Article

Determining Prospects Through Planning and Forecasting of Industrial Products

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Abstract: Good public administration outcomes come from having professional civil servants. This article highlights the importance and necessity of planning and forecasting in supplying the market with industrial products under modern market economy conditions. In particular, planning is explained as a process of systematically organizing production in the industrial sector, maintaining the stability of enterprises in the market, efficiently utilizing resources based on a plan, and systematically carrying out the stages of product delivery to consumers. Forecasting, on the other hand, is analyzed as a means of making alternative decisions regarding the stability of enterprises and prospects for new product development based on the general state of the industrial sector. It also reveals potential risks and opportunities that may arise in the future. Additionally, planning and forecasting contribute to the improvement of both the quality and quantity of manufactured products, thereby increasing the overall efficiency of enterprises. This, in turn, leads to an increase in the share of the industrial sector in the national economy. Furthermore, the article presents conclusions and proposals on effectively implementing enterprise activities and determining the prospects for industrial development.

Keywords: Industry, Industrial Sector, Enterprise, Production, Planning, Technology, Sustainable Development, Prospect, Forecasting

1. Introduction

Nowadays, along with the population growth, the demand for industrial products is also increasing. The necessity arises to expand the number of enterprises and entrepreneurial activities and create favorable conditions to ensure employment, increase incomes, meet the demand for industrial products, and enhance product competitiveness. To improve the quality and quantity of industrial products, the government provides extensive opportunities for enterprises and business entities, including the establishment of free economic zones, the provision of preferential loans and subsidies, and the reduction of tax burdens. In particular, the Presidential Decree of the Republic of Uzbekistan "On Additional Measures for the Rapid Development of Industry and Its Basic Sectors" defines the objectives of accelerating the development of high-tech industrial sectors, expanding the production of competitive finished products through the broad attraction of private investments in the industrial sector, increasing incomes by establishing new production capacities in the regions, and implementing management systems based on advanced international standards in major industries [1], [2]. Furthermore, the Presidential Decree of

the Republic of Uzbekistan "On Measures to Simplify State Regulation of Entrepreneurial Activities" sets clear objectives and boundaries for regulating entrepreneurial activities, creating favorable conditions for business entities to introduce new types of products and services, providing incentives, and reducing tax burdens [3].

Moreover, planning in industrial manufacturing enterprises and defining short-term and long-term prospects constitute one of the fundamental processes contributing to increased enterprise efficiency. The implementation of production based on a structured plan ensures the continuity and stability of operations, the harmonious development of sectors and regions, and the systematic interconnection between the economy, its industries, and enterprises (firms) [4].

Analysis of Literature Related to the Topic

A lot of foreign and domestic literature on planning and forecasting of industrial enterprises has been analyzed. In particular, the book "Industrial Location and Planning in the United Kingdom"by K. David provides a detailed study of the nature of changes occurring in industrial location and planning in the UK. The book examines the evolution of the manufacturing industry since the 1950s and the factors influencing these changes, including government regional policies, market access, labor availability and cost, transportation, and the personal residential preferences of industrialists and workers. Special attention is given to government regional policies and planning, particularly in terms of regional grants, local planning controls, and urban programs [3]. The book thoroughly explores the effects of government industrial regional policies alongside the reasons for efficient industrial location [5].

L. Jacob and L. Rainer, in their article "Production Planning and Scheduling in Multi-Factory Production Networks: A Systematic Literature Review", examine the challenges of planning multi-factory production, the technological trends of Industry 4.0, and ways to enhance collaboration. Specifically, the article analyzes 128 sources and attempts to prove that in the context of Industry 4.0, planning and forecasting activities in enterprises lead to increased efficiency. The study highlights how digital transformation and interconnected production systems contribute to optimizing resource allocation, improving coordination, and enhancing decision-making processes within industrial networks.

Among local scholars, numerous scientific studies have been conducted on this topic. In particular, A. Ortiqov, in his textbook "Industrial Economics" [5], provides an in-depth analysis of all industrial sectors, covering organizational, technical, economic, social, and cultural management processes. Additionally, the book explains the importance of planning and forecasting in enterprises, emphasizing their key principles for improving efficiency. The scholar defines planning as "...a structured process that determines the necessary parameters to achieve future goals based on information processing and project development." He further describes forecasting as "the process of envisioning, targeting, and predicting the future. It involves making projections based on existing evidence, data, and precise figures to foresee how an event or phenomenon will develop and its consequences" [5].

In his textbook "Industrial Economics", N. Muminov provides the following definitions of planning [6]:

a. Planning is "the conscious thinking of the future."
b. Planning (in a broad sense) is "the systematic preparation of decisions to determine future events, forming managerial decisions based on this preparation [7]."
c. Planning is "a preemptively accepted decision," meaning it is a solution developed before the emergence of situational events, accompanied by an information process aligned with decision-making [8].
d. Finally, planning is the core of economic management.

The scholar proves that planning and forecasting are interrelated and complementary processes. We also share this view because a company that operates without planning has a short lifespan. This is because the planning process considers all aspects of the enterprise, identifying weak areas for improvement and expanding successful sectors through well-structured strategies [9].

In her article "Methods of Planning Production Processes", Sh. Mirzayeva highlights the necessity of developing a scientific approach to organizing production in connection with the urgency of Uzbekistan's economic development. The article states that "...the development of the material and technical base of production should be considered from a systematic scientific approach, where the production base, organization of production, and human resources are subsystems of the overall enterprise system [10]. This system also includes the entire set of technological, management, and control processes of the enterprise."

Additionally, researchers have explained 12 scientific principles essential for planning enterprise activities, emphasizing their role in improving production efficiency and sustainable economic growth [11].

2. Materials and Methods

In the research process of this article, various methods have been employed to study the development of industrial production and improve enterprise efficiency. These include monographic research, analysis and synthesis, and statistical analysis, which are based on economic methods and the results of monographic studies of foreign experiences. Additionally, an additive model has been used to forecast the country's industrial development, allowing for a structured approach to predicting future trends and optimizing industrial planning strategies.

3. Results and Discussion

The improvement of management and its most important function, forecasting and planning, occupies a special place in the state's economic strategy. This is because forecasting and planning are legal processes at all levels and in all sectors. These are determined by tasks related to the development of productive forces and production relations in society [12].

Industrial production is a complex process that requires thorough planning for effective operation. Planning helps optimize the production process, make efficient use of resources, and increase competitiveness. At the same time, forecasting and planning in industrial production have the following advantages [13].

a. Increasing Production Efficiency. Through planning, increasing labor productivity at each stage and improving production processes are achieved by the optimal use of resources.
b. Reducing Costs. In production, planning allows for saving resources such as raw materials, labor, and energy. This helps lower the cost of goods and increase profits.
c. Ensuring Production Continuity. Proper organization of planning processes creates a continuous production cycle, preventing various stoppages and issues.
d. Meeting Customer Demands. Based on customer needs and market demands, planning enables the optimization of product quality and delivery timelines.
e. Reducing Risk. Planning allows for forecasting problems in advance and developing solutions, reducing losses in production.
f. Increasing Competitiveness. Proper planning enhances a company's competitiveness, and through effective planning, the company can adapt to market conditions.
g. Anticipating Market Demands. Through forecasting, it is possible to identify product demand and direct production accordingly.
h. Ensuring Stability of Production Processes. Production plans are developed based on forecasts, ensuring systematic development.

i. Risk Assessment. Identifying potential problems in advance and developing measures to prevent them.

j. Supporting Strategic Decisions Forecasting allows for identifying future industrial trends, determining development directions, and helping establish long-term development strategies for the enterprise.

Forecasting performs the following functions in industrial enterprises:

a. The purpose of forecasting is to identify the factors influencing the market;

b. Determining the overall economic situation, structural shifts, and investment activity;

c. Identifying potential conditions for the production of new products that contribute to the enterprise's stability and competitiveness beyond traditional products;

d. Predicting changes in the types and quantities of manufactured products in advance;

e. Enabling economic entities to foresee possible future conditions based on scientific justification;

f. Assessing and analyzing emerging or potential future economic, scientific-technical, and social conditions, thereby facilitating the selection of alternative decisions.

The main tasks of forecasting include:

a. Defining development objectives;

b. Identifying optimal directions and means to achieve them;

c. Determining resources and timelines for fulfilling set tasks;

d. Identifying constraints that may impact enterprise development.

By fulfilling the above functions and tasks, forecasting ensures the enterprise's stable and prospective operations [14].

In this article, we attempted to forecast the industrial sector of our country for the years 2025-2026 using existing statistical data (Table 1).

Table 1. Production volume of industrial products in our country (quarterly, billion soms) [8].

Years	Quarters (t)	Amounts
2021	1	173578,4
	2	484377,1
	3	818381,4
	4	1209495,0
2022	5	213643,0
	6	602588,9
	7	1022968,0
	8	1480185,0
2023	9	237388,4
	10	703803,8
	11	1205581,0
	12	1753682,0
2024	13	307860,6
	14	889751,3
	15	1570112,0
	16	2370820,0

This table represents the monetary expression of the total final products manufactured in the industrial sector of our country, covering quarterly data for the years 2021-2024. As observed in the table, there has been a significant increase in production volume each year. However, in the first quarters of each year, production volume tends to

be relatively lower, which can be explained by the slowdown in production activity at the beginning of the new year [9].

Additionally, the annual production volumes are as follows:

a. In 2021, the total production volume amounted to 2685831,9 billion UZS.
b. In 2022, the total was 3319384,9 billion UZS.
c. In 2023, the total reached 3900455,2 billion UZS.
d. In 2024, the total amounted to 5138543,9 billion UZS.

This indicates a consistent increase in industrial production volume year by year, reflecting the continuous growth of the industrial sector.

Based on the above data, we have decided to make a prospective forecast of the monetary expression of final products manufactured in our country's industrial sector. Since the quantities exhibit seasonal fluctuations across quarters, we have attempted to perform calculations based on an additive model, resulting in the formation of Table 2.

Table 2. Forecast values of the industrial network of the country based on the additive model (2025-2026)[1].

(t)	Amounts	Total for four quarters	Four-quarter moving average	Centered moving average	quarterly component pricing	S	T+E	Trent T=458399,2 +56689,9*t
1	173578,4	-	-	-		-470460,1	644038,5	516689,1
2	484377,1	2685831,9	671458,0	-		-170930,1	655307,2	574979,0
3	818381,4	2725896,5	681474,1	676466,1	141915,4	154573,3	663808,1	633269,0
4	1209495,0	2844108,3	711027,1	696250,6	513244,4	486816,9	722678,1	691558,9
5	213643,0	3048694,9	762173,7	736600,4	-522957,4	-470460,1	684103,1	749848,8
6	602588,9	3319384,9	829846,2	796010,0	-193421,1	-170930,1	773519,0	808138,7
7	1022968,0	3343130,3	835782,6	832814,4	190153,6	154573,3	868394,7	866428,6
8	1480185,0	3444345,2	861086,3	848434,4	631750,6	486816,9	993368,1	924718,5
9	237388,4	3626958,2	906739,6	883912,9	-646524,5	-470460,1	707848,5	983008,5
10	703803,8	3900455,2	975113,8	940926,7	-237122,9	-170930,1	874733,9	1041298,4
11	1205581,0	3970927,4	992731,9	983922,8	221658,2	154573,3	1051007,7	1099588,3
12	1753682,0	4156874,9	1039218,7	1015975,3	737706,7	486816,9	1266865,1	1157878,2
13	307860,6	4521405,9	1130351,5	1084785,1	-776924,5	-470460,1	778320,7	1216168,1
14	889751,3	5138543,9	1284636,0	1207493,7	-317742,4	-170930,1	1060681,4	1274458,0
15	1570112,0	-	-	-		154573,3	1415538,7	1332748,0
16	2370820,0	-	-	-		486816,9	1884003,1	1391037,9
17	978867,7					-470460,1		1449327,8
18	1336687,6					-170930,1		1507617,7
19	1720480,9					154573,3		1565907,6
20	2111014,5					486816,9		1624197,5
21	1212027,3					-470460,1		1682487,5
22	1569847,3					-170930,1		1740777,4
23	1953640,6					154573,3		1799067,3
24	2344174,1					486816,9		1857357,2

Here, **S** (the average value of **S**-quarter component) is found by dividing the four-quarter moving average and the centered moving average.

T-trent

E- error

[1] The author created the table using Excel.

T=458399,2+56689,9*t trend equation that changes in quarters (t).

Table 3. S- a table for calculating the average value of the quarterly component[2].

Indicators	Years	Quarters			
		I	II	III	IV
	2021			141915,4	513244,4
	2022	-522957,4	-193421,1	190153,6	631750,6
	2023	-646524,5	-237122,9	221658,2	737706,7
	2024	-776924,5	-317742,4		
Total		-1946406,4	-748286,4	553727,1	1882701,7
Avarage		-486601,6	-187071,6	138431,8	470675,4
Quarterly S		-470460,1	-170930,1	154573,3	486816,9

In this case, **K**-caricature is a correction coefficient

$$K = \frac{-486601,6 - 187071,6 + 138431.8 + 470675,4}{4} = -16141,5$$

Based on the above calculations, we have observed the rapid growth of the monetary expression of the final value of industrial products in our country, as well as the forecasted quarterly values (Table 2). The increase in these figures indicates the rising significance of the industrial sector's share in the country's GDP. The main factors contributing to this growth include the increasing number of enterprises operating in the industrial sector, the attraction of large-scale investments, the implementation of innovative technologies in production, and the emergence of highly skilled professionals [15].

Since the analysis results demonstrate a recurring seasonal pattern, we generate Table 4 by aggregating the four quarters' data. Table 4 presents annual values, facilitating easier analysis and interpretation.

Table 4. Annual values of industrial volume (billion soums).

Years	Amounts
2021	2685831,9
2022	3319384,9
2023	3900455,2
2024	5138543,9
2025	6147050,7
2026	7079689,3

As seen in Table 4, it is projected that by 2026, the monetary expression of industrial products will reach 7,079,689.3 billion UZS. According to the additive model, this indicates a 1.4-fold increase compared to 2024.

In general, the development of the industrial sector is influenced by the following factors:

a. Economic Growth and Development;

b. Government Policies and Investments;

c. Technological Advancements;

d. Expansion of Export Markets;

e. Improvement in Infrastructure;

f. Foreign Investments and Partnerships.

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[2] The author created the table using Excel. Table 3 was formed based on the processing (calculation) of Table 2.

4. Conclusion

Planning and forecasting in industrial production are crucial processes that play a significant role in increasing efficiency, reducing costs, ensuring financial stability, and improving product quality. While planning allows enterprises to systematically and orderly conduct their operations, forecasting is essential for preparing for potential future risks and effectively utilizing opportunities.

Based on the above analyses and the internal and external factors influencing industrial production, the following recommendations are proposed for effective development:

a. Firstly, establish clear, long-term strategic plans to guide industrial development and ensure alignment with national economic goals;

b. Secondly, enhance forecasting methods by incorporating advanced data analytics and technological tools to predict market trends more accurately;

c. Thirdly, prioritize efficient resource use, including raw materials, labor, and energy, to minimize waste and maximize production output;

d. Fourly, encourage the adoption of advanced technologies such as automation, artificial intelligence, and IoT to increase productivity and product quality;

e. Fifthly, develop a comprehensive risk management strategy to identify and mitigate potential risks in production processes, ensuring continuity and stability;

f. Sixthly, invest in training programs to enhance the skills of workers, especially in areas related to new technologies and efficient production techniques;

g. Seventhly, strengthen collaboration between the public and private sectors to foster innovation, provide financial support, and improve infrastructure for industrial growth;

h. Eighthly, promote sustainable and environmentally friendly production methods to ensure long-term viability while minimizing environmental impact.

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