REPUBLIC OF AZERBAIJAN

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

DEVELOPMENT OF ENTREORENEURSHIP BASED ON INFORMATION COMMUNICATION TECHNOLOGIES AND INNOVATIONS IN THE REPUBLIC OF AZERBAIJAN

Speciality:	5304.01-‘’Types of economic activity’’
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GENERAL CHARACTERISTICS OF THE WORK

Relevance of the topic and degree of elaboration. Today, IT entrepreneurship is involved in market relations as a sector offering specific products and services in many countries of the world. This type of business acts as one of the most important elements of the market infrastructure for the formation of an independent specialized market, the implementation and development of technologies.

Information and innovative technologies have an important impact on all areas of the national economy and infrastructure.

The signs of a new, post-industrial phase are already quite evident in developed countries. However, despite the fact that information has become the most important factor of economic growth in the modern society in the relevant literature and in the practical studies of Azerbaijani researchers, these new trends have not yet been widely reflected. In this regard, it seems appropriate to study the problem of entrepreneurship development based on information technologies and innovations as an important factor in the development of the national economy and entrepreneurship.

Information is the most important economic resource today, without it successful purposeful activity in a competitive environment is impossible. The technologies and means of obtaining, collecting, transmitting, analyzing (processing) and using information have become a means of service production.

Informatization and intellectualization of industrial technologies and the methods of economic management implemented on its basis become the main condition of a progressive developing economy. In addition to the country's natural resource potential, financial potential, intellectual (including scientific, educational, information and communication) potential also becomes the main capital.

The modern stage of the economy of Azerbaijan is related to the development of market forms of management, the revival of entrepreneurship in various fields, as well as the wide application of new information technologies in all areas of the economy. It is known that the basis of management, especially economic management, is complete, reliable and timely information. The information provision

of the planned economy is fundamentally different from the information provision of the market economy. In a planned economy, information was collected centrally. In each branch or department there was an information service that fully met the needs of planning and management within the framework of the branch automated management system.

In addition, there was a system of sectoral institutes of technical and economic studies and information that collected information needed to manage industries. Before the years of independence in Azerbaijan, the State Planning Committee and other related structures were carried out by field ministries and departments on planning the development of the economy.

The entry of our country into the world economic space determined the transition from a planned economy to a market economy. At present, each enterprise is building its own business independently. One goal of enterprises engaged in commercial activity is to make maximum use of available corporate resources (financial, technical and technological, human resources, legal, information and a number of others) in order to ensure the stable development of the enterprise today and in the future. The formation of a single information space that allows each enterprise to formulate a business strategy can create conditions for achieving this goal.

Today, information is considered as one of the most important resources for the development of society, along with material, energy and human resources. At the same time, information becomes an important factor that creates added value at each stage of the "science – technology – production – sales – consumption" cycle and plays a decisive role in making management decisions in any organization. With the development of market relations, information has become one of the most necessary types of products for entrepreneurial subjects. Accordingly, in this period, information products and services become objects of economic relations (production, purchase, sale) to a greater extent. As effective demand increases, there is a need for enterprises and specialists in the field of informatization, whose number continues to grow.

Currently, the actively developing processes in the national economy make us reconsider the traditional organizational-economic relations and think about serious changes in the information and innovation infrastructure.

Today's information space of the Azerbaijani economy consists of poorly connected information sectors (state and commercial, administrative and regional), each of which is not very accessible for use and expansion for various reasons. At the same time, one cannot fail to mention the positive trends that characterize the latest development dynamics of the information business in Azerbaijan and promise important opportunities for the progressive development of the national economy as a whole.

In this regard, we should note that the formation of the information society, information and communication in Azerbaijan

The rapid development of technologies and innovations, the work done by the state in the direction of their transformation into a leading factor of the well-being of our people is an integral part of the policy aimed at the future of our country. Thus, on February 17, 2003, thanks to the implementation of the measures provided for in the "National Strategy on Information and Communication Technologies for the Development of the Republic of Azerbaijan (2003-2012)" approved by the Decree of the President of the Republic of Azerbaijan No. 1146 dated February and the adopted state programs for its implementation, the level of use of ICT opportunities in education, health and other social fields, economy, business, household has increased significantly.

At the same time, the Decree of the President of the Republic of Azerbaijan No. 429 dated May 23, 2011, "On some measures in the field of organizing the provision of electronic services by state bodies", emphasized the importance of implementing state management based on modern principles, increasing the efficiency and transparency of activities. The organization of electronic services for the prevention of corruption strengthened the activity of state bodies and gave a serious impetus to the acceleration of work in this direction.

On September 20, 2016, the President of the Republic of Azerbaijan Ilham Aliyev approved the "State Program for the

implementation of the National Strategy for the development of the information society in the Republic of Azerbaijan for 2016-2020". In accordance with the program, the "electronic government" portal www.e-gov.az was created and launched in order to organize information exchange between the information systems of state bodies and create conditions for citizens to use electronic government. Currently, the information system of 42 state bodies is connected to the "Electronic Government" portal, and more than 442 electronic services of those institutions are provided through the portal.

Under these conditions, the study of the impact of the complex development of information and innovative technologies on the development of entrepreneurship and the national economy as a whole is more relevant than ever.

Researches in the field of development of entrepreneurship based on information and communication technologies and innovations were carried out by **A. Taghiyev, R.K. Isgandarov, T.N. Aliyev, F.H. Gasimov, E.M. Hajizade, A.A. Gasimov, A.N. Muradov, L.F. Mahmudova, Z.M. Najafov,** among the economists of Azerbaijan**.** In the CIS countries, **A.S. Grinberg, I.A. Korol, L.Q. Matveeva, A.I. Muravev, M.K. Mukhina,** and other economist-scientists have researched on this topic. In developed countries **R. Kurzweil, Y. A. Schumpeter, S. V. Hemmen, Peter F. Drucker, Fei-Fei Li, etc.** can be named about their researches.

The object and subject of the research. Economic object engaged in information-communication and innovation entrepreneurship in modern conditions act as the **object** of the research. The **subject** of the research is the forms and mechanisms of entrepreneurial activity based on information-communication and innovation technologies.

Research goals and objectives. The **purpose** of the study was to solve the issues of ensuring the efficiency and development of innovative entrepreneurship based on ICT. In order to achieve this goal, the following research tasks were set and consistently fulfilled in the dissertation work:

-study of the organizational and economic characteristics of the activity of the information and communication sector in economic systems;

- researching theoretical-methodological approaches to the development of entrepreneurship in the field of information and communication;

- exploring of the main conditions and factors of the creation of innovative entrepreneurial entities in the ICT sector;

-assessment of the modern state of information and communication technologies in the non-oil sector of the national economy;

-econometric assessment of the existing opportunities for the organization of innovation entrepreneurship and the impact of ICT on the activities of entrepreneurial subjects;

-investigating the possibilities of applying the world experience in Azerbaijan in the ICT sector, especially in the preparation of business planning based on ICT

-determination of the ways of organizing the effective activity of innovative entrepreneurship based on the application of information and communication technologies.

The basis of the research methods are modern analytical methods and approaches in researches dedicated to the development problems of innovation entrepreneurship and ICT. Statistical analysis methods, grouping methods are used in the dissertation work.

Basic provisions in the defense

1.Information economy with a specific resource type of society –It is related to an information resource that has special properties when it is circulated, distributed and used as a commodity. These characteristics and functions of the information economy reach a number of levels of activity in the legal field, which are relevant new scientific, legal and social problems.

Basics of the development of the information sector of the economy in modern conditions trends are plotted in Figure 1.

2.An information product or service is a specific service. Information containing a set of information about the producer is made available to consumers.

The main suppliers of information products and services for entrepreneurial structures are classified in advance (see Figure 2.).

3.Azerbaijan has all the bases to form and develop a favorable and efficient innovation system.The implementation of economic activity and the creation of the country's innovation system face certain difficulties due to the current state of macroeconomic indicators described in table 1. we conclude that there is a need to sort them in a certain way.

4. The business environment of enterprises in the field of ICT consists of general, direct and internal environment. New technologies are able to significantly affect all selected elements. This trend is illustrated in figure 3.

5. Summarizing the experience of Japanese companies, focusing on the experience of digitalization regulation at the Japanese TMK Hitachi, which provides complex solutions used to create new business values in the company, thus solving the "border" problems due to the use of digital technologies in the company's production units ("border" in the related paragraph "problem has been explained), we would like to draw attention to its solution. In this context, we propose the implementation of the following strategy for the integration of information and production sectors in the industrial enterprises of Azerbaijan (see Figure 4).

6. As we know, machine algorithms analyze the multi-bolted joint during the assembly of a complex system such as a car and provide all the important information to predetermine possible errors. In this context, it would be appropriate to refer to examples of advanced practices of companies from developed countries. So, for example, the experience of the German "BMW Group" automobile company can be used. Digitization of the BMW Group automobile plant allows creating a three-dimensional ("3D") image of the production facility. These digitalization promotion requirements are detailed in Figure 5. In our opinion, it would be appropriate to apply this scheme to the subjects of innovation entrepreneurship in Azerbaijan.

7. Practical experience in ICT innovations at "The Coca-Cola Company" may be considered advantageous. It would be appropriate

to apply advanced experience in the application of ICT technologies in "The Coca-Cola Company", which has a representative office in Azerbaijan.

8. Business planning "Project Expert" program is based on the assessment methodology of UN "UNIDO" (UNIDO) and financial analysis methodology defined by IAS.Thanks to its advanced capabilities, this program can be of particular interest to national innovation entrepreneurship subjects. (see picture 6)

9. The grouping of software product selection criteria in the business planning process, their functional and quality characterization is reflected by the applicant in table 2.

10. Management of the interaction of innovation subjects is carried out in the Information-Analytical System (IAS), within the framework of which various important problems are solved. The information communication model of the interaction of IAS participants is presented by the applicant in Figure 7.

Scientific novelty of the research. The main results that make up the scientific innovations of the dissertation can be characterized by the following:

- Identifying specific trends in the development of the information sector of the national economy ;
- preparing the network structure of suppliers of information products;
- Sorting the main problems of organizing the innovation process;
- relationship between the enterprise's strategic goals and internal and external environmental factors;
- carrying out an econometric assessment of the interaction between the development rates of innovative business and the rates of ICT growth in the country's economy;
- Determination of the strategy of integration of information and production technological processes in the industrial enterprises of Azerbaijan;
- Analyzing the features of the ICT promotion strategy in the activity of the "BMW Group" company and determining the application opportunities;

● Determination of concrete application opportunities of advanced ICT in national business subjects in the adoption of innovative decisions and company management of US multinational companies;

● Classification of the main elements of the financial model of the business planning program called “Project Expert”;

● determination of criteria for selecting software products in the business planning process;

● preparing the information relation model of the interaction of the participants of the information-analytical system.

The theoretical and practical importance of the research is mainly explained by the fact that the systemizations, generalizations and conceptual approaches will support the improvement of the efficiency of innovation entrepreneurship based on ICT, and the methodological foundations developed in the dissertation can be used by state institutions. The theoretical-methodological provisions, suggestions and recommendations based on the work can be used in the activity of government organizations on the development of innovative entrepreneurship on the basis of ICT, as well as in the teaching of relevant subjects in higher schools.

Approval and application. The main provisions, conclusion and proposals of the research are presented in 6 articles in prestigious local and foreign journals recommended by the Supreme Attestation Commission, so, by the Ministry of Education of the Republic of Azerbaijan (Baku, 2019), Azerbaijan University of Architecture and Construction (Baku, 2020), Belorussky torgovo-ekonomicheskiy universitet pozreb’skoy kooperatsiii (Gomel , 2021), “Интернаука” (Москва, 2021) was reflected in 4 theses in the materials of international scientific-practical conferences.

Among the published scientific works are “Characteristics of the development of information and communication technologies in the modern era” (Baku, 2019), “Development of information technologies and their efficiency measures” (Baku, 2020), “Стимулирование приви¬ни¬ма¬тельства в сфера ИКТ в современных conditions” (Москва, 2020), “Evaluation of the main directions of the use of ICT in the non-oil sector” (Baku, 2021),

"Factors determining the formation of innovation entrepreneurship in the ICT sector" (Baku, 2022), "ICT in the non-oil sector the main factors of use and application of innovation" (Baku, 2022).

The name of the institution where the dissertation work was performed. The dissertation work was carried out at the "Commercial" department of the Azerbaijan Cooperation University.

The total volume of the dissertation with a sign indicating the volume of the structural sections of the dissertation separately. The total volume of Introduction (22599 characters), Chapter I (76064 characters), Chapter II (86413 characters), Chapter III (79362 characters), Conclusion (13429 characters) and bibliography (16791 characters) is 284658 characters. The number of marks of the dissertation is 275293 marks, excluding tables, figures, list of references and list of abbreviations.

The content of the dissertation work:

THE MAIN CONTENT OF THE RESEARCH

In the introduction of the thesis, the relevance of the topic, the purpose and tasks of the research, the subject, the main propositions defended, the state of study of the problem, the scientific innovation and practical importance of the research, the approval of the work are interpreted and justified.

The first chapter of the dissertation entitled " Theoretical and methodological bases of the organization of IT entrepreneurship" examines issues such as the organizational-economic features of the information sector of the economy, modern approaches to the innovative development of IT entrepreneurship, and the formation of innovation entrepreneurship in the ICT sector.

The chapter states that information has real value due to its own structure. Thanks to information products, the consumer can satisfy his demand for new information and knowledge. Information products and services provide certain information and tools that make it possible to acquire the necessary knowledge. At the modern stage of the development of the information economy, its structure can be shown as a set of the following main components:

- production of information technology means, including means of communication and data transmission;
- production of information products (data and knowledge bases, multimedia products and information technologies);
- provision of information services to users**.**

The existing stable trends of the dynamics of the economic indicators of the development of these three main components, that is, the main trends of the development of the information sector of the economy in modern conditions, are shown in Figure 1.

In the field of information technology production, the functional capabilities and reliability of the equipment are increasing, and as the weight and dimensions, as well as the energy consumption, are decreasing, the price is constantly decreasing. However, this area of production remains very profitable for capital investment, and therefore investments in this area of production by both public authorities and the private sector of the economy continue to be active.

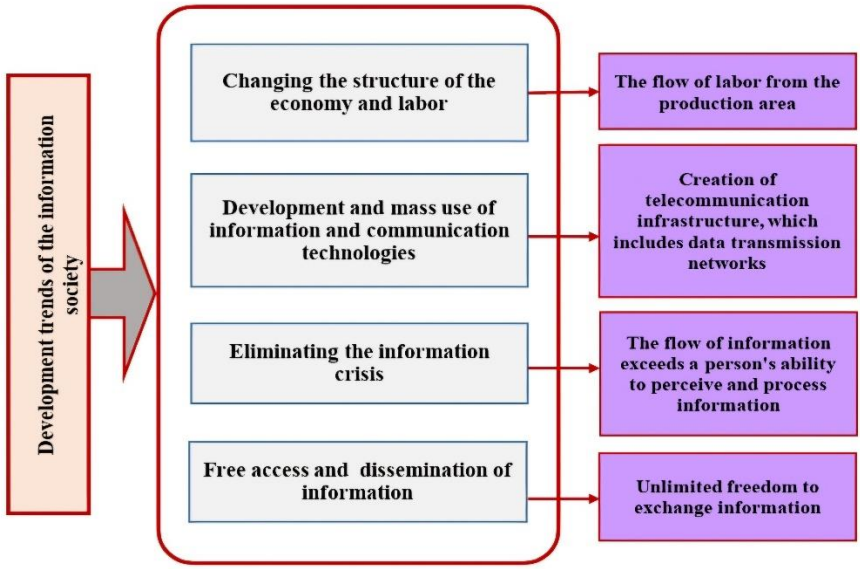


Figure 1.Trends in the development of the information sector of the national economy

Source: image compiled by author.

Databases are the main source of information for providing information services to entrepreneurs. They combine information service providers and consumers, relationships and relations between them, the order and conditions of sale and purchase of information services.

The main suppliers of information products and services for entrepreneurial organizations are described by the author as follows.

In the second chapter of the dissertation entitled “Analysis and evaluation of the current situation of using information technologies in the field of entrepreneurship in Azerbaijan”, issues such as the analysis of the current situation of the use of ICT in the non-oil sector, the assessment of the existing business opportunities for the organization of innovative entrepreneurship, and the econometric assessment of the impact of ICT on the development of entrepreneurship are analyzed.

Thanks to extensive economic reforms, the non-oil sector has developed, and the economy’s dependence on energy has decreased.

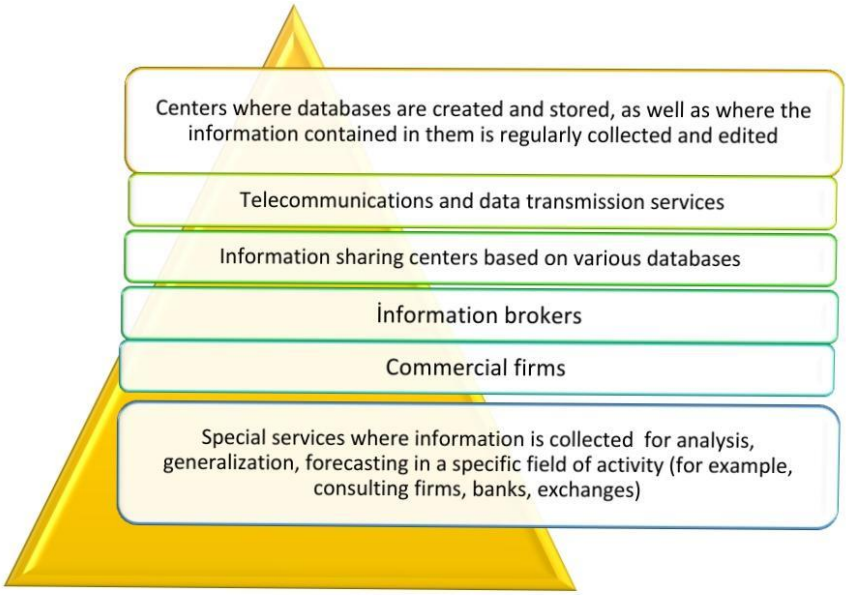


Figure 2. Network structure of information products suppliers

Source: image was created by the author

The "National Strategy on Information and Communication Technologies for the Development of the Republic of Azerbaijan (2003-2012)" signed by the President on February 17, 2003, set new goals in the development of information technologies. Mr. President Ilham Aliyev continued this strategy with the goals of achieving great success in a worthy manner.

By the Order of the President of the Republic of Azerbaijan dated October 21, 2005, "The State Program for the development of communication and information technologies in the Republic of Azerbaijan for 2005-2008 ("Electronic Azerbaijan") was adopted.

On February 8, 2013, the first telecommunication satellite "Azerspace-1" of the Republic of Azerbaijan was launched into orbit.

The realization of economic activity and the creation of an innovation system that will be compatible with the modern conditions of the country's development as a whole faces a number of difficulties, which are reflected in table 1.

Table 1

Organizational	Economical
Lack of a developed regulatory and legislative framework for the implementation of innovation activities, as well as its state support measures, including direct and indirect mechanisms;	Low demand from the real sector of the economy for prospective scientific and technical activity results in terms of commercial application. At this time, the main economic factors limiting the innovative activity of enterprises in the real sector of the economy are the lack of personal funds to expand this type of activity, the high cost of innovations, economic risks and long payback periods.
Lack of effective implementation mechanisms, state-defined priority directions of science, technology and engineering development of the Republic of Azerbaijan, large number of scientific organizations that require appropriate state support	Inefficient allocation of budget funds and incomplete funding of researches in promising scientific fields that ensure the competitiveness of Azerbaijan's economy in the world market;
Weakening of cooperation relations between scientific organizations, educational institutions and industrial enterprises, including at the level of personnel training for specific areas of innovation activity	the lack of general coordination of ETSKI financed by separate state executive authorities, which hinders the consolidation of financial, personnel and organizational resources of the state for the implementation of large scientific-production projects, and the inclusion of the results of scientific and technical activities in the economic cycle;
Low information transparency of the field of innovation, lack of information about new technologies and sales markets of innovative products;	Low level of development of small innovative entrepreneurship;
The existence of legislative restrictions that do not allow the use of budget funds allocated by Azerbaijan MEA to the administration and other state scientific organizations for the development of innovation activities, primarily for the creation of innovative enterprises, which have state status	the underestimation of the socio-economic importance of the development of innovative processes in the country by a part of the state authorities and management bodies, which leads to the not always justified choice of the field and regional priorities of technological development, and therefore to a decrease in the efficiency of the use of budget funds.

Source: the table was prepared by the author

Today, the business environment of ICT enterprises consists of three areas: general environment, direct environment, internal environment.

New technologies have the potential to influence all selected elements, including political decision-making as well as staff career progression. This trend is illustrated in figure 3.

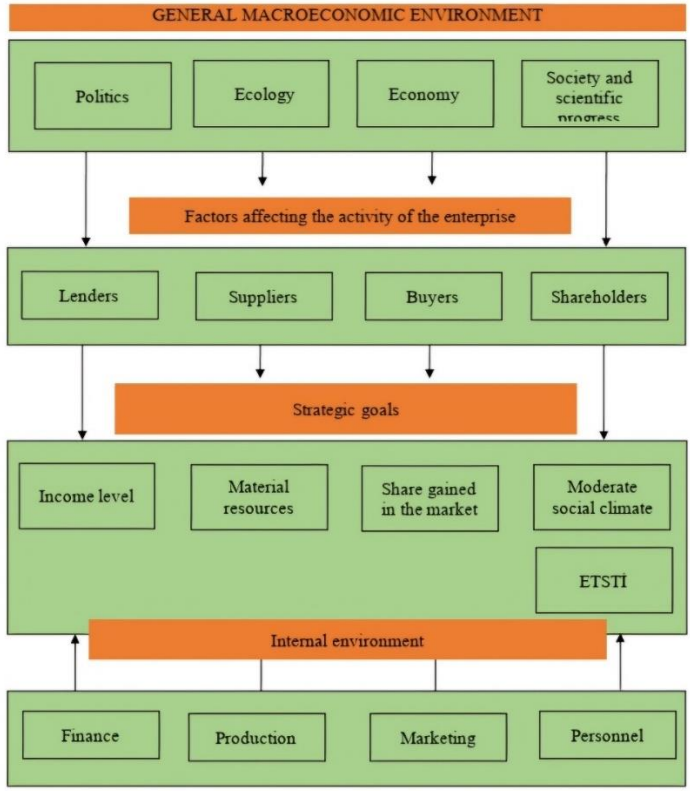


Figure 3. The relationship between the enterprise's strategic goals and internal and external environmental factors

Source: compiled by the author

The scheme depicted in Figure 3 shows that achieving all selected strategic goals that are important for prospective development is quite reliable in making long-term decisions by the enterprise.

In the third chapter of the dissertation entitled "The main directions of the development of innovative entrepreneurship in the ICT sphere", suggestions and recommendations were given on issues

such as ways of using the world experience in the field of ICT in Azerbaijani entrepreneurship, improving the use of information technologies in the process of developing and applying business plans, ways to increase the efficiency of innovative entrepreneurship based on ICT.

By summarizing the experience of Japanese companies, it is considered appropriate to focus on the experience of digitization regulation at the Japanese TMK "Hitachi", which provides complex solutions used to create new business values in the company, and to draw attention to solving "border" problems through the use of digital technologies in the company's production units. In this context, we propose the implementation of the following strategy for the integration of information and production sectors in the industrial enterprises of Azerbaijan (see Figure 4).

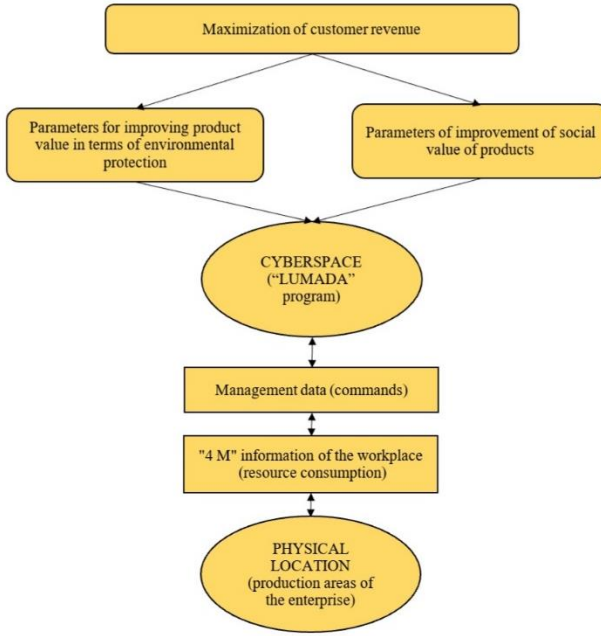


Figure 4. Strategy of integration of information and production technological processes in industrial enterprises of Azerbaijan (the experience of the Japanese company "Hitachi")

Source:www.hitachi.com/rev/archive/2021/r2021_02/activities_1/index.html?WT.mc_id=ksearch

An important point in the strategy of applying information technologies in the "BMW Group" company is the implementation of an innovative CRM (Customer Relationship Management) strategy based on ICT solutions.

Digitization of the BMW Group automobile plant allows creating a three-dimensional ("3D") image of the production facility. These digitalization promotion requirements are detailed in Figure 5. In our opinion, it would be appropriate to apply this scheme to the subjects of innovation entrepreneurship in Azerbaijan.

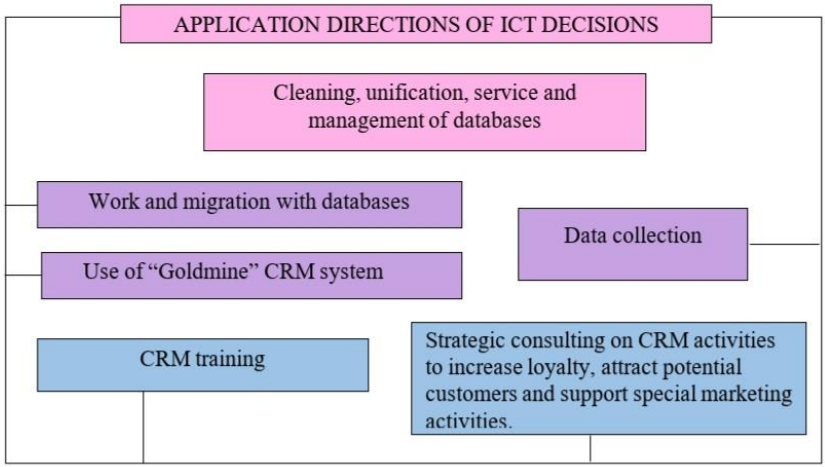


Figure 5. ICT promotion strategy in the activity of "BMW Group" company

Source: www.converge.gr/en/portfolio-item/bmw-hellas

As we know, our country has taken over the hosting of this year's COP29 conference. As Mr. President mentioned, the decision to hold this conference in Azerbaijan is a happy thing for us, and this is an indicator of the value given to the work done by Azerbaijan in the field of green energy.

Let us inform you that every year tons of waste pollutes the atmosphere and causes damage to the environment. Thus, according to the information of the State Statistical Committee of the Republic of Azerbaijan in 2022, the mining industry released 56.1 thousand tons,

the manufacturing 32.8 thousand tons, and the production, distribution and supply of electricity, gas and water 29.9 thousand tons of pollutants into the atmosphere, polluting it [88].

Minimization of carbon emissions, as well as stabilization of global warming at the level of 1.5°C, which can cause certain threats, dynamization of the transition to renewable energy sources, and expansion of climate adaptation strategies can be noted as the main target topics at the COP 29 conference.

In this aspect, the role of ICT cannot be neglected. Thus, its importance in the fight against climate change is clearly manifested in some of the listed aspects:

1.Management and management of information related to climate: ICT technologies lay the groundwork for efficient management of green energy sources. , for example, is used to monitor and optimize solar and wind energy in real time. It is also worth noting that ICT facilitates the collection, storage and dissemination of information related to climate change in a convenient and appropriate manner.

2. Forecasting: ICT is of great importance in improving climate change adaptation mechanisms through the analysis of weather forecasts and such important information.

3**. Education and awareness:** ICT plays an important role in the implementation of education and awareness programs on climate change. For example, with the help of online platforms and social media and networks, information containing images of the fight against climate change is being transmitted to a wider readership and audience.

Summarizing all these nuances, we must note that the role of ICT in the field of green energy is undeniable in the implementation of the fight against climate change in a more efficient, convenient and effective way.The "Project Expert" system has found wide application in international practice in the investment analysis of business planning, which easily reflects the characteristics of the field, enterprise and project. Project Expert allows you to quickly take into account changes in the economic environment. In this sense, we suggest using this program in the practice of local companies.

"Project Expert" system is based on UNIDO's (UNIDO) investment project assessment methodology and financial analysis methodology determined by international accounting standards (IAS).

"Project Expert" system operates in the environment of the Windows operating system and is an instrumental tool that allows you to develop a financial model of a new or existing enterprise, regardless of industry affiliation. The "Project Expert" system consists of the following main blocks (Figure 6):

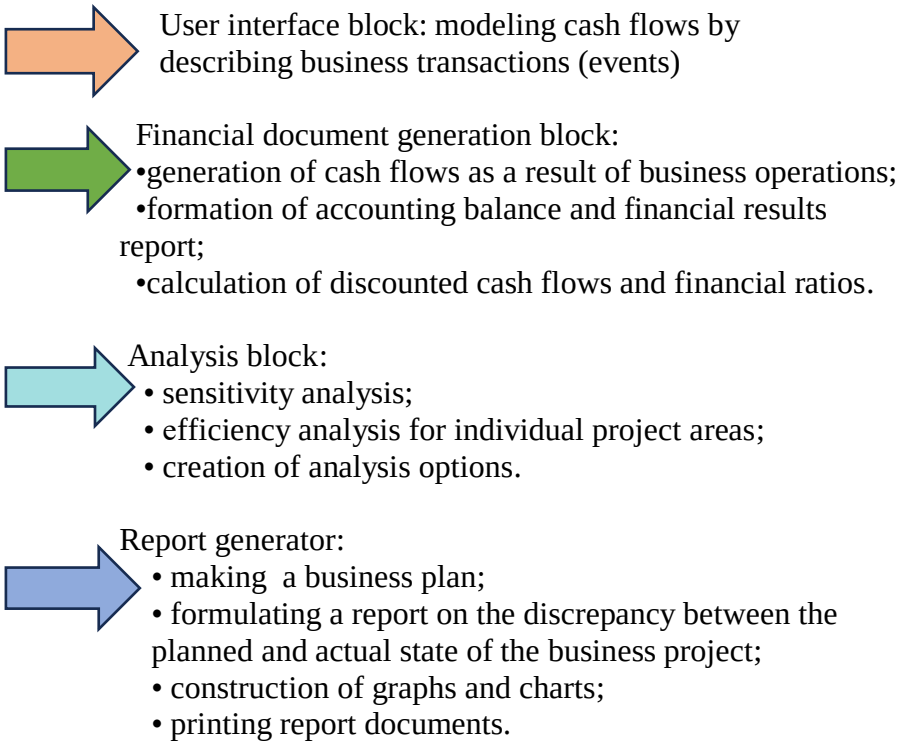
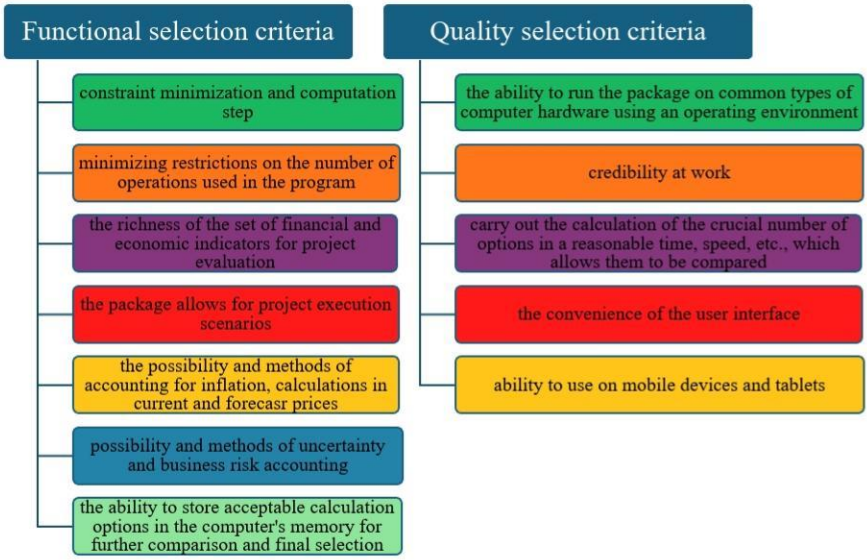


Figure 6. The structure of the financial model of the Project Expert program

Source: *the figure was compiled by the author based on the sources www.expert-systems.com/financial/pe and www.unido.org in the reference list of the dissertation*

When choosing software products for business planning purposes, the applicant offers a system of indicators in the following table that should be taken into account.

Table 2. Criteria for selecting software products in the business planning process



Source: *table prepared by the author*

The management of the interaction of innovation subjects is carried out through the formation of a single information space in the Information Analytical System (IAS), within which the exchange of proposals and requests between representatives of the scientific community, business circles, business circles, the organization of international and interregional cooperation, the development of priority directions in science and technology reorientation, as well as the solution of other problems of innovation policy. The information communication model of the interaction of IAS participants is presented in figure 7.

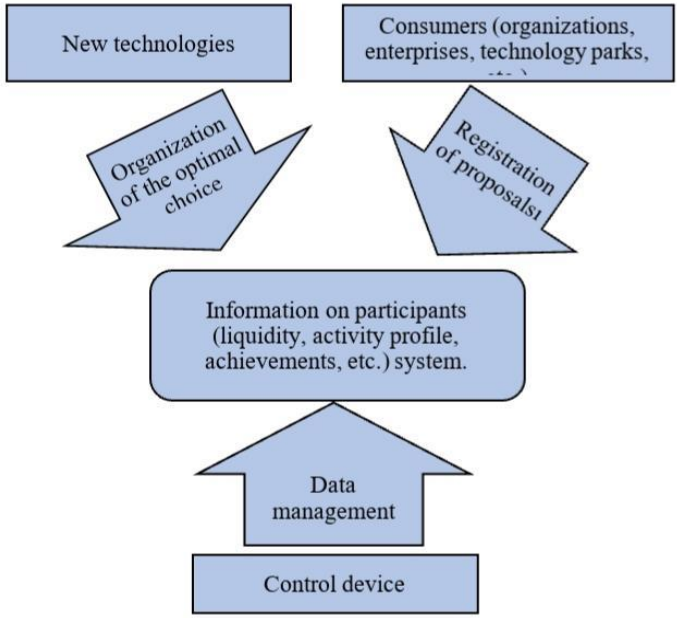


Figure 7. Information communication model of interaction of IAS participants

Source: figure compiled by author

In the process of operation of IAS, it is envisaged to collect structured data, conduct continuous monitoring of innovative activity, and form a single database that includes information about the subjects of innovation activity, innovative operations, investors, implemented innovative projects.

CONCLUSION

Research on the development of entrepreneurship based on innovation and ICT has shown that this sector is of great importance in the world market. The analysis of the activities of the subjects of innovation entrepreneurship made it possible to come to the main conclusion that this type of activity serves the full use of the economic potential of any country.

We can mention the following main scientific results of our research:

1. Information production, information products and services is quite scientific. Therefore, their quality level, competitiveness in internal and foreign markets depends to an important extent on the technological development of the country and the level of development and use of new information technologies. Let us inform you that this is manifested by the level of development of science, education and production culture.

2. Today Information sector products are important factor for the rapid development of many other areas of public economy (industry, construction, transport, extraction). It also acts as a catalyst for the development of science and education by continuously stimulating it.

3. The information sector of the economy is characterized by high dynamism of models and even the entire generational change. This gives rise to the need to ensure the high mobility of the production organization, the ability to quickly adjust the release of new product ranges, which is possible only on the basis of the wide application of the latest information technology, design automation, flexible automated production and program-reconfigurable industrial robots.

4. Many types of Information products and information technologies are used for civil as well as military purposes due to their functional capabilities. A large number of computational techniques and means of data transmission, as well as information technologies for modeling and predicting the behavior of complex systems and processes can be applied here. Therefore, there is a close connection between the level of development and quality of the information economy and the development of the country's military-industrial complex, which significantly determines its defense capability and the quality level of national security.

5. Information economy creates the basis of required tools for knowledge production and its efficiency use, so that this creates a prelude to saving other resources (raw materials, energy, material and human resources) and is therefore an important factor for preventing the global economic crisis and transitioning to a sustainable and safe development model of civilization.

6. The development of the information economy forms the new employment of the population and promotes the development of new forms of individual labor (including work at home), creates and

distributes new types of products and services that fundamentally change the environment in which people live, creates new opportunities for human development and the formation of a new information culture of society.

7. We conclude that information business in the modern economy can perform the following main functions:

- financial management and accounting;
- personnel management;
- material and technical equipment;
-organization of production;
- marketing research;
- leasing operations;
- consulting service;
- property and information insurance;
- organization of information security service;
- service.

In this process, the role of the state in using modern information technologies and information products is of great importance.

As a rule, in developed countries, the state undertakes the regulation of the process of production and distribution of information products required for the normal development of society. This creates relatively similar opportunities in the field of consumption of information products. The interests of the society require that an important part of the information be accessible, so the state and non-profit organizations undertake the payment of the costs incurred in ensuring the availability of the information. However, in a number of cases, for example, when advertising campaigns are held, private business is also interested in the availability of information being fairly simple and cheap. Thus, the high degree of state regulation of information production can only be explained by the role of the state in the production of many information products. On the other hand, the state has an important influence in eliminating information externalities. A classic example of positive information externalities is the financing of scientific research and work by different companies, which are usually at the disposal of a wide range of interests.

8. In our opinion, the informatization program for the successful implementation and development of the information sector of the

economy, the following principles, which are common to the entire world society, should be expected:

• The importance of replacing the economic structure based on heavy industry with leaning science-intensive areas;

• Acceptance of the priority nature of the information sector being the creation of a new service infrastructure and sector that can support the national economy becomes the basis of successful economic development;

▪ to make full use of scientific and technical achievements;

• large amount of financial investment in informatization;

• ease the conditions of communication and information processing-thereby ensuring the prosperity of the country and its citizens.

9. As our research on the development of innovative entrepreneurship in the field of ICT in Azerbaijan showed, as a result of purposeful state policy in these sectors, there was a doubling every 3 years. In the last 8-10 years, the average annual growth rate was 20-25%, which is 2-3 times higher than the global development rate. By 2025, with the successful implementation of the "Azerbaijan 2020: vision of the future" development concept, ICT revenues in the country will be equal to the revenues of the oil sector and will exceed these revenues in the coming years. In the next 8-10 years, the volume of the ICT sector will cover 10% of the country's GDP. In order to ensure this, the ICT sector in the republic should expand 5-6 times within certain years, and the income obtained in this field should reach 12-15 billion US dollars. As a result of all this, the share of the ICT sector in the structure of the production sector will increase by 9-3% and increase by 2.5-3 times. In order to achieve these goals widely, the country should expand the implementation of adequate projects to use ICT in other sectors of the economy, stimulate export-oriented high-tech industrial production, introduce tax incentives and optimize customs duties in this area. Also, special attention should be paid to the development of fiber-optic infrastructure, characterized by profitability and reinvestment opportunities, and other solutions to similar problems should not be overlooked.

10. In the modern information economy, the modernization of innovative business management systems is carried out on the basis of ICT technologies. Enterprises achieve their goals by informing managers

(managers) of modern technologies, services and goods on the market, and competition in the ever-changing market situation. It can be said that the rate of modification of environmental factors increases significantly almost every day, resulting in the expansion of the speed and volume of information dissemination. It is for this reason that it is necessary to reduce the decision-making period for the successful operation of the business, and this will create the basis for increasing the speed of data processing and transmission by using new ICT technologies. Adoption of development strategies and laws of ICT processes in the market economy gives reason to conclude about the high speed of informatization of the production process of services and goods, as well as the mechanism of business management.

11. As a result of the research, it was determined that ICT enterprises in Azerbaijan do not have the ability to develop independently. From this point of view, state support should be strengthened in the ICT sector by increasing the volume of investments in the ICT enterprises of our country;

• The state in order to provide financial support to the ICT sector research and incubation programs should be organized by;

• Educational programs and certain courses in the field of ICT should be created;

•Startup support – that is, to the development of startups in the field of ICT financial support should be increased. As a result, there will be a foundation for the development of creative ideas and the creation of new companies;

• Development of technological parks;

• Applying tax benefits to ICT projects.

National Innovation System (NIS) of the ICT sector in Azerbaijan has a positive effect on the development, because this system provides infrastructure and financial support for the introduction of new technologies and stimulation of innovations. This accelerates research and development in the field of ICT in the country, creating conditions for the creation of more new projects and startups. Thanks to the National Innovation System, Azerbaijan manages to develop and increase its competitiveness by using its potential in the field of ICT more effectively.

12.The results of the author's statistical and econometric analysis

confirm that there is a statistically close relationship between the economic development of the economy and the state of the innovation environment of the national economic system. The economic growth of the country depends on the financing of innovative development. Countries that apply an innovative development model have a higher level of GDP.

13. In our opinion, in order to increase the efficiency of production and management in enterprises of business structures of Azerbaijan, it is necessary to pay attention to the following aspects related to ICT:

– It is necessary to increase the speed of application of ICT technologies to the quality control system of manufactured products. The use of information technologies in this enterprise system significantly increases the cost of production of competitive products.

– It would be appropriate to apply the practical experience of the Japanese company "Toyota Engineering Corporation" in the large enterprises of Azerbaijan. Developed the ICT solution (Global Benchmarking (GBM)) – a global comparative analysis used by Toyota Engineering Corporation to assess the degree of application of "lean production" technologies.

– Based on the application of CRM (Customer Relationship Management) innovative strategy based on ICT solutions, it would be appropriate to apply information technology application strategy in "BMW Group" company.

- Practical experience in the development of ICT innovations in "The Coca-Cola Company" is also noteworthy. In our opinion, the most effective way for local food companies would be to switch to Bizzabo's Event Experience software shell (operating system) for business management and planning. This will allow to organize production chain and logistics management in enterprises more efficiently than with MS Office software products.

- At the same time, it would be appropriate to use the experience of the "ENI" (Italy) oil and gas company, which has been using the "Smart Connected Pipeline" software product of the US company "Cisco Systems" for a long time. Time. Thanks to their optimization, it opens up new advantages such as cost reduction for pipeline operations. In our opinion, this can be favorable for our State Oil Company (SOCAR).

14. Information technologies play an important strategic role in the business development of any country that aspires to high growth rates of its economy. This role is particularly evident in business planning processes at the micro-level of the economy. This is primarily due to the fact that information technologies in business planning:

- activates the use of information resources and increases its efficiency, provides savings on raw materials, energy, materials and equipment, human resources, and social time;
- performs the most important and intellectual functions of social processes.
- ensures the information interaction of people, causes the spread of mass information;
- does not optimize and automate information processes in marketing and production planning of enterprises;
- plays a key role in the processes of acquisition, collection and dissemination of new knowledge.

15. As the study of the experience of using ICT in the world's innovative business shows, increasing the efficiency of the activity by using ICT in the innovative business sector today is ensured on the basis of certain priorities.

The following scientific works were published on the main scientific results of the dissertation:

1. Vəlibəyli, A.R. Müasir dövrdə informasiya-kommunikasiya texnologiyalarının inkişaf xüsusiyyətləri. "AMEA-nın xəbərləri" elmi-praktiki jurnal, № 5, 2019, s.83-90.
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12. A.Valibayli Contribution of the Heydar Aliyev to the development of entrepreneurship in Azerbaijan. "Heydar Əliyev müasir Azərbaycanın xilaskarı və qurucusudur" Respublika elmi konfrans materialları Mingəçevir Dövlət Universiteti 3-4 may 2024-cü il, s.672
13. A.R. Valibayli The importance of ICT in increasing the efficiency of entrepreneurship // Common Victory :The Army and the Great leader. International Scientific Symposium, 2024, s.624
14. A.Valibayli Heydar Aliyev's concern for the development of entrepreneurship in Azerbaijan// A Glorious page in Azerbaijan history-Operation Iron Fist 2024, s.567

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