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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

THE EFFECT OF INTELLECTUAL CAPITAL ON THE INNOVATIVE DEVELOPMENT OF THE MARKET ECONOMY IN AZERBAIJAN

Speciality: 5308.01 – General economics

Field of science: Economic sciences

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Baku - 2024

Dissertation work was performed at Azerbaijan Cooperation University.

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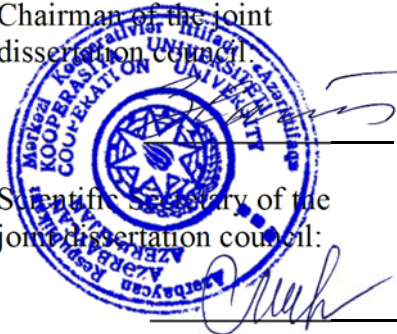
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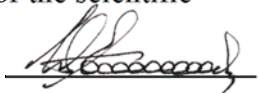


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GENERAL CHARACTERISTICS OF THE RESEARCH

The actuality and the degree of problem development of the research. Currently, human capital, which makes up the majority of the national wealth of many countries in the world, and intellectual labor have a great advantage in the country's economic growth. Thus, the formation and effective use of human capital is one of the main goals in ensuring the sustainable development of the economy in Azerbaijan and is supported by the state as a whole. In this direction, a number of laws, strategies and state programs have been adopted, including the Law “On Employment”, “Law on Education”, “Law on Science”, “On Protection of Intellectual Property Rights and Combating Piracy” of the Republic of Azerbaijan. Decree of the President, “Azerbaijan 2020: a vision of the future” Development Concept, “State Strategy for the development of education in the Republic of Azerbaijan”, “Strategic Roadmap for the development of telecommunications and information technologies in the Republic of Azerbaijan”, “Strategic Roadmap for the prospects of the national economy of the Republic of Azerbaijan”, “Azerbaijan 2030: National priorities for socio-economic development”, “On ensuring the activity of the Intellectual Property Agency of the Republic of Azerbaijan”, Decree of the President of the Republic of Azerbaijan dated July 30, 2018, “Long-term National Strategy for copyright and other similar intellectual property”, Important documents such as “State Program of Socio-Economic Development of the Regions of the Republic of Azerbaijan in 2019-2023” can be cited.

Effective use of intellectual capital in ensuring the social and economic security of the Republic of Azerbaijan in modern conditions acts as a priority for the innovative development of the country's economy.

In the globalized world, increasing the role of knowledge and information in all areas of the economy is directly related to the deepening of intellectual life. In determining the level of the country's intellectual potential, human, structural and consumer potential is the first.

Humanity entering the post-industrial stage in the future is characterized as science-intensive and saving energy resources. Increasing the scientific capacity of the product brings knowledge, talent, skills and experience to the fore. In modern times, states that have achieved high achievements in the fields of education, science, health and culture act as leaders in the socio-economic development of countries. Also, the role of intellectual capital in ensuring the stability of Azerbaijan's economy and solving many social problems of the country is irreplaceable.

A.Marshall, F.Bem-Baverk, L.Walras, Y.Schumpeter, and others, representatives of the neoclassical school of theory explaining the essence of capital in a broad sense, were mainly based on the methodologies of previous economic schools. Later, Dj.B.Clark, I.Fisher, Dj.Lyussi, A.Muller, K.Kniz, E.Lindalya, B.Rosher, Dj.Gelbreit and others studied capital in their works in the neoclassical direction. Ch.Bouteiller, L.Edvinsson, A.Pankrukhin, R.Roslender, R.Fincham, T.Stewart and others can be mentioned among the foreign scientists who study intellectual capital in the modern era.

Among the Azerbaijani scientists' studies who conducted by on human resources, human potential, education, health care, culture, innovations can be emphasized Z.A.Samadzadeh, R.S.Abdullayeva, I.H.Aliyev, B.Kh.Atashov, A.G.Alirzayev, G.A.Azizova, E.A.Guliyev, Sh.M.Muradov, A.N.Muradov, R.P.Sultanova and etc.

Russian scientists, as V.I.Aleshin, V.P.Bagov, V.V.Belov, A.A.Bykova, A.L.Gaponenko, I.I.Ignatov, B.B.Leontyev and others conducted research on this topic.

The object and subject of the research. Intellectual property and human capital of the Republic of Azerbaijan are the object of the research. The subject of the study is the basic factors and economic relations that influence the development of the innovative economy of intellectual capital.

Research goals and purpose. The purpose of the study is to increase the efficiency of intellectual capital in Azerbaijan and evaluate its impact on the development of the innovative economy. To achieve this goal, the following tasks are planned:

- investigation of the nature and structure of intellectual capital from a theoretical point of view;
- study of international experience in the research of intellectual capital;
- determination of development characteristics of intellectual capital in Azerbaijan;
- researching the regularities of formation of innovative economy;
- investigation of the impact of intellectual capital on the socio-economic development of the country;
- assessment of the impact of intellectual capital on the development of innovative economy in Azerbaijan;
- application of assessment methods of intellectual capital of the country;
- justification of factors affecting intellectual capital;
- assessment of the impact of knowledge-intensive intellectual capital on the country's economic growth.

Research methods. Complex and systematic analysis, comparative economic analysis and forecasting, economic-mathematical, synthesis-analysis and statistical grouping methods were used in the research.

The information base of the dissertation is based on the economic theories of the classics, researches of world and local scientists on the formation and development of intellectual capital in the country, various normative and legal acts adopted by the government of the Republic in accordance with the topic of the research, relevant decrees and orders of the President of the Republic of Azerbaijan on the subject, the Ministry of Economy of the Republic of Azerbaijan and organizes the materials of the State Statistics Committee.

Main clauses defended. The main propositions defended according to the research topic are as follows:

- researching the theoretical and methodological foundations of intellectual capital and determining its development characteristics in Azerbaijan is one of the important conditions;
- the investigation of the impact of intellectual capital on the socio-economic development of the country and the possibilities of the formation of the innovative economy in the country should always be in the center of attention;

- special attention should be paid to the assessment of the impact of intellectual capital on the development of innovative economy in modern Azerbaijan;
- methods of evaluating the country's intellectual capital and econometric evaluation of the factors affecting it should be used more efficiently;
- There is a constant need for econometric assessment of the impact of knowledge-intensive intellectual capital on economic growth in Azerbaijan;
- The role of intellectual capital in ensuring the stability of Azerbaijan's economy is irreplaceable.

Scientific novelty of the research. The following scientific innovations were achieved during the fulfillment of the research:

- the theoretical and methodological bases of the economic nature and structure of intellectual capital were studied;
- possibilities of using international experience in the study of intellectual capital were offered;
- development characteristics of intellectual capital in Azerbaijan were investigated;
- a new approach was given to the system of indicators characterizing the innovative economy in the country;
- the impact of intellectual capital on the development of the innovative economy was evaluated;
- factors affecting intellectual capital are defined and systematized;
- the impact of knowledge-intensive intellectual capital on the country's economic growth was investigated using the econometric method.

Theoretical and practical significance of research. The materials and methodical provisions given in the theoretical part of the research will enable effective use of intellectual capital in the country. This, in turn, will have an impact on the formation and development of the innovative economy. Conclusions and proposals are given in the research regarding the impact of intellectual capital on the innovative development of the country's economy.

The recommendations and suggestions put forward in the study can be used in the preparation of the relevant concept, program, project and other documents. The main provisions of the research can be taught in economics-oriented universities in a suitable specialty, mainly in general economics.

Approval and application. The main content of the research is reflected in 5 articles (including 1 abroad) and 4 theses (including 1 abroad) published in prestigious local and foreign journals, international and republican important scientific-practical conference materials recommended by the applicant's. Among the published scientific works are “Methods for evaluating intellectual capital” (Nakhchivan, 2020), “Importance of intellectual capital in innovative development” (Baku, 2020), “Evaluation of factors influencing intellectual capital” (Baku, 2021), “Assessing the impact of intellectual capital on economic growth” (Bulgaria, 2022) can be shown.

In addition, the applicant's “Importance of intellectual capital research” (Baku, 2018), “Views and development characteristics of intellectual capital in the modern era” (Baku, 2019), “Intellectual capital development in the experience of foreign countries” (Baku, 2019), “Education, health and cultural capital as main components of intellectual capital” (Poland, 2022), “Intellectual capital as the main priority of socio-economic development” (Baku, 2023) were published.

Name of the organization where the research is carried on. Azerbaijan Cooperation University.

The total volume of the dissertation with a sign indicating the volume of the structural sections of the dissertation separately. Dissertation consists of introduction, three chapters, conclusion and list of references. The total volume of introduction (8975 characters), chapter I (78695 characters), chapter II (79242 characters), chapter III (30787 characters), conclusion (7871 characters) and bibliography (12526 characters) is 253258 characters. The number of marks of the dissertation is 205570 marks, excluding tables, diagrams, pictures, and the list of references.

MAIN CONTENTS OF THE RESEARCH

In the **Introductory** part of the study, the relevance of the topic is substantiated, the goals and tasks, methods of the research are given, the main defended clauses are explained, the scientific novelty, theoretical-practical significance and approval of the work are indicated.

In the first chapter of the dissertation called **“Theoretical-methodological foundations of the study of intellectual capital in the conditions of the market economy”**, the nature and structure of the study of intellectual capital was shown, the world experience of the study of intellectual capital was given, and the characteristics of the development of intellectual capital in Azerbaijan were determined.

In modern times, the sustainable development of the economy is primarily related to people's outlook, knowledge, education level, and so on. At present, the orientation of the knowledge-based innovation economy to the development of scientific and technical progress, the application of innovations, and the creation of knowledge should be indicated as follows:

- to the development of education, mainly to the acquisition and quality use of knowledge;
- to the formation of the field of intellectual property, to the protection of knowledge that has become intellectual property;
- improvement of management systems;
- should be based on the dissemination of knowledge and information communication.

Explaining the essence of intellectual capital includes knowledge, intellectual property, experience, culture of innovation, information and communication technologies, management systems, skills, abilities, level of professionalism and so on.

Looking at the stages of creation of intellectual capital, the following can be noted:

- transformation of information into knowledge;
- as knowledge bearers of people in the society, they are relevant for obtaining income by regularly receiving information and turning it into knowledge.

Touching on the structure of intellectual capital, it is divided into individual capital and social capital. Individual capital includes personal knowledge, achievements, education, experience, ability, culture and so on. Social capital includes cognitive and structural capitals. Cognitive capital includes laws, normative-legal acts, instructions, information in the economic system and is based on corporate knowledge. Structural capital concentrates the results of researches, management systems, technologies, information and communication technologies system, methods of updating knowledge.

At present, three main indicators are taken in the general evaluation of intellectual capital, which are the price indicators of intellectual capital, shareholder capital and tangible assets.

It should also be noted that economic growth and technological achievements are reflected in classical models. Sustainable economic growth is determined based on the Solow model (taking into account knowledge). Thus, sustainable economic growth includes capital, labor knowledge.

Another model related to sustainable economic growth is called the Romer and Lucas model, which takes human capital into account. This model mainly refers to sustainable economic growth - capital, labor, knowledge and human capital.

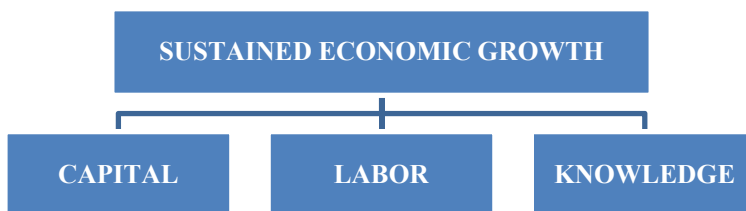


Figure 1. Sustainable economic growth: the Solow model (taking knowledge into account)

Source: Арджирис, К. Организационное научение. М.: ИИФРА-М, 2004.-с.9.

Based on this model, human capital means the transformation of technological knowledge into labor capacity. The role of government policy in the economy is determined mainly on the basis of fiscal and

monetary laws. Here, the economic policy of the government is based on the assessment of the following factors:

- support of political stability and legality;
- fiscal and monetary policy;
- investment environment;
- intellectual property protection.

It should be noted that the strengthening of attention to the growth of intellectual resources in the country acts as an integral part of the successful development strategy. Thus, the development of the country, the growth of its potential is determined by the development of science. There is still a strong demand for innovation, and it is multifaceted, stemming from the need for social innovation. Based on the experience of the countries of the world, it should be emphasized that the demand for innovations is reliably met when and where a moral revolution takes place in that society, as a whole, the economy is based on scientific knowledge and intellectual scientific resources. Scientific knowledge is the basis of intellectual capital. By relying only on scientific resources and intellectual capital, countries have realized their evolution - they have made a leap from the primitive era to the industrial and post-industrial eras.

This, in turn, means the development of society, people reaching a high level of consciousness and culture.

It should be noted that the role of intellectual property in increasing the competitiveness of the economic development of countries in the world economy in the XXI century is increasing. The history of the evolution of the development of intellectual capital has been developing since the Middle Ages until now, and now labor and business activities are not in industrial enterprises, but in scientific research organizations. Currently, the unique inventions of industrial property objects (SMO) in the country are primarily related to the implementation of capital investments in this area. The created new product must be long-term and is created directly by carrying out research and scientific-constructive works in scientific-research institutions or scientific-organizations with the necessary financial costs.

In modern conditions, intellectual property is considered as one of the main indicators of economic development in obtaining more goods

and services. As the main indicator of the development of scientific-technological and human capital, it also has its influence on the development of society. Although there are different expressions of intellectual property in the legislative documents of many countries, it is necessary to classify them in the following direction:

- intellectual property is treated as an intangible asset and is distinguished as a property in relation to an object.
- intellectual property is considered absolute.
- intangible intellectual property objects are manifested in material objects.
- intellectual property is regulated and protected by law.

Intellectual property is directly related to innovation activity, which has a positive effect on its development. It is clear that the focus of innovation activity, which forms the main line of innovative activity as a direction in the countries of the world, is the focus, and this approach is presented as follows:

- ✓ presence of strong state support in the development of innovation activities;
- ✓ the existence of a legal-normative base in this field, improvement of the mechanism of organization and regulation;
- ✓ modernization of the infrastructure network, meeting world standards and focusing control on it;
- ✓ ends with the creation of the system;
- ✓ favorable coordination between private - science - education - state enterprises¹

Basically, the organization of relevant conditions is considered as an aspect depending on the innovation activity, which is important from the point of view of the development of intellectual property. So, the United States of America, Western Europe, Japan, etc. countries of the world, implementing the adoption of innovative techniques and technologies in accordance with the requirements of economic subjects, local and they try to get achievements by strengthening their

¹¹ Şahsuvarlı M.X. - Müasir dövrdə intellektual kapitala baxışlar və inkişaf xüsusiyyətləri // AMEA-nın Xəbərləri, İqtisadiyyat seriyası. Bakı: - 2019, -№5. - s.21-22..

position in this direction by providing access to foreign markets and continue their activities in this direction. Currently, a number of states are organizing their innovation activities in an improved form, trying to achieve the restructuring of individual sectors of the country's economy, and the expansion of international economic relations. The impact of innovation activity on the economy is very broad and the scope of its application's measurement scope is complicated. The role of intellectual capital in innovation activity is great, and its influence points can be shown as follows:

- applied innovations have an impact on product quality, which allows for new or improved products and has the ability to further satisfy human needs;
- the impact on human demand manifests itself at a noticeable level, and this is considered the last point of its influence;
- innovation activity has an impact on economic growth based on intellectual property. Nowadays, people in different parts of the world get the product they need through the Internet-store and thus satisfy their needs;
- it is important to train and increase the number of highly qualified and professional specialists.

In recent years, the level of scientific research in Azerbaijan has increased the role of intellectual property in the application of updated modern technologies and thus has had its effect on the formation of a competitive economy. Thus, competitive human capital in the country acts as a carrier of modern innovations, where the development of knowledge and skills in accordance with the digital economy is observed. In response to modern challenges, the development of intellectual property based on innovations and the use of the results of intellectual activity in all fields is inevitable, and the main attention of the state has been directed to this way. It is considered important to stimulate intellectual property registration rights at the international level, to conduct effective patent registration, and to focus intellectual property-related work on economic policy.

It should be noted that human capital and intelligence are important in the modern world. Namely, as a result of this, the rise and material

well-being of each country is achieved due to the development of science and innovation.

The slogan of turning black gold into human capital, put forward by the President of the country, acts as a great support for creativity and gives ample scope for the development of creativity and the achievement of innovation.

Intellectual property, in turn, stimulates intellectual activity, creates conditions for attracting investments to creativity and innovation, and generally allows the use of intellectual products. It should also be noted that intellectual property participates in the creation of various values and accelerates the creation of the information society.

In modern times, intellectual property is based on knowledge and has the main driving force by concentrating intellectual capital.

In the current conditions, it considers it important to improve the national legislation based on the requirements of the new information society based on knowledge.

In accordance with the strategic plan of the state, the creation of appropriate conditions in the society, the creation of the culture of intellectual property, the formation of a culture of intellectual property, with the aim of achieving success among creative, innovative people and businessmen, with the aim of achieving success in material and non-material values.

It is the implementation of reforms in the field of intellectual property that gives impetus to updating the existing legislation and improving the normative-legal framework.

In the near future, it is planned to create modern systems of intellectual property in Azerbaijan, where the formation of a creative economy based on knowledge is carried out, taking advantage of world experience.

In recent years, the fight against piracy has intensified in the country, and it is planned to adopt a new law in this direction. As a result of the work carried out by the Agency, steps have been taken to protect the copyright of intellectual property.

The State Committee for Standardization, Metrology and Patents has drawn up a strategy for the creation of industrial property, and

currently works are being observed in the direction of combining intellectual property with this property.

In accordance with international requirements, it is necessary to apply automation systems in the management of intellectual property rights.

Based on the national interests and economic priorities of the state, it is necessary to conduct analysis and forecast in this direction, taking into account the world experience. Recently, there have been a number of advances in the direction of solving social and economic problems in the Republic of Azerbaijan, which, as a whole, played an important role in improving the material well-being of the country's population. It is considered important to have positive trends in the material and cultural well-being of the population for the development of intellectual capital at a high level.

Ensuring the development of intellectual capital in the country, first of all, requires increased attention and acts as one of the main issues. In particular, the current views on the development of intellectual capital in scientific-research institutions, including private organizations, should be changed. In these organizations, it is important to apply the mechanism of ensuring interest by motivating the staff and employees in the field of intellectual activity. Thus, it is essential to direct the knowledge of the staff working in these scientific institutions to the creation of intellectual property and adapt the knowledge to the final product (service), and there must be favorable conditions for this. Currently, it is necessary to draw up targeted programs for the financing of innovative intellectual activity, and in this process, it is necessary to implement healthy competition, efficiency, and regular improvement of knowledge and experience.

In the second chapter called **“Study of the impact of intellectual capital on the innovative development of the market economy in Azerbaijan”**, the possibilities of the formation of the innovative economy in the country were shown, the impact of intellectual capital on the socio-economic development of the country was studied, and the impact of intellectual capital on the development of the innovative economy in Azerbaijan was evaluated.

Having studied the essence of the innovative economy, it should be noted that this economy includes the main part of the value of the intellectual capital production system, enterprises and firms, and is based on scientific knowledge.

Analyzing the scientific and technical policy carried out in developed countries these days, it can be seen that the interaction with science, production and social life is very strong, and at the same time, it shows the essence of this new type of economy, which is an innovation economy, which began in the 80s of the XX century.

In the near future, the processes going on in the world are observed with the increase of competition in the construction of innovative economy in every country, and the main priority of the country in this direction is the creation of highly competitive human potential.²

Looking at the structure of the intellectual potential of the companies, here the implementation of capital investments in scientific research, design studies, human resources, know-how, corporate culture, etc. it is important to be like. So intellectual the focus on capital and intellectual production is steadily increasing (see figure 2).

Looking at the structure of the intellectual potential of companies, it is important to invest in scientific research, design research, human resources, corporate culture, etc. Thus, attention to intellectual capital and intellectual production is constantly increased (see figure 2).

It should also be emphasized that fundamental research takes its source from technologies in production, as well as finished products, and here the state acts as a customer. As a clear example of this, Sumgayit Technology Park can be cited as an example, where the organization of production of competitive products meeting world standards is carried out.

Currently, the intellectual resource should be based on its effective use as a tool in all areas of the economy.

In the creation of an innovative economy in Azerbaijan, it is considered necessary to establish a close relationship between science

² Azerbaijan 2030: National priorities for socio-economic development

and industry, to conduct applied scientific research in accordance with market demand.

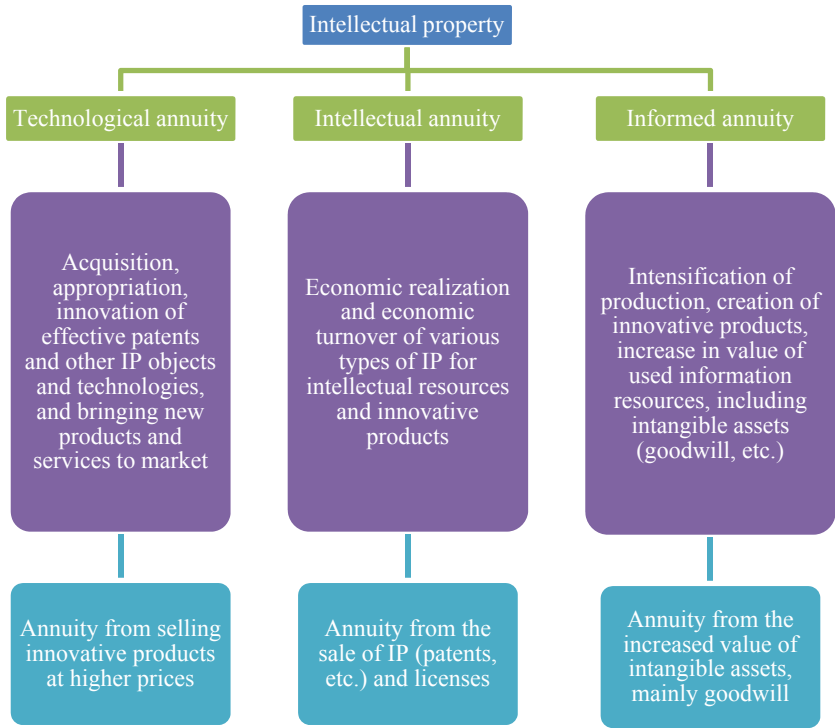


Figure 2. The interaction of intellectual property and the innovation economy
Source: [kayzen.az /blog / iqtisadçı/8157]

In modern times, increasing innovation activity creates a basis for stimulating competitive product production, and effective use of innovation potential will strengthen state support, and at the same time create conditions for the creation of an appropriate legislative framework.

The study shows that the main reason for lagging behind socio-economic development in underdeveloped countries is the low quality of human capital.

The development of innovation entrepreneurship in the country makes it appropriate to create a favorable environment for the development of

new types of activities, the development of technoparks and innovation zones. Thus, it is necessary to ensure the development of the knowledge-based economy of innovative entrepreneurship, and the development of information and communication technologies in this direction is important.

The social policy carried out by the state, first of all, must be supported by the public, based on normative and legal acts, implementation of social obligations undertaken by the state, organization of control and so on. The social policy conducted in the country should be aimed at improving social welfare and strengthening the social security system. Thus, the state acts as a guarantor of the social security system and provides social protection to its population by providing social care. Granting privileges, concessions and financial assistance to individual population groups is the basis of social protection.

Currently, the state regulates the initial distribution of income through tax and social deductions. It should also be noted that income regulation is considered an integral part of the state's socio-economic policy, and its purpose is to remove contradictions between different groups and strata of the population, thus creating a middle class. In this regard, the state should try to minimize the economic and social damage that may occur in advance and take into account the social situation in general. It should be emphasized that the population's investment in human capital is related to their income. If the income level of the population is high, they spend more on education, health and culture, which has an impact on improving the quality of life in the long run (see table 1).

As seen from the table 1, the nominal and real incomes of the population in the Republic of Azerbaijan increased 2.2 times in 2010-2022³.

Thus, increasing the service costs of the population (education, health care, culture, recreation, etc.) takes an important place in raising the standard of living by forming intellectual potential and human capital in the country. However, the research shows that the level of

³www.stat.gov.az

service in the mentioned areas in our country is not considered satisfactory, which, in turn, has a negative effect on the improvement of the quality of life.

Table 1.

Nominal and real incomes of the population in the Republic of Azerbaijan for 2010-2022

	2010	2015	2019	20 20	20 21	2022
Nominal income of the population, million manats	25607,0	41744,8	56769,0	55754,1	55206,8	68914,6
Nominal disposable income of the population, million manats	23405,0	38200,0	52188,3	50689,6	51248,1	61897,7
Average monthly nominal salary, manat	331,5	466,9	635,1	707,7	732,1	840,0
Real disposable income of the population, million manats*	22142,9	36730,8	50865,8	49308,9	48030,1	54343,9

***Source:** the table was compiled by the author based on the indicators of ASSC for the respective years.*

In recent years, reforms in Azerbaijan have been carried out in the direction of forming human capital and increasing its role in the country's economy. This is primarily related to ensuring the improvement of quality in the education system and increasing investments in this field. Currently, state programs and concepts have been adopted in this direction, among which Azerbaijan 2020: a vision of the future Development Concept and the State Strategy for the development of education in the Republic of Azerbaijan can be indicated. In modern times, the development of science, education, healthcare, culture and other social fields in the country by means of information and communication technologies is considered indispensable. Thus, the formation of technological innovation areas and their effective management are important. The application of

information systems in management processes, as a whole, will stimulate the improvement of the efficiency of the economy. It should be noted that the use of indicators of the industrial revolution, in general, will be used as an example of innovation potential in the diversification of the country's economy and the supply of the global electronic society.

Currently, the establishment of an innovative economy in Azerbaijan, the development of science, education, culture and other fields will stimulate the acceleration of integration into the world economy. That is why integration into the world science and information society is one of the main goals of the economic policy of the state of Azerbaijan. Thus, an innovative society relies on human resources and intellectual capital, which is its driving force.

It should be noted that the deep impact of intellectual capital on production changes its character and improves its efficiency. The basis of intellectual capital is information and knowledge, which gradually develops and becomes the main means and subject of social production. An innovative economy can exist and develop only in a knowledge society, where the acquisition and use of knowledge is determined not only by considerations of economic expediency, but also by the inclusion of knowledge in the daily life of people in various forms. Information and society are the environment in which a person operates. Man is a creative organizational and unifying element of the information environment and society. Both the informational and the social environment only perform their specific function.

Thus, the establishment of national innovative centers is being implemented in Azerbaijan in order to improve the innovation management mechanism. As an example, we can mention “Mugan” National innovative center. This center, as one of the main organizations, ensures the development of innovative entrepreneurship in the country. Its creation was related to the implementation of innovative projects in the country, which acts as a support for startups.

It should be emphasized that the “Mugan” National innovative center is equipped with modern equipment and its main goal is to provide access to relevant resources, which creates a foundation for

the development of innovative companies and startups. This “Mugan” National innovative center provides an opportunity to increase the qualifications of personnel in the field of entrepreneurship by implementing educational programs, where seminars are regularly held and the adoption of new methods of startup management is observed. All this is considered the main condition for their successful business.

It should be noted that “Mugan” National innovative center tries to implement its innovative ideas in the economy in cooperation with venture firms, separate funds and state organizations. He conducts consultations among entrepreneurs in the direction of attracting investments, and helps startups to draw up business plans. At the end, these business plans are presented to the relevant investors.

Thus, the “Mugan” National Innovative Center creates a favorable environment for the entrepreneurial activity of the country and implements innovations in different areas of the economy.

In modern conditions, the development of innovations should be based, first of all, on highly qualified personnel, and it is important to conduct monitoring in its management. So, based on the results of monitoring, it is necessary to detect deficiencies and ensure their timely elimination.

In the current conditions, highly qualified incubators are being created in Azerbaijan in terms of stimulating the development of startups. An example of this is the “Barama Innovation and Entrepreneurship Center”, which supports startups in the implementation of business ideas in different areas of the country's economy.

It should also be noted that information and communication technologies are considered one of the leading sectors in the field of innovation in the country. An example of this is the “Softline Azerbaijan” company, which mainly specializes in software and digital marketing.

Thus, in 2022, our country took the 85th place in the global ranking of startup ecosystems. This is directly related to the achievements of Azerbaijan in recent years in the rapid development of the field of information and communication technologies. According to the results

of this rating, the development of small and medium-sized businesses in the economy of Azerbaijan at the expense of state investments has given wide scope to the development of entrepreneurship in the country.

Thus, considering intellectual capital as a set of social and individual capitals, it can be noted that it is fully compatible with the innovative development of the country's economy.

From the point of view of formation and assessment of intellectual capital, it is necessary to take into account the degree of socialization of the collective and society for the conditions of building an information-knowledge, innovative economy.

It should be noted that in the knowledge economy, entrepreneurial activity is further developed with innovations based on advanced infrastructure, such as the Internet, databases, telecommunications, mobile, communication, knowledge and information. Due to the successful economic reforms carried out in the Republic of Azerbaijan, this infrastructure is rapidly being created in all enterprises.

All this has played an important role in ensuring the innovative development of the economy due to the development of intellectual capital in Azerbaijan. At the expense of intellectual capital, all areas of the economy have developed and positive quality indicators have been achieved. It should be emphasized that in recent times, growth has been observed in all areas of the economy, including the service sector. The study shows that the development of intellectual capital influenced the innovative development of the country's economy, and progress was observed due to the introduction of new techniques and technologies.

In the third chapter of the research called **“Econometric assessment of the innovative development of the market economy of intellectual capital in Azerbaijan and increasing efficiency”**, the methods of assessing the intellectual capital of the country were given, the econometric assessment of the factors affecting intellectual capital was calculated, and the assessment of the impact of knowledge-based intellectual capital on economic growth was shown.

Currently, there are many methods for assessing the country's intellectual resources. In the assessment of intellectual resources, the prominent economist K.E.Seybi identified 42 methods. Some of these methods are applicable only at the organizational level, but most can be used at the regional level. The collection of intellectual capital assessment methods can be divided into four categories:⁴

1. Methods of direct measurement of intellectual capital (Direct Intellectual Capital methods - DIC). This method is based on the identification and evaluation of individual components of intellectual capital in monetary values, and then an integral evaluation is carried out.

2. Market Capitalization Methods (*MCM*). These approaches are developed at the organizational level and the value of intellectual capital is calculated as the difference between the company's market capitalization and its own capital.

3. Return on Assets methods (*ROA*). The ratio of the company's average revenue to the company's tangible assets over a certain period is compared to the same indicator for the industry as a whole.

4. Scorecard Methods (*SC*). It is not intended to receive results for value. During the application of these methods, various components of intellectual capital are determined, and factors and indices are also included here.

Groups of each method have their own limitations. Thus, ROA and MSM can provide potentially reliable assessments, but cannot be applied at the level of individual divisions of the company, as well as at the regional level of non-profit organizations. DIC and SC methods, which have a wider field of application, do not always give an objective picture, and the results may be unfavorable for comparison.

It should be noted that later his colleagues included the following additional 5th group in these method groups.

5. Proper measurement systems (*MS*). This approach is based on the concept of the hierarchy of joint measurements (Conjoint Value Hierarchy) and involves the collection of value parameters to the

⁴ Sveibi, K..E. Methods for Measuring Intangible Assets. URL: [articles / IntangibleMethods.htm](http://articles/IntangibleMethods.htm) as of 2013.
<http://www3.bus.osaka-cu.ac.jp/apira98/archives/htmls/25.htm80>

organization and the environment by dividing them into measurable attributes. Such an assessment requires a large amount of data that sets high demands on quality, which makes the application of the method difficult if it is not possible to collect all the necessary data.

Using Chart 1, it is possible to determine the forecast values of the total value of STR on intellectual capital in the Republic of Azerbaijan. Based on the MS Excel program, using the data of SSCA, it is possible to predict the total cost of scientific research works on intellectual capital in the Republic of Azerbaijan for the future period.

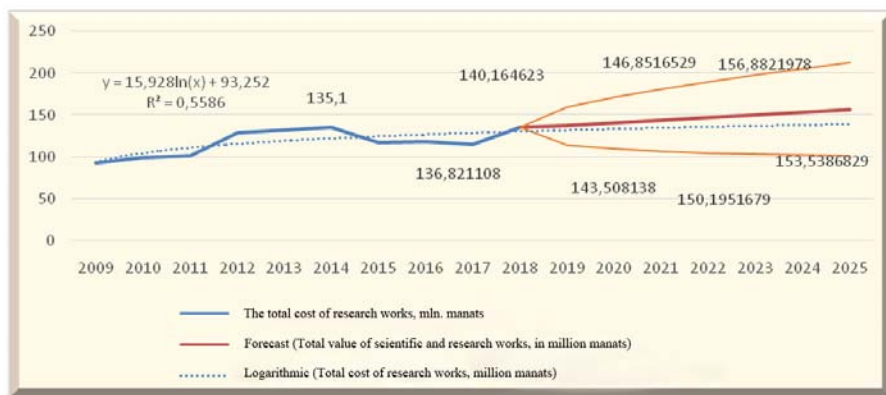


Chart 1. Forecast values of the total value of STR in Azerbaijan until 2025

Source: Compiled by the author based on the EvIEWS application software package

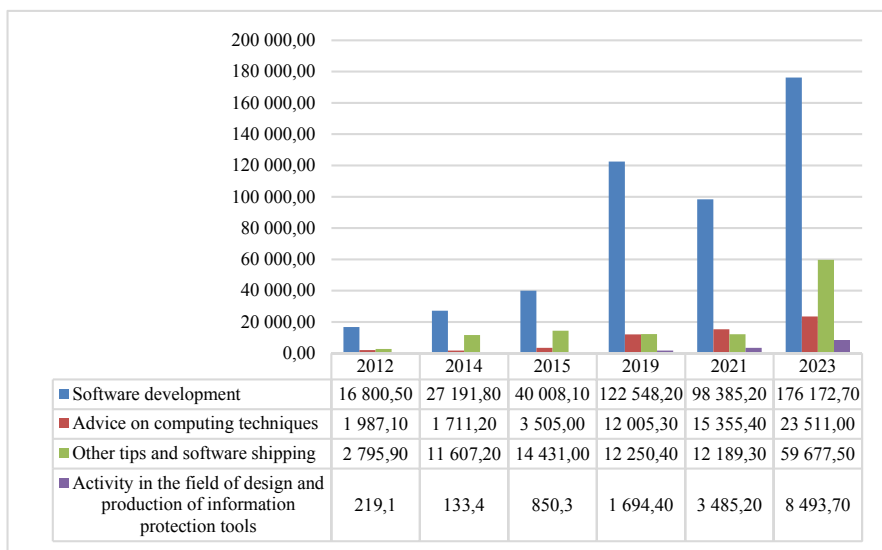
If we predict the forecast values of the total value of STR, we get the following result, which is depicted in graph 1.

As can be seen from the graph, the forecast prices of the total output of intellectual capital in the Republic of Azerbaijan will develop with increasing dynamics until 2025.⁵

In the context of the globalization of the economy, the export of knowledge-intensive products to industrially developing countries as a whole is aimed at strengthening inter-country competitiveness and improving relations. Thus, by evaluating the financial and economic activity of enterprises, the final result here is the achievement of profit.

⁵ www.stat.gov.az

From this point of view, it is considered important to pay attention to improving the qualifications of the personnel working here, analyzing the economic activity of companies and enterprises, obtaining profit, representing tangible and intangible assets here. Intellectual capital, being an intangible asset, as an economic category, includes other elements of national wealth in the form of technologies, know-how that cannot be separated from basic funds, and cultural value. The elements with the largest share of intellectual capital in the structure of the national wealth of each country are advanced technologies, fundamental science, and university science.



Graph 2. Work on intellectual capital in the Republic of Azerbaijan and the dynamics of the cost of services, in thousand manats

Source: Prepared by the author based on the data of SSCA

It should be emphasized that intangible assets play an important role in ensuring the sustainability of successful companies. Since such assets play a key role in the formation of the future value of enterprises, its creation is important. Intangible assets, as a whole, together with social human capital affect the economy, and in various companies and corporations, this relationship constitutes individual

human capital. In the globalized world economy, modern firms rich in intangible assets are producers of knowledge, not goods. In general, the achievement of efficiency in organizations is considered to be the result, first of all, of the realization of knowledge in production, the implementation of extensive staffing, and interaction with partners. More than physical assets or financial capital, intellectual capital constitutes a sustainable competitive advantage.

The study shows that the work and services performed on software development within the organizational capital of knowledge-intensive intellectual capital increased and developed dynamically in 2012-2023, which increased by 10.5 times in 2023 compared to 2012⁶. Despite the effects of the COVID-19 pandemic, the value of software development work and services for 2023 increased by 6.9% and amounted to 176,172 million manats compared to 2019. Consulting on computing equipment, other consulting, and the work and services performed in the field of design and production of Information protection tools also increased during the analyzed period, and this growing dynamic was clearly observed.

In the conclusion section of the research, proposals and recommendations of scientific and practical importance arising from the essence of the research were included:

These days, it is possible to achieve high achievements in all areas of the economy by effectively using intellectual property. Human being is the main foundation of the world's innovative development as a rich capital. Thus, the increase in highly qualified personnel training, professionalism, knowledge sharing, in general, affects the rapid development of the innovative economy. Thus, the rapid development of the innovative economy in the near future is connected with the increase of intellectual capital in the country.

- The study shows that intellectual property has a long-term effect on the country's development and enables the population to achieve a quality standard of living. Thus, intellectual property, in turn, creates conditions for the optimal development of economic sectors and helps in the adoption of high technologies. Achieving innovative

⁶ www.stat.gov.az

development of the country's economy depends primarily on intellectual capital, which is a component of the innovative process. Thus, the efficient operation of the infrastructure of the intellectual economy is considered important in the rapid growth of modern technology.

- The participation of the state in regulating the results of activities related to intellectual property is also considered important. Thus, it is of particular importance to improve the existing legal-normative framework and regulatory mechanisms in this field as necessary. Such a view will have a positive effect on the further fertilization of the environment created for the development of intellectual property, and on the expansion of the scope of research conducted in this field.

- Ensuring the development of intellectual capital in the country, first of all, requires increased attention and acts as one of the main issues. In particular, the current views on the development of intellectual capital in scientific-research institutions, including private organizations, should be changed. In these organizations, it is important to apply the mechanism of ensuring interest by motivating the staff and employees in the field of intellectual activity. Thus, it is essential to direct the knowledge of the staff working in these scientific institutions to the creation of intellectual property and adapt the knowledge to the final product (service), and there must be favorable conditions for this. Currently, it is necessary to draw up targeted programs for the financing of innovative intellectual activity, and in this process, it is necessary to implement healthy competition, efficiency, and regular improvement of knowledge and experience.

- The conducted research shows that education, healthcare and cultural capital are closely related to each other as the main component of intellectual capital. 1% increase in education costs in the Republic of Azerbaijan leads to a 0.25% increase in the total value of scientific research works, a 1% increase in health care costs aimed at the health of the population leads to a 0.42% increase in the total cost of scientific research works, a 1% increase in culture-related costs leads to a 0.42% increase in the total cost of scientific research works caused a 0.17% increase in its value.

- Thus, the development of intellectual capital in Azerbaijan requires increased attention to scientific research and accelerates socio-economic development in the country. Increasing attention to scientific research works, scientific projects, their application issues, allocating state expenses for their research regulates this type of activity and is of great importance. The state, in its turn, uses its regulatory role to influence innovative development in the country under market economy conditions.

- The study shows that the main reason for lagging behind socio-economic development in underdeveloped countries is the low quality of human capital.

In recent years, reforms in Azerbaijan have been carried out in the direction of human capital formation and increasing its role in the country's economy. This is primarily related to ensuring quality improvement in the education system and increasing investments in this field. At present, a number of state programs and concepts have been adopted in this direction, among which the “Azerbaijan 2020: a vision of the future” Development Concept and the “State Strategy for the Development of Education in the Republic of Azerbaijan” dated October 24, 2013 can be indicated.

- It can be concluded that intellectual capital in Azerbaijan acceleration of its development is primarily related to the increase in spending on social areas - education, science, health care, and culture. It is important to improve the quality of education and invest in scientific research. It is considered necessary to carry out reforms in this direction.

- Economic growth has also been achieved in the oil and gas industry, which is the basis of the economy these days. The development of intellectual capital has had a greater impact on the increase in the volume of production in oil and gas production in recent times. Studies show that the development of intellectual capital in the oil and gas sector, the volume of production in the exploited wells has increased due to the application of new techniques and technology, affecting innovative development. Thus, the following results can be noted due to the conducted research:

- the information-knowledge system is the main economic component of intellectual capital;
- the degree of socialization of the society should be taken into account in the conditions of the formation of the knowledge economy;
- the structure of intellectual capital can be viewed as the sum of individual and social capital;
- despite the development of the infrastructure required for the development of intellectual capital in the Republic of Azerbaijan, its activity should be adapted to world standards.
- In the conducted research, it can be concluded that because strategic development-oriented approaches allow more full use of the possibilities of the concept of human capital, it seems more appropriate to study the intellectual capital of the Republic of Azerbaijan as a development factor of innovative processes. In the framework of such models, it is important to separate the triple structure of intellectual capital more deeply and assess the state of the identified elements and coordinate the goals of regional development. In this regard, such models are closely related to the practice of intellectual capital management in the region.
- Increasing the service costs of the population (education, healthcare, culture, recreation, etc.) plays an important role in the formation of intellectual potential and human capital in the country and in raising the standard of living. However, the research shows that the level of service in the mentioned areas in our country is not considered satisfactory, which, in turn, has a negative effect on the improvement of the quality of life.
- The growth of intellectual capital stimulates economic development by increasing the value of scientific-research works across the country. There are many factors that affect scientific research, among which the expenses allocated in the state budget for education, health care, culture, art, information, physical education and other areas have a direct impact.

Since the multiple correlation coefficient is 0.927, the correlation of the studied indicators according to the Chaddock scale is very high. According to the result of the Eviews application software package, the coefficient of determination $R^2 = 0.875$ means that the

corresponding regression equation 87.5% of the variance is explained by the result indicator and 12.5% by the influence of other factors not included in the model. It shows that the indicated regression equation expresses the initial data better and that 87.5% of the volume of intellectual capital research works is explained at the expense of education, healthcare, culture costs and ICT products imported into the country included in the model.

- It should be noted that the added value created due to the work and services performed in the field of designing and manufacturing of information protection tools, consulting on software development, computing equipment tools, other consulting and information protection tools, in the formation of economic growth in the country is important. According to statistical data on GDP and knowledge-intensive intellectual capital, the dependence between them can be evaluated by conducting regression analysis.

- Calculations show that a 1% increase in knowledge-intensive intellectual capital leads to a 0.00082% increase in GDP in Azerbaijan.

The main content of the dissertation work is reflected in the following scientific studies:

1. Shahsuvarli, M.Kh. The importance of intellectual capital research // - Baku: News of ANAS, Economy series, 2018, - №6. - p. 210-217.

2. Shahsuvarli M.Sh. Views and development characteristics of intellectual capital in the modern era // – Baku: News of ANAS, Economy series, 2019, – №5. - p. 19-26.

3. Shahsuvarli M.Sh. Development of intellectual capital in the experience of foreign countries // - Baku: News of ANAS, Economy series, 2019, -№6. - p. 183-188.

4. Shahsuvarli M.Sh. The importance of intellectual capital in innovative development // – Baku: international scientific-practical conference on the priority directions of international economic relations in the XXI century. Azerbaijan University of Tourism and Management, 2020. – p.135-137.

5. Sultanova R.P., Shahsuvarli M.Sh. “Evaluation methods of intellectual capital” // - Nakhchivan: Republican Scientific Conference on “The role of innovations in the sustainable development of the economy of the Republic of Azerbaijan”. Ministry of Education of the Republic of Azerbaijan, Nakhchivan State University, 2020, -p.217-221.

6. Shahsuvarli M.Sh., Assessment of factors affecting intellectual capital // – Baku: Scientific-practical conference on the problems of effective management in modern times. Azerbaijan University of Tourism and Management, 2021. – p. 155-159.

7. Shahsuvarli M.Sh., Intellectual capital as the main priority of socio-economic development // - Baku: “Kooperasiya” scientific and practical journal, 2023, - No. 1. (68). - p. 142-147

8. Shahsuvarli M.Kh., Education, health and cultural capital as main components of intellectual capital // – Poland: Colloquium, journal scientific publication, 2022, -№4, - p.66-70.

9. Shahsuvarli, M.Kh., Assessing the impact of intellectual capital on economic growth // – Bulgaria: VI International Scientific Conference “Mathematical Modeling”, 2022. – pp.47-49.



The defense of the dissertation will be held at the meeting of the ED 2.46 Joint Dissertation Council of the Azerbaijan Cooperation University and Baku Business University operating under the Azerbaijan Cooperation University at 16⁰⁰ on 23 October, 2024.

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It is possible to get acquainted with the dissertation in the library of Azerbaijan Cooperation University.

The electronic version of the abstract is posted on the official website of Azerbaijan Cooperation University (www.aku.edu.az).

The abstract was sent to the necessary addresses on 21 September, 2024.

Signed for issue: 20.09.2024

Paper format: 60 x 84 1/16

Volume: 44593 characters

Edition: 20