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## **IS HYPERLOOP A REALISTIC OPTION OR FAR DISTANT CONCERN FOR UKRAINE**

Conventional means of transportation are going to be a thing of the past in the future. When the American inventor and businessman Elon Musk announced in 2013 that he would develop ultra-high-speed travel in the vacuum space, it sounded like science fiction and adventure. Hyperloop stands for an eco-friendly, efficient and safe way to get from A to B. The transportation system allows the passengers to travel at the speed of a plane. Moreover it will produce more energy than it consumes. Furthermore it ensures the integration of various external payment providers to offer a broad range of payment methods to future passengers.

"Building in full-scale means we're committed to innovation in the long-term," said Bibop Gresta, HyperloopTT Chairman. "We've pioneered the technology, proved feasible and insurable by the world's largest reinsurance company, Munich RE. We have agreements in place in nine countries where we're working on feasibility and regulations. We have a research center for freight and logistics in Brazil and a facility in Toulouse where we'll deliver the first full-scale passenger capsule. Hyperloop is no longer a concept, it has become a commercial industry."

It should be mentioned that Hyperloop Transportation Technologies (HyperloopTT) announced the arrival of the first set of tubes designed to move both people and freight to their research and development center in Toulouse, France. With an interior diameter of 4.0 meters, the system is optimized both for passenger capsules and shipping containers. The first phase includes a closed 320 meter system that will be operational this year. In addition, a second full-scale system of 1 km elevated by pylons at a height of 5.8 meters will be completed in 2019. Both systems are fully upgradeable and will be utilized by both HyperloopTT and partner companies. The full-scale passenger capsule, currently near completion at Carbuers in Spain, is scheduled for delivery to the facility this summer for assembly and integration. "Five years ago we set out to solve transportation's most pressing problems; efficiency, comfort and speed. Today we take an important step forward to begin to achieve that goal," said HyperloopTT CEO Dirk Ahlborn. Hyperloop is more than just displays of rapid acceleration and more than just breaking speed records. The real opportunity is to create an efficient and safe system with an unparalleled passenger experience.

In Ukraine, the innovative transport system Hyperloop has been discussed over the last several months. On February 22 this year, the Ministry of Infrastructure of Ukraine signed a Memorandum for launching of the advanced transport project HypeUA. They will begin "the development of the newest transport technologies in Ukraine, first of all, the high-speed transport system Hyperloop." As specialists underline there are three stages of its implementation. At the first one scientists and experts should give a scientific assessment, calculate all the risks and all the potential and technological points to be applied, as well as the impact on the environment. The second stage is testing. The third stage is attracting of the investors. According to different projects, Hyperloop offers tariffs from 10 to 203 dollars for the route (from 300 to 650 km). The economic feasibility of these tariffs has not yet been investigated, as experts say. We have every reason to believe that hi-tech and advanced technology is certainly a positive step for the state and a great opportunity for the development of transport infrastructure, but we come to the mind of problems connected with its introduction. First of all, we do not have specialists in application of this technology. To introduce the project it is necessary to cooperate closely with companies that have a profile expertise on the construction of Hyperloop. It requires cooperation of the interested parties: the investor, the contractor and the state. Secondly, this technology requires not only qualified staff, but also considerable resources. The problem of financing Hyperloop in Ukraine can be solved only

by investments. In order to attract investors, the government should persuade them in the fact that they will gain profit in the long term. Taking into consideration the fact that Ukraine has no cheap credit resources, the country's risks in this aspect are among high. To assure the payback of this project is unrealistic. The main problem is the low passenger flow and insolvency of the population. And it goes without saying if the project is inefficient, it is not implemented. This project may be recouped in the long run (in 30 years as specialists assure) in case if the fair of the ticket will be more than \$150. Therefore, the question here is probably not whether the Ukrainians will be able to afford such travel, but whether the investor is ready to have such payback.

To conclude, of course, HyperloopTT has many advantages bringing airplanes speed to ground level and reducing travel time from hours to minutes. But still the main obstacle to be overcome is investment.