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Passenger Transport of the Future

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Currently, there is a smooth transition from the traditional structure of the economy to the digital one. To ensure this transition, technologies are needed that will help make this transition, as well as optimize and automate various processes in the sectors of the economy. One of the directions for improving the work of transport is digital transformation in the field of passenger transportation: the creation and implementation of automated dispatching systems, payment and travel control, as well as information support of the transportation process. Automated systems operating in passenger transport in the Republic of Belarus do not fully eliminate the problems of the lack of objective accounting of transport work, inconsistency of timetables for various types of transport, the introduction of modern and progressive payment methods, increasing the efficiency of passenger traffic, do not interact sufficiently with each other and with related systems, and in some cases are completely autonomous. Under the influence of digital transformation, new modes of transport will completely replace existing ones, radically changing the transport sector of the economy and causing a change in passenger traffic. Now a new era is dawning in land transport. News about the passenger transport of the future seems like quotes from science fiction novels. But if we do not forget about the speed of progress, then, probably already in 2030, the transport of the future will come to all megacities of the world [1].

Another goal of inventors in the transport industry is to save energy and improve the ecology of cities. This can be achieved by eliminating hydrocarbon fuels and switching buses to electricity and biofuels. The problem of safety in the transportation of passengers (as you know, 90% of accidents on the roads occur due to the fault of the driver) can be solved with the help of unmanned transport technologies, which are already being implemented by companies such as Google, Uber and Tesla. Traffic jams and congestion in large cities remain another global problem. New transport systems should help here, allowing passengers to move over city traffic on dedicated lines. In addition, technology companies can solve this problem by developing new models of flying taxis in their laboratories [1]. Developers of technologies for the transport of the future set themselves several challenges that correspond to the pressing problems of the industry. One of them is reducing the time for passenger transportation. New solutions to save passenger time are traditionally offered by designers of high-speed trains. Engineers from Japan, South Korea, France and other countries continue to work on technologies in this area. An alternative to such developments can be the Hyperloop vacuum train technology developed by the American entrepreneur Elon Musk - according to the project, the train moves with an air cushion inside a tube. In August 2013, Elon Musk presented the concept of the bullet transport of the future - the vacuum train and the Hyperloop highway. Inside the steel pipe, transport capsules will move on air cushions, each accommodating up to 28 people. The speed roughly corresponds to the speed of sound in the air - 1200 km/h. The pipe will be supported by columns, and electricity will be provided by solar panels installed across the entire area of the airway. Elon says it requires 21 megawatts to operate, and the panels can generate 57 megawatts on a sunny day. Thus, if capsules are sent from the station every half a minute, 7.4

million people a year can get from San Francisco to Los Angeles (600 km) in less than half an hour. According to Musk's calculations, the project will pay off in 20 years. Many countries are converting public transport to electric motors to reduce noise and smog in metropolitan areas. The Republic of Belarus is among them. Currently, Belarus is developing a comprehensive program to convert all public transport in large cities to electric one. We are talking about 100% replacement of trolleybuses and traditional buses with electric transport - electric buses. The transition is expected to be completed by 2025. Buses and trolleybuses will slowly make room due to the more active use of electric energy. It has been proven that such a transition not only reduces the environmental burden, but also increases the overall energy efficiency of the entire transport sector. Electric buses can be either static charging or dynamic charging. The latter are outwardly similar to trolleybuses and can operate from the city network, but in parallel with this, the battery is being charged, which allows it to work autonomously. Therefore, the route of such transport must necessarily include streets equipped with trolleybus lines. Computer-controlled cars and buses (unmanned public transport) will help reduce the number of accidents and solve the problem of congestion. In Europe, such vehicles are being developed and tested. The first foreign experience belongs to the Cognitive Technologies company. In February 2015, she, together with KamAZ, developed a project for an unmanned truck and tested it. The unmanned bus «Matrëshka» can carry passengers and goods and work as a municipal vehicle. «Matrëshka» powered by electricity, the battery lasts for 130 km. A full charge takes four hours. The technical speed of the bus exceeds 100 km/h, but the unmanned speed was limited to 20 km/h [2].

«Shuttle» (KamAZ). The maximum speed is 40 km/h. It can deliver passengers to predetermined stops that are loaded

into the electronic system. The passenger can control the door opening system, the system for selecting the stopping point for disembarkation, stop on demand, emergency stop, call for help, manual door opening. The body is made of composite, the frame is made using aluminum materials. The introduction of driverless cars requires new legislation as well as the creation of detailed road maps. It is better to put data on the restrictions in force on the road and nearby objects in the program in advance: this will save the drone from erroneous recognition of objects and, accordingly, from accidents. Based on the foregoing, it can be concluded that digitalization of various spheres of economic activity is becoming a priority issue for the successful development and functioning of an enterprise and the state in the international arena, because if the state is unable to carry out reforms and modernization of the economic sphere, then there is a high probability that it will not be able to withstand competition with other states that have successfully overcome the digitalization of the economic sphere, which in the future will lead to adverse economic consequences and, possibly, a protracted economic crisis [2].

The introduction and development of digital technologies in the transportation process in the future will have a positive effect on the quality of transport services, the convenience of providing transport services for passengers, as well as improving the services provided.

References:

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