REPUBLIC OF AZERBAIJAN

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ABSTRACT
of the dissertation for the degree of Doctor of Science

WAYS OF IMPROVING THE USE OF PRODUCTION POTENTIAL IN THE PETROLEUM ENGINEERING INDUSTRY

Specialization: 5309.01 – "Organization of industry and state policy"
Science field: Economic sciences

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Baku – 2025

The dissertation work was carried out at the "Industrial Policy and Investment Problems" Department of the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan

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General characteristics of dissertation work

Topic relevance and degree of processing. Azerbaijan is one of the countries rich in oil and gas in the world. In the first half of the 19th century, the first industrial production of oil in the world in Azerbaijan marked the beginning of the creation of a new oil engineering industry.

In the second half of the last century, more than 620 types of products were produced in 125 nomenclatures in Azerbaijan. At that time, oil and gas, which operated in the USSR and post-socialist countries, provided electrical equipment, machinery and machinery repair tools, etc. about 75% of its demand was met at the expense of Azerbaijan's machine-building enterprise. However, in the mid-80s of the last century, the start of the production of oil field equipment at the Russian «Uralmash» plant led to a decrease in the natural volume of many products of that purpose in Azerbaijan.

In 1994, as a result of the efforts of National Leader H. Aliyev, the signing of the "Century Agreement" led to the revival of the oil industry in Azerbaijan. Based on the agreement concluded with the world's leading oil companies, the rapid increase in oil production in the country necessitated the use of high-quality oil equipment. However, it was impossible to produce such equipment in oil machine-building plants left over from the USSR period. Therefore, multinational companies preferred more imported goods. The transition to the market economy model also had a negative impact on the volume of production tasks of oil and machine-building plants. On the other hand, the non-compliance of the products produced by those enterprises with international standards led to a year-by-year decrease in the demand for them. As a result, the absolute volume of the total demand for numerous oil-machine-building products in the country led to the satisfaction of imports, and in 2010, the specific weight of machines, mechanic structures, electrical equipment and devices in imports was 28.8%; In 2015, – became 26.7%, but in the following years, changes in the foreign trade balance allowed a gradual decrease in the limit of that indicator and In 2022, it was determined to decrease to 20.0%. The

price of imported products of that variety is dynamic, and as a result, it creates conditions for the increase in the cost of the product. In recent years, the creation of new machine-building enterprises, the formation of technology parks, industrial districts, and the gradual diversification of production in oil-machine-building plants have created an opportunity to increase the production of both import-substituting and export-oriented technical products. As a result, the operating oil and machine-building plants work intermittently and with low power, the balance of finished products in the warehouses of enterprises increases year by year, the specific weight of export products decreases, and the labor fluidity is high. Most plants work at a loss, it needs foreign investments. Marketing activity in enterprises is unsatisfactorily organized, a little-improved functional management structure is maintained, the organic connection between the final result of production and labor payment and motivation is not repaired, there are gaps in the product quality control system, old material, energy and labor norms are used in the production process. All this ultimately shows that the economic and production potentials of enterprises are not used effectively. For the same reason, «Azerbaijan 2030: the main strategic goal in the next decades in the National Priorities for socio-economic development and the Development strategy: to develop areas related to the non-oil sector, to create a place of sustainable and competitive economy and modern innovations, to move to the digital economy, to expand public private partnership in all areas of activity, to create a high synergy effect is to ensure that the public sector is shaped according to new challenges. From this point of view, the development of the machine-building industry producing means of production for all areas of the economy, people's consumption goods for technical purposes and the fields of production of electrical equipment, machines and mechanisms, which are considered its traditional sub-field, in accordance with the requirements of the fourth industrial revolution, and the efficient use of their production potentials remains relevant.

Therefore, the study of the possibilities of redevelopment of the oil engineering industry, which has been in serious decline for the last

decades, is of great scientific and practical importance.

In economic literature, different types of potential are distinguished – economic, production, scientific, scientific-technical, personnel, management and the concepts of human potential are analyzed on the basis of various methodical approaches. At this time, the concept of «production potential» is not given an unambiguous definition. This concept continues to be viewed sometimes as an opportunity for an economic entity to operate in one or another field, and sometimes as a set of available resources. «Opinions on the essence of the concept of economic potential», its elements, scope are also fundamentally different.

Economic-organizational, technical-technological, innovative development, financial security, product quality management, production diversification, use of materials, energy and foreign potentials, import-export operations, financial risk assessment, product competitiveness and other aspects of machine building and oil-machine building and electrical engineering as its subfields, in Azerbaijan that was and has been actual both in the Soviet era and during the years of sovereignty have been studied in the works of Azerbaijani economic scientists: Z.A. Samadzadah, A.Kh. Nuriyev, Sh.M. Muradov, A.F.Musayev, M.J. Atakishiyev, T.N. Aliyev, Sh.T.Aliyev, I.A.Aslanzadah, T.H.Huseynov, A.D.Huseynova, R.P.Sultanova, G.A.Safarov, S.Suleymanov, G.Z.Yuzbashiyeva, R.Sh.Muradov, K.S.Bayramov, F.I.Aslanzadeh, E.A.Ibrahimov, N.Z.Mehdiyeva and others, and foreign scientists: V.N.Avdeenko, O.B.Benderskaya, T.S.Bronnikova and V.V. Kortininsky, V.I.Gromeka, Y.Y.Yeregin, O.V.Karsuntseva, L.D. Revutsky, O.A.Sukhorukova, G.I.Usanov, T.G.Sheshukova and others. Without reducing the importance of those studies, it should also be noted that until now, the need to comprehensively study the use of production potentials, all its elements, scope, management mechanisms in the oil-machine-building industry sector, taking into account the implementation of the goals and priorities of relevant state documents, the topic of the dissertation work determined the selection, defined scientific innovations, the formation of protected provisions, goals and tasks.

The object of the research is industrial enterprises producing oil fields and electrical equipment in Azerbaijan.

The subject of the research is the organizational-economic, technical-technological mechanisms of using the existing production potentials of Azerbaijan's oil-machine-building industry enterprises.

Purpose and objectives of the study. The purpose of the research is to analyze and evaluate the current situation of using the production potentials of Azerbaijan's oil-machine-building industry enterprises with the help of complex analysis methods, to reveal reserve opportunities, and to develop scientifically based proposals and recommendations for their efficient use.

To achieve the set goal, the following tasks were performed with algorhythm:

• First, in terms of theoretical-methodological aspects of using production potentials in industrial enterprises:

- to classify in a comparative manner the different approaches interpreted in the economic literature regarding the potential of production, its essence, structure and elements;

- to discover the possibilities of applying various methods applied to the field of oil engineering industry in Azerbaijan for the assessment of the production potential of the enterprise;

- to conduct a comparative analysis of the methods interpreted in the modern economic literature for the efficiency of using the production potential of the enterprise to be evaluated and to reveal the possibilities of using them in the studied industries;

• Secondly, analysis and evaluation of the current state of use of production capacity in Azerbaijan's oil-machine-building industry from prisma:

- To assess the level of indicators characterizing institutional change and development in the studied industries;

- To reveal relevant backup capabilities by analyzing system indicators characterizing the use of the potentials of enterprises producing oil fields and electrical equipment based on the data of multi-year statistical, preliminary accounting and reporting documents;

- Quality management system in the oil and machine-building industry

- to evaluate the impact on the sale of products in domestic and foreign markets;

• Third, in the context of improving the efficiency of using production potentials in oil-machine-building enterprises:

- To determine the possibilities of efficient use of existing assets of enterprises;

- To develop methodical and practical recommendations on improving the use of production potentials based on the effective organization of innovation activities in the enterprises of the field;

- To put forward proposals and recommendations on the long-term vision goals of the National Priorities for socio-economic development, the Development Strategy and the adaptation of the possibilities of using the production potentials of the industrial enterprises studied by the IVIndustrial Revolution.

Research methods. Systematic approach, comparative analysis, analytical-statistical grouping, GZIT and ABC analysis, interview, mathematical-statistical and cluster approach methods were used to assess the current state of use of existing production potentials of the studied industry. As a real database of those methods, the annual collections of the State Statistics Committee of the Republic of Azerbaijan, reports and references of the Ministry of Economy, data of preliminary accounting and reporting documents of industrial enterprises producing oil fields and electrical equipment, materials of republican and international conferences dedicated to the studied problem, internet sources and other forms official data.

Basic scientific provisions submitted for defense:

Taking into account the field characteristics of oil and machine-building enterprises, there is a need to specify their production potential, its essence, structure and main elements, and their scope.

In order to assess the production potential of the enterprise, the use of a complex and systematic approach and the efficient use of all types of economic potentials should be preferred, and

evaluation methods should be used taking into account the field characteristics.

When acting in the context of efficient use of the production potentials of oilfield and electrical equipment production enterprises, the identification of weak and dangerous parties as a result of the GZIT and ABC analysis will be aimed at the efficient use of the available reserve opportunities.

By attracting foreign direct investments to the field, the renewal of the main production funds and technological processes of the enterprise will ensure the application of a working mechanism in the direction of increasing their innovation activities.

Implementation of more effective organizational and economic measures for efficient use of existing assets of oil engineering enterprises can enable sustainable development of the field.

In order to ensure the innovative and intensive development of the oil engineering industry, the development of an innovation program based on international experience and the determination of its relevant priorities will create conditions for diversification of production and increase of export potential in the field.

Adaptation of the socio-economic Development Strategy of the efficient use of the economic potentials of the oil engineering enterprise to the long-term vision goals and the pitfalls of the 4th industrial revolution will enable the development of the non-oil sector and the provision of these areas with means of production, and the increase of the volume of production of products that replace imports.

Scientific innovation of research. The main scientific innovations of the dissertation work can be grouped as follows:

1. The concept of economic potential interpreted in the existing literature on the studied problem was comparatively investigated and specified for oil-machine-making enterprises, advanced principle schemes were developed for the structure of its classification and characteristics according to signs;

2. In order to quantitatively assess the efficiency of the use of the production potential of oil and machine-building enterprises, the

existing methodologies were comparatively analyzed and evaluated and determinants were determined;

3. Institutional change in the oil and machine-building industry of Azerbaijan, indicators characterizing its development, production of enterprises separately the potentials were evaluated and the level of efficiency was determined, and based on this, a mathematical model was developed on the factors of influence of the use of the production potentials of the studied industry.

4. The principle structure of the strategic management model and the stages of the formation of the development strategy of the competitive potential have been developed in oil and machine-building enterprises;

5. The scope of the main components of the innovation policy, which is important to implement in the field, has been determined, and the structure of the program on innovative development, which is considered necessary to be developed and implemented, has been proposed.

6. In the studied field, the purpose of creating joint ventures and a cluster management system was justified, and their principle structure was developed.

Theoretical and practical importance of research. From the scientific results, proposals and recommendations obtained in the research work, in the improvement of the existing management and managed systems of the oil-machine-building industry, in the application of progressive forms and methods of management in the field, in the process of developing investment and innovation-oriented projects there, in determining the priority level of factors that negatively affect the use of production potentials, in the field in the creation of joint enterprises and an innovation-oriented cluster, in the process of privatization of enterprises, enterprises the obtained results can be used in predicting the development of the field, in the development of the field program. In addition, the use of the scientific-practical provisions, recommended algorithms, and the results of the analysis reflected in the dissertation in practice allows to effectively use the assets of enterprise, expand the diversification of production there, increase the volume and specific

weight of import-substituting and export-oriented products, and reduce the amount of finished product residue can. Specifically, the final materials of the research work can be used in the preparation of textbooks and methodical recommendations related to the effective use of the economic potential of industrial enterprise resources, in higher schools, in the teaching of «macro and micro-economics», «project management», «innovation management» and other subjects.

Approval and application. The main provisions of the dissertation work were approved by the author at international conferences held in Moscow and Kyiv and at a scientific-practical conference of republican importance. In addition, the results of the study were published in three theses, 10 articles (3 of them – abroad, two in RINS and one in the – Scopus database) in local and foreign journals recommended by AAK.

Structure and scope of dissertation work. The dissertation consists of an introduction, three chapters, a conclusion, a list of 125 literature used. Input of work – 16387 mark, Chapter I – 59827 mark, Chapter II – 68872 mark, Chapter III – 54752 mark, result – 8016 mark, list of literature used – 17931. The volume of the dissertation, except for the tables, pictures, diagrams and the list of literature used in the work, consists of – 207854 characters.

Structure of the dissertation work

INTRODUCTION

Chapter I
Theoretical and methodological foundations of the use of production potentials at oil and machine-building enterprises
1.1. Production potential, its essence, structure and main elements
1.2. Methodological foundations of the use of the production potential of the enterprise
1.3. Systematic approach to assessing the efficiency of the use of the production potential of the enterprise
Chapter II
Analysis and assessment of the current state of the use of production potential in the oil and machine-building industry of Azerbaijan
2.1. Assessment of indicators characterizing the institutional changes and development taking place in the machine-building industry of Azerbaijan
2.2. Analysis of systemic indicators characterizing the use of the production potential of oil and machine-building enterprises
2.3. Assessment of the impact of establishment of a quality management system in the petroleum mechanical engineering industry on the sales of products in domestic and foreign markets
Chapter III
Ways to increase the efficiency of the use of production potential at oil and machine-building enterprises of Azerbaijan.
3.1. Ways to effectively use production assets at oil and machine-building enterprises
3.2. Improving the use of production potential based on the efficient organization of innovation activities
3.3. Aligning the use of the production potential of petroleum machinery manufacturing enterprises with socio-economic long-term vision goals of the development Strategy and the requirements of the 4th Industrial Revolution

CONCLUSION
LITERATURE REFERENCES

MAIN CONTENT OF THE WORK

In the Introduction section of the dissertation work, the relevance of the topic, the degree of development are justified, the object and subject, goals and objectives, research methods, the main provisions put forward for defense are determined, its scientific novelty, theoretical and practical significance, approval and application are commented on, and information about the name, structure and volume of the organization where it is performed is presented.

In the first chapter of the dissertation entitled “Theoretical and methodological foundations of the use of production potential at oil and machine-building enterprises”, based on the study and generalization of the works of foreign and republican scientists dedicated to the problem under study, the concepts of production potential and economic potential were investigated, approaches to the economic and production potential of oil and machine-building enterprises were studied, the classification of the production potential of oil and machine-building enterprises by characteristics, the economic resources of enterprises, the formation of potential, and the principle schemes of the structure of the elements of production potential were developed, the resource and result approaches to the assessment of the production potential of the enterprise were considered, and approaches to assessing the efficiency of its use were studied.

In the existing literature on the problem under study, various types of potential are distinguished - economic, production, scientific, scientific-technical, personnel, management. However, the concept of "production potential" is not given an unambiguous definition, and opinions on its essence, elements and scope differ fundamentally. The economic dictionary explains that production potential is a real volume that can be produced by fully using existing resources. Production potential is fully used by providing it with the main types of resources and production factors. Among the listed types of potential, attention is not paid to such types as innovation, information, market, export, import, competitive

potential, as well as the potential of the enterprise and industry. Studies show that in modern works of economists of both foreign countries and our republic, the concept of "potential" is not given an unambiguous definition. "Potential" continues to be viewed sometimes as the activity of an economic entity in one or another field, sometimes as the totality of existing resources, and views on this concept are interpreted without taking into account the specifics of the field. Taking this into account, the approaches of numerous researchers have been interpreted in the work, taking into account the factors influencing the concept of potential and the characteristics of the field. Without reducing their importance, it is noted that it is necessary to classify production potential in a broader way according to its characteristics. The work presents a principal scheme for classifying production potential by characteristics, which is characteristic of oil machinery enterprises.

In most of the economic literature, “production potential” is identified with “production power”. In our opinion, this approach includes a narrower framework. Therefore, the human factor and scientific and technical achievements should be taken into account here. Therefore, currently the concept of “enterprise potential” has become even more relevant and is viewed as an economic potential that includes all types of potential. The production potential of an enterprise is the potential that creates added value necessary to realize the main goal of the enterprise - the goal of making a profit. Production potential is more dynamic, changing both quantitatively and qualitatively. As the material and technical base of the enterprise, personnel potential, productivity of fixed assets, knowledge and skills of employees, applied technology, financial resources change, the production potential of the enterprise also changes. Therefore, the main elements of the enterprise’s production potential include a) fund, technical and technological potential; b) labor and energy potential; c) investment and financial potential; d) innovation and organizational potential. In a broader sense, the principal structure of the elements of production potential, taking into account the nature of the area under study, is reflected in.

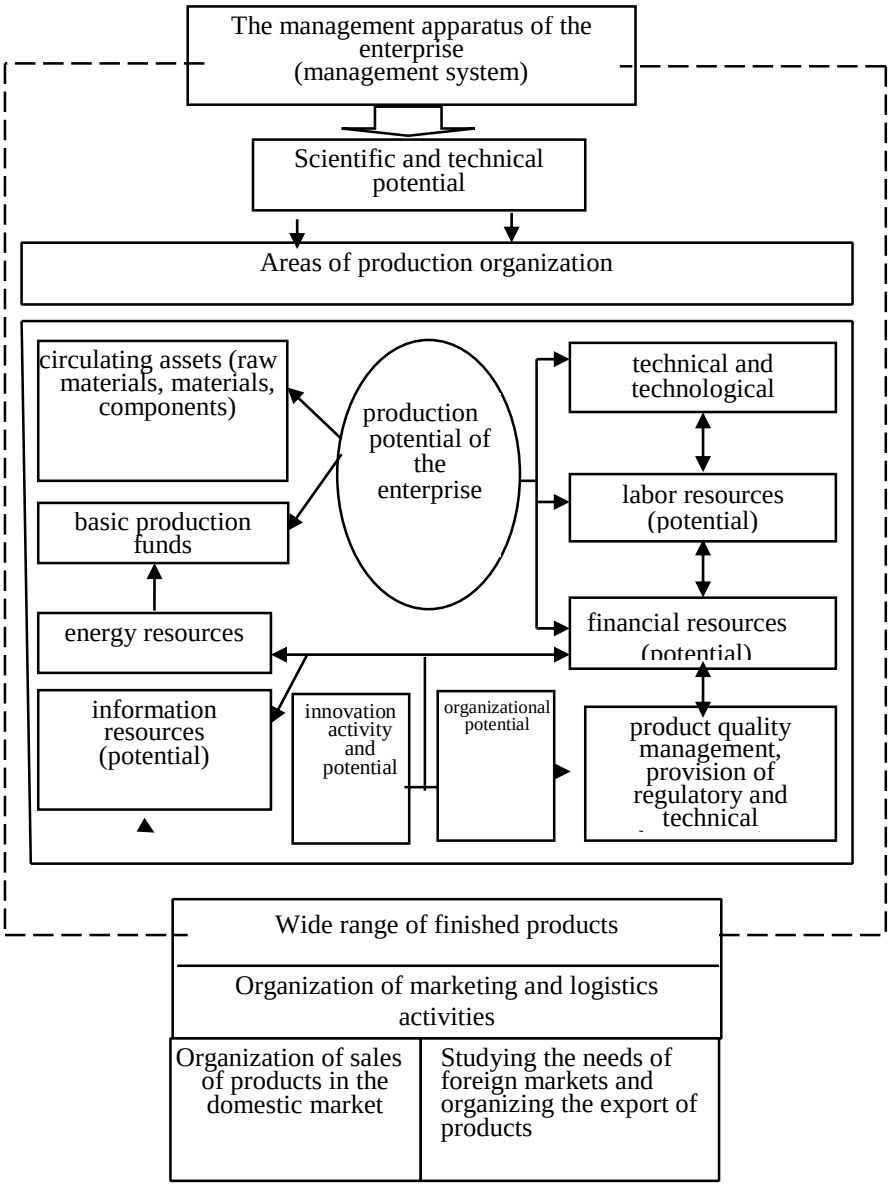

Figure 1. Principal diagram of the structure of the elements of the production potential of oil machinery enterprises (Developed by the author)

We would like to note that in modern times, the production potential of each enterprise should ensure the sustainable development of other types of economic potential, provided that the requirements of management - ensuring the continuity and harmony of the production process, its regularity, its efficiency and economy - are met.

In modern conditions, there are various approaches to assessing the production potential (PPP) of enterprises. The study focuses on two of these approaches. The first is the assessment of resources, and the result approach determines the degree of efficiency of using existing or potential production capacity. The qualitative indicator and assessment of production potential is a set of all types of indicators.

In order to determine the level of the production potential of an enterprise, research directions that include numerous indicators should be focused on: the movement of production elements, material and technical equipment and personnel components, their current state and efficiency of use.

The degree of utilization of the enterprise's potential should be assessed by the ratio of the actual volume of product production to the size of the supply corresponding to market demand. In this case, the preference for various mathematical and statistical approaches is reflected in the work.

In Chapter II of the dissertation entitled “Analysis and Assessment of the Current State of Production Potential Utilization in the Oil and Machine-Building Industry of Azerbaijan”, the institutional changes occurring in the studied industry, as well as the indicators characterizing its development, were analyzed and evaluated based on the data of multi-year statistical, primary accounting and reporting documents, on the basis of which the results of the GZIT analysis were systematized, and the share of the added value generated there in GDP was calculated. In this chapter, the system indicators (indicators) characterizing the use of production potential in the studied industrial enterprises were analyzed in detail for individual enterprises. They were analyzed in detail, including the cost of fixed production funds, investment in

fixed capital, indicators of fund utilization, the volume of assets and reserves, product production, personnel utilization, as well as efficiency indicators of production potential utilization, and the corresponding reserve opportunities were identified and ways of their effective use were shown.

The work analyzes in detail the main technical and economic indicators of machinery and equipment manufacturing enterprises operating in the republic, and shows that quantitative and qualitative changes have occurred in privately owned enterprises, but it is noted that this change has not become a reality in the field of oil machinery.

The main reason for this is the decrease in investment in fixed capital in the sector, high wear of fixed assets, decrease in production of main types of oil-field equipment, increase in the volume of residual products, sharp decrease in the specific weight of export products, weak application of international standards in the sector, high employee turnover, etc. This is also confirmed by official statistical data. The number of enterprises producing products for the oil and gas industry is 110 units. 72.7% of them are micro and small; 27.3% have medium and large status. The number of such enterprises in 2010-2023 increased by 20 units or 127.8%; the number of those in non-state ownership increased by 23 units or 144.3%. During these years, the number of state-owned enterprises of the same purpose decreased by 3 units or 15% and amounted to 17 units in 2023. 251 individual entrepreneurs, the number of which is increasing in an increasing way, are engaged in industrial activities in this area of economic activity.

During the analysis period, the value of the product (work, service) at enterprises producing machinery, mechanisms and equipment increased from 151.2 million manat to 564.7 million manat, or 3.7 times. The number of employees increased by 1.4 thousand people or 135.4%, and their average monthly salary increased by approximately 2.0 times. When looking at the volume of production of the main types of products in natural terms at these enterprises, it becomes clear that in 2010-2023, the number of other main types of oilfield equipment, except for power transformers,

jackhammers and electric tension wires, changed in an increasing and decreasing manner, and the pandemic that spread throughout the world in 2020 caused a decrease in the number of all main types of oilfield equipment compared to the previous year (table 1).

Table 1
Production of main types of products in natural terms at the enterprises of the oil machinery industry of Azerbaijan

Main product types	*YEARS*							Growth rate in percentage terms in 2010-2023
	2010	2015	2017	2019	2020	2022	2023	
Fountain fixture, by the ton	112,4	142,6	17,8	182,3	42,4	69,2	66,5	59,1
Hose well pumps, pcs.	5681	4694	4476	7475	4297	5422	5312	93,5
Manjanag machines, pcs.	185	35	185	486	170	440	431	2,3 dəfə
Pumps, pcs.	–	–	5542	8744	4718	5892	5935	X
Tractors,-units	706	955	1421	905	300	588	662	93,7
Lifting devices, pcs.	–	–	156	284	489	86	117	X
Power transformers, pcs.	393	746	1443	3258	1663	606	804	2,1 times
Electric current wires for voltages exceeding 1 kV, tons	669	3456	1049	998,7	1509,6	1671	1665	2,5 times

Source: Industry of Azerbaijan: Statistical Bulletin. Baku, “DSK”, 2023, pp. Compiled and calculated by the author based on data from 50;51. [9]

As a result of the expansion of the diversification policy in the

mentioned sphere of activity, the proper organization of the production and sale of various products in accordance with the needs of the domestic market has also ensured the reduction of the finished product surplus. If in 2015-2017 the volume of product surplus increased year by year, then decreased until 2020, then in subsequent years a sharp increase trend is observed. (Diagram 1).

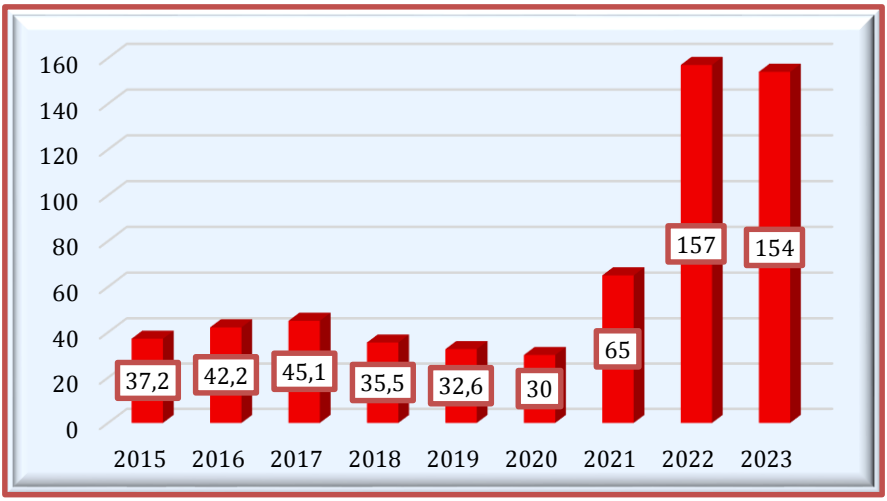

Diagram 1. Finished product inventory in warehouses of enterprises producing machinery and equipment in Azerbaijan mlyn.man (Compiled by the author based on data from oil machinery enterprises) [9, p.53]

In order to eliminate the shortcomings and deficiencies in the mentioned area, there is a pressing need to implement more effective and urgent organizational-economic and technical-technological measures for the sustainable development of the oil machinery industry at the state level. I think that for this purpose, there is a need to develop a new sectoral program for relevant innovative development. The application of progressive management forms (cluster, financial-industrial group, joint venture, etc.) and a quality management system in the industrial sector studied within the framework of that program should be included in the list of urgent organizational measures.

The analysis of indicators characterizing the activities of enterprises producing electrical equipment, machinery and mechanisms for the oil and gas industry in 2010-2023 shows that among the newly commissioned joint machinery enterprises with foreign investment in 2015-2018 - a plant for technical equipment, an enterprise for hydrotechnical equipment of various diameters and high pressure; ISMA BIKES» bicycle production park; Balakhani industrial park, Neftchala industrial district; pipe-rolling plant; Mingechevir industrial park; non-ferrous metals and trolleybus plant; automobile plant, high-voltage equipment plant and others can be cited as examples.

In operating machinery and equipment manufacturing enterprises, a total of 52.9 million manats of internal investment was directed to fixed capital in 2010-2023. Fixed assets were also put into operation in the same amount. Since the vast majority of these enterprises operate at a loss, depreciation allocations are used as the main source for the renewal of production. However, a significant part of these funds is also spent for their intended purpose. Not even 1 manat of foreign investment was spent on traditional machinery and equipment manufacturing enterprises during the period covered by the analysis. As a result, the indicators characterizing the use of fixed assets in enterprises producing electrical equipment, machines and mechanisms are not high. During the mentioned years, the specific weight of the active part of the fixed assets in enterprises producing electrical equipment increased by only 11.5 points, and the renewal level increased by 5.2 points, so the level of depreciation of funds decreased by 22.5 points to 51.6%.

Research shows that in 2010-2023 alone, the volume of commercial product production at 9 oil machine-building plants operating in the country decreased by 40%; at the Baku Worker plant - 76.4%; at the Baku Oil and Gas Mining Plant - 51.3%; at the Zabrat Machine-Building Plant - 43 times; at the Baku Oil-Gas-Mining Equipment Plant - 28.5%; at the Sabail Machine-Building Plant - 20.7%, while product growth is observed at the Balakhani, Surakhani and B. Sardarov machine-building plants. The volume of

innovative products at enterprises is also decreasing year by year. Thus, while in 2016, 698 thousand manats of products were produced at enterprises producing machinery and equipment, in 2020 its amount decreased to 44 thousand manats or decreased 19.9 times, and in the next two years it dropped to zero. The main innovative goal to achieve success in this area is to produce non-oil industry products that replace imports. For this, the purposeful investment in the studied area consists of implementing innovation projects and developing them in accordance with the existing system in Europe, international standards and best practices, ensuring active access of our country to the world market and strengthening its position there. To achieve this goal, national standards, technical conditions, technological regulations, product quality control systems must be brought into line with the requirements of international standards. There is no doubt that by diversifying production at oil and machine-building enterprises, it will be highly economical to promote the creation of national brands in the near future, prepare industrial brands that include criteria such as quality, customer satisfaction, and image, and make them recognized in foreign countries and included in the list of measures awaiting solution.

The third chapter of the dissertation entitled “Ways to increase the efficiency of using production potential at oil and machine-building enterprises of Azerbaijan” shows the ways of efficient use of production assets at oil and machine-building enterprises, reflects the development directions of competitive potential, as well as marketing potential, the stages of strategy formation in the form of a scheme, develops a principle scheme of the proposed model of strategic management in the field, provides recommendations on improving the use of production potential based on the efficient organization of innovation activities, and classifies the scope of the main components of the innovation policy that must be implemented in the field.

The efficient use of existing assets in the studied area, including the diversification of the structure of this sphere, directly depends on numerous factors, the high technical and technological

state of production, the availability of highly qualified personnel, uninterrupted and high-quality supply of raw materials, the volume of products manufactured in the area in the domestic and foreign markets, the level of scientific and technical innovations. In such conditions, state support for the machine-building industry is carried out through various regulators, tools, and methods. The creation of joint ventures to fundamentally improve the technical and technological state of Azerbaijan's oil and machine-building enterprises, meet their necessary investment needs, and on their basis produce new types of high-quality, import-substituting, export-oriented products can have a high synergy effect.

In the process of creating joint ventures, the sale of large areas not involved in the production process to entrepreneurs will allow obtaining additional funds for the restoration of enterprises. In order to increase the business activity of the mentioned enterprises and eliminate negative impact factors, ensuring their financial sustainability depends on proper management of expenses. A comparative analysis of the balance sheet data of these enterprises shows that over the past 10 years, material costs have increased by 3.2 times, basic and additional wages by 4.5 times, non-production costs by 9.3 times, and other administrative expenses by 15.3%. As a result, the growth rate of production costs exceeded the growth rate of production volume by 0.9 points. The creditor pipelines formed by oil and machine-building enterprises exceed receivables by 2.5 to 3.1 times. The absolute part of creditor debts is made up of energy costs that are not paid on time, wages, payments to the social security fund, and various fines. There, depreciation costs are not spent for their intended purpose, and ICT capabilities are poorly used in the management system.

In modern conditions, the transition to a digital economy can also create favorable conditions for increasing the technological capabilities of oil and machine-building enterprises. At the initial stage, the main focus should be on expanding public-private partnerships, targeting business activities towards the implementation of projects of national importance, and achieving the production of high-quality and import-substituting products by

increasing spending on technological innovations.

To determine the strategy for developing competitive potential, it is necessary to determine which type of oilfield equipment production is more important for each enterprise using the ABC analysis method. To do this, first of all, external factors should be identified and evaluated, and then the composition, structure, reserves, and use of all types of necessary resources should be revealed by conducting an internal audit. Only after this can competitive potential be assessed and its benchmarking be conducted. In general, the process of developing a competitive potential strategy should reflect several stages (Table2)

Table2 .

Stages of formation of a strategy for the development of competitive potential at oil machinery industry enterprises (developed by the author).

STAGES	I	Identification of external influence factors and internal resources	▪ Identification and assessment of external influence factors; ▪ Determining the capabilities of existing resources based on internal audit
	II	Assessment using indicators	▪ Classification and calculation of various indicators to assess competitive potential
	III.	Benchmark marketing evaluation	▪ Evaluation of competitive potential by conducting benchmarking through bench-marketing
	IV	Strategy development and implementation	▪ Selection of a strategy for developing competitive potential; ▪ Use of existing opportunities for strategy implementation
	V	Resource planning	▪ Planning the process of determining the need for resources such as material, energy, and labor
	VI	Monitoring and control	▪ Monitoring competitive potential and overseeing the implementation of its strategy

We believe that the basis of external competitive opportunities should be market opportunities, since it is in real market conditions that each enterprise can have its competitive advantages: increasing its market share, receiving special orders from the state, obtaining appropriate licenses, using discounts, grants, subsidies, entering another market and exiting the existing market. All this shows that the weakest point in the management and control systems of oil machinery enterprises is the improper use of these potentials.

In modern times, the intensity of the globalization process, ever-increasing competition, and the purposeful development of the application of new management technologies are increasing the need for the application of innovations. We believe that the development of an innovative development program within the framework of a single industry cluster for oil machinery enterprises can act as a scientific product of industry institutes.

Based on international experience, it can be unequivocally noted that the expansion of public-private cooperation ensures the efficient use of all types of potential in enterprises. We believe that the privatization of enterprises producing oil and gas and electrical equipment in Azerbaijan will eliminate negative situations. The merger of small-scale oil and machine-building enterprises that use their production areas and territories inefficiently, produce one or two products, and equip them with modern technical and technological equipment can provide a high synergy effect. In our opinion, it is time to create closer ties between oil and machine-building enterprises that have significantly lost their traditional consumers and markets, use their production capacity to a minimum, and operate intermittently, to jointly identify common problems and determine ways to solve them, to save financial and energy resources, to access foreign markets, to implement joint projects, to establish close cooperative relations, to achieve joint activities in supply and logistics, and to implement other general activities in a single management system at lower costs.

The concentration of repair units operating in the oil and gas industry of our country, adapting their existing material and technical base to modern requirements, promoting innovative

activities, and establishing service centers for the repair and installation of exported oil and gas equipment in those countries should also be included in the list of goals for the near future.

In order to ensure the efficient use of production assets in the studied industrial sector, it will be possible to intensify the digitalization process by widely using ICT technologies in controlling and controlled systems.

Conclusion

The systematic approach and comparative analysis used in the research process allowed the formulation of the following conclusions:

A comparative analysis of numerous approaches to the concept of production potential in modern economic literature shows that there is no single or unanimous methodology for assessing the production potential of an enterprise. Each of the proposed methods (approaches) claims that production potential depends on one or another factor (or factors). In our opinion, it is necessary to classify production potential according to its characteristics. The main scheme of this classification is proposed here. As a result of the research, it can be noted that the following should be included in the main elements of the production potential of an enterprise: fund and technical-technological potential; labor and energy potential; investment and financial potential; innovation and organizational potential. 76.6% of enterprises producing electrical equipment, machines and mechanisms operating in Azerbaijan are micro and small enterprises. Due to lack of finance, most of them operate at a loss, and their products are sold only in the individual market. Numerous individual entrepreneurs also operate in the field, which does not create favorable conditions for their innovation activity. The volume of finished product residues in the warehouses of enterprises is decreasing at a slow pace. All this leads to a decrease in the share of the value created in the field in GDP. The fact that the wear rate of the active part of the fixed assets exceeds 50% in enterprises producing electrical equipment,

machines and mechanisms, and that this indicator reaches an average of 66.7% in oil and gas engineering enterprises, and in some enterprises - 75-85%, does not allow them to produce competitive or new oil and gas equipment there. This leads to a decrease in the efficiency of using commercial and export products, as well as innovative products, and production potential in general at oil and gas engineering plants. The unsatisfactory organization of the quality management system in the oil and gas engineering industry has a negative impact on the export of products manufactured there to foreign markets. The absolute majority of products are manufactured on the basis of technical specifications. There is a need to fully align national standards with international standards such as ISO.

In the context of the challenges of the modern and future era, ensuring the competitiveness of oil machinery industry enterprises operating regardless of their form of ownership and the efficient use of their production potential should be based on nanomaterials, nanotechnologies and artificial intelligence.

Proposals

In order to eliminate the described shortcomings and expected threats, and to effectively use the identified reserve opportunities, it would be appropriate to implement the following practical recommendations in the studied industry:

- expansion of public-private partnership based on the privatization of oil-engineering plants;
- implementation of effective projects to direct foreign direct investment to the sector;
- unification of small-sized plants producing 1-2 types of products, creation of new enterprises in the liberated production areas that produce a wide range of products that are necessary for other economic sectors (agriculture, food and light industry, household, trade, catering and utilities sectors), the demand for which is currently met by imports;

- creation of joint or foreign-invested enterprises on the basis of medium and large-sized oil-engineering plants;
- as an alternative option, the creation of an industry cluster in the oil and gas engineering sector and the inclusion of scientific organizations, project investments, service enterprises, a logistics center in its structure, as well as the involvement of individual entrepreneurs in that structure by providing them with new equipment;
- the creation of a marketing department with broad authority in medium and large enterprises, the improvement of their information base, and the expansion of ICT use opportunities;
- the development of an innovative industry program that includes the innovative development of the oil and gas engineering industry.
- the development of a strategic management model for oil and gas engineering enterprises.
- attention to the implementation of the following in practice in order to align the National Priorities for socio-economic development and the Development Strategy with the long-term vision goals:
- the development and implementation of targeted investment and innovation projects in order to ensure the transition to the 4th industrial revolution in the sector without delay;
- Promoting the creation of high-value national brands by making enterprises part of the global value chain
- Optimizing existing assets in enterprises and expanding international cooperation;
- Reducing import dependence based on the application of the vertical integration approach of the sector;
- Increasing the potential for using Azerbaijani oil and gas engineering products in the oil and gas value chain;
- Widespread application of ISO and API series international standards in oil and gas engineering enterprises.

The main content of the dissertation work and the results obtained are reflected in the following published scientific works of the author.

1. Askerov, R.R. Efficient use of production fixed assets in the Azerbaijani oil machine-building industry // - Baku: News of the Azerbaijan National Academy of Sciences, Economics series, - 2013, No. 4, - pp. 157-161.

2. Askerov, R.R. Ways to increase innovation activity in Azerbaijani oil machine-building enterprises // Materials of the republican scientific and practical conference on the topic "Innovative socio-economic development of regions: realities and prospects" dedicated to the 92nd anniversary of the birth of the National Leader Heydar Aliyev, - Baku, 2015, - pp. 349-351.

3. Askerov, R.R. Current status and management of human potential utilization in the Azerbaijani oil engineering industry // - Baku: Azerbaijan Agrarian Science, - 2016, No. 5, - pp.112-116.

4. Askerov, R.R. Production potential, its essence, structure and main elements // - Baku: Azerbaijan National Academy of Sciences, Institute of Economics Scientific Works, - 2016, No. 1, - pp.210-219.

5. Askerov, R.R. Methods for assessing the production potential of an enterprise // - Baku: Azerbaijan National Academy of Sciences, Institute of Economics, Scientific Works, No. 4, - 2016, - pp.45-51.

6. Askerov, R.R. Methods for assessing the efficiency of using the production potential of an enterprise // - Baku: Scientific Works of the Azerbaijan National Academy of Sciences, Institute of Economics, - 2016, No. 5, -p. 87-93.

7. Askerov, R.R. Assessment of oil machine-building enterprises in Azerbaijan and their main economic indicators // - Baku: Scientific Works of the Azerbaijan National Academy of Sciences, Institute of Economics, - 2016, No. 6, -p. 174-180.

8. Askerov, R.R. Problems of strengthening the production potential of oil machine-building enterprises in Azerbaijan and privatization targets in the Strategic Road Map // - Baku: Scientific Works of the Azerbaijan National Academy of Sciences, Institute of Economics, - 2018, No. 4, -p. 29-35.

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11. Askerov, R.R. Methodological aspects of the production potential of oil machine-building enterprises/ 54th International Scientific Conference ENO (August 2019) Scientific aspects of modern research/ Collection of works of the 54th International Scientific Conference of the Eurasian Scientific Association. - Moscow: EHO, No. 8 (54). - 284 p. str. 158-160.

12. Askerov, R.R. Forecasting the volume of sales of production at the enterprises of Azerbaijan petroleum engineering with the application of the Cobb-Douglas function. Научной форум: Economics and management. Сборник статьей по материалам 34 international scientific-practical conference #1(34), Moscow, 2020, p.59-65

13. Gulaliyev, M., Yuzbashiyeva, G. Askerov, R. et.al. Consumer surplus changing in the transition from state natural monopoly to the competitive market in the electricity sector in the developing countries: Azerbaijan case // International Journal of Energy Economics and Policy, Scopus, - 2020, Vol.10, No. 2, - p.165-275.

The dissertation defense will be held on 12 september 2025 at 11⁰⁰ at the meeting of the BED-1.10 dissertation council operating under the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan.

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The dissertation can be viewed in the library of the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan.

Electronic versions of the dissertation and abstract are posted on the official website of the Institute of Economics of the Ministry of Science and Education of the Republic of Azerbaijan (economics.com.az).

The abstract was sent to the necessary addresses on 9 july 2025.

Signed for print: 05.05.2025
Paper format: A5
Volume: 37 183 characters
Number of hard copies: 20