MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY STATE UNIVERSITY
Academic and Research Institute of Business, Economics and Management
Department of International Economic Relations

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QUALIFICATION PAPER

on the topic " THE IMPACT OF MARKETING INNOVATIONS ON INTERNATIONAL BUSINESS "

Specialty 292 "International Economic Relations"

Student 4th course Burnakova Valeriia

group ME-71an

It is submitted for the Bachelor's degree requirements fulfillment.

Qualifying Bachelor's paper contains the results of own research. The use of the ideas, results and texts of other authors has a link to the corresponding source.

Burnakova Valeriia Yuriivna

Research advisor PhD, Associate Professor
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Sumy, 2021

ABSTRACT

on bachelor's degree qualification paper on the topic

«THE IMPACT OF MARKETING INNOVATIONS ON INTERNATIONAL BUSINESS»

student Burnakova Valeriia Yuriivna

The main content of the bachelor's degree qualification paper is presented on 38 pages, including references consisted of 45 used sources, which is placed on 5 pages. The paper contains 2 tables, 5 pictures as well as 1 annex.

Keywords: MARKETING OF INNOVATIONS, INNOVATION, CLASSIFICATION OF INNOVATION, INNOVATION LIFE-CYCLE, BUSINESS, AUTOMOTIVE INDUSTRY, ELECTRIC VEHICLES, MARKET CAPITALISATION, REVENUE.

The purpose of the work is to analyze the impact of innovation on revenue as well as on stock prices of companies that produce electric vehicles in the European, American and Chinese markets.

The object of the research is implementation of innovations in the international business.

The subject of the research is the impact of marketing of innovations on international companies in the automotive industry.

Methods that were used in the study of this work: descriptive method was used for the collection procedure, primary analysis and stating of general information about innovation, its classification, as well as the concept of marketing innovation; synthesis - to create and describe the innovation life cycle; comparative method - with the purpose to weigh up the financial performance of the companies that were selected for analysis; analysis – to investigate the electric car market.

The information base of this work is – materials from the Internet resources, results of analyses of World Health Organization (WHO), publications of Ukrainian and foreign

authors, financial reports of international companies, materials from the scientific journal “Marketing and Management of Innovations”, statistical databases MarketBeat, NASDAQ (National Association of Securities Dealers Automated Quotation) and Statista.

The main scientific results are:

1. The analysis of automotive industry and the market of electric vehicles.

2. An analysis of the leading companies in the electric vehicle market was carried out in order to show the impact of innovation on business.

3. From the perspectives of international business, the influence of the introduction of innovation on the financial performance of the company's data was proved, namely, there is a general trend of increasing companies' revenue as well as the number of investment inflows.

The research results can be used to improve the competitiveness of companies and develop their innovation strategies in the global market.

Results of approbation of the basic provisions of the qualification Bachelor work was considered at:

1) develop scientific-research topic № 0118U003571 "Innovation management of energy efficient and resource saving technologies in Ukraine".
2) Ukrainian scientific-practical on-line conference, Sumy, November 19-20, 2020.
3) International Scientific and Practical Conference, Sumy, November 3–4, 2020.
4) International scientific-practical conference of students and young scientists named after Professor Balatsky "Economic problems of sustainable development" Sumy, April 28-29, 2020.
5) the 25th International Scientific and Practical Conference Sumy, September 15-20, 2019.
6) The first step in science: the IX Student Conference, Sumy, February 25, 2018.

The year of qualifying paper fulfillment is 2021.

The year of paper defense is 2021.

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(signature) (full name)
«__» _____20__ .

TASKS FOR BACHELOR'S DEGREE QUALIFICATION PAPER

(specialty 292 " International Economic Relations ")
4th year course, group ME-71an

Burnakova Valeriia Yuriivna

1. The theme of the paper is «The impact of marketing innovations on international business» approved by the order of the university from « 19 »_ 04__ 2021 № 0193 VI.
2. The term of completed paper submission by the student is 14.06. 2021
3. The purpose of the qualification paper is to analyze the impact of innovation on revenue as well as on stock prices of companies that produce electric vehicles in the European, American and Chinese markets.
4. The object of the research is implementation of innovations in the international business.
5. The subject of research is the impact of marketing of innovations on international companies in the automotive industry.
6. The qualification paper is carried out on materials from the Internet resources, publications of Ukrainian and foreign authors, financial reports of international companies, materials from the scientific journal “Marketing and Management of Innovations”, statistical databases.

7. Approximate qualifying bachelor's paper plan, terms for submitting chapters to the research advisor and the content of tasks for the accomplished purpose is as follows:

Chapter 1 Theoretical approach of marketing of innovations, deadline – 05.05.2021

Chapter 1 deals with researching the next tasks:

- to consider the marketing of innovation and its characteristics and main tasks;
- to systematize the classification of innovations as well as its current trends;
- to define the life cycle of innovation and its main features.

Chapter 2 Analysis of automotive industry in the context of innovation, deadline – 01.06.2021

Chapter 2 deals with researching the next tasks:

- to analyze the automotive industry and innovations that are implemented on such market;
- to outline the impact of innovation on the financial performance of international electric car manufacturers;
- to suggest ways of improvement the competitive position of international companies using marketing of innovation.

8. Supervision on work:

Chapter	Full name and position of the advisor	Date, signature	
		task issued by	task accepted by
1	PhD, Associate Professor Domashenko M.D.		
2	PhD, Associate Professor Domashenko M.D.		

9. Date of issue of the task: « ___ » _____20 _

Research Advisor: _____ Domashenko M.D.

(signature)

The tasks has been received: _____ Burnakova V.Yu.

(signature)

CONTENT

LIST OF ABBREVIATION AND SYMBOLS

EVs	electric vehicles
ICE	internal combustion engine
IEA	International Energy Agency
LFP	Lithium Iron Phosphate, a type of battery
NASDAQ	National Association of Securities Dealers Automated Quotation
NCM	Nickel Cobalt Manganese, a type of battery
PHEVs	plug in electric vehicles
R&D	Research and Development
US/USA	United States of America
WHO	World Health Organization

INTRODUCTION

The persistent transformation and modification that are carried out in the external environment of enterprises have become a principal attribute of the life-cycle of each organization.

The future of the company, its survival and success as well as systematic development depend on how business reacts to constant market changes, how productive is the search of personnel for new innovative ways and methods of attracting and retaining customers. From the perspectives of market conditions, implementing innovation on a regular basis is the only avenue to hold and maintain high rates of development of every organization and every business.

The precondition for the emergence of the concept of "marketing of innovations" is the growing role of innovations in socio-economic development.

A number of scientific works by Ukrainian and foreign authors as Illiashenko S., Hryzovska L., Romanova A., Lutsykiv I., Furcina O., Skoryk O., Liefer R., Kahn K., Nonaka I., Hirotaka T., and others are devoted to the problems of marketing of innovation. Most of them disclose certain applied aspects of marketing of innovations, in particular, approaches to the analysis of consumers in new types of products, marketing substantiation of the feasibility of their development, promoting innovations to the market, forming a market for certain types of innovations, for example, environmental ones, etc.

To illustrate the impact of innovation on business, the automotive industry was chosen, or rather, the production of electric vehicles. The electrical machinery industry is a fairly new industry, which is becoming extremely popular with the development of technology and the trend towards a sustainable future.

The relevance of selected topic is that in order for the company to develop, to enhance its competitiveness and to have the opportunity to take leadership positions, it is necessary to adhere to two areas of activity - to develop and introduce innovations and implement marketing complex of activities that are aimed at commercializing innovation.

Strategic opportunities for companies ,that follow innovative technologies and are market-oriented, are connected to the founding of new and expansion of existing markets, penetration into new regional and transnational markets, and business rebranding. For these purposes, new ideas and solutions as well as marketing of innovations are required especially in such industry as automotive industry, where the technologies and new trends are developing so rapidly.

The object of the research is implementation of innovations in the international business.

The subject of the research is the impact of marketing of innovations on international companies in the automotive industry.

The aim of the work is to analyze the impact of innovation on revenue as well as on stock prices of companies that produce electric vehicles in the European, American and Chinese markets.

Tasks that are set to achieve the purpose of the work:

- to consider the marketing of innovation and its characteristics and main tasks;
- to systematize the classification of innovations as well as its current trends;
- to define the life cycle of innovation and its main features;
- to analyze the automotive industry and innovations that are implemented on such market;
- to outline the impact of innovation on the financial performance of international electric car manufacturers;
- to suggest ways of improvement the competitive position of international companies using marketing of innovation.

The information base of this work is – materials from the Internet resources, results of analyses of World Health Organization (WHO), publications of Ukrainian and foreign authors, financial reports of international companies, materials from the scientific journal “Marketing and Management of Innovations”, statistical databases MarketBeat, NASDAQ (National Association of Securities Dealers Automated Quotation) and Statista.

Methods that were used in the study of this work: descriptive method was used for the collection procedure, primary analysis and stating of general information about innovation, its classification, as well as the concept of marketing innovation; synthesis - to create and describe the innovation life cycle; comparative method - with the purpose to weigh up the financial performance of the companies that were selected for analysis; analysis – to investigate the electric car market.

The elements of scientific novelty are the analysis of the electric car market from the perspectives of innovation and their impact on the profit and capitalization of companies.

Results of approbation of the basic provisions of the qualification Bachelor work was considered at:

1) develop scientific-research topic № 0118U003571 "Innovation management of energy efficient and resource saving technologies in Ukraine";
2) Ukrainian scientific-practical on-line conference, Sumy, November 19-20, 2020;
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5) the 25th International Scientific and Practical Conference Sumy, September 15-20, 2019;
6) The first step in science: the IX Student Conference, Sumy, February 25, 2018.

1. THEORETICAL APPROACH OF MARKETING OF INNOVATION

1.1. Marketing of innovations: its essence and main tasks

Marketing of innovations is an activity aimed at finding new areas and ways to use the potential of an enterprise, developing new technological products on this basis and promoting them to the market in order to satisfy the needs and wants of consumers in a more efficient way than competitors, and as a result, to obtain more profit and ensuring conditions for long-term survival and development in the market. [1]

Marketing of innovations can be analyzed from the following perspectives [1]:

- as an analytical process, that assumes determining market opportunities for innovative development;
- as a tool of functional impact on consumers and the target market in general related to the introduction and promotion of innovation to the market;
- as a function of management of innovation aimed to identify possible areas of implementing innovation, their realization and commercialization. At the same time, it is practicable to consider innovation management as a function of marketing of innovation directed to establish the achievements of science and technology into new products that can satisfy the consumers' needs and demands and provide a profit for the producer (seller);
- as a method of direction towards innovative development of individual business entities along with national economy as a whole;
- as a concept of the market activity of the business, when changes are seen as

Marketing of innovation is the key to success of enterprises-innovators, due to the fact that it enables identifying and controlling the factors which determine the conditions for long-term survival and development (based on innovations) in the market.

From the practical view (from the position of specific innovator-manufacturer) marketing of innovation is related to targeting of production and distribution of innovative commodities with the objective of fulfilling consumers' wishes and desires, developing and fostering demand. From the Research and Development (R&D) perspectives – it is

associated with implementation of achievements of science and technology into innovative outputs, which is capable to meet consumers' wants and needs and generates profit both for its founder and producer [2].

Main tasks of marketing of innovation are the following [1]:

- to analyse market positions and establishment of potential directions of enterprise development and growth, from the point of view of external economic conditions (market opportunities and threats) and its existing capacity. Which means to explore opportunities in order to match the internal capabilities of innovative development of the enterprise to the external ones, generated by the market;
- to develop basis of these ideas and designs new products that will be in demand among consumers and will be effective in production, distribution and consumption;
- to estimate market perspectives for new types of goods and services (to evaluate the sufficiency of market potential as the ability of the market to embrace certain innovations, existence of demand or capability to create it)
- to elaborate measures and instruments to create and stimulate consumer demand for new products (promotion of innovations to the market). To manage demand at different stages of the product innovation life cycle;
- to manage product innovation lifecycle.

Marketing of innovations stimulates the arrangement a set of measures aimed at identifying and analyzing the factors influencing the processes of promotion of goods from producer to consumer in terms of innovation of the enterprise. It is a relatively new concept that has emerged in relation to the rapid development of high technology.

Improved products must be freely introduced and implemented to the market, that is why two objects were united: marketing and innovation and as a result the mechanism of intrusion of new innovative product into the market became well-established and coherent.

Tools that are used for the dynamic impact of marketing of innovations in the global market: efforts of incentive complex, establishment of an acceptable price and sales policy in the market [3].

1.2. Innovation activity, the classification of innovations

Innovation activity is an integral term that includes scientific and marketing researches (along with business analysis, namely, generation and validation of innovative projects); elaboration and production of innovations; laboratory and market testing; promoting of innovations on the market [2].

Many scientists represent different ideas of classifying innovation and emphasize a great variety of characteristics and criteria of innovation classification. Some scientists identify up to 25 classification features. Table 1.1 shows the types of innovation that are directly related to marketing activities based on scientific works [2 ; 4] The classification of innovations is necessary in order to determine the place of each innovation in the innovative activity of the company, evaluating its features from the perspectives of manufacturing, marketing and consumption. Classifying innovation is essential for effective innovation management.

Table 1.1. Classification of innovation [2 ; 4]

Classification features	Types of innovations
Due to the novelty degree	- Radical, based on scientific discoveries; - incremental or modified based on existing product or technology improvement; - ordinary (or combined), based on inventions.
Due to the novelty scape	- New for the enterprise; - new for the industry; - new for the country; - world novelty.
Due to the subject the innovation is oriented on	- Producer-oriented; - consumer-oriented; - on the public and governmental institutions.
Due to the degree of material tangibility	- As an outcome (new or modified products); - as a process (new or modified technologies).

Source: constructed by author based on [2 ; 4]

The most practical relevance from the context of developing a strategic innovation model is the classification of innovations by the level of novelty, that is, by the depth of changes that are carried out.

There are a lot of scientists who distinguish innovations due to the novelty degree [5 ; 6], indicating the importance of such criteria. In the scientific work [2] the author highlight that the essence of radical innovation accumulates in the creation of a fundamentally new product or technology that leads to the creation of new industries of production and consumption, new markets, etc. According to [7, P. 2] “Radical innovation transforms the relationship between customers and suppliers, restructures marketplace economics, displaces current products, and often creates entirely new product categories.” The main idea of incremental (or modified) innovation is to improve gradually and efficiently traditional products or technologies along with management methods. Incremental innovation is based on the development of already existing goods and services, thus is contingent on “exploitation competencies”, while radical innovations express necessity of “exploration competencies”[7; P. 5]

Based on [8] the definition of innovation is " (1) a new idea, method, or device or (2) the introduction of something new".

According to this, in the first case, innovations are considered as a process, in the second as an outcome. In scientific work [9] the author proposes to combine these 2 concepts, and evaluate innovation as a combination of these two definitions.

On the condition when the company focuses on only one concept of innovation, the result will turn out to be a failure. Those companies that focus entirely on the production of outcomes will constantly reduce investments in the process activities, which in contrast will lead to low efficiency. When it comes to organizations that are process focused, an organizational bureaucracy can occur that can undermine the accomplishment of results.

However, these two types of innovation cannot exist without each other. Without the use of process (especially technological) innovations, innovative products cannot be manufactured, and the innovative product itself should be considered a consequence of the introduction of technological innovations. The introduction of such process

innovations, which improve the management system of an industrial enterprise and have a beneficial effect on the level of validity of management decisions, allows enterprises to control the process of formation of costs for the production of new products and optimize these costs. In addition, such process innovations provide flexibility of the enterprise management system, have a positive effect on increasing its adaptability to frequent changes in certain environmental factors, which is extremely important in an unstable environment and contributes to the competitiveness of the enterprise [10].

Innovation as an outcome means to focalize business activities on the creation of a new product or service and its introduction into the market. There are several directions of achievement results from the perspectives of outcome innovation [9]:

- product innovation (includes introduction new products and services by reducing costs, enhancing goods or services, opening new markets, by entering a new product category or by developing comprehensively new commodity);
- process innovation (includes changes in the approach with the aim to achieve fast processing, cost reduction, etc.);
- marketing innovation (includes attracting more customers using innovative ways of promotion);
- business model innovation (includes implementing measures that lead to changes of particular industry);
- organizational innovation (includes accomplishment of organizational transformation or modification by conducting new types of management or working atmosphere);
- supply chain innovation (includes improvements of existing supply chain with the purpose of attracting new stakeholders).

Innovation as a process can be distinguished as implementing new technologies of product creation, management processes and production organization, which give an advantage in ensuring product quality, reducing costs and increasing productivity.

Therefore, process innovations are important not only for the modernization of the production process of the enterprise, but also for other areas of its activities, they are initiated by the management of the enterprise taking into account the internal

requirements for building the potential of the enterprise. In turn, product innovations are more market-oriented and are initiated mostly by external conditions, namely consumer expectations. However, process innovations must take into account external factors, in particular the change of technological model, ie such basic technological changes that are characteristic in certain periods for the development of the industry and which more productive activity of the enterprise depend on [10].

Ordinary (or combined) innovation can be described as the introduction of inventions or new solutions that significantly change traditional areas of activity, it means the introduction of new technologies to improve existing goods and services

1.3. Innovation life cycle

Innovation is a standard way for a company to adapt to changes in market conditions. As a consequence of implementing innovations, the internal development opportunities of the enterprise are stimulated by the external ones that the market generates. At the same time, there are conditions for a long-term existence and development of the company.

According to the concept of innovative development [11], in order to obtain long-term competitive advantages and retain them, it is necessary to carry out innovative activities on a permanent basis, not episodically, which requires its planning. In order to generate production capacity and to make a profit, an enterprise must have in its product mix goods and services that are at different stages of the life cycle. At the same time, it is essential to launch the promotion of substitutes on the market at the stage of growth of the life cycle of a specific product.

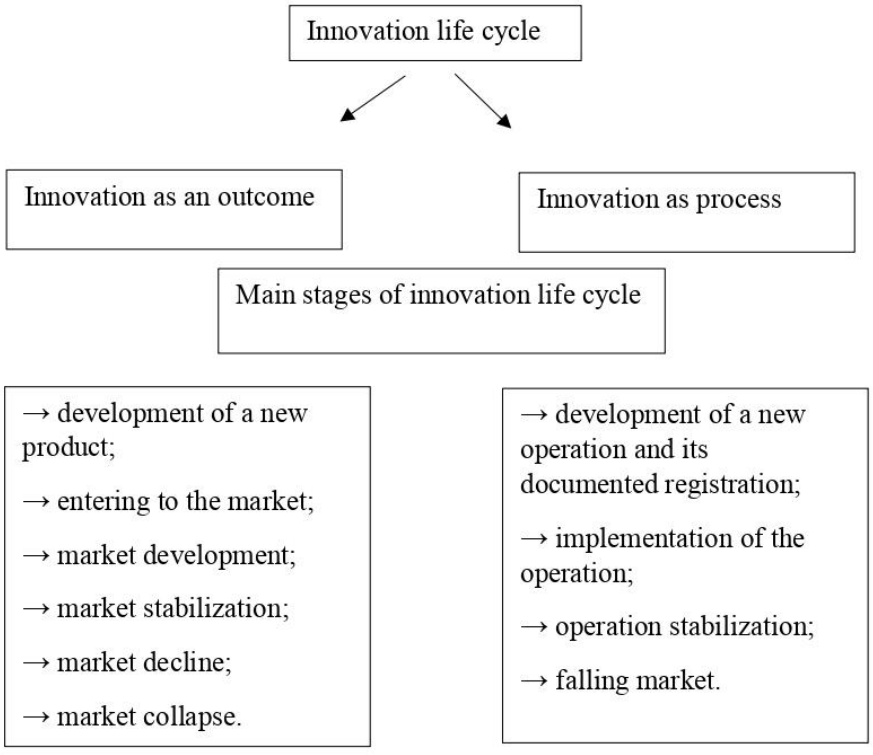
It is crucial to comprehend innovation should not be constrained only as replacing out-of-date product modifications with newer ones or replacing one generation of a product with another. The market is changing dynamically and therefore the opportunities

and threats are changing, which may require a modification of the product range as well as changes even in the types of activities [10].

Picture 1.1 represents the life-cycle of innovation. The life cycle of a product innovation is the period of existence of a new good or service from its primary form (the establishing of an idea) to the complete refusal of the market from this particular good or service. The lifecycle stages of a product innovation fully represent the typical market response to a new product, while the duration of each stage depends on the product itself and on the related market response [12].

The life cycle of a process innovation can be described as operations (procedures), the operation of which is carried out in the form of a complete document, which describes the entire procedure of performing this operation - a technological process, a technological map, a provision on the creation of a new department, a job description for a new position, etc. Additionally operations can be implemented in two directions [12]:

- for internal use within the enterprise developer of this operation;
- for external use on the market, by selling an operation to other business entities.



Picture 1.1 The scheme of developing of innovation life cycle [12]

Consequently, the purpose of implementing an operation within the enterprise is to obtain economic benefits in the form of reducing the time for carrying out the entire complex of tasks, saving money, etc., the purpose of selling an operation on the market is only to make a profit.

At the stage of establishing a new operation and its documentary registration, work is carried out to initiate and elaborate the entire algorithm for accomplish the operation, along with technological schemes advancement of the operation. The stage of implementation of an operation is associated with its realization into the enterprise, if the operation is expected for internal use, or with its introducing in the market, if the operation is intended for external sale. Furthermore, at this stage the marketing promotion of the innovation is carried out in the case of a commercial purpose of the development of an operation. The stage of market stabilization identifies the level of saturation of the market for a given operation, at the end of which the shift to the stage of market decline takes place, when the volume of sales of the operation begins to decrease significantly until the sale stops completely [11].

The role of the concept of marketing of innovation in the life-cycle of innovations is crucial, especially on stage of R&D. Marketing of innovations from the perspective of enterprise's activity can be described as an organizational and managerial strategy of discovering new means and sources of controlling and fulfillment the economic and social involvement of the subjects of the innovation process based on the creation and implementation of a constructive financial management system, taking into account the features of the internal and external market environment [12].

Innovation marketing is not only a mechanism of elevating the development and implementation of innovative products, but also a connection that ensures the coherence of the elements of the innovation process. In addition, due to its implementation, preconditions are created for the further phase of the innovation process. Marketing of innovation can be represented as a catalyst through which the full innovation cycle is carried out, and innovation turns into a real product or process that meet the needs of consumers and helps the enterprise to take an innovative track of development [13].

1.4 Eco-innovations and its impact on business

Eco-innovation is a fairly new and extremely prospective area of economic development. However, the problem of environmental tension was seriously put forward by the world scientific community only in the last century, and it was then that the first studies in this direction appeared. Currently, many countries are engaged in this area that have already switched to an economy based on eco-innovation or is on the way to it.

Eco-innovation is any innovation that is capable of reducing the impact on the environment; it is the development of new products, processes and systems with the least use of natural resources and minimum emissions of toxic substances [12]. Today, there are main industries that belong to the clean technology sector and actively use eco-innovation:

- green building;
- alternative transport and logistics;
- renewable energy, energy efficient solutions and smart grids;
- water and waste management.

Prominent examples of eco-innovation are the following:

- innovations in the field of reducing the consumption of natural resources;
- use of "smart" resource-saving technologies that lead to high economic efficiency;
- ecological urban planning, technologies minimize the emission of pollutants on a city scale;
- alternative energy sources, characterized by their efficiency, minimal maintenance and optimal price;
- transformation of one product into another (for example, transformation of used plastic into a new building material, which differs in its strength)

It is crucial to comprehand that the effect of investments in the eco-direction will be long-term, because the situation with the progressive shortage of hydrocarbons and the active development of alternative energy give every reason to rethink the dependence of

the economy on carbon fuel. The difficulty of implementing innovations is that the main investments in green technologies are made through subsidies from the state, which are then picked up at the level of business and entrepreneurship. However, business assistance depends on market demand, which is certainly growing now. Green technologies are profitable, demand in the green sector is constantly growing, not only because green technologies reduce the pressure on the environment and the risk of global warming, but also due to manufacturers, more and more efficiently and responsibly create their products [13].

It is also worth noting the high level of social responsibility of companies involved in the development of eco-technologies, which allows to increase competitiveness and leadership, which, of course, is reflected in the financial results.

With the growth of global environmental problems, the interest in environmental innovations that can be implemented in enterprises is growing. Such innovations can not only ensure social and environmental responsibility in the business sphere, but also provide competitive advantages to enterprises. Consumer culture and the principles of sustainable development form new approaches to the functioning of the industrial sector of the economy, adjusting technologies and their technical support, developing a conscious strategic vision of top management in sustainable development. This accelerates the trend of environmental awareness among both consumers and producers. It is the introduction of ecological innovations (eco-innovations) that becomes the key to sustainable development of enterprises, combining the needs of industry [14].

2. ANALYSIS OF AUTOMOTIVE INDUSTRY IN THE CONTEXT OF INNOVATION

2.1 Trends and perspectives of electrified vehicles industry

According to research center [18] transport vehicles emit about 20% of worldwide carbon dioxide (CO2) emissions, and it contributes to global warming, natural disasters as well as to resource depletion. Based on analysis carried out by WHO [19], automotive industry are responsible for a 20% increase in the amount of greenhouse gas emissions and also affect the health of people, animals and nature in general. As WHO states, there is a huge connection between transport and health. Therefore, the need to find alternative means of transportation is now the main goal. That is why, electric vehicles nowadays is key innovation in the sphere of green transportation. In the scientific work [20] the author analyzed the reasonability of estimation electric vehicles as a green transport. Electric vehicles are regarded to be a reasonably viable alternative to internal combustion engine (ICE) cars in the direction of a much cleaner transport sector. In perspectives if crowded urban areas, electric vehicles help to tackle local pollution due to the fact that it doesn't produce any tailpipe emissions [21].

An electric car is a vehicle that is driven by an electric engine and is designed with the purpose of transporting people, goods, tow trailers and other vehicles and accomplishment various types of work and services. Nowadays, electric vehicles still do not have the ability to create serious competition for gasoline and diesel cars due to the fact that they have a high cost, short mileage, and the absence of modern high-speed electric filling stations. Due to innovative technologies, these shortcomings are constantly being eliminated. The biggest step forward in innovation has been taken by hybrid vehicles. Hybrid technology in cars combines an ICE and an electric motor with energy storage. Both engines can operate independently of each other or in tandem. The world leaders in the creation and implementation of electric vehicles are Japan, Great Britain, the USA, China and South Korea [22].

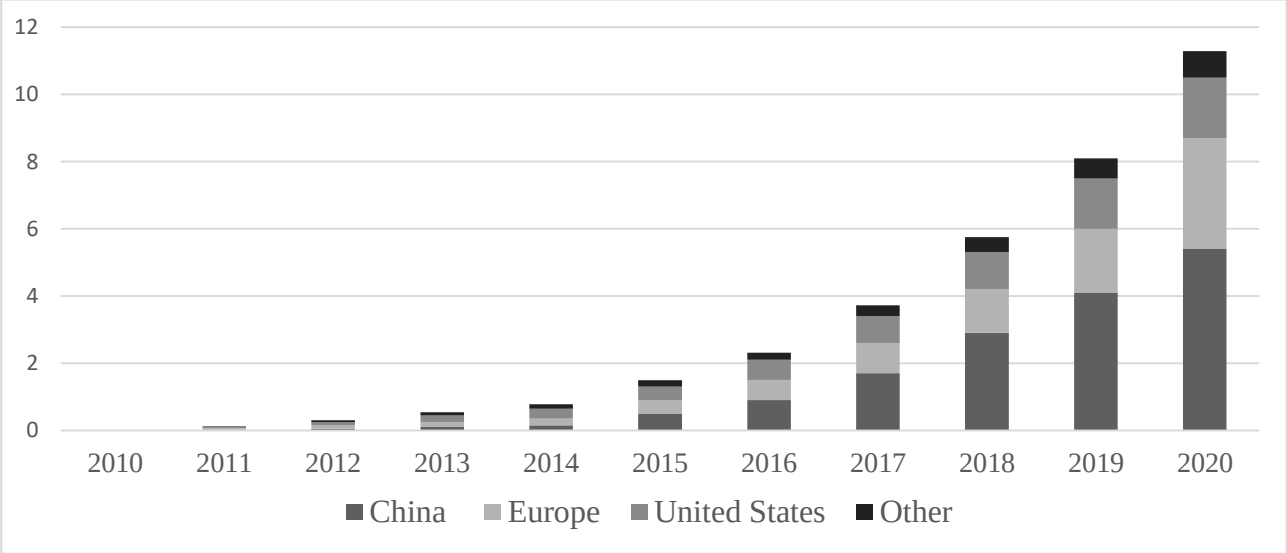
The concept of "electric vehicles" is quite broad and most often includes two types: (1) Plug-in Hybrid Electric Vehicles (“PHEVs”) - hybrid vehicles equipped with an internal combustion engine and an electric motor and (2) Battery Electric Vehicles (“BEVs” or just “EVs”) - cars that run completely on battery.

Based on the research [23] the amount of global sales of electric vehicles grow rapidly up to 40% in 2020, even supposing the economic crisis caused by the COVID-19 pandemic.

International Energy Agency (IEA) reports that the amount of new electric vehicles reaches the mark 3 million in 2020, namely a sharp increase by 41% in comparison to 2019.

As reported by IEA, the rise in sales of electric vehicles is still proceeding. The total volume of sales of electric cars in the first quarter of 2021 were two and a half times higher than in the same period a year earlier. In the first quater of the year, global electric vehicle sales grew up to 140% which resulted in 1,100,000 vehicles, with dramatic growth performed in China, Europe and the United States [24].

It is estimated that the global consumers’ expenditure on electric vehicles in 2020 was about $ 120 billion (see Picture 2.1) [24].



Picture 2.1 Global dynamic of electric and hybrid electric vehicles by region 2010-2020 (constructed by author based on [24])

Picture 2.1 shows the dynamics of the electric vehicle fleet in the period from 2010 to 2020. Statistics show that over the past 10 years the number of electric vehicles is growing rapidly, which means that consumers are more than interested in this market. China is the world leader in the production of electric cars, the number of electric cars in China in 2016 was only 0.9 million cars, while in 2020 this figure is 5.4 million, that is, in 5 years the number has increased 5 times, according to IEA [24] .

In 2020, the number of electric cars has increased sharply, which is 3.3 million, while in 2019 - 1.9 million. The United States is also the leader in the number of electric vehicles, with 1.9 million vehicles in 2020. In the period 2010-2020, the United States shows an increase in the number of electric cars, constant but not as intense as in China or Europe. In 2020, the total number of electric cars sold in Europe and China is estimated as 1.3 million vehicles, which is 4 times more than the volume of sales in the United States.

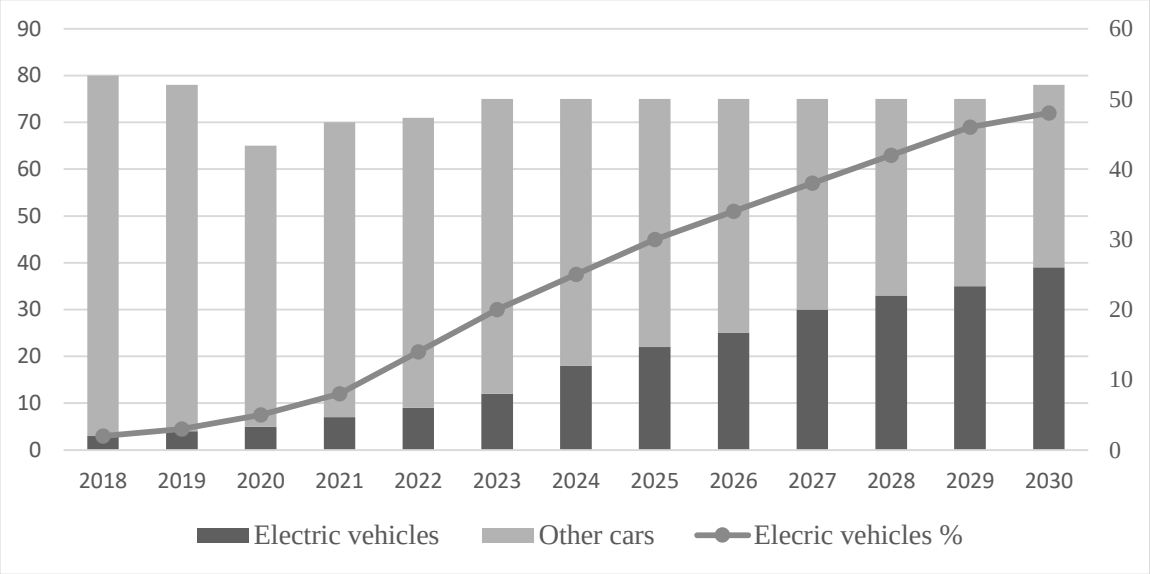
Despite the fact that the company Tesla Inc. [25] is located in the United States, which is a leader in the production of electric vehicles, the percentage of sales of electric vehicles in the United States is only 2.4% of the total number of vehicles sold [26].

As stated in a new research carried out by Canalys [26] Electric vehicle sales are expected to grow and in 2030 the number of electric vehicles sold will account for 48% of all new vehicles. The growth of this indicator depends on how many electric vehicles will be produced on the market and additionally on how the governments will support and stimulate the production and sale of electric vehicles. Improving battery charging range through improved performance and infrastructure is a key factor influencing consumers. Picture 2.2 shows a high demand for electric vehicles in 2020, which will continue to progress during next period. About 5% of all vehicles are electric cars in 2020. It is assumed that in 2021 there will be further growth of electric cars sells of about 66% and will exceed 5 million units sold and will account for 7% of new car sales worldwide.

Nowadays, the global electric and hybrid electric vehicle market is a new trend, extremely popular innovation and is growing at a rapid progress. Factors that affect the development of this market:

- a technology improvement;

- an infrastructure development and an increase in the mileage with one charge ;
- following the principles of sustainable development, namely the issue of preserving the environment
- a production of cheaper, and therefore affordable, models of electric cars;
- the additional incentive and control from the governments



Picture 2.2. New car sells forecast worldwide, millions (constructed by author based on [26])

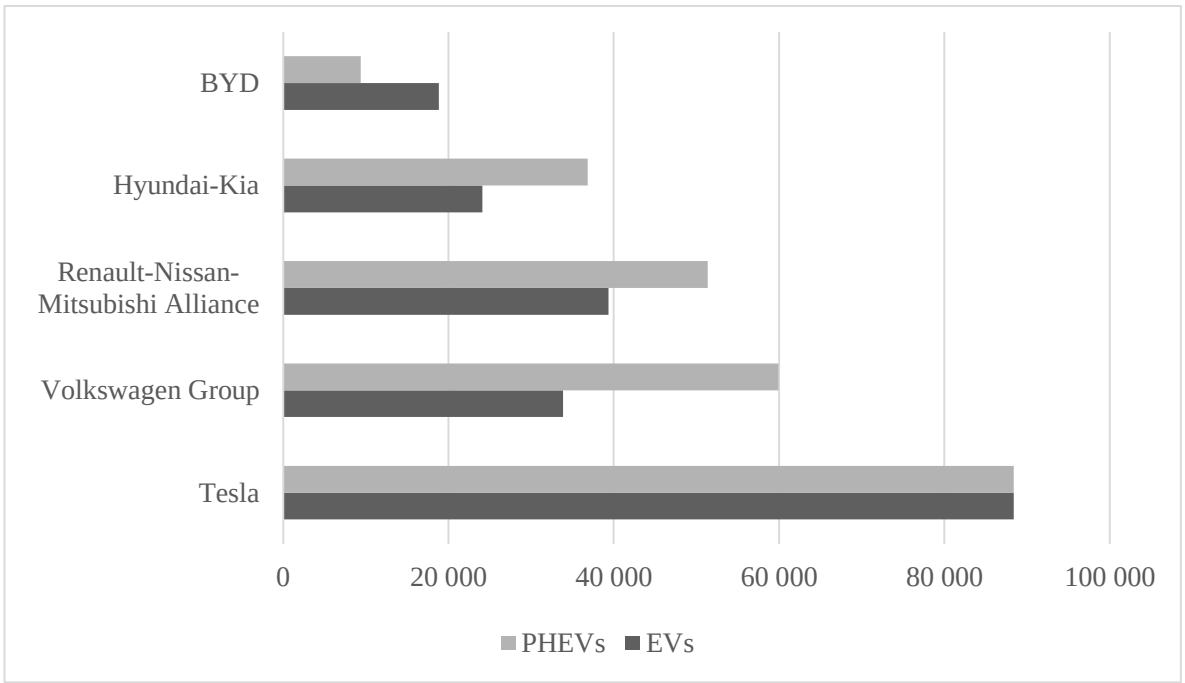
The issue of banning ICE vehicles has been raised for the past few years. Norway is an example of how the state can influence the distribution of electric cars, as the country actively finances subsidies for buyers of electric vehicles from the budget and also introduced a ban on the sale of diesel and gasoline cars from 2025. Countries such as France, Germany, the Netherlands, India and China have announced that they also intend introduce such a ban until 2040 [22].

Legislative initiatives regarding air pollution have become more intense in many countries, they will be calculated based on the average level of emissions into the atmosphere of all cars of each individual concern. Therefore, the production of vehicles with zero emissions will allow automakers to accomplish their task with less inconvenience.

2.2 World leading producers of electric vehicles

In order to assess the global electric car market, an analysis of 3 leading companies based on the number of sales, was carried out, namely Tesla Ins, Volkswagen Group and BYD, which are representatives of the US, European and Chinese markets correspondently.

The world leader in the production of electric vehicles is Tesla, a representative of the US market. Figure 2.3 shows the leading companies that produce EVs and PHEVs based on the quantity of sales in the first quarter of 2021. Tesla ranks first and owns 19% of the global electric car market (both fully electric and hybrid vehicles), while the Volkswagen Group, a German car manufacturer, owns 13 %, Renault-Nissan-Mitsubishi Alliance, a French-Japanese partnership based in the Netherlands, together possess 11 percent; Hyundai Motors and Kia Motors, representatives of the Korean market, jointly own 8 %, and the Chinese company BYD owns about 5% of the market [27].



Picture 2.3 Companies-leaders of production and selling electrified vehicles on 1 quarter 2021, amount of sales (constructed by author based on [27 ; 28])

Table 2.1 shows the revenue generated from sales of leading producers of electrified vehicles. The sales revenue metrics were taken rather than profits to show the size of the market. The data was taken over the past 10 years to better assess the situation and in order to show the dynamics, as electric vehicles became popular not so long ago. Companies that were used for that analysis are the leaders of US, Eurpean and Chinese markets.

Table 2.1 Revenue of the electric vehicles producers 2011-2020, billion USD [29; 30 ; 31]

Company/ year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Tesla Inc.	0,20	0,41	2,01	3,20	4,05	7,00	11,76	21,42	24,58	31,54
Volkswagen Group	207,14	250,48	256,11	263,20	277,28	282,45	298,42	306,61	328,42	289,74
BYD	7,82	7,52	8,46	7,20	10,09	15,21	15,72	19,56	18,49	22,70

Source: constructed by author based on [29 ; 30 ; 31]

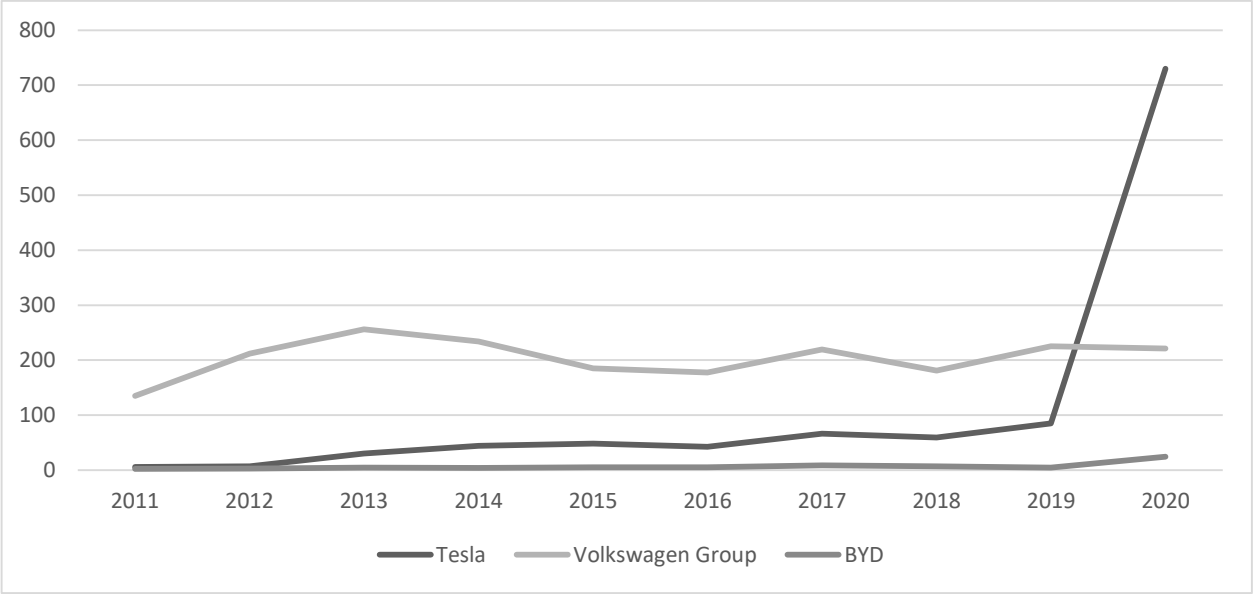
Tesla is an American company, based in Palo Alto, USA, that manufactures electric vehicles and electric energy storage solutions, using its SolarCity subsidiary. The range of products that Tesla offers on the market contains: electric vehicles, home-to-grid storage batteries, solar panels and solar tiles, and other relevant products and services [32].

In 2019, Tesla became the world's best-selling PHEVs and EVs manufacturer, with its share of 17% in the plug-in segment and 23% in the electric battery segment [33].

In November 2020, Tesla, Uber and 26 other US companies formed the Zero Emission Transport Association (ZETA) [34], which aims to regulate the process of expanding the number of electric vehicles in the US.

Tesla is a world leader for a number of reasons, the main of which is that the company is a world visionary and a major market revolutionary and innovator. The company's revenue over the past 7 years has increased 10 times and now amounts to $ 31.54 billion [29]. Compared to 2019, the company's revenue growth is estimated as 128% (see Table 2.1). Based on statistical service NASDAQ, Tesla also has impressive results in the investment market, as the company's shares at the end of 2019 began to

grow rapidly and at the end of 2020 already amounted to 729.8 USD [35], prices increased 9 times over the year and continue to grow rapidly. There are several reasons for this, the main one being the successful completion of 2019. 360,000 electric cars were delivered in 2019, which piqued the interest of investors and the share price began to rise rapidly. In August 2020, Elon Musk, the owner of the company Tesla, announced the presentation of a new type of batteries made of nanotubes and nanowires, which in terms of capacity can exceed existing batteries by 50% [25], which caused stocks to rise. In 2020 the company delivered 499 thousands of electrified vehicles, moreover, in the 4 quarter this criteria is estimated as 180,6 thousands [36], therefore Tesla became the biggest producer of «green» transportation in the world.



Picture 2.4. The dynamic of stock prices of leading companies 2011-2020, USD (constructed by author based on [35 ; 37 ; 38])

The Volkswagen Group, headquartered in Wolfsburg (Germany), is one of the world's leading and largest European car manufacturers. The group includes twelve brands from seven European countries: Volkswagen - passenger cars, Audi, Seat, ŠKODA, Bentley, Bugatti, Lamborghini, Porsche, Ducati, Volkswagen Commercial vehicles, Scania and MAN [39]. Volkswagen is also involved in the production of electric cars and hybrid cars, which makes it the leader in the European market. The lineup of the

concern covers a wide range of vehicles from motorcycles and economical small cars to luxury cars. The commercial vehicle segment offers a variety of options from pickup trucks to buses and heavy duty trucks.

Volkswagen managed to sell about 231 thousand EVs and PHEVs in 2020, which is equal to almost 50% of Tesla's sales [40]. German automobile concern Volkswagen intends to invest 44 billion euros in the development of electric vehicles, self-driving cars and digitalization till 2023.

The company's profit in 2020 is 289,744 billion dollars [30], and in 2021 the company plans to deliver 1 million clean cars to the world market. By 2030, the company intends to increase the share of electric cars in total sales in Europe to 60% [40].

BYD (BYD Co Ltd) [41] is an international high-tech company, based in Shenzhen, China, that engages in the production, development and sale of innovations in the sectors like electronics, automotive, green transportation and renewable energy and its storage. BYD is the second largest electric vehicle brand producer by volume after Tesla. It also supplies its battery technology to other car manufacturers.

BYD company completely ditched Nickel Cobalt Manganese (NCM) batteries. These batteries are manufactured using nickel, cobalt, manganese. The company switched to LFP (Lithium Iron Phosphate) batteries. BYD is a leader in LFP batteries. This gives the company a good platform to fight its competitors using NCM batteries. Therefore, the company places greater emphasis on ethical and environmental aspects and processes throughout the entire value chain. Cobalt, the element that is used in production NCM batteries, provides longer run times and reduces the complexity of metering and charge control compared to other chemical elements. However, the extraction of cobalt is not an environmentally and socially responsible action, therefore the manufacturer invests in the R&D to increase the global demand for batteries LFP. And the coming years may negatively affect the demand for nickel and cobalt. BYD sold twice as many cars as its Chinese competitors. According to the analytic data [42] in 2020 the company sold 189,689 electric mobiles, the company's profit is $ 22.7 billion [31] , and the company's stock price has increased 6 times over the past year and are now worth 24.27 [37].

2.3 The impact of implementing innovation in the automotive industry

According to NASDAQ, Tesla's brand capitalization reached $ 577,083 billion in May 2021 [35], making it the most valuable car company in the world. For comparison, the market cap of Volkswagen Group is evaluated as $ 183,257 billion [37], while capitalization of Chinese automaker BYD is only $ 79,51 billion [38].

Table 2. Comparison of electrified vehicles producers [29 ; 30 ; 31 ;35 ; 37; 38 ; 42 ; 40].

Characteristics	Tesla Inc.	Volkswagen Group	BYD
Market	American	European	Chinese
Market Capitalisation (01.05.2021), USD	577,083 B	183,257 B	79,51 B
Stock Price (01.05.2021), USD	672,52	262,4	20,75
Revenue (generated in 2020), USD	31,54 B	289,74 B	22,7 B
Profit (generated in 2020), USD	721 million	13.78 B	643,75 million
Employees, in thousands	70,757	662,6	229, 154
Evs sales, quantity in thousands	499	231	189,6

Source: constructed by author based on [29 ; 30 ; 31 ;35 ; 37; 38 ; 42 ; 40].

At the same time, if we compare the volumes of revenue, then Tesla is far from the first line and is not even included in the top. Thus, the revenue of the American brand for 2020 amounted to $ 31.54 billion [29], and with this result the brand takes the last place within these companies. Moreover, the company first made a profit only in 2020, before that it had only losses. At the same time, the weighted average of Tesla's revenue growth over the last three years was 21.4%.Tesla's profit in 2020 amounted to $ 721 million , follows from the reporting [43]. The company made a profit for the first time in a full year. In 2019, a loss of $ 862 million was recorded [43].

While Volkswagen Group's sales revenue in 2020 is $ 289,74 billion [30], this demonstrates a decline compared to 2019, the main reason for which is the incomplete recovery from the Covid-19 pandemic. Volkswagen Group not only has a huge flow of money from sales, but also has a profit estimated $ 13,78 billion in 2020 [30]. Moreover, the company's profit is the largest compared to others.

The Chinese BYD manufacturer is lagging behind its competitors. The company's profit in 2020 is the least - $ 643.75 million as well as sales revenue estimated as $ 22,7 billion [31]. Although the number of electric cars sold by the Chinese manufacturer (189,6 thousand) is only 42 thousand lower in comparison with the Volkswagen Group (231 thousand). The BYD in general only deals with alternative vehicles and sustainability issues, while Volkswagen is an automobile manufacturer that specializes in the production of traditional vehicles with ICE, and the electric mobility industry is a new area of activity for the company.

If we compare the prices for the shares of these three companies, then we can understand that Tesla is an irreplaceable leader. In May 2020, the price per Tesla's share is $ 672,52 [25], which is 20 times higher than the price of a Chinese competitor BYD ($ 20,75) [38] and 2,5 times higher the price of a European producer Volkswagen Group ($ 262,4) [37].

The question arises why the company that does not make a profit is the most expensive company in the automotive industry, whose stock prices are constantly rising and attract more and more investors?

The answer to this question lies in changing the paradigm of company valuation. Now the forecasts created by "mechanical" analysis of the dynamics of profitability and stock prices are losing their relevance. It is more important to assess innovative prospects, since technology is a key driver of development even in traditional industries, such as retail, which is built on chain stores. Tesla's example is the most striking, as the company, in just a few years, became an innovative leader in a market that seemed to be divided among the leading concerns for a long time. When it comes to innovative benefits, the potential for a company to innovate is enormous.

The big automakers, who were surprised by the success of Tesla, are trying to quickly go the way of Tesla, so as not to lose the market. Thanks to the large financial resources, the companies are likely to retain a significant market share it is the case of Volkswagen Group.

The Volkswagen group has a huge chance of becoming a leader in the electric car market, since the company has a huge income and can invest it in the development of new

modules and technologies for creating electric cars. As for the Chinese manufacturer, the reason for the rather low share price is that there are too many electric car manufacturers in China, so there is an enormous competition. In order for BYD to reach a new level, it needs to stand out from the crowd - namely, spend more energy on the development of a new, completely innovative product. Company can be a worldwide leader as it already uses LFP batteries rather than NCM.

The main reason why investment flows in Tesla are so huge is that investments in Tesla are investments in innovation, in technology, in the future, while investments in other companies are investments just into the automaker.

Tesla has the potential to become the most profitable company in history, generating hundreds of billions of dollars in revenue a year. Of course, the risks for Tesla's business remain, first of all, this is the company's ability to ensure the production of the required number of cars and spare parts. Nonetheless, investors see the company's “unlimited” potential, which is what makes it one of the most highly regarded automakers in the world.

In scientific works [44 ; 45] the authors describe the relation between investments and innovation and the impact of implementing innovation on the stock price of the enterprise. The main idea of which is that the innovative activity of the company is a magnet for investors, because of which the shares of the company are growing and therefore its capitalization. Capitalization is not equal to real profit: it is just an estimate of the demand for a stock, Tesla is a great example of this.

Thus, the result of the introduction of innovations into business, and therefore the marketing of innovative activities, is an increase in the company's shares and thereby an increase in capitalization. The company becomes attractive for investment, even if it does not generate huge income.

CONCLUSION

Marketing of innovations can be presented as a system integration of a complete innovation cycle: from studying the market conditions for innovative products, their business planning, implementation, promotion of innovative products to the market, diffusion of innovations and income generation.

The main task of marketing of innovation is to study the environment of competition and the ability of the enterprise to innovate under these conditions.

An innovation is a new product or service that strengthen the efficiency of processes, improves product quality and, as a result, boost the demand for a product or service. The main characteristics for the classification of innovations are the following: according to the novelty degree and novelty scape, due to the fact innovation is oriented on and due to the subject (innovation as a process or an outcome). A fairly new type of innovation is eco-innovation, aimed at preserving the natural resources and at the sustainable development of the future.

The life cycle of innovations can be identified as a period of time during which the formation, release and application of an innovative product occurs, allowing to achieve the set goals. Understanding the life cycle of an innovation is crucial for an enterprise as it is the basis for analyzing and planning the implementation of an innovation.

The automotive industry is a production of vehicles and is known to be a strong factor that affects the global warming process due to the emission of exhaust gases into the atmosphere. Therefore, the main trend that is now on the market is the production of electric cars, fully electric or hybrids.

In this work the leading producers of electrified vehicles were analyzed - the American company Tesla, the German Volkswagen Group and the Chinese BYD. According to the results of the study, the influence of the introduction of innovation on the financial performance of the company's data was proved, namely, there is a general trend of increasing companies' revenue as well as the number of investment inflows. For example, Tesla, which only in 2020 stopped incurring a negative profit, has seen its share

prices rise 10 times over the past year and continue to grow. The reason why investors are interested in investing resources in Tesla, and not in its competitors, is that Tesla is a revolutionary in the market, the main innovator, that is, by investing in Tesla, shareholders are investing in technology, and not just in an automobile manufacturer.

Competitors Volkswagen Group and BYD can reach a new level of competition for the American manufacturer if they invest more money in the development of technologies in this industry, given that they have the resources for this.

The concept of marketing innovation can become that advanced concept that will allow uniting the interests of manufacturers, consumers and the whole society. Indeed, firstly, the goods and services that are presented on the market today do not fully satisfy the needs of society, therefore, new, innovative ones are needed, in the production of which these needs will be taken into account. Second, in order for consumers to understand the importance of this kind of innovation that meets not only their own needs, but also the needs of society, enterprises must convey this message to the minds of a wide range of consumers. And third, the production and dissemination of innovations that consumers need bring big profits and also increase the market capitalisation of the company, which is the main need of manufacturers. Thus, adherence to the concept of marketing innovations in the activities of enterprises will fully satisfy the needs of consumers and producers.

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ANNEXES

Annex A

SUMMARY

Burnakova V.Yu. The impact of marketing innovations on international business. – Bachelor's qualification paper. Sumy State University, Sumy, 2021.

The final paper is devoted to studying the essence of marketing of innovations and its impact on the international business. The analyses of financial reports of leading producers of electric vehicles as well as the impact of implementing innovations on investment attractiveness of companies were carried out. The main purpose of this study is a comprehensive analysis of marketing of innovations and its impact on international business, namely on automotive industry.

Keywords: marketing of innovations, innovation, classification of innovation, innovation life-cycle, business, automotive industry, electric vehicles, market capitalization, revenue.

Анотація

Бурнакова В.Ю. Вплив маркетингу інновацій на міжнародний бізнес. – Кваліфікаційна бакалаврська робота. Сумський державний університет, Суми, 2021.

Кваліфікаційна бакалаврська робота присвячена вивченню сутності маркетингу інновацій та його впливу на міжнародний бізнес. Проведено аналіз фінансових показників провідних світових виробників електромобілів, а також впливу впровадження інновацій на інвестиційну привабливість даних компаній. Основною метою цього дослідження є комплексний аналіз маркетингу інновацій та його впливу на міжнародний бізнес, а саме на автомобільну промисловість.

Ключові слова: маркетинг інновацій, інновація, класифікація інновацій, життєвий цикл інновацій, бізнес, автомобільна промисловість, електромобілі, ринкова капіталізація, дохід.