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MODERN METHODS OF ANALYZING THE VOLUME OF PRODUCTION AND SALES OF PRODUCTS

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Abstract:

In this article modern methods of analysis of production and sales volumes of products are comprehensively investigated. ABC and XYZ analysis, Break-even analysis, factor analysis, trend and regression analysis, as well as a digital technology-based approach are covered. The advantages, applications and practical significance of each method are analyzed. The article substantiates that the use of modern analytical tools is an important factor in improving the efficiency of enterprise management.

Keywords: ABC analysis, XYZ-analysis, break-even analysis, regression analysis, trend analysis, factor analysis, ERP system, digital technologies, production volume, sales volume

INTRODUCTION

In the conditions of increased competition in the market economy, scientific analysis of the volume of production and sale of products for economic entities becomes increasingly important. Traditional analysis methods are often unable to fully respond to dynamic market changes. In this regard, the application of modern analytical approaches and analytical methods based on digital technologies has become the primary requirement of enterprise management.

Currently, the world's leading companies have the ability to monitor the production and sales indicators in real time and make quick management decisions. Mastering modern methods in this direction is also an urgent task for enterprises of Uzbekistan.

The article is aimed at systematizing modern methods applied in the analysis of production and sales volumes, their advantages and limitations, as well as showing the possibilities of practical application.

Literature review and methodology: Methodology of product volume analysis is studied in depth in the works of Russian economic scientists such as G.V. Savitskaya, V.V. Kovalyov, A.D. Sheremet, as well as foreign researchers P. Kotler, R. Kaplan, D. Norton. Among the Uzbek economists N.A. Toshmatov, N.Kh. Kholmatov and others developed analysis methods adapted to national conditions. Comparative analysis, monographic method, systematic approach and inductive-deductive methods were used in the study. Classification and analysis of modern methods is carried out on the basis of the available scientific literature, international experience and practice.

ABC and XYZ analysis methods. ABC analysis method allows dividing product types into three groups according to their contribution to sales volume and revenue. This method is based on the law "20/80" by the Italian economist Vilfredo Pareto.

Group A — products that provide 70–80% of total income (usually 10–20% of the total assortment). It is to this group that the most attention should be paid.

Group B — medium-sized products with a yield of 15–20% (30% of the assortment). Requires regular monitoring.

Group C — products that provide only 5–10% of income, but make up 50–60% of the assortment. The object of optimization is dated.

XYZ analysis, on the other hand, classifies products in terms of demand stability. Group X — products characterized by stable demand (coefficient of variation up to 10%), group Y — products with seasonal fluctuations (10–25%), group Z — products with irregular, random demand (above 25%). Splicing the ABC-XYZ matrix results in a combination analysis consisting of 9 categories. This approach allows the enterprise to more accurately formulate the assortment policy and optimize the inventory of goods.

Break-even point analysis (CVP - Cost-Volume-Profit Analysis) is one of the most common modern methods to examine the relationship between production and sales, costs and profits. Break-even point (ZN) - indicates the amount of production in which an enterprise will suffer neither profit nor loss and is determined by the following formula:

ZN = Fixed Cost / (One Unit Price – One Unit Variable Cost)

The practical value of this method of analysis for the enterprise is manifested in the following:

- determination of production volume, ensuring minimum profitability;
- justification of price policy and plan a new product assortment;
- substantiation of investment decisions on expansion of production capacity;

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- forecasting profit dynamics due to changes in market conditions.

In modern ERP systems, CVP analysis is done in an automated way, and managers can track how close they are to the breakage threshold in real time.

The method of analysis of deterministic factors is widely used in the quantitative evaluation of factors affecting the volume of the product. This method allows, by precise numbers, to indicate by what factors the changes in the volume of products occurred.

The chain substitution method is a key tool of deterministic analysis, which separately determines the contribution of each factor to the volume of product by sequential substitution of factors. For example, the dependence of the volume of output on three factors — the number of workers (R), the number of working days (D), and the productivity of production in a day (V) can be expressed as follows:

$$N = R \times D \times V$$

The method of absolute differences is a simplified version of the chain substitution method, which speeds up calculations and reduces the probability of error. And the integral method prevents the formation of alternative analysis results in the calculation of the influence of factors. In recent years, multifactorial deterministic models have become increasingly integrated with ERP and BI (Business Intelligence) systems and calculated as automated. This is an important advantage that saves time of analyst-economists and speeds up the decision-making process.

Trend analysis is a method of studying the laws of change in production and sales indicators over time and forecasting the future. This method is widely used for trend identification and sales volume planning based on several years of data.

Regression analysis, on the other hand, is based on the volume of product sales (y) and the independent variables that determine it (x_1, x_2, ... xn) quantitatively represents the statistical relationship between them. A multifactor linear regression model looks like this:

$$y = a_0 + a_1x_1 + a_2x_2 + \ldots + anxn + \varepsilon$$

Here a_0 is a free had (constant), a_1... an is the regression coefficient, ε is a random error. The coefficient of determination (R^2) indicates the quality of the model, i.e., the proportion of independent variables that explain the correlation.

With the help of modern statistical programs (SPSS, Stata, R, Python), the possibility of performing these analyses is greatly expanded. In particular, production data analysis and forecasting based on the pandas and scikit-learn libraries of the Python programming language are increasingly being used in practice.

In the context of the fourth industrial revolution (Industry 4.0), new qualitative approaches to the analysis of production and sales volumes are emerging. The main modern tools in this direction are: **ERP systems** (SAP, 1C, Oracle) — which integrates production, sales, finance, and other information from all divisions of the enterprise through a single platform. Allows the generation of analytical reports in real-time.

BI (Business Intelligence) platforms — Power BI, Tableau, QlikSense — can visualize production and sales figures in the form of interactive dashboards. Complex reports are updated in a matter of seconds.

Big Data analytics processing large data allows you to more accurately predict consumer behavior, seasonal fluctuations and market trends.

Artificial Intelligence and Machine Learning — Forecasting sales volumes using neural networks and ML algorithms provides much higher accuracy than traditional statistical methods, especially when there are nonlinear correlations.

State programs on implementation of ERP systems are being implemented in Uzbekistan. Digitalization of industrial enterprises, including the introduction of modern analytical systems, has been identified as a priority within the Digital Uzbekistan 2030 strategy. The Balanced Scorecard (BSC) methodology developed by R. Kaplan and D. Norton allows for the evaluation of product production and sales volumes in a broad strategic context. The BSC is based on the formation of a system of KPIs (Key Performance Indicators) across four interrelated areas:

- Financial direction: sales volume, revenue growth, profitability indicators;
- Customer direction: market share, customer satisfaction, number of new customers;
- Internal processes: production cycle duration, failure rate, delivery accuracy;
- Grow and development: staff qualification, number of innovations, technology renewal.

The BSC methodology allows the analysis of product production and sales to be conducted not only within the framework of financial indicators, but also in relation to broad strategic goals. This approach plays an important role in decision-making that focuses on ensuring the long-term competitiveness of the enterprise.

Benchmarking is a method of analyzing the performance of an enterprise by comparing it with leading representatives of the industry or international

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standards. Benchmarking in the field of product production and sales is carried out in three forms:

Internal benchmarking — a comparison of different divisions, departments or branches of an enterprise. Enables rapid dissemination of best practices within the corporation.

Competitive benchmarking — comparison of competitors' performance based on open data, industry reports and expert assessments.

Functional benchmarking is the application of the best practices of leading enterprises in other industries. As a result of benchmarking, the enterprise can objectively assess its strengths and weaknesses and formulate clear goals and action plan to increase production volume.

As a result of the research, modern methods of analysis of the volume of production and sales of products were systematized and the following conclusions were formed:

- Modern analysis methods complement traditional approaches and allow an enterprise to evaluate indicators in a multifaceted way: ABC/XYZ analysis supports assortment policy, CVP analysis supports profitability threshold, and regression supports forecasting;
- Analysis methods based on digital technologies (ERP, BI, Big Data, AI) significantly increase the speed and quality of decision-making;
- The Balanced Scorecard methodology serves to ensure the long-term competitiveness of the enterprise by linking production and sales analysis to strategic goals;
- The gradual introduction of these methods is considered to be the best way for enterprises in Uzbekistan — first CVP and ABC analysis, then ERP systems, finally ML-based forecasting.

The proposal aims to ensure that industrial enterprises in Uzbekistan use the experience of foreign partners in mastering modern methods of analysis, strengthen training of these methods in the departments of economics and management, and stimulate the involvement of small and medium-sized businesses in the digitalization process by subsidizing ERP systems.

REFERENCES

1. O'zbekiston Respublikasi Prezidentining 2021-yil 1-martdagi "2030-yilga qadar O'zbekistonning taraqqiyot strategiyasi" to'g'risidagi Farmoni.
2. Каплан Р., Нортон Д. Сбалансированная система показателей. — М.: Олимп-Бизнес, 2019. — 304 б.
3. Савитская Г.В. Комплексний анализ хозяйственной деятелности. — М.: ИНФРА-М, 2021. — 608 б.
4. Kotler P., Keller K. Marketing menejmenti. 15-nashr. — SPb.: Piter, 2020. — 848 b.
5. Toshmatov N.A. Moliyaviy tahlil. Darslik. — T.: TDIU, 2021. — 320 b.
6. Xolmatov N.X. Boshqaruv tahlili. O'quv qo'llanma. — T.: TDIU, 2020. — 280 b.
7. Davenport T., Harris J. Competing on Analytics: The New Science of Winning. — Harvard Business Press, 2017. — 240 p.
8. McKinsey Global Institute. The Age of Analytics: Competing in a Data-Driven World. — McKinsey & Company, 2016.