# СЕКЦИЯ D

# DOING BUSINESS IN MODERN WORLD ECONOMY

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## ELECTRIC CARS AND THEIR PROSPECTS

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*Resume – Nowadays time technology should remember about the environment. Due to the enormous number of factories, buildings, cars and other human creation, we are ruining our planet, depleting its reserves of natural energy sources. It must be understood that such principle of life will destroy it in a few hundred years. And the main source of pollution is cars. This is what this article is aimed at.*

*Резюме – В наше время – время технологий мы должны помнить про окружающую среду. Из-за огромного количества заводов, машин и других человеческих творений мы разрушаем нашу планету, истощая ее запасы природных источников энергии. Надо понимать, что через несколько сотен лет такой принцип жизни уничтожит его. Основным источником энергии являются автомобили. И на это направлена данная статья.*

**Introduction**. Cars - this is one of the most popular and comfortable means of moving. However, they must also be environmentally friendly. Today, the future of electric cars is very large. An electric car is a car that is driven by one or more electric motors powered by an autonomous source of electricity (batteries, fuel cells, etc.) and not by an internal combustion engine. Their story began about 180 years ago, even earlier than cars with ICE. The impetus to their development was the discovery by English physicist and chemist Michael Faraday of the phenomenon of electromagnetic induction, after which engineers and inventors began to look for ways of its practical application. But since the power of the batteries of that time was small. To feed the car for at least 20 kilowatts an hour it took a battery weighing a ton. They could move at a very low speed. Therefore, people preferred machines with an internal combustion engine.

**Main part.** Interest in electric vehicles was revived in the 90s of the 20th century, when the problem of environmental pollution and the depletion of oil reserves became acute. Like all things, electric cars have pros and cons. Pros:

– reduced – fuel costs. The cost of gasoline is constantly growing and often consumed in large quantities;

– reduced pollution. A running electric vehicle engine does not emit harmful gases into the environment;

– reduced noise. Electric vehicles can provide quiet and smooth acceleration, with faster acceleration;

– the electric car does not require as thorough care as a regular car;

– security. Electric cars go through the same testing procedures as regular cars. Thus, in the event of a collision, the airbags will work; the collision sensors will disconnect the batteries, so that the electric vehicle will stop;

– autopilot. Today, the autopilot is still being upgraded to the minimum error, but in the future it can already – work without problems.

To date, the shortcomings of electric vehicles make themselves felt in some countries. Disadvantages:

1) First of all it is a limited power reserve. Modern serial electric cars can travel 400 - 500 km. In winter, this figure will drop by another 30%. But there is a sports electric car, where cruising range on passport documents is 1000 km. This car was made by Tesla.

2) This is a shortage of charging stations. In Europe and the United States this problem is almost non-existent. If you drive along the autobahn, you can see the station every 40 km. But in the CIS countries it is not yet developed so well. Some auto companies when buying electric vehicles give a gas station, which can be installed at home or anywhere else in the right places.

3) Timeout. It takes about 8 - 10 hours to charge the car from a 220-volt outlet. In Europe, there are gas stations with a capacity of 400 k / W, capable of charging a car in 15 minutes up to 80%.

One of the largest American automakers, general motors, presented the first production car, a drone. It is completely devoid of steering and pedals. Motors believe that the serial production of such cars will begin this year. CEO Kyle Fogh said: These self-propelled cars will save millions of lives and speed up the transition of the world economy to sustainable energy, but when they are produced in large quantities. This car will have an optical rangefinder, 21 radar and 16 video cameras, helping to navigate in space. Everything else is fully responsible electronics. Also autopilot 4 generations. This way it will adjust 10 times per second. They will not sell their cars to all private owners, but only to car sharing companies. You can call the car, he will arrive, after disembarking, leave the car there and the car will wait for the client's trail. Thus saving on parking.

In 2014, the share of electric vehicles in Norway reached an impressive figure of 28.3%. This happened largely due to the efforts of the state: buying an electric car is not taxed; owners of such cars are provided with free travel on paid sections of tracks; preferential parking in the centers of large cities.

**Conclusion.** New models of electric cars are able to compete in power with cars with an internal combustion engine. Cars like Tesla. Most automaker giants are investing huge amounts of money in this industry. If you reduce a number of cars with an internal combustion engine, then it will reduce the pollution of the planet by 40%. The main elements of the electrical equipment of the car are: electric motor, controller, batteries. The controller performs the function of a kind of accelerator pedal, it is supplied with current from the battery, and it transmits to the electric motor, reading the pulses from the potentiometers of the gas pedal, and with this indication regulates the speed of the electric motor. The electric motor is the heart of the electric car, its main driving force. The electric motor is based on the principle of electromagnetic induction (a phenomenon associated with the occurrence of an electromotive force in a closed loop when the magnetic flux changes). An electric motor converts electrical energy into mechanical energy. The efficiency of a modern electric motor is 85-95%. The main characteristics of an electric motor are: power, maximum torque, voltage, current and speed. For the acquisition of an electric car can use as electric motors of direct current and alternating. In most electric vehicles, when braking, the motor is able to generate energy in the generator mode, which accumulates in batteries and can be used later. The main sources of energy in electric cars are batteries. The rather high price of batteries is the main reason why gasoline cars still prevail in the world. Reducing the cost of rechargeable batteries would significantly contribute to the popularity of electric transport technologies. Lead-acid batteries are the most popular and cheapest battery option. The high level of their popularity in the world is also due to the fact that these batteries are 97% recyclable. Nickel-metal-hybrid batteries have a higher performance than lead-acid ones, but at a price they are more expensive. Lithium-ion batteries are ideal for electric vehicles, as they are lightweight, compact and perfectly conserve energy. However, the purchase of lithium-ion batteries is not available to everyone, since they are the most expensive type of battery. Often, in electric cars, in addition to batteries providing power to the electric motor, there is another small additional battery necessary for the operation of car accessories: headlights, car radios, dashboard, airbags, windshield wipers, power windows and other devices.

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## TENDENCIES IN SHADOW ECONOMY DEVELOPMENT

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*Resume – Shadow economy is a complex socio-economic phenomenon embracing the sphere of illegal and hidden from government bodies economic activities. Illegal production of goods and services, concealment of income, turnover of unaccounted cash, laundering of money, and bribes for the abuse of authority – everyone is familiar with these everyday manifestations of shadow economy. Since shadow economy covers the majority of spheres of our everyday life, it is important to know the reasons of its emergence and rends in its development.*

*Резюме – Теневая экономика представляет собой сложное социально-экономическое явление, охватывающее сферу незаконной и скрытой от государственных органов хозяйственной деятельности. Незаконное производство товаров и услуг, сокрытие доходов, оборот неучтенных денежных средств, отмывание денег, взятки - каждый из нас знаком с этими повседневными проявлениями теневой экономики. Поскольку теневая экономика охватывает большинство сфер нашей повседневной жизни, важно знать причины ее возникновения и тенденции в ее развитии.*

**Introduction.** The scale and characteristics of the shadow economy in various countries and regions of the world are closely related to the maturity of market relations and the type of economic system. This allows us to consider three main types of shadow economy: in developed countries, developing countries and countries with transition economies. In these groups of countries the scale of the shadow economy is different. We will analyze the development trends of the shadow economy on the basis of this division.

**Shadow economy.** Let's look at shadow economy in different types of countries in terms of figures. In developed countries the shadow economy is 12-16% of GDP, in developing countries – 40-50%, in countries with transitional economy – 23-25% [1, p.61]. Why is there such a difference in values?

In developed countries the share of the shadow sector in the national economy is the smallest, but the situation in different developed countries are not the same. For example, Austria, the USA and Switzerland have the lowest share of the shadow sector, only 8-10% of GDP. And the shadow economy has the largest share in Greece, Italy, Spain and Belgium - 23-29%. In almost all developed countries has been an increase in the