereby

creating an opportunity to change the sense of self, to find a new understanding of what experience is, and also to fundamentally rebuild the essence of reality. This will allow companies to control the subconscious of consumers, encourage them to make certain purchases [6].

Neurotechnologies will be able to have an even more powerful impact on the economy if they improve the capabilities of the human brain and improve labor productivity. Compared to other industries of the Fourth Industrial Revolution, such as space technologies, neurotechnologies enter the mass market quite slowly [7].

So, in fact, digital technologies are changing the toolkit of marketing management, giving rise to the emergence of new tools for managing consumer behavior. Therefore, considering the stages of development of marketing management, it is appropriate to single out the current period, which is characterized by the penetration of digital technologies into the field of marketing management.

Accordingly, the period from the 90s of the 20th century to the present is appropriate to call transformational and to associate it with the introduction of digital marketing tools into the management system. The stages of development of marketing management are presented in **Fig. 10.1**.

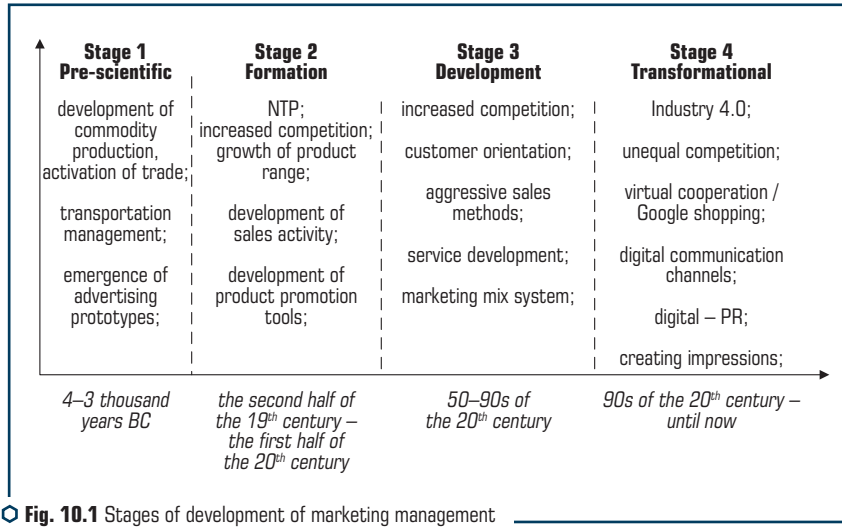

Fig. 10.1 Stages of development of marketing management
Source: author's development

Today, the main characteristics of the market and the company's communication system with consumers are:

– firstly, the oversaturation of the market and the growth of the number of Internet users inclined to make emotional/spontaneous purchases (Google shopping), while most of them are picky about quality and price;

– secondly, unequal competition, in which small companies can easily become a competitor of a giant;

– thirdly, the formation of an online environment for interaction with both customers and business partners, the use of various digital channels to support communications, the development of digital marketing management platforms;

– fourth, the transformation of advertising tools: the emergence of native, viral and smart advertising, the use of digital – PR tools, etc. [8].

Thus, the modern transformation of information and communication technologies, including the Internet, has become in the last few years the driving force behind the formation of a new type of marketing management system, which is based on the achievements of the digital economy. Digitization has changed and continues to change the information environment of organizations, and information has become one of the strategic resources for the successful operation of companies, which creates conditions for reformatting the internal processes of their management activities.

10.2 PROBLEMS OF MARKETING MANAGEMENT AT RAILWAY TRANSPORT ENTERPRISES

Today, the problems of management at railway transport enterprises are covered in the publications of such scientists as Yuriy Barash, Volodymyr Dykan, Nataliia Kalycheva, Myroslava Korin, Larysa Marceniuk, Viktoriia Ovchynnikova, Iryna Tokmakova, Tatyana Charkina, and others [9–16]. Paying tribute to the theoretical and practical value of scientists' research, it should be noted that a more thorough study of the potential opportunities of marketing management as an effective direction for ensuring efficient management of railway enterprises is currently needed.

The impetus for the emergence of marketing management in its modern form was the destruction of the original communal system, which led to the emergence of states, class structures and the development of commodity production, and against this background, the intensification of trade, including between individual states. After all, trade and material production were the basis of the prosperity of such ancient civilizations as Babylon, Ancient Greece, China, Egypt and India. The need to transport production products over long distances led to the emergence of prototypes of such modern tools of marketing management as packaging, advertising and sales promotion. By most scientists, it is the period of 4–3 thousand years BC, which is historically considered to be the stage of the birth of marketing management, which was called "pre-scientific" [7].

In the economic literature, scientists also express an opinion about the emergence of marketing management, which assumes that its origin dates back to the 1750s. The founder of marketing management at this time is Mitsui, who, having opened a prototype of a modern supermarket in Tokyo, introduced modern principles of marketing management into its activities. According to the concept of the development of his department store, firstly, the purchase of goods took place exclusively in accordance with the needs of consumers; secondly, the assortment of products was filled in the same way; thirdly, the practice of reimbursing funds to the consumer in case of returning the product was applied [10].

The industrial revolution that took place in the USA in the second half of the 19th century gave a huge impetus to the development of marketing and marketing management – the first half of the 20th century and the consequence of which was the appearance of mass standardized production, the rapid development of financial services. During this period, the development of professional sales and advertising took place, and the marketing concept officially took place by introducing the term marketing itself into professional circulation from the position of the key function of production management [18]. At the same time, companies began to create specialized marketing divisions, which at that time performed the functions of sales, market research and advertising development. Later, such departments were transformed into modern marketing centers, which deal with a wide range of issues: from analyzing competitors and consumers to developing strategies to support long-term competitiveness. Also, a prerequisite for the development of marketing management was the growth of the purchasing power of the population, which already at that time wanted to buy goods according to their own preferences.

The third stage of the development of marketing management in its modern manifestation falls on the 50s of the 20th century. It is based on the concept of holistic marketing, which involves the formation of an integrated marketing program and the organization of the activities of marketing divisions exclusively in accordance with marketing principles. In particular, in the work [10] it is noted that the basis of marketing management is the concept of integrated and internal marketing, which, on the one hand, determine the set of marketing measures necessary to win over the target audience, and on the other hand, establish the system of actions of the company's divisions for consumer research.

So, it is traditionally customary to distinguish 3 stages of the formation of the concept of marketing management, which most scientists divide into the following time periods:

Stage 1 – pre-scientific – 4–3 thousand years BC.

Stage 2 – the stage of formation – the second half of the 19th – the first half of the 20th century;

Stage 3 – development – 50s of the 20th century to the present time.

The approach to considering the evolution of marketing management from the point of view of implementing its tools in practical activity is quite common in the economic literature. In the framework of this approach, it is customary to distinguish such periods of the formation of marketing management as the life cycle, the era of growth, the era of costs, the era of differentiation and the era of personification, each of which takes into account the dominant marketing toolkit at that time. In particular, the first stage of development of marketing management, which was called the era of life and falls on the 50s of the 20th century, is characterized by the use of the concept of the product life cycle in order to position the company's position on the market and predict potential changes. During this period, companies focus a lot of attention on building their own market reputation, segmenting the market and, on this basis, developing personalized tools for managing consumer preferences. The second stage of the "growth era" (the 60s of the 20th century) is that during this period, for many companies, the marketing complex becomes a management style, but not as a whole company, but only on the scale of marketing departments. The third stage – the era of costs (70s of the 20th century) is closely related to the development of social and strategic

marketing concepts and involves a systematic study of consumer needs and requirements, segmentation and analysis of the product market portfolio in order to develop personalized products that are different from competitors' products, and formation of an effective strategy of competitive actions on this basis to gain better market positions. The next stage of development of marketing management, which falls on the 80s of the 20th century and is called the era of differentiation, is characterized by the use of "hard" and "soft" marketing tools in order to capture a larger share of the market. The basis of the companies' marketing strategy was measures aimed either at maintaining direct contact with consumers or at maintaining a client group within a certain region. The era of personification, which dates back to the early 90s of the 20th century and continues to the present, is characterized by the use of Internet services by companies to promote products on the market and support the client base. The key features of this period of development of marketing management are the spread of marketing networks and marketing to order, which allow to manage the preferences of a specific target audience, providing the latest necessary information about the product at the place and at the time when they need it [19].

10.3 DIGITAL TRANSFORMATION IN THE DEVELOPMENT OF MARKETING MANAGEMENT AT RAILWAY TRANSPORT ENTERPRISES

The digital transformation of enterprises entails the following revolutionary changes in the business models of company management:

1. Movement from a linear chain of value creation, characteristic of the pre-digital era, to a decentralized platform based on the network effect due to greater involvement of customers and suppliers, in which value is formed due to the creation of connections between consumers and producers.

2. Customer-centricity and customer orientation – a deeper understanding of customer needs, products (services) become more personalized, individualized thanks to the use of digital technologies.

3. Formation of a digital business ecosystem that ensures "seamless" interaction of all stakeholders based on digital services.

Currently, there is no unequivocal answer to the question of the nature of digital transformation from the point of view of temporal and managerial aspects in the scientific community. First of all, it concerns the temporal parameter of the effects of digital transformation and follows from the existence of different approaches to measuring the effectiveness of digital transformation. In most cases, the use of financial and operational indicators, which are inherently short-term, as criteria for assessing the effectiveness of digital transformation indicates that the latter is not considered as a process that is characterized by a long time and a lag in terms of achieving positive effects. From a practical point of view, such effects have not yet been assessed.

The development of artificial intelligence, big data analytics and machine learning opens up new opportunities for enterprises today. Among the new scientific and technological trends are

enterprise architectures (enterprises of a new type, based on the principles of modularity, efficiency, continuous improvement and adaptive innovation, with a modular business model that allows them to rebuild faster and more flexibly adapt to new requirements of the external environment), algorithmic models of trust (ensure data confidentiality), post-silicon computing (development of new advanced materials with enhanced capabilities for data storage and processing, calculations), formative artificial intelligence capable of transforming under the influence of external conditions and generating new algorithms and models for solving specific tasks.

Along with this, modern information and communication technologies make it possible to solve such tasks of marketing management as definition and analysis of factors affecting the socio-economic system, description, modeling and forecasting of the state of the enterprise as a socio-economic system, development of scenarios for its development, formation of a single base data, etc. To analyze factors affecting the enterprise, including risks, various methods and approaches are used today. Among the most new are model methods, which include methods of artificial intelligence, in particular multi-agent systems, collective behavior of automata, etc.

Thus, the narrow specialization and level of digital development of industry and production dictates strict rules and forces to modify classic tools of marketing management in order to maintain a balance between general digitalization and the capabilities of each specific enterprise.

Since the application of digital transformation is a response to the challenges of the external environment, it is impossible to do without the transformation of any one element of the business model: the formation of a radically new digital business model is required, which can be achieved only by changing all its elements. Such a radical change in the business model leads to the transformation of all other structural elements of the company (assets, capital, including the ownership structure, management system).

Features of marketing management of the enterprise in the conditions of digitalization are presented in **Table 10.1**.

The transition to the digital economy also places new demands on the head of the enterprise, on its professional competencies in the field of management, personnel management, and IT technologies. The issue of creating a corporate culture based on effective interaction at all levels of management and readiness for change is also important.

When digitizing railway transport enterprises, two levels of its implementation should be taken into account – organizational and technological. The basis of digitalization technological solutions is the development of an intelligent railway transport management system, which is focused on comprehensive automation of the main processes of planning and dispatch management of the transportation process, as well as on knowledge management, and uses an ontological model of infrastructure elements and technological processes. That is, from a technological point of view, the digital railway can be defined as a set of digital technologies and methods of describing the infrastructure, rolling stock, transportation process and traffic management technologies, ensuring the safety and maintenance of the infrastructure, which are aimed at achieving fundamentally new automated methods of planning, dispatching traffic management, resources and maintenance.

Table 10.1 Peculiarities of enterprise marketing management in modern conditions of digitalization

Feature	Impact on marketing management processes
Possibility of using automated management systems to collect, process and analyze large data in real time, as well as generate new models and algorithms of behavior with the help of artificial intelligence	Promptness of data provision, including already calculated financial and economic coefficients and other indicators necessary for making management decisions. Using the capabilities of artificial intelligence to generate new models and algorithms for the system's response to certain values, markers
Digital ecosystem: internal and external	Efficiency of interaction with state structures, customers, suppliers
Profitability paradox	Capitalization growth of digital companies against the background of their unprofitability
High speed of change	The need to accelerate management decision-making and forecasting the dynamics of the development of the macro- and microenvironment
Dynamics of the macroenvironment	The need for risk accounting
The possibility of reducing costs due to the use of digital technologies	
Remote work	The possibility of reducing office maintenance costs
Use of digital doubles	The possibility of reducing the costs of real tests with the help of the use of digital doubles (research of technical characteristics, such as strength, reliability, functionality, etc.) with the possibility of designing for a given cost
Digital sharing platforms	The possibility of reducing the costs of maintaining fixed assets

Source: author's development

From an organizational point of view, the digitalization of railway transport requires the implementation of a set of business models, transport services and means of their automation, united by the single principles of digitization of all physical assets and processes of railway transport enterprises and their integration into the global transport ecosystem.

Customization processes are of primary importance in the digitalization system of companies, including railway transport enterprises. Global brands increasingly create products and services based on the individual needs of their customers, and therefore customization comes to the fore.

Customization is the ability to independently choose/customize a product to your own needs or preferences. This kind of individualization of products according to the order of each client. For example, applying a specific print on a shirt in an online clothing store at the customer's request or ordering accessories with an individual inscription. The main goal of customization is to create conditions under which an individual authentic approach to the client's personal needs is best experienced.

At first, domestic marketers considered customization as the production of mass products to a specific customer order by adding additional elements or equipment. Along with this, it should be taken into account that individualization involves the release of a certain product that differs from competitors in specific properties and characteristics, including functional, external, etc., but this does not always mean that the individualized product meets the requirements of a specific client.

It is believed that mass customization allows the production of a sufficiently large volume of products for a relatively large market (or a number of niche markets) without compromising on cost, delivery and quality. Thus, mass customization means the use of flexible automated production systems, which allow to organize flexible production of products with individual characteristics, as well as to combine low costs and flexibility of individual customization. The economic features of customized production, advantages for the consumer and the producer became one of the key incentives that motivated companies to introduce customization tools into the marketing communications management policy.

The strategic nature of customization is also confirmed by foreign experts, who suggested that the tool of customization be considered a strategy that creates the value of one or another "company-consumer" interaction at the stages of manufacturing and/or assembly due to the creation of individual products at costs and prices comparable to the conditions of mass production. According to marketers, customization allows consumers to create a product for themselves, which allows to significantly improve the costs of researching consumer preferences. However, practice shows that companies do not always strive for customization, often preferring standard solutions. It can be argued that customization goes beyond manufacturing. Thus, the evolution of scientific ideas about the essence of customization led to its broader interpretation. If the beginning of the study of customization was connected with decisions in the field of technology and production, marketing tactics, cost management, then the modern stage of development of this concept is based on the understanding of customization as a strategy of the company's activity, which gives it a systemic character. It is interesting to note that previously only marketing was called a business philosophy, and now customization itself is recognized as such, although at first it was considered only one of the marketing tools and an alternative trend of doing business. Thus, customization from elements of marketing activities becomes an alternative and/or complements the marketing concept. At the same time, as experts rightly believe, customization can be different. In their opinion, according to the nature of product changes, customization can be:

– expert, when the product is created "for each client" – in this case, a more accurate definition would be individual customization;

– modular, that is, it provides the possibility for the client to choose the necessary equipment from the possibilities (elements or options) offered by the company;

– "at the level of appearance", which is based on the choice of external attributes – packaging design, product shape, etc.

The typological approach combines two criteria. First, the degree of customization of the product (from the maximum with expert customization to the minimum with customization at the level of appearance). Secondly, the flexibility of the production approach (from artificial production with expert customization to product customization at the final stages of production and sales).

An exclusively production approach is implemented in the typology of customization types, which implies the definition of its two types:

– horizontal customization (modification of products from identical, impersonal components);

– vertical customization (a unique product from unique "components", originally created for a specific client).

An active approach to castromization allows to distinguish four types of it based on the criterion of the behavior of the supplier (manufacturer or seller of the product) [20]. Collaborative (joint) customization means the development of a dialogue in which the supplier helps to formulate the needs of the consumer in order to clearly define product offerings that satisfy their needs. With adaptive customization, the consumer is offered a standard product, but in which some adjustment functions are "built-in" so that the user can change it itself. The release of a standard product, but with a customized image of it in the eyes of the consumer, is an example of cosmetic customization. Its opposite is transparent customization, which starts the independent change of the product.

However, in any case, customization can lead to the rejection of mass or serial production and the transition to production "to order" and/or to the need to produce the same product, but in different configurations, supplemented by a number of options (elements, modules and etc.), design solutions.

Obtaining new streams of income depends on the ability of the enterprise to quickly and flexibly implement its business ideas, therefore, in order to achieve its goals, enterprises need to cooperate with other enterprises by concluding cooperation agreements. This combination of forces guarantees that they will remain competitive in today's dynamic market. They just need to cooperate, join forces to compete. A group of self-contained independent enterprises, even geographically dispersed, begin to share core competencies, information, finances, and capabilities to create greater opportunities for profit. Examples of such cooperation are especially common in Europe, where different enterprises interact at the regional level. Many advanced industrial corporations, such as automobile companies, rely on "virtual" business relationships with corporate customers and suppliers. That is, information and communication technologies and electronic means of communication provide a higher level of integration in the European business landscape, although many actions can still be performed "manually". But using modern information and communication technologies, virtual partnerships limit their temporal and distance frameworks and accept various challenges of the market.

When partners combine their businesses within a single virtual system to meet consumer demands and opportunities presented by the market, and remain in business as long as these opportunities remain, a number of advantages arise, among which:

1) flexibility as the ability to recognize and then deal with any unexpected changes that may occur in the environment, so that one can respond more successfully to the opportunities presented by the market, as well as shorten the time to market together with higher quality at lower costs investments. Any virtual organization, using the resources of various partners, is able to form the most suitable set of skills to meet the needs of the consumer. It is also able, if necessary, to reorganize itself either by adding/removing some of its members, or by actively redistributing roles and tasks for some of its members. The purpose of such an organization is to create a synergistic effect in order to master new markets and further use creative business opportunities;

2) optimal size of competitive competencies. By engaging in virtual partnerships with other market stakeholders, businesses can achieve a "critical mass" (size) of competitive advantage to succeed;

3) competitiveness: the necessary level of profitability that ensures competitiveness in the market can be achieved if the sub-tasks are properly distributed among the partners working together. The competitiveness of the partners' joint business is also ensured by the flexibility of the structure;

4) optimization of resources. Smaller organizations can more successfully share their competitive advantages, infrastructure and knowledge, and minimize business risks;

5) innovations. There are increased opportunities for sharing and assessing ideas within the partnership, which increases the number of innovations.

It should be noted that railway companies of many countries are currently launching projects related to the development of digital platforms in various areas of their activity. Such solutions act as a technological environment for the formation and provision of services and act as a basis for cooperation between enterprises providing services and their consumers directly. They may include stages related to design, production and sale of products, as well as subsequent service. That is, digital platforms act as a mechanism and environment for the formation of product value, as well as a tool for accelerating the exchange of information and the value of products.

10.4 DISCUSSION OF THE RESULTS OF THE DEVELOPMENT OF MARKETING MANAGEMENT AT RAILWAY TRANSPORT ENTERPRISES

It is expedient to develop and implement a complex of digital platforms aimed at the development of freight and passenger transportation, related services, as well as direct management of other internal processes of enterprises of the industry at domestic railway transport enterprises. Taking into account the fact that the enterprises of the railway industry belong to the field of transportation organization, it is worth proposing to improve their work the formation of a suitable digital platform, which should include the components of the rolling stock management platform, logistics and personnel support, platforms by types of connections, planning services and purchasing services, as well as customer interaction services. The complex of platforms in the field of passenger transportation is presented in **Fig. 10.2**.

This kind of system will make it possible to qualitatively improve the processes of organizing passenger transportation. Thus, within the framework of a single digital circuit, connect payment and accounting options for users of railway transport services, including due to contactless payment with bank cards, mobile devices with NFC function, to ensure registration and accounting of tickets by privileged categories of the population, to create opportunities for the introduction of a single digital ticket and the use of the so-called transfer tariff within the framework of the development of multimodal passenger transportation. In addition, there will be an opportunity to clearly control the quality of services provided to consumers and the level of their locality to railway transport enterprises, as well as to expand the information base about users and their preferences.

As effects of the introduction of a complex of digital platforms in the field of passenger transportation, it should be noted the improvement of the quality of transport and logistics services by enterprises of the industry; expanding the functionality of client services and reducing the cost of

information and service services; improvement of dialogic interaction of railway transport enterprises with consumers and improvement of their loyalty.

Also, this will create opportunities to improve the quality of diagnostics of rolling stock and ensure control of its condition in real time, reduce operational costs related to the maintenance of the rolling stock, improve the level of competence and digital literacy of employees of railway transport enterprises, increase their level of motivation taking into account personal needs (**Fig. 10.3**).

"Passenger Transportation" digital platform

Warehouse management platform for rolling stock:
– transportation process management systems using artificial intelligence;
– systems for monitoring the state of the wagon park in real time;
– wagon maintenance systems based on monitoring and diagnostic data;
– system of automatic maintenance of information about the condition of all rolling stock units;
– innovative resource and energy saving technologies;
– systems for controlling the life cycle of rolling stock and components, aggregates and spare parts

Warehouse logistics platform:
– intelligent automated warehouse inventory control systems and determination of the state of logistics;
– digital technologies for managing the supply of material and technical resources;
– digital solutions for sharing innovative ideas

The component platform of personnel support:
– dynamic systems of management of personnel support of the transportation process using artificial intelligence;
– intelligent knowledge management and personnel development systems;
– corporate messengers;
– intelligent recruiting systems;
– digital technologies for personnel development and training;
– corporate university;
– digital personnel management systems and their motivation

Component platforms by connection types:
– direct, incl. and international;
– local;
– suburban

Service planning services (portal, call center, mobile application):
– *information about the main service:* schedule;
– *information about the services of the station complex:* navigation, Wi-Fi, information, information board, multimedia, ordering services;
– *information about services on the road:* Wi-Fi, multimedia, ordering services, informing

Services for purchasing services (portal, call center, mobile application):
– *ticket purchase:* personal account, bonus system;
– *purchase of additional services:* hotel reservation, VIP service, taxi call

Customer interaction services (portal, call center, mobile application):
– mobile applications for clients regarding transport service management;
– client data management systems;
– the customer's single transport card;
– passenger biometric identification systems;
– multifunctional personal account of the client;
– personalized offers of transport services

Fig. 10.2 Components of the digital platform of passenger transportation
Source: author's development

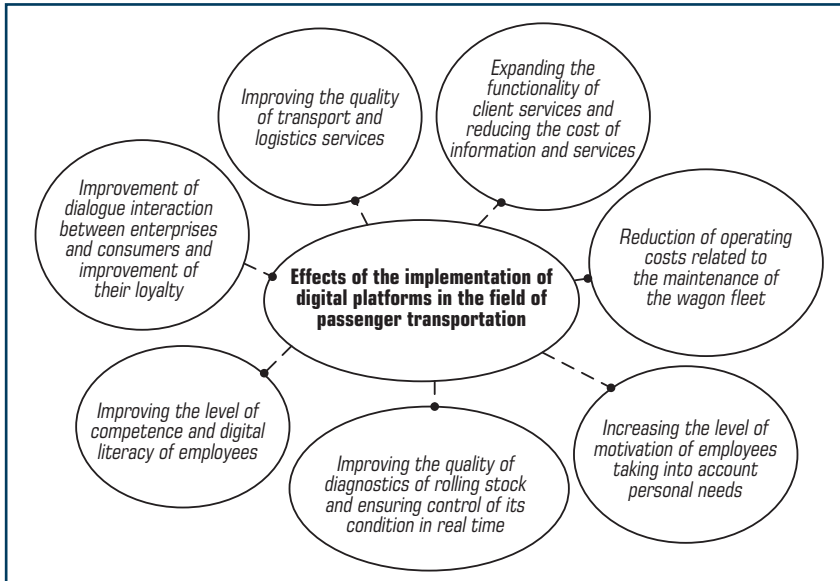

Fig. 10.3 Effects of the introduction of digital platforms in the field of passenger transportation
Source: author's development

Thus, the application of marketing management in railway transport, which is based on the active implementation of digital solutions, will allow to achieve a number of economic and social effects, including saving operational costs, improving the quality of services according to the criteria of customer orientation, reliability and safety, and as a result achieve stabilizing the activities of railway enterprises and improving their competitive positions on the market of transport and logistics services.

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