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A Strategic Roadmap for Innovation and Development in the Mechanical Engineering Industry

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Abstract: The actuality of the subject. The Strategic Roadmap for the development of heavy industry and engineering in the Republic is to protect the environment, increase employment and increase added value in the non-oil industry, diversify the economy by using existing resources and new regulatory and incentive policies, and ultimately improve the economy by implementing these measures. is to achieve sustainable development. Between 2016 and 2020, it is planned to achieve strategic goals such as optimizing current assets in the country's heavy industry, including machine building, developing a competitive sector, providing financial support and promoting international cooperation.

Keywords: Engineering, Enterprise, Innovative development, Management, Innovation policy.

1. INTRODUCTION

Modern machine building automation is efficient due to high volume of manufactured products, low production costs and flexibility. In a short period of time, the technological process must produce products of the right quality and with low production costs, which in turn helps to increase competitiveness in an unstable economic market. A well-optimized manufacturing process can increase customer satisfaction by producing products quickly and with reliable quality. It's important to pay attention to your performance metrics and ask for feedback to spot ongoing problems and make informed changes. A joint approach to equipment issues and production processes is necessary for complex optimization of technological operations.

The list of factors that determine how the machine-building industry develops includes numerous indicators of the country and its regions, for example, GDP (gross domestic product), labor productivity, the degree of development of other areas dependent on machine-building, the state's defense capacity, accessibility. transport, the level of environmental safety of production, the standard of living of the population, etc [1-9].

2. EXPERIMENTAL DETAIL

Improving productivity, quality, competitiveness and efficiency is associated with innovation in business. To accommodate this growth and increase market share, businesses are constantly looking for innovations. Still, innovation does not always deliver the expected results. Predicting the consequences of inventions is very important to avoid unfavorable situations in the future. Numerous economic theories, mathematical calculations, management techniques and computerized business models are some of the approaches used to achieve this. To help clarify the essence of the management of inventive development of machine-building enterprises, we have identified the following characteristics:

- Different approaches can be used to achieve this goal in the process of creative development;
- The innovation policy of the state regulates the field of machine building;
- The innovative development capacity of the enterprise is determined by the level of its innovative potential;
- The more innovative the enterprise develops, the more comprehensively and efficiently its existing innovative potential will be used;

- Implementation of the innovative development process of the field at the regional level requires the existence of a regional innovation system;
 - Internal motivation of machine-building enterprises to innovative activity determines the efficiency of their innovative development;
 - Creation of management structures based on public-private partnership takes place in the process of innovative development;
 - Innovative opportunities should be taken into account in advance, development resources should be directed in the right direction at the right time.
- According to the Decree dated March 16, 2016, the heavy industry and engineering sector was confirmed as one of the eight priority sectors in the "Main directions of the strategic road map for the main sectors of the national economy and economy". It is an important part of the economy of Azerbaijan and will be given special attention. By 2025, a comprehensive growth program for the machine-building sector of the state should be prepared in Azerbaijan.

There are two ways to look at the innovation potential of the engineering industry. Although it is a part of the overall potential of the field, the innovative potential of engineering also includes a part of the innovative potential of the economy.

It was possible to determine the main principles of this method by examining the theoretical foundations of the management of innovative development of industrial enterprises:

- Scientific method. The use of methods in the management of inventive development should be based on modern scientific and theoretical achievements, as well as management experience in this field.
- The principle of compatibility and adaptation. It is important to continuously improve management techniques, technologies and methodologies in accordance with the evolving internal and external environment.
- The principle of effectiveness. Their impact on the economy, society, ecology, science, technology, etc. when applying the achievements in mechanical engineering.
- The principle of competitiveness. Increasing the competitiveness of engineering companies, especially in the global market, should be the main goal in managing their creative development.
- The principle of predetermination. The periodicity of the development of the economic process should be taken into account when waiting for the development, because it strengthens the management effect.
- The concept of indicator accuracy and reliability. In order to manage the innovative development of

engineering firms, innovation management theory and reliable indicators of the current state of the field are essential.

- The concept of creative potential management. It determines the course and results of the already existing potential development. Since the expansion of creative potential is considered the basis of increasing innovative activity, this goal should be taken into account in the management of innovative development.

- The principle of result orientation. The goal of managing the innovative development of engineering companies should be to increase their innovative performance to meet future expectations.

3. CONCLUSION

Thus, it can be said that machine-building production has created an opportunity for the modernization of Azerbaijan's economy. Enterprises can reach new heights when innovative activity develops in this area. Engineering firms are known for their inventive development process, often involving multiple approaches to achieve the same goal. The degree of the enterprise's inventive potential determines its innovative development opportunities. The higher the level of innovative development, the more fully and efficiently the innovation potential will be used.

REFERENCES

1. G.V.Meshcheryakov, The mechanism for managing the innovative activities of business entities and the algorithm for its implementation, Economic revival of Russia, №.3 (37), 2013.
2. A.K.Neshcheret, Features of increasing the country's competitiveness based on the use of a cluster development strategy. International scientific and practical conference. – Minsk, April 22-23, 2010. – Part 1. – Mn.: Acad. ex. under the President of the Republic Belarus, pp.439 – 443? 2010..
3. A.K.Neshcheret, General coordinates of innovative development in the conditions of Eurasian integration, A.K. Neshcheret, Management consulting. №2 pp.77 – 86, 2011.
4. S.V.Nikiforova, S.V. Sovershaeva Problems of development of modern marketing communications tools in Russia, Commerce and marketing in the innovative development of Russia / St. Petersburg State University of Economics, pp.171-174, 2013.

5. O.A.Chernova Imperatives of innovative development of regional economic systems, *Regional Economics*. №5(98). pp.24-30, 2009.
- 6.A.S.Bin, A.A.Al-Rabiah, Development and Intensification of the Ethylene Process Utilizing a Catalytic Membrane Reactor, *American Chemical Society, journal of ACS Omega*, pp.28445-28454, 2022.
7. Y.Liao, E.Loures, F.Deşam, G.Louro Brezinski, A.Venâncio, The impact of the fourth industrial revolution: a cross-country/region comparison, *Parana Papa Katolik University, Kuritiba, PR, Brazilia*, pp.4-16, 2018.
8. M.Soori, R.Dastres, B.Arezoo, F. Karimi Ghaleh Jough, Intelligent Robotic Systems in Industry 4.0, A Review, *researchgate, journal of Advanced Manufacturing Science and Technology*, p.1, 2024.
9. M.Ghanta, D.Fahey, B.Subramaniam, Environmental impacts of ethylene production from diverse feedstocks and energy sources, *SpringerLink*, pp.167–179, 2014.