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## THE BRAND NEW WORLD IN SCIENCE AND ENGINEERING – ELON MUSK

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**Purpose and objectives.** Who is worthy of the title "Genius inventor of the 21st century"? Since our childhood, reading encyclopaedias, we have learned the names of such great scientists of the ancient world as Archimedes or the story of Newton with a falling apple, as well as the battle of electric kings: Nikola Tesla and Thomas Edison. The main question is which of the scientists, engineers of our time, deserves worldwide recognition for centuries to come? The purpose of this theses is to present the achievements of one of the most ambitious scientists and engineers, who is worthy of mentioning even hundreds of years later – Elon Musk.

**Object and subject of research.** My research deals with life of one of the most extraordinary scientists of our day, innovations this person brings to our world and the importance of these innovations.

**Research methods.** Musk's autobiography and daily articles. Today, it is easy to monitor the activities of inventors and scientists. On the expanses of the world wide web you can find hundreds of scientific articles and experiment records. But the closest to the audience of scientific lovers is Elon Musk. He does not hesitate to express his slightest progress of a project or research in social networks as Twitter or Facebook. Also, in 2015, a biography about our inventor "Elon Musk: Tesla, SpaceX, and the Quest for a Fantastic Future" was written by Vance Ashlee. The book does not describe the personal life of Musk in the face of the billionaire and philanthropist, his autobiography tells how he achieved his goals and moved against the flow of his time.

**Scientific novelty and practical value of the results.** Why does Elon Musk deserve attention? Musk's discoveries and inventions have an undeniable significance not only for the scientific world, but also for the daily life of millions of people every day. He is the founder, CEO, and lead designer of SpaceX co-founder, CEO, and product architect of Tesla, Inc., co-founder and CEO of Neuralink, founder of The Boring Company, co-founder and co-chairman of OpenAI and co-founder of PayPal.

**Research results.** The big ups and downs in the life of the key personality of modern science. The first major step in the development of the digital industry was the co-founding of the largest debit electronic payment system PayPal. The love of programming and computers appeared since Elon's childhood. So, at the age of 10 Musk developed interest in computers. He created a game called blaster, at the age of 12 he sold this game to magazine for \$500. He studied physics and economics at the University of Pennsylvania, USA. With \$28,000 of his father's money, Musk and his brother Kimbal started zip2, which is web startup that provides city travel guides to newspapers. Later in 1999, they sold zip2 to Compaq computers for \$307 million, earning \$22 million. He invested more than half of his earnings to co-found X.com and online banking services. The company quickly merged with its rival and became PayPal, with Musk as the majority shareholder. Mask and the company set the course of development of non-cash payment for many years to come. It allows customers to pay bills and purchases, send and receive money transfers, you just need to have a network connection. All this was just a concept and an idea of Mask, but today it is difficult to imagine our life without such transactions. As of 2018, PayPal operates in 202 countries, although not all provide a full range of services, have more than 200 million registered users, work with 25 national currencies. Due to the limits imposed by the government of Ukraine, we cannot fully use the capabilities of this payment system. The inhabitants of our country can only use Send



only the system, which means you can enter the funds into the account, but cannot deduce or remove.

The next ambitious idea was an independent company producing space technology and launching rockets. Founded to reduce the cost of space flight, it opens the way to the colonization of Mars. The company, called SpaceX, developed the Falcon 1, Falcon 9 and Falcon Heavy launch vehicles from the very beginning, aiming to make them reusable. The Dragon spacecraft is designed to resupply the International Space Station. SpaceX achieved a successful landing and recovery of a first stage in December 2015. In March 2017, SpaceX relaunched the used rocket and brought it back by landing it in the ocean. All rockets are designed to burn up reentry; it can also successfully land back on earth and fly again. Musk believes fully and rapidly reusable rocket is needed to reduce the cost of space travel. And in time, Musk wants to build a city on the red planet. Here, Elon shows his knowledge and capabilities to the fullest, because he acts as the chief engineer and it is absolutely impossible to make mistakes. But Musk did not think to dwell only on space exploration. Named in honour of the king of electricity, the newly created company Tesla has decided to realize the dream of many fighters for environmental cleanliness and the ideas of utopian novels – the production of vehicle that consumes only electric energy. The idea of electric cars did not catch on immediately, it took years to bring the functionality and capabilities of Tesla cars to the ideal. At the moment, the battery charging stations are not a problem. As of 2015, the main transport corridors are covered in the USA, it is possible to get from one coast to another, while charging for free only at Tesla fast charging stations. At the same time, the “Supercharging” network is actively developing in Europe and Asia: for example, by the end of 2015, full coverage of western Europe and Japan was expected, as well as the east coast of China and Australia. After 10 years in the market, Tesla ranked as the world's best-selling plug-in passenger car manufacturer in 2018, both as a brand and by automotive group, with 245,240 units delivered and a market share of 12% of the plug-in segment sales. Tesla vehicle sales in the U.S. increased by 280% from 48,000 in 2017 to 182,400 in 2018, and globally were up by 138% from 2017.

**Conclusion.** Considering all the above, people like Elon Musk deserve recognition and popularization, as they embody their ambitions and ideas into reality and set the course for the development of science and technology for many years. Without the idea and decisive action there would be no progress, and many ordinary things that we use day by day would have remained on the pages of science fiction novels.

**Key words:** Elon Musk, inventor and scientist, SpaceX, PayPal, Tesla car.

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