

Ministry of Education and Science of Ukraine
**ODESSA NATIONAL ACADEMY OF
FOOD TECHNOLOGIES**

International Competition of
Student Scientific Works

BLACK SEA SCIENCE 2018

PROCEEDINGS



April, 4, 2018
ODESSA, ONAFT 2018

Ministry of Education and Science of Ukraine
Odessa National Academy of Food Technologies

International Competition of Student Scientific Works

BLACK SEA SCIENCE 2018

Proceedings

April 4, 2018

Odessa, ONAFT 2018

Міністерство освіти і науки України
Одеська національна академія харчових технологій

Міжнародний конкурс студентських наукових робіт

BLACK SEA SCIENCE 2018

Матеріали

4 квітня 2018 року

Одеса, ОНАХТ 2018

UDC 001(262.5):378.4.091.27(08)
BBC 421D221
B64

Editorial board:

Prof. B. Yegorov, D.Sc., Rector of the Odessa National Academy of Food Technologies, Editor-in-chief

Prof. M. Mardar, D.Sc., Vice-Rector for Scientific and Pedagogical Work and International Relations, Editor-in-chief

Dr. I. Solonytska, Ph.D., Assoc. Professor, Director of the M. V. Lomonosov Technological Institute of Food Industry, Head of the jury of «Food Science and Technology»

Dr. O. Kalaman, Ph.D., Assoc. Professor, Director of the G. E. Weinstein Institute of Applied Economics and Management, Head of the jury of «Economics and Administration»

Prof. V. Volkov, D.Sc., Head of the Department of Applied Mathematics and Programming, Head of the jury of «Automation»

Prof. S. Artemenko, D.Sc., Head of the Department of Computer Engineering, Head of the jury of «IT Technologies and Cybersecurity»

Prof. B. Kosoy, D.Sc., Director of the V. S. Martynovsky Institute of Refrigeration, Cryotechnology and Ecoenergetics, Head of the jury of «Renewable Energy Sources and Environmental Protection»

Prof. L. Morozyuk, D.Sc., Professor of the Department of Cryogenic Engineering, Head of the jury of «Refrigerating Machines and Equipment»

Dr. V. Kozhevnikova, Ph.D., Assistant Professor of the Department of Hotel and Catering Business, ONAFT, Technical Editor

Black Sea Science 2018: Proceedings of the International Competition of Student Scientific Works, April 4, 2018, Odessa / Odessa National Academy of Food Technologies; B. Yegorov, M. Mardar (editors-in-chief.) [*et al.*]. – Odessa: ONAFT, 2018. – 827 p.

Proceedings of International Competition of Student Scientific Works «Black Sea Science 2018» contain the works of winners of the competition.

The author of the work is responsible for the accuracy of the information.

ISBN 978-966-289-181-2

Odessa National Academy of Food Technologies

УДК 001(262.5):378.4.091.27(08)
ББК 421D221
В64

Редакційна колегія:

Єгоров Б.В. – д.т.н., професор, ректор Одеської національної академії харчових технологій, відповідальний редактор

Мардар М.Р. – д.т.н., професор, проректор з науково-педагогічної роботи та міжнародних зв'язків, відповідальний редактор

Солоницька І.В. – к.т.н., доцент, директор технологічного інституту харчової промисловості ім. М.В. Ломоносова, голова журі напрямку «Харчова наука і технологія»

Каламан О.Б. – к.е.н., доцент, директор інституту прикладної економіки та менеджменту ім. Г.Е. Вейнштейна, голова журі напрямку «Економіка і управління»

Волков В.Е. – д.т.н., професор, зав. кафедри прикладної математики і програмування, голова журі напрямку «Автоматизація»

Артеменко С.В. – д.т.н., професор, зав. кафедри комп'ютерної інженерії, голова журі напрямку «ІТ технології та кібербезпека»

Косой Б.В. – д.т.н., професор, директор інституту холоду, кріотехнологій та екоенергетики ім. В.С. Мартиновського, голова журі напрямку «Відновлювані джерела енергії та охорона навколишнього середовища»

Морозюк Л.І. – д.т.н., професор кафедри кріогенної техніки, голова журі напрямку «Холодильні машини і установки»

Кожевнікова В.О. – к.т.н., асистент кафедри готельно-ресторанного бізнесу, технічний редактор

Black Sea Science 2018: Матеріали Міжнародного конкурсу студентських наукових робіт, 4 квітня 2018 р., Одеса / Одеська національна академія харчових технологій; Б. В. Єгоров, М. Р. Мардар (відп. ред.) [та ін.]. – Одеса: ОНАХТ, 2018. – 827 с.

Збірник включає матеріали робіт переможців Міжнародного конкурсу студентських наукових робіт «Black Sea Science 2018».

За достовірність інформації відповідає автор публікації.

Organizing committee:

Prof. Bogdan Yegorov, D.Sc., Rector of Odessa National Academy of Food Technologies, Head of the Committee

Prof. Maryna Mardar, D.Sc., Vice-Rector for Scientific and Pedagogical Work and International Relations of Odessa National Academy of Food Technologies, Deputy Head of the Committee

Prof. Stefan Dragoev, D.Sc., Vice-Rector on Research and Business Partnerships of University of Food Technologies (Bulgaria)

Prof. Baurzhan Nurakhmetov, D.Sc., First Vice-Rector of Almaty Technological University (Kazakhstan)

Prof. Andrzej Kowalski, Dr. habil., Director of Institute of Agricultural and Food Economics (Poland)

Dr. Olivera Djuragic, Ph.D., Director of Scientific Institute of Food Technology of University of Novi Sad (Serbia)

Prof. Mircea Bernic, Dr. habil., Vice-Rector on Research and Doctorate of Technical University of Moldova (Moldova)

Prof. Jacek Wrobel, Dr. habil., Rector of West Pomeranian University of Technology (Poland)

Prof. Michael Zinigrad, D.Sc., Rector of Ariel University (Israel)

Dr. Mei Lehe, PhD, Vice-President of Ningbo Institute of Technology, Zhejiang University (China)

Prof. Plamen Kangalov, Ph.D., Vice-Rector on Education of “Angel Kanchev” University of Ruse (Bulgaria)

Dr. Alexander Sychev, Ph.D., Assoc. Professor of Sukhoi State Technical University of Gomel (Belarus)

Dr. Hanna Lilishentseva, Ph.D., Assoc. Professor, Head of the Department of Merchandise of Foodstuff of Belarus State Economic University (Belarus)

Prof. Heinz Leuenberger, Ph.D., University of Applied Sciences and Arts Northwestern Switzerland (Switzerland)

Організаційний комітет:

Сторов Богдан Вікторович – д.т.н., професор, ректор – Одеська національна академія харчових технологій – голова оргкомітету

Мардар Марина Ромиківна – д.т.н., професор, проректор з науково-педагогічної роботи та міжнародних зв'язків – Одеська національна академія харчових технологій – заступник голови оргкомітету

Драгоєв Стефан Георгієв – д.т.н., професор, проректор з наукової роботи і бізнес партнерства – Університет харчових технологій (Болгарія)

Нурахметов Бауржан Кумаргалієвич – д.т.н., професор, перший проректор – Алматинський технологічний університет (Казахстан)

Ковальські Анджей – доктор-хабілітат, професор, директор інституту економіки сільськогосподарської та харчової промисловості – Інститут сільськогосподарської та продовольчої економіки (Польща)

Дюрагіц Олівера – доктор, директор інституту харчових технологій – Університет в м. Нові Сад (Сербія)

Бернік Мірча – доктор-хабілітат, професор, проректор з наукової роботи та докторантури – Технічний університет Молдови (Молдова)

Вробель Яцек – доктор-хабілітат, професор, ректор – Західнопоморський технологічний університет (Польща)

Зініград Михайл – доктор наук, професор, ректор – Аріельський університет (Ізраїль)

Лехе Мей – доктор, віце-президент – Технологічний інститут Нінбо Чжэцзянського університету (Китай)

Кангалов Пламен – професор, доктор, проректор з навчальної роботи – Русенський університет «Ангел Канчев» (Болгарія)

Сичев Олександр Васильович – к.т.н, доцент, проректор з навчальної роботи – Гомельський державний технічний університет ім. П. Й. Сухого (Білорусь)

Лілішенцева Анна Миколаївна – к.т.н, доцент, зав. кафедрою товарознавства продовольчих товарів – Білоруський державний економічний університет (Білорусь)

Леунбергер Хайнц – доктор, професор – Університет прикладних наук і мистецтв Північно-західної Швейцарії (Швейцарія)

**POTENTIAL OF THE AUTO BUSINESS:
THE ANALYSIS OF THE EFFICIENCY OF USE**

Author – Yaroshenko O., Zinchenko V.

Supervisor – Riepina I.

Kyiv National Economic University named after Vadym Hetman

Topicality. *In the scientific work the attention was paid to the question of determining the potential of the auto business companies, on the example of Daimler AG, as an effective tool for ensuring long-term functioning and achieving strategic goals based on the use of available resources.*

The aim of our work is to study the theoretical and methodological aspects of determination of the company's potential, the analysis of performance indicators of the automobile industry in the example of the Daimler AG in order to establish key characteristics of enterprises in this industry, the use of own methodology for determining the potential of the enterprise, based on expert valuation, drawing conclusions based on the results obtained.

The task of the work is to: to investigate the position of the enterprise, the representative of the automotive industry, the Daimler AG on the market, to determine the main indicators of the enterprise. On the basis of the obtained data, using its own methodology to determine the potential of this company, on the basis of which can improve the management of the company and its potential.

Used research methodology: review of scientific works, periodical economic literature, Internet sources, Euromonitor International, analysis of financial results of the enterprise (balance sheet, reports), methods for assessing the potential of an enterprise, method of expert valuation, etc. .

General description of the work: the disclosure of the theoretical and methodological basis for assessing determination of the potential of the company, the implementation of applied methodology of determination of potential of the company on Daimler AG.

Introduction

In the modern world car is one of the most demanded goods of lasting using, that is why striving to draw funds of people in the national economy all countries of the world are trying to develop own automotive industry.

Car production provides high indicator of added value, forms demand on goods and services of related industries and stimulates scientific researches. One worker of the automotive industry creates at least six working places in related industries.

The automotive industry is crucial for Europe's prosperity. The sector provides jobs for 12 million people and accounts for 4% of the EU's GDP. The EU is among the world's biggest producers of motor vehicles and the sector represents the largest private investor in research and development (R&D). To strengthen the competitiveness of the EU automotive industry and preserve its global technological leadership, the European Commission supports global technological harmonization and provides funding for R&D.

Due to the strong economic links to many other industrial sectors, automotive industry has an important multiplier effect in the economy. At the same time, road transport emissions continue to represent a main source of air pollution. The aim of the EU's policy in the automotive sector is to establish an internal market for vehicles, ensure a high level of environmental protection and safety, strengthen competitiveness, and provide a stable level playing field for the industry.

The modern automotive market exists in the face of excess supply, to reduce-demand and hard competition between producers. This situation makes the automobile industry companies that want to take a worthy position on the world market, go through the merger, concentration and significant reduction of costs. Prospects of consolidated companies altogether predictable, somewhat more difficult to determine what awaits independent car manufacturers, who are increasingly harder to survive and compete in the globalized global automotive market.

Chapter 1. General information about the company

Daimler can look back on a tradition covering 130 years – a tradition that extends back to Gottlieb Daimler and Carl Benz, the inventors of the automobile, and features pioneering achievements in automotive engineering. Today, the Daimler Group is a globally leading vehicle manufacturer that offers an unparalleled range of premium automobiles, trucks, vans and buses. The product portfolio is rounded out by a range of tailored financial services and mobility services. Daimler's goal is to continue to play a leading role in the automotive industry in the development of products and services for the future of mobility.

In a total of 19 countries and more than 8,500 sales centers worldwide. Daimler AG is the parent company of the Daimler Group and is domiciled in **Stuttgart (Mercedesstraße 137, 70327 Stuttgart, Germany)**. The main business of Daimler AG is the development, production and distribution of cars, trucks and vans in Germany and the management of the Daimler Group.

The company is listed on the stock exchanges of Frankfurt and Stuttgart (stock exchange symbol DAI). In 2016, the Group sold around 3 million vehicles and employed a workforce of 282,488 people; revenue totaled €153.3 billion and EBIT amounted to €12.9 billion.

With its strong brands, Daimler is active in nearly all the countries of the world. The global networks of research and development activities and of production and sales locations give Daimler considerable advantages in international competition and also offer additional growth opportunities. In addition, they can apply their innovations in a broad portfolio of vehicles while utilizing experience and expertise from all parts of the Group. This also helps them with the further development of technologies and services that point the way forward to the future of mobility. Additional potential is generated by the digitization of processes and products.

In 2016, Daimler increased its revenue by 3% to €153.3 billion. The Group's five divisions contributed to this total as follows: Mercedes-Benz Cars 56%, Daimler Trucks 21%, Mercedes-Benz Vans 8%, Daimler Buses 3% and Daimler Financial Services 13% (Diagram 1.1). At the end of 2016, Daimler employed a total workforce of more than 282,000 men and women worldwide.



Diagram 1.1. Consolidated revenue by division

The products supplied by **the Mercedes-Benz Cars** division comprise a broad spectrum of premium vehicles of the Mercedes-Benz brand, its Mercedes-AMG high-performance brand and its Mercedes-Maybach luxury brand. These vehicles range from the compact models of the A-Class and B-Class to a highly varied program of sport utility vehicles, roadsters, coupes and convertibles and S-Class luxury sedans. The portfolio is rounded out by the Mercedes sub-brand and the high-quality small cars of the smart brand. Furthermore, they launched the new EQ brand in 2016 for all activities connected with electric mobility. The most important markets for Mercedes-Benz Cars in 2016 were China with 22% of unit sales, the United States (16%), Germany (14%) and the other European markets (30%). In the context of its growth strategy, the division is continually further developing its flexible and efficient production network with 29 plants on four continents.

The plants are operating at a high level of capacity utilization, so they are expanding their production capacities with a new facility in Jawor, Poland, and a second, highly flexible plant in Kecskemét, Hungary. The German facilities are their lead plants and competence centers and form the backbone of the worldwide production organization. In connection with electric offensive, company is examining the possibility of producing electric vehicles and components at existing sites within global production network. Thanks to highly flexible structures, they can produce vehicles with different drive systems in plants, allowing to react flexibly and quickly to changing demand in the markets. The first series-production vehicle from the EQ brand will be produced at plant in Bremen.

As the biggest globally active manufacturer of trucks above 6 metric tons gross vehicle weight, **Daimler Trucks** develops and produces vehicles in a global network under the brands Mercedes-Benz, Freightliner, Western Star, FUSO and BharatBenz.

The division's 26 production facilities are located in the NAFTA region (14), Europe (7), Asia (3) and South America (2). In China, Beijing Foton Daimler Automotive Co., Ltd. (BFDA), a joint venture with Chinese partner BeiqiFoton Motor Co., Ltd., has been producing trucks under the Auman brand name since 2012. Daimler Trucks' product range includes light, medium and heavy-duty trucks for local and long-distance deliveries and construction sites, as well as special vehicles used mainly in municipal applications. Daimler Trucks' most important sales markets in 2016 were the NAFTA region with 35% of unit sales, Asia (30%), the EU30 region

(European Union, Switzerland and Norway – 19%) and Latin America excluding Mexico (7%).

Mercedes-Benz Vans is a global supplier of a complete range of vans and associated services. The division's product range in the segment for commercial vans comprises the Sprinter large van, the Vito mid-size van (marketed as the "Metris" in the United States) and the Mercedes-Benz Citan urban delivery van. Mercedes-Benz Vans has manufacturing facilities at a total of nine locations in Germany, Spain, the United States and Argentina, as well as in China within the framework of the Fujian Benz Automotive Co., Ltd. joint venture, in France in the context of the strategic alliance with Renault-Nissan, and in Russia in cooperation with our partners GAZ and YaMZ. **The most important markets for vans at present are in the EU30 region**, which accounts for 70% of unit sales in the reporting year, and the NAFTA region (12% of unit sales). They are expanding their presence in growth markets. In the summer of 2016, company began building a new Sprinter production facility in South Carolina in the United States.

They also expanded their presence in China, the world's biggest automotive market, by launching the V-Class and the Vito there in 2016.

The Daimler Buses division with its brands Mercedes-Benz and Setra is the undisputed industry leader for buses above 8 metric tons in its traditional core markets in **the EU30 region, Brazil, Turkey, and Mexico Argentina**. The division's product range comprises city and intercity buses, coaches and bus chassis. The largest of the division's 14 production sites are located in Germany, France, Spain, Turkey, Argentina, Brazil and Mexico, and since 2015, in India as well. In 2016, Daimler Buses generated 66% of its revenue in the EU30 region and 13% in Latin America (excluding Mexico). While they mainly sell fully equipped buses in Europe, their business in Latin America, Mexico, Africa and Asia is focused on the production and distribution of bus chassis.

The Daimler Financial Services division supports the sales of the Daimler Group's automotive brands in approximately 40 countries worldwide. Its product portfolio primarily consists of tailored financing and leasing packages for customers and dealers, but also insurance brokering, fleet management services, investment products and credit cards, as well as various mobility services such as the "moovel" mobility platform. With the mytaxi app, following the merger with Hailo, they now reach approximately 6 million customers in more than 50 cities. The flexible mobility concept cargo is used by more than 2.2 million customers worldwide. The

main areas of the division's activities are Western Europe and North America, and increasingly China as well. During the year under review, Daimler Financial Services financed or leased about 50% of the vehicles sold by Daimler.

The division's contract volume of €132.6 billion covers more than 4.3 million vehicles. Daimler Financial Services also holds a 45% interest in the Toll Collect consortium, which operates an electronic road-charging system for trucks on highways in Germany(Annex 3).

Daimler AG plans to achieve their goals through four strategic focus areas(Annex4).

They focus on: strengthening their core business, growing globally, leading in technology, moving ahead with digitization.

Daimler AG aim to achieve profitable growth and increase the value of the company. They plan to achieve their goals by focusing activities on four strategic areas.

•**Delighted customers:** to finish at the top of all relevant customer-satisfaction rankings and win over customers with outstanding quality.

•**Technology leadership, innovation and digitization:** setting standards for technology and innovation.

•**Profitable growth:** intend to achieve a 9% average return on sales (EBIT in relation to revenue) for the automotive business on a sustained basis.

•**Best teams:** they work in teams whose diversity in terms of gender, nationality and age is of great importance. Their employees are proud to work at Daimler, and they are one of the employers most sought after by job applicants. Core corporate values – passion, respect, integrity and discipline – form the basis of actions.

Chapter 2. Marketing analysis:

•**Key brands**

Daimler AG is one of the world's most successful automotive companies. With its divisions Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans, Daimler Buses and Daimler Financial Services, the Daimler Group is one of the biggest producers of premium cars and the world's biggest manufacturer of commercial vehicles with a global reach.

The Group's focus is on innovative and green technologies as well as on safe and superior automobiles that appeal and fascinate. Daimler consequently invests in the development of alternative drive trains with the long-term goal of emission-free driving: from hybrid vehicles to electric vehi-

cles powered by battery or fuel cell. Furthermore, the company follows a consistent path towards accident-free driving and intelligent connectivity all the way to autonomous driving. This is just one example of how Daimler willingly accepts the challenge of meeting its responsibility towards society and the environment. Daimler sells its vehicles and services in nearly all the countries of the world and has production facilities in Europe, North and South America, Asia, and Africa.

Daimler Financial Services provides financing, leasing, fleet management, insurance, financial investments, credit cards, and innovative mobility services.

Its current brand portfolio includes, in addition to the world's most valuable premium automotive brand, Mercedes-Benz, as well as Mercedes-AMG, Mercedes-Maybach and Mercedes me, the brands smart, EQ, Freight-liner, Western Star, BharatBenz, FUSO, Setra and Thomas Built Buses, and Daimler Financial Services' brands: Mercedes-Benz Bank, Mercedes-Benz Financial Services, Daimler Truck Financial, moovel, cargo and mytaxi.

•Marketing strategy and tactics

The marketing mix of Daimler shows what a fantastic company it is, and how, as per Business Week Magazine, it is the top most recognized global automobile brands. This high profile success is not an accident but hard work, patience and excellent application of effective marketing strategy all rolled into one.

Daimler is considered as the world's oldest manufacturer of luxury carmaker and the reputation is unlikely to go away in the near future. This marketing mix looks at the company's marketing and advertising strategies it has implemented over the years to establish itself as a leader in the fiercely competitive automobile industry.

Product is the strongest P in the marketing mix of Daimler. It remain as one of the leading brands in the world market, that too for more than 50 years. The company currently assembles its models – S-Class, E-Class, C-Class and the ML-Class while other models, including GL-Class, CLS-Class and SLK-Class are fully imported.

Although Mercedes Benz marketing strategy used to focus on the luxury, safety and precision engineering of its cars, competition has propelled it to adjust its product to suit the changing consumer attitudes. Now, their marketing strategy focuses more on presenting a more energetic, fun loving and approachable side of cars(Annex2).

The evolution of its marketing strategy can also be connected to its expanded market. Daimler has, over the years, found it necessary to expand the market to include younger consumers. Another marketing strategy employed by Daimler is its decision to slice prices and make the product more affordable to consumers.

One thing that Daimler managed to do is to build a reputation of quality and exclusivity in all its products, making it one of the most recognizable brands in the globe. Thus, it enjoys a reputation of class and prestige.

Daimler introduced many technological and safety innovations over the years. However, the introduced innovations went on to be replicated by other brands. The company distributes its product through a broad network of dealers throughout the world. Company understands that consumers are not just interested in buying a car that moves them from point X to point Y.

They are actually making a car that will enable them easily sell the idea about the car in the market. The company intends to change the perception of the brand and reposition it so that it is more appealing to younger generation. They are also sending out the message that they are more approachable than ever before.

Daimler AG manufactures different types of convertibles, full sized sedans, coupes and sports sedans, buses, vans, other vehicles. It has as many car models currently ranging from INR 21,49,000 to 7,68,00,000. Mercedes is leaving no stone unturned to tap world market in premium segments. As a matter of fact, the company deals in a niche segment where the customer is more concerned with the value they are getting on the product more than anything else is.

•***Competitive advantages and bottlenecks.***

In the current state of global economy, Daimler is exposed to a higher number of risks. The entrepreneur activity mainly consists in creating and using opportunities in order to ensure and strengthen the company's competitiveness. As a result of classifying global most famous car brands, Mercedes-Benz dropped one place in the rankings, from the third to fourth position, with the brand value of 20.298 mln. \$ USD in 2013, compared with 19.762 mln.\$ USD in 2012.

Considering the competitive pressure on the automotive market, Daimler must adapt continuously and successfully its production and cost structures. Each division aims constantly at achieving its objective of increasing profitability and efficiency. Regarding the car sales, Daimler offers an entire range of funding opportunities, especially leasing.

However this business entails the risk that prices paid on cars at the end of the lease to be lower than their book value, which is called the residual value risk. In order to achieve the targeted levels of prices, factors such as brand image, design and quality of the product play an important part. If these factors do not meet the customer's requirements, Daimler is negatively affected. Daimler's global expansion means that its business operations and financial transactions are in closely connected with the risks entailed by exchange rate fluctuations, especially the US dollar and other important currencies against the euro.

Global risk involves all individual risks for all divisions (Faulkner & Bowman,2000). There are no visible risks that alone or associated with other risks could endanger the existence of Daimler. Nevertheless there are risks from the economic point of view which are specific to industry, hindrances that prevent the development and profit targets of Daimler.

Table 2.1 – SWOT-analysis of DAIMLER AG

<p>Strengths of the company:</p> <ul style="list-style-type: none"> - worldwide famous brand; – increased interest in ensuring safety; - company is determined to focus on fulfilling its customers' needs; - efficient distribution channels; – innovation – initiating design details 	<p>Opportunities:</p> <ul style="list-style-type: none"> - Sustained technologic advance; - Governmental policies support car industry.
<p>Weaknesses:</p> <ul style="list-style-type: none"> - Narrow market segment; - Has a strong competitor- BMW, - High production costs - High prices 	<p>Threats:</p> <ul style="list-style-type: none"> - Fuel price increase; - Mergers among competitors; - Economic crisis leads to decrease of net allocated for luxury goods.

The company's objective is to achieve sustainable profitable growth and leadership position in all company business, to provide new brands, products and services, objective which is intended to be achieved through the four strategic pillars of growth. The first pillar – strengthening basic activities – refers to the expansion and maintenance of the wide range of designs, the emphasis being placed on satisfying the customer's changing expectations.

The second pillar – expanding on new markets – mainly refers to expanding on markets outside Europe, North America, Brazil, Russia, China,

Japan, India and strengthening the position on traditional markets. Leader in green technology – is the third pillar which refers to the goal of the company to make the future safer and less polluted. Here they refer to reducing CO2 emissions and the new hybrid cars. More than half of the world population lives in towns and cities and this percentage increases constantly. Thus the fourth pillar intervenes – strategic mobility – referring to people who do not have a car, although the flexible use of one is highly important. The mobility platform offers the possibility to successfully combine private activities with work-related ones, billing being made possible through the payroll system (Ciobanu&Ciulu, 2005).

Daimler's success comes from tactics and strategy. The company's performance which ensures a high level of competitiveness aims at both characteristics common to all firms, i.e. labor productivity, labor cost, service quality and customer satisfaction level and particular skills – innovation skill, improvement of human resources and quality management, thus managing to develop a trend towards uniformization. Daimler has achieved business performance as it focused on global management, developing its capacity to approach service, cost and market-related issues in a much more critical way than in the past.

Moreover its success in business lies in the way the company approached and combined international marketing strategies – starting from strategies based on cost and differentiation to the marketing mix strategies. The company has thus achieved performance from managerial, organizational and communication point of view, focusing its specific actions on markets and customer segments considered as priority targets.

Chapter 3. Financial analysis:

•Unit sales

Daimler increased its total unit sales in the year 2016 by 5% to approximately 3 million vehicles. The Mercedes-Benz Cars and Mercedes-Benz Vans divisions confirmed the forecasts made at the beginning of the year with significant growth (+10% and +12% respectively).

Daimler Trucks posted a significant decrease in unit sales of 17% in 2016. At the beginning of 2017 year, the division had aimed for unit sales in the magnitude of the previous year. That target had to be successively adjusted as a result of the significantly less favorable market development in the NAFTA region, the Middle East and Turkey. Also at Daimler Buses, unit sales were significantly below the prior-year level (-7%) and did not

reach the originally anticipated volume, primarily due to repeated significant market contraction in Brazil.

The Mercedes-Benz Cars division continued along its growth path in the year under review. Unit sales increased by 10% to the new record of 2,198,000 vehicles. The Mercedes-Benz brand increased its unit sales by 9% to a best-ever figure of 2,053,500 vehicles. **This means not only that Mercedes-Benz grew faster than the worldwide car market, but also that it delivered more vehicles in the premium segment than any other manufacturer.** They are the number one in the premium segment in Germany and some other key European markets, as well as in the United States, Canada and Japan. In addition, they significantly improved position in China in 2016.

In Europe, Mercedes-Benz sold a total of 872,200 vehicles (+12%). Double-digit growth rates were achieved above all in the volume markets of the United Kingdom (+15%), France (+18%), Italy (+16%) and Spain (+20%). And in Germany, they increased unit sales by 6% to 275,900 vehicles. **In China, grew by 20% in 2016 – faster than the overall market and important competitors.** Total unit sales in the NAFTA region were slightly lower than in the previous year. Growth was achieved in Mexico, while unit sales in the United States and Canada decreased slightly. Unit sales in Japan were 6% lower than in 2015 due to the general market development.

However, they achieved significant growth in South Korea (+33%), Australia (+17%) and Taiwan (+12%). Demand was very strong also for A- and B-Class models, with an increase of 2%. C-Class models enjoyed ongoing success, with a 4% increase in unit sales to a total of 490,200 sedans, wagons, coupes and convertibles in 2016. In the year of the model change, the E-Class almost matched the prior-year volume, with the new model creating strong sales impetus as of the third quarter. They sold a total of 304,200 vehicles in the E-Class segment, including 188,300 units of the new model.

The smart brand reached a sales milestone in September 2016, with more than two million vehicles sold since its market launch in 1998. Meanwhile, smart is represented in 46 markets worldwide. In the year 2016, the brand's unit sales increased by 19% to the new record of 144,400 cars.

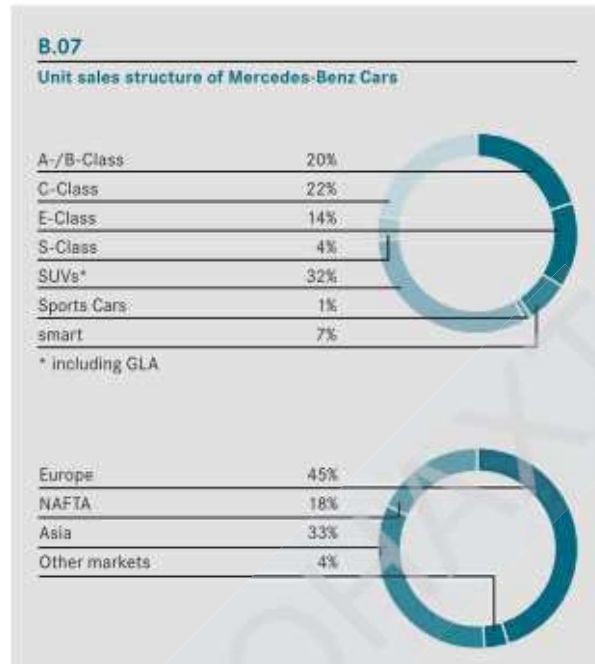


Diagram 3.1. Unit sales structure of Mercedes-Benz Cars

Although there was a decrease in sales of the S-Class for lifecycle reasons to 84,300 units (2015:106,200), it continues to be the world's bestselling luxury sedan.

•Revenue

In the year 2016, Daimler generated revenue of €153.3 billion, which is slightly above the prior-year level (2015: €149.5 billion); adjusted for exchange-rate effects, revenue grew by 3%.

Each of the divisions Mercedes-Benz Cars (+7%), Mercedes-Benz Vans (+12%) and Daimler Financial Services (+9%) significantly increased its volume of business. Whereas the Daimler Trucks division posted a significant decrease in revenue of 12%, primarily due to the very weak condition of some major truck markets. At Daimler Buses, revenue was 2% higher than in the previous year.

In regional terms, Daimler achieved revenue growth in Europe (+9% to €63.4 billion) and in Asia (+5% to €35.6 billion) while the prior-year level was not quite achieved in the NAFTA region (-6% to €45.0 billion).

•EBIT

The Daimler Group achieved EBIT of €12.9 billion in 2016 (2015: €13.2 billion). Despite higher expenses in connection with Takata airbags and from the remeasurement of inventories, the Mercedes-Benz Cars division slightly improved on its prior-year earnings. This was the result of further growth in unit sales, especially in the SUV segment. The Mercedes-Benz Vans division increased its EBIT significantly as a result of higher unit sales. The Daimler Buses division achieved EBIT significantly above the prior-year level as well. At Daimler Financial Services, earnings increased slightly primarily due to the growth in contract volume.

The Mercedes-Benz Cars division slightly increased its EBIT adjusted for special items in 2016. The European market situation featured very intense competition. The earnings of Mercedes-Benz Vans developed better than was forecasted. Due to the strong business with complete buses in the EU30 region, Daimler Buses achieved significantly high EBIT. Daimler Financial Services slightly increased its EBIT adjusted for special items.

Due to the favorable business development in most divisions, Daimler was able to exceed slightly its prior-year EBIT adjusted for special items of €13.8 billion, achieving €14.2 billion in 2016(Annex5).

The Group's total revenue increased by 2.5% to €153.3 billion in 2016; adjusted for exchange rate effects, it increased by 3.3%. The revenue growth reflects the demand for products at Mercedes-Benz Cars and Mercedes-Benz Vans, as well as the increased contract volume at Daimler Financial Services.

Cost of sales amounted to €121.3 billion in 2016, increasing by 2.8% compared with the previous year. The rise in cost of sales was caused by higher business volumes and consequentially higher material expenses(Annex 6).

Due to the growth in unit sales, selling expenses increased by €0.1 billion to €12.2 billion. In addition, there were higher expenses for marketing. As a percentage of revenue, selling expenses decreased from 8.1% to 8.0%.

The tax expense of €3.8 billion (2015: €4.0 billion) stated under income tax expense decreased at a higher rate than profit before income taxes. The effective tax rate for 2016 was 30.1% (2015: 31.6%). This was mainly due to the contribution of shares in Renault and Nissan into the pension-plan assets.

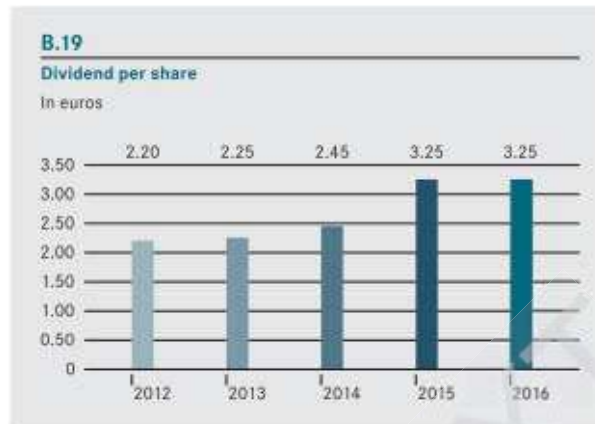


Diagram 3.2. Dividend per share

Net profit for the year amounts to €8.8 billion (2015: €8.7 billion). Net profit of €0.3 billion is attributable to non-controlling interests (2015: €0.3 billion). Net profit attributable to the shareholders of Daimler AG amounts to €8.5 billion (2015: €8.4 billion), representing earnings per share of €7.97 (2015: €7.87).

The calculation of earnings per share (basic) is based on an unchanged average number of outstanding shares of 1,069.8 million.

•Liquidity and Capital Resources

To the extent that the Group's internal refinancing of the financial services business is provided by the companies of the industrial business, this amount is deducted in the calculation of the net debt of the industrial business. At December 31, 2016, the Group's internal refinancing was of a higher volume than the financing liabilities originally taken on in the industrial business due to the application of the industrial business's own financial resources. This resulted in a positive value for the financing liabilities of the industrial business, thus increasing net liquidity, so the net liquidity of the industrial business exceeds the gross liquidity presented here.

Compared with December 31, 2015, the net liquidity of the industrial business increased from €18.6 billion to €19.7 billion. The increase mainly reflects the positive free cash flow of €3.9 billion. In addition, cash inflows in connection with the equity transactions with Daimler Financial Services had a positive impact of €0.7 billion. An opposing effect of €3.5 billion resulted from the dividend payment to the shareholders of Daimler AG.

Table 3.1 – Net debt of the Daimler Group

B.27			
Net debt of the Daimler Group			
	Dec. 31, 2016	Dec. 31, 2015	16/15
In millions of euros			Change
Cash and cash equivalents	10,981	9,936	+1,045
Marketable debt securities	10,748	8,273	+2,475
Liquidity	21,729	18,209	+3,520
Financing liabilities	-117,686	-101,142	-16,544
Market valuation and currency hedges for financing liabilities	61	583	-522
Financing liabilities (nominal)	-117,625	-100,559	-17,066
Net debt	-95,896	-82,350	-13,546

Net debt at Group level, which primarily results from refinancing the leasing and sales-financing business, increased compared with December 31, 2015 from €82.4 billion to €95.9 billion

Chapter 4. Assessment of efficiency using of potential

In order to assess the effectiveness of entrepreneurial activity, it is necessary to use a system of indicators that are subject to a report and analysis, and in a complex can characterize the efficiency of using entrepreneurial potential.

Using the source information to calculate the cost of capacity, we calculated the indicators that characterize the effectiveness of its use. Then, in order to calculate the efficiency using of potential we use methodology of expert evaluation. This method is estimated from the subjective expert's point of view, the value of the indicator for 2016 according to the scale from 1 to 3, where 1 means not effective indicator (low), 2 is average (moderate) indicator and 3 is high (effective). Twelve experts were interviewed for these evaluations. All the results are shown in the table 4.1.

Table 4.1 – Assessment of efficiency using of potential*

№	Indexes	2014	2015	2016	Point
Efficiency of using of fixed assets and intangible assets					7
1	Return on capital	0,09	0,28	0,25	1
2	Capital stock	200,85	222,75	259,56	3
3	Profitability of fixed assets	12,38	13,32	11,63	1
4	The growth of the services rendered to the account of the change of the main productive assets	-	79211,4	36139,1	1
5	The growth of the services rendered to the account of changes in return on assets	-	11992,7	-1799,8	1
Efficiency of Working Capital					6
1	Reciprocity rate	0,06	0,19	0,18	1
2	Duration of one turnover, days	5563,34	1877,73	1974,24	1
3	Cost-effective use of working capital, %	9,02	9,17	8,35	2
4	Release of working capital as a result of acceleration of turnover ths. EUR.	-	7,2	-42,24	1
5	Changing of services rendered due to changes in the value of working capital, ths. EUR	-	227201	53228,4	1
Efficiency of labor potential using					8
1	Labor productivity, ths. EUR	17,83	62	65,88	3
2	Profit per employee, ths. EUR	24,87	29,66	30,18	2
3	Efficiency of managerial expenses, ths. EUR	0,47	0,55	0,55	1
4	Change of services rendered due to changes in the number of employees, ths. EUR	-	0,23	-0,02	1
5	Changing the services provided by changing productive. Labor, ths. EUR	-	12544,9	1094,67	1
Efficiency of using entrepreneurial potential					6
1	Profitability of the enterprise, %	9,02	9,17	8,35	2
2	Cost-effectiveness of production, %	7,53	7,14	7,03	1
3	Profitability of sales, %	21,18	21,07	20,94	3

*developed by the authors

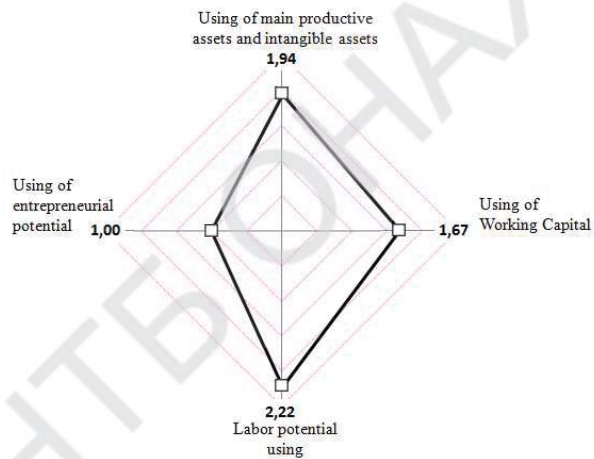
Next stage is to calculate the level of efficiency to each of section (table 4.2).

Formula:

Level of sector's efficiency = total summa of points in this section * total amount of indicators in this section / 18.

Table 4.2 – Level of efficiency by sections

Efficiency of using main productive assets and intangible assets	1,94
Efficiency of Working Capital	1,67
Efficiency of labor potential using	2,22
Efficiency of using entrepreneurial potential	1,00
Total	6.83



Picture 4.1. Assessment of potential use efficiency

Because of maximum total point of efficiency using of potential is 14 we can calculate the percent of using the potential.

So, the percent of using the potential of Daimler AG is 48,8%.

Conclusion

The automotive industry is crucial for Europe's prosperity. The sector provides jobs for 12 million people and accounts for 4% of the EU's GDP. The EU is among the world's biggest producers of motor vehicles and the

sector represents the largest private investor in research and development (R&D). To strengthen the competitiveness of the EU automotive industry and preserve its global technological leadership, the European Commission supports global technological harmonization and provides funding for R&D.

The modern automotive market exists in the face of excess supply, to reduce-demand and hard competition between producers. This situation makes the automobile industry companies that want to take a worthy position on the world market, go through the merger, concentration and significant reduction of costs. Prospects of consolidated companies altogether predictable, somewhat more difficult to determine what awaits independent car manufacturers, who are increasingly harder to survive and compete in the globalized global automotive market.

Today, the Daimler Group is a globally leading vehicle manufacturer that offers an unparalleled range of premium automobiles, trucks, vans and buses. The product portfolio is rounded out by a range of tailored financial services and mobility services. Daimler's goal is to continue to play a leading role in the automotive industry in the development of products and services for the future of mobility.

In 2016, Daimler increased its revenue by 3% to €153.3 billion. The Group's five divisions contributed to this total as follows: Mercedes-Benz Cars 56%, Daimler Trucks 21%, Mercedes-Benz Vans 8%, Daimler Buses 3% and Daimler Financial Services 13%. At the end of 2016, Daimler employed a total workforce of more than 282,000 men and women worldwide.

The author's methodology for assessing the level of efficiency of using the potential of the enterprise was proposed and used. The basis for evaluation is the key financial performance of the enterprise. Analyzing them, we came to the conclusion that labor potential is most effectively used, due to the rather high and stable Labor Productivity and income per employee.

It is worth noting the high level of profitability of sales – 20,94%, which, although it decreased in comparison with previous years, but a fairly small percentage.

We came to the conclusion that the overall percentage of the company's potential utilization was 48.8%. This means that the company is using its potential not fully and not as efficiently as possible. In order to maximize income in the capital, it is worth optimizing the effectiveness of the use of potential, through the change of services rendered due to changes in the number of employees, Changing the services provided by changing produc-

tive, increasing the use of working capital and the growth of services rendered to the account of changes in return on assets.

References

1. Daimler AG Official site <https://www.daimler.com/en/>
2. European Commission https://ec.europa.eu/growth/sectors/automotive/legislation_en
3. Regulation and Competitiveness of the EU Automotive Industry FINAL REPORT Study prepared for ACEA June 2015 <http://www.fticonsulting.com/~media/Files/us-files/intelligence/intelligence-research/regulation-and-competitiveness.pdf>
4. Regulation and Competitiveness of the EU Automotive Industry FINAL REPORT Study prepared for ACEA June 2015: <http://www.fticonsulting.com/~media/Files/us-files/intelligence/intelligence-research/regulation-and-competitiveness.pdf>
5. World Trade Organization.: <https://www.wto.org/>
6. International Chamber of Commerce <http://www.iccwbo.org/>
7. The United Nations Economic Commission for Europe (UNECE). <http://www.unece.org/mission.html>
8. Mercedes-Benz Cars at a Glance Edition 2017 <https://www.daimler.com/company/business-units/>
9. Mercedes-Benz Cars Sales and Marketing Strategy 2017 <https://www.daimler.com/company/business-units/>
10. Daimler Trucks at a Glance 2017 Edition <https://www.daimler.com/company/business-units/>
11. Daimler Annual Report 2016 <https://www.daimler.com/investors/reports/annual-reports/2016/>

THE USING OF PRODUCTS OF PROCESSING HONEYSUCKLE IN THE TECHNOLOGY OF FONDANT-CREAM SWEETS Author – Denysenko I., Supervisor – Kokhan O.	208
2. ECONOMICS AND ADMINISTRATION.....	229
CONSOLIDATION OF TRANSPORTATION AND WAREHOUSING PROCESSES ON THE INTERNATIONAL MARKET AS A COMPROMISE BETWEEN EXPENSES AND QUALITY OF LOGISTICS SERVICES Author – Pavelchuk M., Supervisor – Pokhylchenko O.	229
THE MANAGEMENT STRUCTURES’ ORGANIZATION AND ITS FORMATION AT THE CONFECTIONARY INDUSTRY ENTERPRISES BASED ON THE LOGISTICS PRINCIPLES Author – Paschyna A., Supervisor – Sedikova I.	252
STYLES AND METHODS OF LEADERSHIP AND THEIR IMPACT ON ORGANIZATIONAL BEHAVIOR OF EMPLOYEES (ON THE EXAMPLE OF JSC "GLZ" CENTROLIT ") Author – Garelenko A., Supervisor – Drahun M.	275
DEVELOPMENT OF YOUTH ENTREPRENEURSHIP BY THE WAY STARTUP-MOVEMENT SUPPORT IN UKRAINE Author – Semenov A., Supervisor – Kushnir T.	293
THE STRATEGY OF PROVIDING COMPETITIVENESS OF THE ENTERPRISE IN THE IT INDUSTRY Author – Moroz A., Sharaenko O., Supervisor – Pizhuk O.	312
ASSESSMENT OF THE OPTIMAL CAPITAL STRUCTURE OF UKRAINIAN AGRICULTURAL HOLDINGS (KERNEL HOLDING S.A., MHP S.A.) Author – Fedorova T., Minina V., Supervisor – Kulakovsky T.	337
BASIS OF INTELLECTUAL SECURITY MANAGEMENT OF THE ENTERPRISE Author – Kemska V., Supervisor – Maznyk L.	356
ORGANIZATIONAL AND TECHNICAL FORMS OF IMPLEMENTATION OF INNOVATIONS IN MEDIUM-SIZED ENTERPRISES OF FOOD INDUSTRY Author – Paliichuk V., Supervisor – Pasichnyk Y.	385
POTENTIAL OF THE AUTO BUSINESS: THE ANALYSIS OF THE EFFICIENCY OF USE Author – Yaroshenko O., Zinchenko V., Supervisor – Riepina I.	395

Наукове видання

Міжнародний конкурс студентських наукових робіт

BLACK SEA SCIENCE 2018

Матеріали

Верстка – Н.М. Ковальчук

Формат 60x84/16. Гарнітура Times New Roman.
Умовно-друк. арк. 48,07. Тираж 300. Замовлення № 0518-105.

Видавництво і друкарня – Видавничий дім «Гельветика»
73034, м. Херсон, вул. Паровозна, 46-а, офіс 105
Телефон +38 (0552) 39 95 80
E-mail: mailbox@helvetica.com.ua
Свідоцтво суб'єкта видавничої справи
ДК № 4392 від 20.08.2012 р.