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ABSTRACT

of the dissertation for the degree of philosophy

IMPROVEMENT OF COMPETİTİVENESS OF ELECTROTECHNİCAL ENTERPRİSES AND FORMİNG THEİR STRATEGİC DEVELOPMENT

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GENERAL CHARACTERISTICS OF WORK

Relevance and development of the topic: Of supreme importance for the country's economy is meeting the demand for electrotechnical products in the country, especially in the circumstances of globalization proccesses prevailing around the world, regionalization and polarization actions in particular places. The condition that makes this issue indispensable is the necessity of using electronics and electrotechnical products in our lives and households, as well. Observations confirm that the electronics industry covers a wide range of areas, from semiconductors to quantum electronics, as well as nano electronics. At present, the constant increase in demand for computers, Information Technology and automation processes in various classes of society is an indicator of the importance of electronics industry not only in human life, but also in the economy. The introduction of electronics and electrotechnical products to our households in the modern day, their change in the direction of becoming an integral part of human life and increasing demand for these products as time passes give grounds to say that Azerbaijani enterprises should also take an active part in this process. Given that there are rich traditions and experience of our republic in this regard, some electrotechnical enterprises are still operating in the country.

The continuous increase of competitiveness in all sectors of the economy necessitates the improvement of the structure of the Azerbaijani economy and the implementation of a new industrial policy. Proggressive experience shows that the industrialization of the economy is important not only from an economic point of view, but also for employment of the population, increased income level, qualified workforce, scientific researchs and other issues. Taking heed of all this, the Azerbaijani government is also taking serious steps to develop the country's industry. Thus, by the decisions of the President of the country dated 26.12.2014, "The state of industrial development in Azerbaijan" covers the years 2015-2020, and on 06.12.2016, it determines the laws dated 2016-2025 "Heavy industry in Azerbaijan and machine-building industry, development of Azerbaijan 2020 future vision" plan, "2014-2018 State Program of

socio-economic development of the regions of our Republic", stimulating the export of non-oil sector and manufactured products and the order of the President of the country in this regard suggests that there is a special emphasis on the development of the industry and the increase of competitiveness at the country level, as well as the creation of clusters in this field.

In addition, during the 44-day Patriotic War, which began on September 27, 2020, our lands were freed from occupation, and as a result, the geographical integrity of our country was restored. In 2022, the "Socio-economic Development Strategy of the Republic of Azerbaijan in 2022-2026" programs were adopted and based on these programs, the creation of a "green energy" zone, alternative green energy production measures should be taken, clean "green" technologies should be used. In order to achieve the goals of the new stage, "Azerbaijan 2030: National Priorities for socio-economic development" according to the decree issued by the country's president in 2021, one of the five main national priorities for socio-economic development of the country according to the decree of President Ilham Aliyev in 2023 Designation as a "Country of Clean Environment and Green Growth", 2024 "Solidarity for a Green World" "year" and at the same time the 29th session of the Conference of the Parties to the UN Framework Convention on Climate Change - COP29 - will be held in Azerbaijan in 2024, the President of the country Ilham Aliyev at the meeting held on December 15, 2023 emphasized that the creation and green energy policy is a priority. In the implementation of this task, in the process of transition to alternative energy sources, as well as in the freed areas, pilot projects such as "smart city", "smart village" and applying innovative approaches, transition to energy security and clean energy policy using only and only modern electrical engineering and green technologies. it is possible. Let us also point out that in the mentioned documents of state importance, not only special clauses on the development of the electrotechnical industry, but also the development and competitiveness of this sector and the formation of a new industrial structure are emphasized.

Although competitiveness from a theoretical point of view is a

comprehensive and profound issue, practically, implementation of competitiveness in the economic sphere is quite a complex economic proccess. Being subjects of economic struggle, enterprises use different methods to acquire a superior position in the competitive environment. As far as I'm concerned, the competitiveness of electrotechnical enterprises is more specific. It mainly covers important issues such as price, quality and functions of the product. For the electrotechnics industry, factors such as packaging, advertising and so on are not decisive. In modern conditions, where market principles are proved to be superior, competition acts as the most important catalyst of the economy. Therefore, the main nuances for ensuring the competitiveness of electrotechnical enterprises are their technical and technological characteristics, the current state of investment guarantee, import and export analysis of electrotechnical products. These issues make it necessary to increase the competitiveness of electrotechnical enterprises, determine the regulations in this field and form the strategic development. In this regard, being dedicated to the research of the mentioned problems, the research of the topic is also relevant.

Object of the research - The object of the study is the electrotechnical enterprises operating in the electrotechnical industry in Azerbaijan.

Subject of the research -is the study of theoretical and practical characteristics of the improvement of competitiveness and formation of strategic development of electrotechnical enterprises in Azerbaijan.

Statement of the Purpose. The main purpose of the dissertation work is to determine the directions of increasing the competitiveness and forming strategic development of electrotechnical enterprises in Azerbaijan on the basis of summarizing the relevant theoretical and practical views, taking into account the characteristics of the modern period, and making justified practical proposals and recommendations on these directions.

In order to achieve this aim, objectives of the study were defined and carried out in a logical sequence:

✓ Research and generalization of approaches and conceptual views on the competitive factor in enterprises;

✓ Determination of methodological aspects of the economic strategy for increasing competitiveness;

✓ Evaluation of technical and technological characteristics of electrotechnical enterprises in Azerbaijan;

✓ Analysis of investment guarantee in electrotechnical enterprises in Azerbaijan;

✓ Evaluation of innovative activity of enterprises in Azerbaijan;

✓ Analysis of import and export structure of electrical engineering products in Azerbaijan;

✓ Formation of a strategy in the direction of increasing the competitiveness of the electrotechnical industry in Azerbaijan

Theoretical and methodological bases of the research are consisted of the laws, orders, decrees on development of industry in Azerbaijan, as well as works of foreign economist-scientists on increasing competitiveness in enterprises and formation of Strategic development, views of local economist-scientists, their scientific statements, reports of international organizations, theoretical and practical views on the development of electrotechnics.

Research methods. Statistical economic, monographic, purposeful planning and other methods were used in the dissertation.

Main statements for dissertation.

✓ Determining the evolution of the theory of the development of the competitiveness of enterprises and the need to study the modern approach.

✓ Technical and technological characteristics of electrotechnical enterprises in Azerbaijan, analysis of their investment guarantee and evaluation of innovation activity.

✓ Calculating the multiplier effect of investments placed in industrial areas.

✓ Calculation of foreign trade condition index for electrical engineering industrial products.

✓ Modeling the relationship between investment in electrotechnical enterprises and electrotechnical output and the number of workers working in electrotechnical industries.

✓ Determining the current situation and development strategy of electrotechnical industry in Azerbaijan.

Scientific innovation of the research is to determine the priorities of the development of the electrotechnical sector, stemming from the existing characteristics of increasing the competitiveness of enterprises in Azerbaijan. The following can be cited as the elements of the scientific innovations of the research:

✓ As a result of the SPACE matrix established for the assessment of competitiveness positions in the electrotechnical sector in the modern era, recommendations were given on improving the activity of electrotechnical enterprises;

✓ Multiplicative-accelerating effect of investment in industrial enterprises was calculated;

✓ The Revealed Comparative Advantage (RCA) index was calculated as a result of the research;

✓ Qualitatively new methodology of SWOT-analysis of enterprises operating in the field of electrical engineering in Azerbaijan was carried out;

✓ An econometric relationship has been established between investment in electrotechnical enterprises, the average monthly nominal salary of hired employees in electrotechnical enterprises, the number of hired employees in electrotechnical enterprises and the product of electrotechnical products;

✓ The directions of determining the development strategy of electrotechnical enterprises in Azerbaijan are indicated.

Practical significance of the study. Theoretical and methodical statements, proposals and recommendations in the dissertation work will enable to accelerate the implementation of new tasks for Azerbaijan industrial sector by applying them on improving the system of investing in innovative production in the industry, as well as in the field of electrotechnics, production of competitive electrotechnical products and increasing the volume of investment.

Application of the findings of the study. The main statements, results and proposals of the dissertation were discussed at international and national conferences held in 2018-2024.

During the research period, the topic of the dissertation was accepted in accordance with the general direction of scientific research conducted at Azerbaijan Technical University. The main provisions and results of the research, the justified proposals were presented in scientific seminars.

Published materials on the results of the study. The main provisions, conclusions and proposals of the dissertation were discussed at international and nationwide conferences held in 2018-2024. The main results and provisions of the dissertation were reported at 7 international conferences held in Azerbaijan and foreign countries, 11 articles on the content of the dissertation were published in local and foreign scientific journals. The dissertation was performed at the Department of "Economics and statistics" of Azerbaijan Technical University.

Structure and volume of the dissertation. The dissertation consists of an introduction, 3 chapters, conclusions and proposals, a bibliography and 177 pages (194221 marks), introduction (14376 marks), chapter I (47203 marks), chapter II (96667 marks), chapter III (52520 marks), conclusion (22880 characters), the list of used literature (13095 characters). The thesis includes 25 figures and 53 tables.

STRUCTURE OF THE DISSERTATION

Introduction

CHAPTER 1. Theoretical and methodological basis of formation of competitiveness in industrial enterprises

1.1. Development of the theory of competitive development of enterprises

1.2. Methodological aspects of development of economic strategy to improve competitiveness

1.3. Methods of evaluating competitiveness positions in electrotechnical enterprises

CHAPTER 2. Analysis and evaluation of the current state of competitiveness level in the electrotechnical enterprises

2.1. Technical and technological characteristics of electrotechnical enterprises and analysis of their investment provision

2.2. Evaluation of innovation activities of enterprises

2.3. Analysis of the import and export structure of electrical engineering product characterization of the current system of regulation

CHAPTER 3. İmplementing strategic development strategy of electrotechnical enterprises.

3.1. Modeling the relationship between investment in electrotechnical enterprises and electrotechnical product

3.2. Definition of development strategy of electrical engineering enterprises in Azerbaijan.

MAIN STATEMENTS FOR DISSERTATION

1. Determining the evolution of the theory of the development of the competitiveness of enterprises and the need to study a modern approach. Observations show that in our modern era, whether it is a developed or a developing country, creating a competitive advantage over other countries remains one of the main goals of the economic development policies and strategies of these countries. From this point of view, the analysis of the theory of the development of competitiveness, looking at the path it takes in relation to the evolution of competition is also relevant from the point of view of the research topic.

In an environment of competitive struggle, market participants have the opportunity to achieve success, as well as the risk of losing or even becoming completely bankrupt. Therefore, entrepreneurs and companies always try to get ahead of each other in various production and service issues, improve their technical and economic indicators, and benefit from advertising propaganda at a more complete pace.

As a result of the evolution of the world economy, taking into account the provisions of the theory of comparative and absolute advantages, as a result of the research conducted by Western scientists, new views and theories have emerged on the economic category "Comparative advantages". So, according to P.E.Samuelson, the advantages of the countries are formed by the factors arising from their supply of production factors, production technologies, differences in the economic structure of the countries, different levels of capital, and political conditions in the country[1]. According to economists R. Dornbush and S. Fischer, countries are formed when they export certain types of products cheaper than other countries[2].

The results of the analysis of the literature devoted to

[1] Samuelson, Paul Where Ricardo and Mill Rebut and Confirm Arguments of Mainstream Economists Supporting Globalization // Journal of Economic Perspectives. 2004. № 3;135-146 p.

[2] Dornbusch, R, Fischer, S, and Samuelson, PA. Comparative Advantage, Trade, and Payments in a Ricardian Model with a Continuum of Goods

competitiveness above show that many economists describe competitiveness as a set of properties and quality level of products. However, world experience shows that such an approach is incorrect. It is also clear from the definitions given to competitiveness that the presence of many similarities in these approaches, essentially repetition, indicates that what has been mentioned is sufficient. It should be noted that the concept of "competitiveness" of the product is wider than the concepts of its "quality" and "technical level", although these concepts are among the most important components of the competitiveness of the generation. The following can be mentioned as proof of this:

First of all, the competitiveness of any product is determined only by the set of properties that are of interest to the consumer and ensure the satisfaction of his needs, and the product indicators that affect the manufacturer should not be taken into account when evaluating the quality, because these indicators are not interesting for the consumer. For example, if the manufacturer has managed to reduce material consumption and labor efficiency during production, the quality of the product will directly increase. But this does not mean that the attractiveness of the product for the consumer will change. The attractiveness of the product to the consumer will increase if the price decreases due to the reduction of production costs and the reduction of consumption of materials.

Secondly, in order to evaluate the competitiveness of the product, it is necessary to firstly compare the analyzed product and the competitor's product with the level determined by the buyer's wishes and preferred parameters, and then compare the obtained results.

Thirdly, from the point of view of quality, it is necessary to compare products not only according to their purpose and areas of use, but also according to their main structural and technological features, but from the point of view of competitiveness, satisfaction of specific needs is taken as a basis. For example, when comparing sensors made for robots with each other, the physical effect, scheme and construction of the working principle of the device are not important for the consumer, because only the technical

characteristics, price and similar characteristics are important for the consumer.

Fourthly, the analysis of the quality received in accordance with the existing normative documents does not provide an assessment of the level of competitiveness of the product, because the assessment of the level of competitiveness of the product is determined in the sales process, that is, it depends on the reaction of buyers.

2. Technical and technological characteristics of electrotechnical enterprises and analysis of their investment provision. The electrotechnical industry is one of the important branches of the engineering industry of Azerbaijan. This branch of the industry specializes in the production of power transformers, low-power mobile power plants, various models of electric motors with a power of 100 kW and above, motors with a power of 1 to 250 kW, electric and radio wires, cables and other electrical products for various purposes. consists of enterprises. Enterprises of the electrical engineering industry are distinguished by the fact that they more or less maintain their activities in the conditions of the market economy and adapt to new conditions. Thus, a number of products produced in this industry have received the certificate of the Turkish Standards Institute (FSE), which is accepted in 45 countries of the world.

Based on the data of the AR Statistical Committee, we can say with complete productivity that the share of the country's electrotechnical industrial product in the volume of the total industrial product has not been within the limit of any percentage in the last ten years.

The electrical engineering industry started to emerge mainly after the 40s of the 20th century. Thus, the creation of the first computer in the United States in 1946 almost laid the foundation for the development of the electrical engineering industry, especially the development of computers and electronic equipment. In our modern era, the electrical engineering industry has become the most important and progressive sector of the economy. The reason for this, in our opinion, is due to two factors:

The first of them is the breadth of scope of the electrical

engineering industry. Thus, the electrotechnical industry covers all technological fields related to the production, distribution, conversion, and use of electric energy, as well as the development, operation, and optimization of electronic components, electronic circuits, as well as electronic devices, equipment, and technical systems.

The second is that the products produced in the electrotechnical industry lighten manual labor, help people in household chores, as well as make it necessary for people to use the products of the electrotechnical industry in other spheres of activity. In short, this is due to the year-by-year increase in the demand for equipment produced in this industry.

It is known that since the main production of the electrical engineering industry is essentially science-intensive, the products of this industrial sector cover issues such as the preparation of various types of electronic parts, their modeling, and modernization. The products of this industrial sector are widely used and applied as electronic elements such as computers, televisions, various types of semiconductors and transistors made of metals. Therefore, being competitive in the electrotechnical industrial sector should be scientific and competitive not only from the technical and technological point of view, but also from the point of view of human resources.

The development of science naturally led to the development and expansion of the electrical engineering industry, as it influenced the development of other fields.

It is also interesting to determine the value of the products produced by electrotechnical industrial enterprises. Let's take a look at the main performance indicators of enterprises engaged in the production of computers and other electronic equipment.

Table 1. The main indicators of the work of enterprises engaged in the production of computers and other electronic equipment

Indicators	2017	2018	2019	2020	2021	2022
Number of operating enterprises-total	23	26	31	32	32	35
state	8	8	9	9	7	7
non-state	15	18	22	23	25	28
Production of the main types of products in kind						
Notebooks, pieces	-	-	-	9841	22272	21735
Desktop computers, pieces	-	-	118	1025	4669	1717
Measuring devices, pieces	263452	192382	250817	208377	234598	187663

Table 2. The main indicators of the work of enterprises producing electrical equipment

Indicators	2017	2018	2019	2020	2021	2022
Number of operating enterprises-total	48	54	61	63	69	80
state	5	5	4	4	4	4
non-state	43	49	57	59	65	76
Production of the main types of products in kind						
Power transformers, pieces	1259	1443	3258	1663	887	606
Other electrical wiring, ton	5093.4	3733.2	3232.4	5662.6	8831.3	10410.5
Household refrigerators and freezers, pieces	2094	1520	1473	670	3066	1918

The electrotechnical industrial enterprises that ensure the private development of the electrotechnical industry in the country are "Gök-Nur Baku LTD", "ATEF group of companies", "Azerkabel", OJSC "Elektroterm LLC", "Star LTD" LLC, "Nexus" LLC (Ultra Computers). , and others can be listed. "Baku Cable Goknur" LLC was chosen as the main research object in my

dissertation work

Founded in 2003, "Baku Cable Goknur" LLC is one of the largest companies active in the field of electrical engineering. MMC manufactures various types and sizes of insulated assembly cables, flexible cables, multi-core, flexible copper transmission cables, fire-resistant halogen-free cables, low voltage cables. STP Global Cable is a resident of Sumgayit Chemical Industrial Park and has been operating since 2009 and is one of the largest enterprises producing more than 25,000 types of cables in the region. STP's Cable plant products such as electrical rods, low and high voltage power cables, halogen-free installation wires, connecting wires and cords, telecommunication cables, tension cables, rubber insulated flexible power cables, uninsulated and insulated overhead power lines, winding installation wires is produced.

As a result, the analysis of both enterprises shows that one of the main characteristics of the electrotechnical industry in the country is the horizontal integration of this field. This means that the influence of suppliers on the one hand and large consumers on the other is very strong on the electrical engineering industry. Porter's five forces analysis shows that the mentioned forces lead to high competition in the electrical engineering industry and as a result, these forces determine the development strategy of the industry.

The result of the SPACE matrix conducted for "Baku Cable Goknur" LLC was obtained and reflected in the graph. The result of my analysis showed that the current strategic position of "Baku Cable Goknur LTD" is aggressive. The score for the financial strength (FS) of the enterprise is 5.1. It is well rooted in the aggressive strategy chosen and successfully adopted by "Baku Cable Goknur LTD". Direction vector coordinates. This position demonstrates the company's ability to maintain a competitive advantage with its financial strength. It has gained competitive advantage due to skillful marketing, growing market share, strategic management and sound financial position. The general results of the analysis suggest that it is appropriate to choose diversification and cost leadership strategies in order to increase the competitiveness of "Baku Göknur" LLC.

In the dissertation, the SPACE matrix is used to determine the most profitable and effective strategic position of the company "STP Global Cable" LLC. The result of my analysis showed that the current strategic position of "STP Global Cable" LLC is as aggressive as "Baku Cable Goknur" LLC. The results of the analysis suggest that STP Global Cable LLC has a healthy financial position, and by investing these funds in research and development programs, it can take a large segment of the market and gain leadership in this field. It has gained its competitive advantage through skillful marketing, growing market share, strategic management and sound financial position. The general results of the analysis suggest that it is appropriate to choose cost leadership and vertical integration strategies in order to increase organizational competitiveness.

The results obtained from the GZIT-matrix show that the weak points of the electrical engineering industry are the lack of personnel and the flow of qualified personnel abroad, the economic crisis, the strengthening of competition in the global electrical engineering market, the increase in the price of imported raw materials and components by suppliers, lagging behind innovative development, and the decrease in demand for nationally produced products. such threats have a high impact.

3. Calculation of multiplicative efficiency of investments in the industrial areas. In order to calculate the multiplier effect of investments placed in the electronics industry, it is necessary to first establish the investment function. It should be noted that the model for establishing the relationship between investments directed to fixed capital in the industry and the volume of output produced in the general industry is given as follows:

$$Y=3.3632X+12507$$

The results of the regression equation we obtained show that the multiplier is equal to 3.36. This means that each manat of investment directed to the fixed capital in the industry in Azerbaijan can increase the volume of the product produced in the industry by 3.36 manat units. That is, for every 1 manat increase in investment, the volume of the predicted GDP growth will increase by 3.36 manats.The results of the regression equation we received show that

the multiplier is equal to 3.36. This means that each manat of investment in fixed assets in the industry in Azerbaijan will increase the volume of products produced in the industry by 3.36 manat units. That is, for every 1 manat increase in investment, the projected GDP growth will increase by 3.36 Manats.

According to Keynes's theory, the more current GDP increases, the part of accumulation will increase on other equal terms. In the long term, their accumulated wealth is equal to investments, that is, the growth of GDP affects the growth of investments. Let's construct the function of dependence of investments on GDP and calculate the regression equation: Y=0.0615X+4604.8

The results of the regression equation we obtained show that the accelerator is equal to 0.13. This means that for every 1 manat of industrial production in Azerbaijan, the amount of investment directed to the main capital in the industry will increase by 0.13 manat. In my opinion, if we use this factor from the point of view of improving the investment guarantee of electrotechnical enterprises, then it will serve to improve both the technical and technological characteristics of these electrotechnical enterprises and increase the volume of products.

4. Evaluation of innovation activity of electrotechnical enterprises in Azerbaijan. Observations confirm that over the past 25 years, the electrical engineering industry has significantly developed, with substantial growth in both the volume and variety of its products. The inclusion of technologies ranging from semiconductors to quantum and nanoelectronics, as well as devices such as computers, tablets, phones, and various memory devices, indicates that this sector is rapidly evolving and possesses a dynamic and innovative structure. The experiences of leading countries in the field, such as the USA, Israel, Germany, China, South Korea, Singapore, and Japan, demonstrate that the development of the electrical engineering sector primarily depends on two key factors:

- Investments in the national economy.
- The level of human capital development.

It is evident that the electrical engineering industry does not require large-scale investments. However, its products are essential

to meeting the demands arising from societal development. The development of human capital, primarily through advancements in education and science, is a fundamental prerequisite. To analyze the innovation activities of electrical engineering and industrial enterprises in Azerbaijan, it is essential to first assess the volume of innovative products based on their novelty level.

Both domestically and internationally, the outcomes of innovation activities in enterprises are primarily reflected in the production of science-intensive products and the increased consumer demand for these goods. However, in Azerbaijan, these factors are not evident in either the variety or the scientific intensity of locally produced goods, indicating significant challenges in the innovation activities of enterprises within the country.

The electrical engineering industry, with its advanced growth rates, acts as a driving force for the creation and dissemination of technological innovations. It serves as the foundation for the development of other modern industries and the advancement of scientific research. Today, industrial enterprises operating with new technologies require a specialized workforce and highly qualified personnel capable of conducting research and development to maintain competitiveness.

Specifically, the indicator decreased in 2015, in 2015, it suddenly reached 35.7 mln. increased to 14.7 million manats in 2017. decreased to AZN, and in 2022 again 72.6 mln. has risen to manat. Thus, in 2018, the share of innovations that underwent significant changes in the production of computers and other electronic equipment was 68.9%, in 2019 it was 28.0%, in 2020 it was 40.3%, and in 2021 it was 2%. At the same time, let's also say that the improved electrical engineering products during the analysis period are at the level of none.

5. Calculation of the conditional index of foreign trade in electrical products. Foreign economic relations include firms, enterprises and organizations, scientific-technical, production, investment, financial-credit and information relations between countries, as well as the exchange of products and services, which leads to the development and integration of the world economy.

Unequal distribution of production resources in the world and year-by-year increase in population causes the demand for products and services corresponding to the demands of modern life to increase year-by-year. This, in turn, leads to increased competition between countries. As a result, a group of countries try to have a competitive advantage in international trade and ensure the increase in demand for their products in the world. Since foreign trade is the most widespread and most developed form of foreign economic relations in our country, it is necessary for our country to benefit from such opportunities.

Observations confirm that one of the fastest growing fields in the world today is the electrical engineering industry. This is due to the level of development of society, the faster application of scientific achievements to production, the fact that the electrical engineering industry is a science-intensive field, and the initial application of the achievements of scientific and technical progress (ETT) to the electrical engineering industry is more appropriate than in other industries.

The analysis of the dynamics of foreign exchange shows that in 2011, foreign currency was 36,327 mln. US dollars, including exports 26571 mln. dollars, import 9756 mln. increasing from the level of USD, in 2022, XTD will be 52,686.5 mln. US dollars, including export 38 146.6 mln. USD, import 14,539.9 mln. has reached the level of the US dollar. In other words, the volume of imports increased by 20% during the considered period. Fortunately, the volume of exports does not have dynamic growth. The analysis of foreign trade indicators in Azerbaijan for the years 2010-2022 shows that the foreign trade turnover of 2022 has increased almost 2 times compared to 2010 and reached 52,686.5 million. amounted to US dollars. At the same time, the volume of export increased by 1.8 times, and the volume of import increased approximately 2.2 times and amounted to 38146.6 and 14539.9 million US dollars, respectively.

It should be noted that in 2011-2022 there was always a positive balance in the trade balance. However, the volume of the country's foreign trade has been decreasing year by year since 2011.

Of course, this is related to the oil factor. That is, the decrease in the price of oil and oil products export, both in terms of value and in the volume of production, led to a decrease in total exports, and in 2019, the volume of imports increased.

The analysis of the commodity structure of export of electrotechnical products shows that in the studied period of 2018-2022, machines, mechanisms, electrotechnical equipment, electrical machines and equipment, apparatus, their parts changed between 0.2% and 0.4%. Thus, the specific weight of electrical engineering products in the structure of exports is not even a percentage. During the analyzed period, the export of electrotechnical industrial products was 100 mln. Not so at the US dollar level.

If we take a look at the commodity structure of the import of electrical engineering industry by similar products, we will see that the specific weight of electrical engineering industry products in imports is higher than in exports. The range of exported electrotechnical industrial products is quite limited. The second important difference in the import of electrotechnical industrial products is related to their range. That is, the range of products included in the structure of imports is wider.

In this dissertation, the Revealed Comparative Advantage (RCA) index was calculated. The RCA index shows the ratio of a product or industry's share of national exports to its share of world exports. Research results show that (Table 3), petroleum oils and oils obtained from bituminous minerals, gas and other gaseous hydrocarbons, petroleum coke, petroleum bitumen, and other residues from petroleum have highly obvious comparative advantages.At the same time, looking at the range of exported products, it is possible to obtain statistical data on liquid pumps and electric energy in the structure of exports. That is, the range of exported electrotechnical industrial products is quite limited. The second important difference in the import of electrotechnical industrial products is related to their range. That is, the range of products in the structure of imports is much wider.

Table 3. Calculation of RCA of exported products in country

type of product	RCA 2018	RCA 2019	RCA 2020	RCA 2021	RCA 2022
Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral resources	7.084	8.285	9.485	7.657	5.681
Plastics and products from them	0.179	0.274	0.343	0.546	0.304
Edible vegetables and certain roots and tubers	3.209	3.156	4.226	2.635	1.691
Aluminum and products from it	0.577	0.693	0.872	0.785	0.499
Cotton	1.778	2.694	4.213	4.334	2.172
Electrical machinery and equipment and parts; voice recorders and loudspeakers, television	0.008	0.012	0.008	0.006	0.007
Copper and products from it	0.208	0.154	0.203	0.239	0.099

As can be seen from the results of the calculations, the Balassa index for tomatoes, potatoes, cabbage, other vegetables and cotton was more than 1 among the exported products. In other words, domestically produced products of the oil and agricultural fields are recognized and competitive in world markets. At the same time, salt, sulfur, stone, wood and wood products, copper and copper products, including electrical machinery and equipment and their parts, and other local products had a Balassa index of less than 1. This suggests that the listed products do not have obvious comparative advantages.

In the international world, one of the steps taken to produce any product within any country is to calculate the terms of trade index. In order to calculate the terms of trade index for

electrotechnical industrial products, analyzes were made based on the country's exports of 2010-2021 based on three product groups covering the electronics industry and 14 imported product groups. The results of the analysis give reason to say a number of interesting ideas about the trade of electrotechnical industrial products of the country

Table 4. Dynamics of the foreign trade Condition Index (according to Lasperes) on electrotechnical industrial products

Years	Export price index	Import price index	Foreign trade condition
2010	0.3	1.4	0.2
2011	0.5	2.1	0.2
2012	0.4	0.37	1.1
2013	0.7	0.43	1.6
2014	1.1	0.36	2.75
2015	0.1	0.39	0.3
2016	0.1	1.8	0.06
2017	0.385	1,2	1,2
2018	0.323	1,1	1,3
2019	0.245	1,5	0,9
2020	0.15	7.81	0.019
2021	1.06	4.60	0.23

Source: http://www.stat.gov.az

Our research on the terms of trade index shows that the country's terms of trade index has changed in favor of importing countries in the studied years. The analysis shows that the products imported to Azerbaijan are cheap. The rise of the import price index in 2017-2021 suggests that there is a great demand for imported products in the country, mainly electrical engineering products.

6. Modeling of relationships between investment in electrotechnical enterprises and electrotechnical product and the number of employees working in electrotechnical industries.

To study the statistical dependence of the volume of production of Electrical and electrical equipment on investments in the production of Electrical and electrical equipment, let's look at the linear regression equation.

$$y=a_0+a_1x_1+a_2x_2+a_3x_3$$

here, y - is the volume of production of Electrical and electrical equipment (mln manat), x_1 – is the investments directed to the field of Electrical Engineering (mln manat), x_2 –is the number of employees employed in the electrical industry (thousand people), x_3 – is the average monthly nominal salary of employees employed in the electrical industry (manats).

Table 5. Feedback on the volume of electrical industry products and investments in fixed capital in the electrical industry and the number of employees in the electrical industry (EVIEWS)

Dependent Variable: MEHSUL

Method: ARMA Maximum Likelihood (OPG - BHHH)

Date: 06/10/24 Time: 15:19

Sample: 2005 2022

Included observations: 18

Convergence achieved after 11 iterations

Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-37.33633	21.14053	-1.766102	0.1078
ISCI	21.26655	4.054355	5.245359	0.0004
INVEST	1.403373	0.366835	3.825622	0.0033
EMEKHAQQI	1.126197	0.146124	7.707123	0.0000
@TREND	59.59726	5.509987	10.81623	0.0000
DUMMY2014	123.7961	8.895957	13.91600	0.0000
AR(1)	-0.665045	0.213435	-3.115912	0.0109
SIGMASQ	322.6986	250.0544	1.290514	0.2259

R-squared	0.965090	Mean dependent var	188.1000
Adjusted R-squared	0.940653	S.D. dependent var	98.93185
S.E. of regression	24.10099	Akaike info criterion	9.535924
Sum squared resid	5808.575	Schwarz criterion	9.931645
Log likelihood	-77.82332	Hannan-Quinn criter.	9.590489
F-statistic	39.49312	Durbin-Watson stat	2.239202
Prob(F-statistic)	0.000002		

Linear relationship between investments directed from the data in the table and the number of employees employed in the electrotechnical industry it will be obtained as

$$y=1.403x1 + 21.266x2 + 1.126x3 – 37.33.$$

At the end of our analysis, the following results were obtained:

1. An increase of 1 unit of investments directed to the field of electrical engineering increases the volume of the product produced in the field of electrical engineering by approximately 1.4 units.

2. An increase of 1 unit in the number of workers employed in electrical engineering enterprises in the field of electrical engineering increases the volume of products produced in the field of electrical engineering by approximately 21.26 units.

An increase of 1 unit in the average monthly nominal salary of salaried workers in electrical engineering enterprises increases the volume of products produced in the field of electrical engineering by approximately 1,126 units.

7. Determining the current situation and development strategy of electrotechnical industry in Azerbaijan.

A development strategy should be defined in terms of development of electrotechnical enterprises in Azerbaijan, increase of production volume, expansion of the sales market and selection of new target segments. This Strategy envisages all the tools of the industrial policy that ensure the long-term development of the electrical engineering industry by constantly increasing the competitiveness of Azerbaijani companies in the domestic and global electrical engineering markets. Industrial policy instruments are divided into two groups:

1. development of infrastructure necessary for industrial enterprises;

2. economic stimulation of electrical engineering market participants.:

Table 6. In the development strategy, the infrastructure necessary for industrial enterprises must be developed:

(direction 1) development of infrastructure necessary for industrial enterprises	development of a system for training qualified personnel for electrotechnical enterprises	- creation of a modern system of professional development and retraining of employees, engineers and management staff in this field; - development of higher and secondary vocational education system.
	creation of a network of scientific research centers	- Creation and development of scientific research centers - establishment of free trade zones
	Improving the quality of public services	- simplification of export procedures; - improvement of the legislative framework in the field of improving the business environment -support in domestic electrical engineering products meeting foreign standards and requirements; - support for the promotion of national electronics products in foreign markets.

Table 7. Economic stimulation of electrical engineering market participants in the development strategy should be carried out:

(2nd direction) economic stimulation of electrical engineering market participants.	increasing investment attractiveness in the field of improving the business environment	- formation of the venture ecosystem - creation of infrastructure that ensures venture activity
	Regulation of trade	- Customs regulation - Cost subsidization - offering preferential credit to consumers of locally produced products - application of tax benefits - insurance of state contracts that ensure the participation of national companies in large projects.
	Technical regulation	- - adoption of technical standards - to adopt requirements and standards limiting the entry of mass-produced products into the Azerbaijani market.

	Information stimulation	- social advertising paid from the state budget - speeches, publications, open and closed publicity about the achievements of the electrotechnical industry - use of domestic products by government officials
	Protection of intellectual property in the field of science and engineering.	- Protection of intellectual property in the territory of Azerbaijan; - protection of intellectual property of local enterprises and citizens abroad; - Support for local enterprises and citizens to obtain patents for their inventions in the territory of Azerbaijan; - Support for local enterprises and citizens to obtain patents for their inventions in foreign countries.
	Development of cooperation and cooperation	- Interdisciplinary cooperation - international cooperation - formation of clusters - Establishment of the Association of Producers

In the “conclusion” section of the dissertation, the conclusions we have reached and the proposals we put forward can be summarized as follows:

1. Other characteristic features that we have seen from the international experience regarding the development of the electrical engineering industry are shown below:

- first of all, the electrotechnical industry has the opportunity to create more added value than any other industrial sector of the economy, as we can see from the experience of developed countries;

- products of the electrical engineering industry have control functions, which increases its importance from the point of view of management;

- it becomes necessary to use the achievements of electronics for the efficient organization of the activities of most economic sectors as well as state institutions, in other words, the demand for electrotechnical products in the fields of oil, aviation, machine-building, chemical and other industries is increasing,

-increasing the specific weight of the electronics industry in the growth of global GDP in the last ten years;

- as a result of the above, electrical engineering makes up 30% of the total investment placed in the industry in many countries of the

world.

2. The electrotechnical industry is one of the important branches of the engineering industry of Azerbaijan. This branch of the industry includes enterprises specializing in the production of power transformers, low-power mobile power stations, various models of electric motors with a power of 100 kW and above, motors with a power of 1 to 250 kW, electrical and radio wires, cables and other electrical products for various purposes. consists of

3. The analysis shows that in 2022, the production of computer, electronic and optical products will be 50.8 million manats or 0.1% of the total industrial product, the production of electrical equipment will be 186.9 million manats or 0.2% of the total industrial product did. On the other hand, the value of the products of electrotechnical industrial enterprises in the last ten years is not more than 0.1% in the GDP, which proves that serious investments are needed to develop the technical and technological characteristics of the electrotechnical industry.

4. In order to assess the threat levels of each of the competitive forces proposed by Michael Porter, Porter's model was tested on companies "Baku Goknur Cable" LLC and "STP Global Cable" LLC. As a result, the analysis of both enterprises shows that one of the main characteristics of the electrotechnical industry in the country is the horizontal integration of this field. This means that the influence of suppliers on the one hand and large consumers on the other is very strong on the electrical engineering industry.

5. The SPACE matrix is used to determine the most profitable and effective strategic position of the companies "Baku Cable Goknur LTD" and "STP Global Cable" LLC in the dissertation work. The general results of the analysis suggest that it is appropriate to choose diversification and cost leadership strategies in order to increase the competitiveness of the organization "Baku Göknur" LLC, while it is appropriate to choose cost leadership and vertical integration strategies for "STP Global Cable" LLC.

6. The results obtained from the SWOT-matrix show that the strengths of the electrotechnical industry in the country are the presence of traditions, developed infrastructure, availability of raw

materials, availability of able-bodied and qualified labor force, favorable geographical location, rapid development of technical skills in the workforce. The results obtained from the SWOT-matrix show that the weaknesses of the electrotechnical industry are highly affected by threats such as the lack of personnel and the flow of qualified personnel abroad, the economic crisis, the strengthening of competition in the global electrotechnical market, and the weakness of innovation activity.

7. The results of the regression equation we obtained show that the multiplier is equal to 3.36. This means that each manat of investment directed to the fixed capital in the industry in Azerbaijan will increase the volume of the product produced in the industry by 3.36 manat units. The results of the regression equation we obtained show that the accelerator is equal to 0.061. This means that for every 1 manat of industrial production in Azerbaijan, the amount of investment in fixed capital in the industry will increase by 0.061 manat.

8. If we look at the volume of innovation products according to the level of innovation in the industry, we will see that the volume of products that have undergone significant changes or are newly introduced does not continue with increasing dynamics. Thus, in 2018, the share of innovations that underwent significant changes in the production of computers and other electronic equipment was 68.9%, in 2019 it was 28.0%, in 2020 it was 40.3%, and in 2021 it was 2%..

9. The analysis of the commodity structure of export of electrotechnical products shows that in the studied period of 2018-2022, machines, mechanisms, electrotechnical equipment, electrical machines and equipment, apparatus, their parts changed between 0.2% and 0.4%. Thus, the specific weight of electrical engineering products in the structure of exports is not even a percentage. During the analyzed period, the export of electrotechnical industrial products was 100 mln. Not so at the US dollar level.

10. The calculation of the Revealed Comparative Advantage (RCA) index suggests that electrical engineering products, computers and other electronic equipment and their parts, and other

domestic products have a Balassa index of less than 1, which means that these products do not have obvious comparative advantages.

11. A development strategy should be defined in terms of development of electrotechnical enterprises in Azerbaijan, increase of production volume, expansion of the sales market and selection of new target segments. According to the development strategy, infrastructure development necessary for electrotechnical industrial enterprises and economic stimulation of electrotechnical market participants should be carried out. According to the mentioned development strategy, it will be possible to neutralize the threats by using opportunities such as economic cooperation with foreign advanced electrotechnical enterprises in the country's electrical engineering field, state support to the electrical engineering industry, stimulation of innovation activities, expanding the range of electrical engineering products, improving their quality, and conforming to international standards.

The main content of the research is reflected in the following scientific works published by the author:

1. Bakhishova N.N, "Evolution of the theory of development of competitiveness of enterprises". Research and training center on labor and social problems. Labor and social problems, Collection of scientific works, Baku. 2017 № 2 (20) p. 152-161

2. Bakhishova N.N, "Methodological aspects of developing an economic strategy to increase competitiveness." Scientific-practical magazine "Cooperation", "AKU", Baku 2017 №4 (47) p. 156-163

3. Bakhishova N.N, "Methods of assessing competitiveness". Ministry of Agriculture of the Republic of Azerbaijan, Azerbaijan Agrarian Scientific, scientific-practical journal, Baku. 2018 №4 Page. 125-130

4. Bakhishova N.N, "Technological characteristics of the electrical industry and the assessment of their investment security." AMEA, Institute of Economics, Scientific works, Baku 2018 №2 pages.62-68

5. Bakhishova N.N, "Prospects for the development of electrotechnical industry in the Republic of Azerbaijan." MOO

"Foundation for the Development of Science and Culture", publication in №3 (63) scientific journal "Global Scientific Potential".2018. Russia №2 (83) p.27-31

6. Bakhishova N.N, "Evaluation of innovative activity of enterprises in Azerbaijan". Ministry of Agriculture of the Republic of Azerbaijan, Journal of Scientific Works of the Agricultural Research Institute of Agricultural Economics, Baku. 2018 №2 pp.122-129

7. Bakhishova N.N, "Dynamics of foreign trade turnover of electrical products in Azerbaijan". Materials of the Republican scientific-practical conference of young researchers "Integration of social and humanitarian sciences is a requirement of the time", Baku. 2020. №2. pp.261-267.

8. Bakhishova N.N., "Definition of the current state and trends in the development of electrotechnical industry in Azerbaijan." "Eurasian Scientific Union". 71 aya International Scientific Conference ", Moscow 2021 №1-2 (71) p. 82-85

9. Bakhishova N.N., XCIII International scientific-practical conference "Innovative approaches to modern science". 2021. № 9 (93). P. 173-178.

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14. Bakhishova, N.N. "SPACE matrix of the evaluation of the strategic position of electrical engineering enterprises" // Scientific and practical journal of economic reforms. No. 4(9). Baku, 2023. P. 65-77

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18. Bakhishova, N.N. “Modeling of relations between the product of electrotechnical institutions and the investment to the electrotechnical institutions, the number of employees working in electrotechnical institutions, the average monthly nominal salary of employees working in electrotechnical institutions” // Ist international scientific conference of researchers in the field of Economics and Social Sciences". Baku. UNEC. 2024

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