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ANALYSIS OF ECONOMIC ACTIVITIES

Lecture notes

for students of the specialties
1-25 01 07 "Economics and management at the enterprise"
6-05-0311-02 "Economy and management"

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The lecture notes "Analysis of economic activity" cover issues of the theory of analysis of economic activity, the method and methodology of conducting a comprehensive analysis of economic activity both in general and in the context of its individual areas: analysis of the use of fixed assets, analysis of the use of personnel, analysis of costs, analysis of financial results, as well as analysis of the financial condition of the organization.

This lecture notes are intended to assist students majoring in 1-25 01 07 "Economics and Management at the Enterprise", 6-05-0311-02 "Economics and Management" of all forms of study in mastering the methodology of analyzing the use of all types of resources, costs and results of the organization's activities, techniques and methods for their study to identify relationships, trends and patterns of change in the phenomena studied.

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Topic question 1.1 The concept of analysis as a method of understanding natural and social phenomena

In the most general sense, analysis (from the Greek analysis - divide, dismember) is the process of physical or mental division of a whole (object) into its component parts (signs, properties) with the aim of understanding them in all the variety of connections and dependencies, as well as for a deeper study of the essence the object itself.

In order for the owner (owner) of the car to effectively control it, he needs to know the internal structure of the car (parts, assemblies, their purpose and principle of operation).

To manage costs, a senior or middle management manager must have an idea, at a minimum, of the cost elements that make up it.

Analysis is inextricably linked with synthesis - a method of cognition, which is the process of combining individual, known parts into a single whole.

When studying the structure of a car, you need to know not only how it was made, but also their interaction as elements of one system - the car.

Analysis as a method of understanding the phenomena of nature and society is represented by two types: sensory and mental.

Sensory analysis is realized by human senses (vision, hearing, etc.).

Mental analysis is provided by thinking, that is by mentally examining objects. Mental analysis comes in two forms: simple and complex.

In a simple form, mental analysis is carried out on those objects that are not directly present, but they were previously perceived by the senses and preserved in the memory of a person or machine (analysis of the dynamics of the composition and structure of a forest, a bus depot).

In a complex form, mental analysis is aimed at studying objects that have not been perceived and cannot be perceived either by human senses or by devices that enhance the effect of these senses (cost analysis). This type of analysis is called abstract-logical analysis.

In scientific activity, analysis is an integral element of the scientific research system, its first stage.

In practical activities, analysis serves as one of the main control functions in the technology system for developing optimal management decisions. Using analysis, deviations of the actual results of the functioning of human life objects from the programmed ones are determined, the factors that caused these deviations, their directions and strength of action, as well as the circumstances that gave rise to these factors are identified.

Topic question 1.2 The essence of the analysis of economic activity, its significance and role in the management system

All human life (individual, family, society as a whole) is managed, namely: certain goals are set, their achievement is planned and actions are taken to fulfill the plans.

In general, management is a system of active influence of the governing body on the managed object to ensure its normal functioning or achieve the goal set by top management.

The control system consists of two subsystems: control and controlled.

To actively influence the managed system, the control system uses management decision-making technology, which consists of four interrelated control functions: planning, accounting, analysis and regulation.

Using the planning function, a program (plan) of action for a managed object is created to achieve a predetermined goal.

Using the accounting function, the actual results of the action of the managed object are reflected.

Using the analysis function, deviations of the actual results of the action of the controlled object from the planned ones are determined, the factors that caused these deviations, their directions (positive, negative) and the strength of the impact are determined. Then the reasons that gave rise to these factors are identified, and solutions are developed aimed at eliminating negative factors and preserving and enhancing the effect of positive factors.

With the help of the regulation function, an optimal management decision is developed and its implementation is ensured.

If the object of management is economic activity, then management functions are called accordingly.

Thus, analysis of economic activity is an important management function of the economic activity management system, an effective means of identifying intra-economic reserves, and the basis for the development of scientifically based programs (plans) and management decisions.

Topic question 1.3 The purpose and objectives of the analysis of economic activity

The purpose of analysis in the economic management system at all its levels and in all its components is determined by the need to achieve the goal of a certain management subsystem in which analysis performs its function.

The purpose of analyzing economic activity is to prepare information for making optimal management decisions, as well as to justify the current and future plans of the organization.

Based on the purpose of analyzing economic activity, its main tasks are:

– ensuring an objective assessment of the results of the production and economic activities of the organization as a whole, its individual structural units, work collectives and their individual members (this task is solved by separately identifying and measuring the influence of factors dependent and independent of the work of a separate structural unit of the organization that influenced results of their activities);

– assistance in the development of economically sound plans for the organization's economic activity (the problem is solved through an in-depth study of the achieved level of economic activity, on the basis of which programming and planning are carried out);

– assistance in the implementation of plans and programs of work of the organization and its structural divisions (the task is solved through a detailed analysis of the implementation of plans and programs according to established indicators);

– justification of the optimality of management decisions made (achieved by identifying and assessing the influence of factors on various options for management decisions in order to select the most optimal one);

– identifying internal reserves for improving the organization's performance.

Topic question 1.4 Contents of the analysis of economic activity

The content of the analysis of economic activity is a system that includes an ordered set of elements that ensure the solution of its problems. The main elements of this system are:

– determining the specific goal of the analysis and setting tasks to achieve it;

– study of the object of analysis by identifying the cause-and-effect relationships contained in it and constructing a factor model characterizing this object;

– study of the nature of cause-and-effect relationships, factors and the choice of methods (methods or techniques) for quantitative measurement of these factors;

– establishing the direction of influence of each factor (+, -) and determining the magnitude of their influence on the change in the indicator under study;

– identification and study of circumstances or conditions that give rise to the action of factors;

– developing solutions and searching for ways and means to eliminate the negative influence of factors and create favorable conditions for maintaining or enhancing the positive effect of factors.

Topic question 1.5 Object of the analysis of economic activity

Economic activity in a broad sense represents the activities of individual farms (economic entities) or their combined activities in the production of products, provision of services, performance of work and the creation of other possible types of products aimed at satisfying material and spiritual needs.

Economic activity consists of many processes, united according to basic characteristics into five main types of groups: functional, natural, economic, social and environmental.

Functional processes of economic activity are processes for the formation of consumer properties of manufactured products, which are called functions or qualitative characteristics of these products.

Natural processes of economic activity are processes for creating specific types of products in a natural material form with already specified properties.

Economic processes of economic activity are processes for the creation, distribution and redistribution of the value of labor products, i.e. individual (through cost) and socially necessary (through price) costs of abstract living (through wages) and materialized past labor (in prices of means of production) for the creation of specific products of labor in monetary terms.

Social processes of economic activity are processes associated with ensuring normal working conditions, rest and living conditions for employees of the organization's work collectives, with the preservation and improvement of their physical health, as well as with the formation and development of their spiritual health, and, above all, a universal worldview.

Ecological processes of economic activity are the processes of influence of the life activity of the work collective on the life of the surrounding natural environment (air, water, soil, flora and fauna), on maintaining the balance of their coexistence.

The above basic processes of economic activity are carried out according to their own laws simultaneously and in close interrelation. Therefore, when managing economic activities, it is necessary to plan, take into account, analyze and regulate them together and simultaneously, and

when managing individual processes of economic activity, take into account this relationship and their impact on the results of the controlled element.

Thus, the object of analysis of economic activity is all economic activity, and the object of economic analysis is economic processes, the object of functional analysis is functional processes, the object of technical analysis is natural processes, social analysis is social processes, environmental analysis is environmental processes of economic activity.

Topic question 1.6 Subject of the analysis of economic activity

Economic activity consists of many processes.

A process is a set of sequential actions or operations based on cause-and-effect relationships. The results of these processes as consequences, expressed in appropriate indicators, are planned for future periods, taken into account as they actually occur, and then the results themselves as a consequence of the processes and the reasons for their formation or change are analyzed.

Cause-and-effect relationships in economic activity are numerous. At one level of the economic process, a cause gives rise to a certain effect, while at another level this effect itself becomes the cause of the formation of a new effect.

Thus, the subject of analysis of economic activity as a practical management function is the causes (factors) of formation and changes in the results of economic activity, or cause-and-effect relationships (factors) in economic activity.

The subject of the analysis of economic activity as a science is the theory, methodology and techniques for analyzing economic activity, studied with the aim of their improvement and development for a deeper, more complete and accurate identification, measurement and generalization of cause-and-effect relationships (factors) in a given activity.

Topic question 1.7 Principles of the analysis of economic activity

The basic principles underlying the analysis of economic activity include:

– the scientific principle (provides for being based on the provisions of the dialectical theory of knowledge, taking into account the requirements of economic laws of production development, using the achievements of scientific and technological progress, best practices, and the latest methods of economic research);

– the principle of complexity (implies coverage of all links and all aspects of activity and a comprehensive study of cause-and-effect dependencies in the economy of the organization);

– the principle of a systems approach (involves the study of each object of analysis as a complex dynamic system consisting of a number of elements connected in a certain way to each other and to the external environment);

– the principle of objectivity (implies the study of processes on the basis of reliable, verified information that actually reflects objective reality, and the conclusions of the analysis must be justified by accurate analytical calculations);

– the principle of effectiveness (provides for active influence on achieving set goals, timely identification of shortcomings, miscalculations, omissions in work and ways to improve the efficiency of the organization);

– the principle of regularity (implies the analysis is carried out systematically, systematically);

– the principle of prompt (provides for the speed and clarity of the analysis, timely identification of the causes of deviations from the set goals);

– the principle of democracy (implies participation in the analysis of a wide range of employees of the organization);

– the principle of the state approach (provides for establishing compliance of the results of the organization's economic activities with state economic, social, environmental, international policies and legislation);

– the principle of efficiency (assumes that the costs of analysis should have a multiple effect).

Topic question 1.8 Classification of types of the analysis of economic activity

The classification of business activity analysis is important for a correct understanding of its content and objectives, the development of a methodology for its implementation and the organization of the analytical process.

Based on industry characteristics, the analysis of economic activity is divided into:

– industry analysis, the methodology of which takes into account the specifics of individual sectors of the economy (industry, agriculture, construction, transport, trade, etc.),

– intersectoral analysis, which is the theoretical and methodological basis for the analysis of economic activity in all sectors of the economy.

Based on time, the analysis of economic activity is divided into:

– preliminary analysis (carried out before business transactions are carried out). It is necessary to justify management decisions and forecast plans, prevent undesirable results,

– subsequent analysis (carried out after the completion of business acts). It is necessary to study development trends, monitor the implementation of operational plans, objectively assess and diagnose the results of an enterprise's activities and the level of business risks.

Depending on the length of the time horizon, preliminary analysis is divided into:

– short-term analysis (covers a period of up to one year),

– long-term analysis (covers a period of more than one year).

Subsequent analysis is divided into:

– operational analysis (conducted immediately after business transactions or changes in the situation in short periods of time (shift, day, decade, etc.)),

– final analysis (studies the results of work for the reporting period of time (month, quarter, year)).

Based on spatial characteristics, the analysis of economic activity is divided into:

– intra-company analysis (studies the activities of only the enterprise under study and its structural divisions),

– intercompany analysis (compares the performance results of two or more enterprises).

According to the aspects of the study, the analysis of economic activity is divided into:

– financial analysis (the process of understanding the essence of the financial mechanism of functioning of business entities),

– socio-economic analysis (studies the cause-and-effect relationship of social and economic processes, their influence on each other and on the economic results of management),

– economic-ecological analysis (examines the interaction of environmental and economic processes related to the preservation and improvement of the environment and environmental costs),

– marketing analysis (used to study the external environment of the enterprise, markets for raw materials and sales of finished products, its competitiveness, supply and demand, commercial risk, formation of pricing policy, development of tactics and strategies for marketing activities),

– investment analysis (used to develop a program and evaluate the effectiveness of investment activities of business entities, to justify the optimal option for investing capital).

According to the methodology for studying objects, the analysis of economic activity is divided into:

– qualitative analysis (a research method based on qualitative comparative characteristics and expert assessments of the phenomena and processes being studied),

– quantitative analysis (a research method based on quantitative comparisons and research into the degree of sensitivity of economic phenomena to changes in various factors),

– express analysis (a method for diagnosing the state of an enterprise's economy based on typical signs characteristic of certain economic phenomena),

– fundamental analysis (in-depth, comprehensive study of the essence of the phenomena being studied using mathematical apparatus and other complex tools).

Based on users, the analysis of economic activity is divided into:

– internal analysis (carried out directly at the enterprise for the needs of operational, short-term and long-term management of production, commercial and financial activities),

– external analysis (conducted on the basis of financial and statistical reporting by economic management bodies, banks, financial authorities, shareholders, investors).

According to the degree of coverage of the objects under study, the analysis of economic activity is divided into:

– continuous analysis (all objects are studied),

– selective analysis (only parts of objects are examined).

According to the content of the program, the analysis of economic activity is divided into:

– comprehensive analysis (the activities of the enterprise are studied comprehensively),

– thematic analysis (only certain aspects of the enterprise's activities are studied that are of greatest interest at a certain moment, for example, issues of the use of material resources, the production capacity of the enterprise, reducing production costs, etc.).

Topic question 1.9 Methodology of the analysis of economic activity

A methodology is understood as a set of methods and rules for the most appropriate performance of analytical work.

When performing the analysis, the following technological stages are distinguished:

– the objects, purpose and objectives of the analysis are clarified, a plan of analytical work is drawn up,

– a system of synthetic and analytical indicators is developed, with the help of which the object of analysis is characterized,

– the necessary information is collected and prepared for analysis (its accuracy is checked, brought into a comparable form, etc.),

– comparison of actual business results with the indicators of the plan for the period under study, actual data of past periods, with the achievements of leading enterprises, industry averages, etc.,

– factors are studied and their influence on the results of the enterprise's activities is determined,

– unused and promising reserves for increasing production efficiency are identified,

– the results of management are assessed taking into account the action of various factors and identified unused reserves, and measures are developed for their use.

TOPIC 2 SYSTEMATIZATION OF FACTORS IN ECONOMIC ANALYSIS AND MODELING OF FACTOR SYSTEMS

Topic questions:
2.1 Concept and classification of factor analysis
2.2 Concept and classification of factors in the analysis of economic activity
2.3 Deterministic modeling and methods for transforming factor systems

Topic question 2.1 Concept and classification of factor analysis

All phenomena and processes of economic activity of organizations are interconnected and interdependent. Some of them are directly related to each other, others indirectly.

An important methodological issue in the analysis of economic activity is the study and measurement of the influence of factors on the economic indicators under study. Without a deep and comprehensive study of factors, it is impossible to draw informed conclusions about the results of operations, identify production reserves, and justify plans and management decisions.

Factor analysis is the process of a comprehensive, systematic study of the influence of factors on the level of the studied performance indicators.

Factor analysis is classified according to a number of characteristics.

Based on the nature of the relationship being studied, factor analysis is divided into:

– deterministic factor analysis (examines the influence of factors whose connection with the performance indicator under study is functional in nature);

– stochastic factor analysis (examines the influence of factors whose connection with the studied performance indicator is incomplete, probabilistic (correlation)).

According to the research methodology, factor analysis is divided into:

– direct factor analysis (carried out in a deductive way - from the general to the specific, carried out for the purpose of a comprehensive study of the factors that form the performance indicator being studied);

– reverse factor analysis (explores cause-and-effect relationships using the method of logical induction - from particular, individual factors to general indicators, allows you to assess the degree of sensitivity of many performance indicators to changes in the factor being studied).

Depending on the degree of detail of the factors, factor analysis is divided into:

– single-level factor analysis (used to study factors of only one level of subordination without detailing them into their component parts);

– multi-level factor analysis (factors are detailed into their component elements in order to study their essence).

Main stages of factor analysis:

– selection of factors for the analysis of the studied performance indicators;

– classification and systematization of factors in order to provide a systematic approach to their study;

– modeling of relationships between factor and performance indicators;

– calculation of the influence of factors on the change in the performance indicator;

– practical use of the factor model to manage economic processes.

Topic question 2.2 Concept and classification of factors in the analysis of economic activity

The results of business activities are influenced by numerous and varied factors. Factors in the analysis of economic activity are the conditions necessary for the implementation of economic processes, and the reasons that influence the results of these processes and changes in these results.

In the analysis of economic activity, factors can be classified according to different criteria.

By content, factors are divided into:

– natural substances;

– economic;

– social;

– psychological;

– environmental, etc.

According to the degree of their influence on the performance indicator, factors are divided into:

– main (having a decisive influence);

– secondary.

Based on their duration, factors are divided into:

– permanent (continuously affecting the results of economic activity);

– temporary (valid for a certain period).

According to the place of occurrence, factors are divided into:

– internal;

– external.

According to the degree of prevalence, factors are divided into:

– general (the effect of which is manifested in all sectors of the economy and types of economic activity);

– specific (characteristic of certain sectors of the economy, types of economic activity or a specific organization).

Based on the nature of their action, factors are divided into:

– extensive (affect the indicator being studied by its quantitative change);

– intensive (affect the indicator under study with its qualitative change).

Based on the properties of the reflected phenomena, factors are divided into:

– quantitative (express the quantitative certainty of phenomena (for example, the number of workers));

– qualitative (they determine the internal qualities, characteristics and characteristics of the objects being studied (for example, labor productivity)).

Based on their composition, factors are divided into:

– simple;

– complex (consist of several elements).

According to the hierarchy, factors are divided into:

– first order (directly affect the performance indicator);

– second order (the effective indicator is determined indirectly, using first-level factors), etc.

According to the degree of controllability, factors are divided into:

– managed;

– uncontrollable.

Based on the predictability of behavior, factors are divided into:

– predictable;

– unpredictable.

If it is possible to measure influence, factors are divided into:

– measurable;

– immeasurable.

Topic question 2.3 Deterministic modeling and methods for transforming factor systems

A systematic approach to economic analysis necessitates an interrelated study of factors, taking into account their internal and external connections, interaction and hierarchy, which is achieved through their systematization. Systematization is the placement of the studied phenomena or objects in a certain order, identifying their relationship and subordination.

There are deterministic and stochastic factor systems.

Modeling is one of the most important methods of scientific knowledge, with the help of which a model (conventional image) of the object of study is created. The essence of modeling is that the relationship between the indicator being studied and the factor indicators is conveyed in the form of a specific mathematical expression.

In deterministic analysis, the following types of factor models are distinguished:

– additive models (the resulting indicator (y) is an algebraic sum of several factor indicators (x));

$$y = x_1 + x_2 + \cdots + x_n \qquad (2.1)$$

– multiplicative models (the resulting indicator is the product of several factor indicators);

$$y = x_1 \cdot x_2 \cdot \ldots \cdot x_n \qquad (2.2)$$

– multiple models (the resulting indicator is obtained by dividing one factor indicator by another);

$$y = \frac{x_1}{x_2} \qquad (2.3)$$

– mixed models (combination in various combinations of previous models).

$$y = \frac{x_1 + x_2}{x_3} \qquad (2.4)$$

The following methods of transforming factor systems are distinguished: lengthening, formal decomposition, expansion and reduction, namely:

1) expansion of multiplicative factor systems (carried out by sequentially dividing the factors of the original system into factor factors);

2) expansion of additive factor systems (carried out by dividing one of the factor indicators into its component elements);

3) lengthening of multiple factor systems (involves lengthening the numerator of the original model by replacing one or more factors with the sum of homogeneous indicators. The result is a final model of an additive form);

4) formal decomposition of multiple factor systems (involves lengthening the denominator of the original factor model by replacing one or more factors with the sum or product of homogeneous indicators. The result is a final model of a multiple additive form with a new set of factors);

5) expansion of multiple factor systems (involves expanding the original factor model by multiplying the numerator and denominator of the fraction by one or more new indicators. The result is a final multiplicative model in the form of a product of a new set of factors);

6) reduction of multiple factor systems (involves the creation of a new factor model by dividing the numerator and denominator of a fraction by the same indicator. The result is a final model of the same type as the original one, but with a different set of factors).

TOPIC 3 TECHNIQUES AND METHODS USED IN COMPREHENSIVE ANALYSIS OF ECONOMIC ACTIVITIES

Topic questions:
3.1 Comparison method
3.2 Absolute indicators, relative indicators and average values
3.3 Grouping method. Balance sheet method
3.4 Methods for tabular and graphical presentation of analytical data
3.5 Chain substitution method, absolute difference method and relative difference method

Topic question 3.1 Comparison method

An important component of the methodology for analyzing economic activity are the techniques (particular methods or methods) used in the analysis to identify the direction and measure the magnitude of the influence of various factors on the analyzed indicator, to study the root causes that give rise to these factors, as well as to develop an optimal management decision based on the results analysis performed.

Comparison is one of the ways in which man began to understand the environment and which is used by us everywhere, at times automatically, unconsciously. Comparison is one of the main methods of analyzing economic activity and its integral component, without which it is impossible to evaluate any indicator of an organization's performance and identify reserves for improving its performance. Each indicator, each figure used for assessment, control and forecasting, has meaning only in comparison with others.

Some authors distinguish between horizontal, vertical and trend comparative analysis.

Horizontal comparative analysis is used to determine absolute and relative deviations of the actual level of the studied indicators from the base.

Using vertical comparative analysis, the structure of economic phenomena and processes is studied by calculating the share of parts in the overall whole, the relationship between parts of the whole, as well as the influence of factors on the level of performance indicators by comparing them before and after changing the corresponding factor.

Trend analysis is used to study the relative rates of growth and increase in indicators over a number of years to the level of the base year.

During the analysis process, actual indicators of economic activity are compared:
– with planned indicators, norms and standards, tasks, design data;

– with actual indicators for the relevant past reporting periods to establish the directions, pace and sustainability of ongoing changes in economic activity;

– actual performance of similar leading organizations both domestically and abroad in order to use their best practices;

– average performance indicators of organizations of their association or industry to determine the place of the analyzed organization in it.

During the comparison process, the following basic requirements of the principle of comparability of compared indicators must be observed:

– if quantitative indicators are compared, then it is necessary to eliminate the influence of the qualitative factor;

– if qualitative indicators are compared, then it is necessary to exclude the influence of the quantitative factor;

– bringing the content of the compared indicators to a homogeneous structure;

– maintaining the identity of the periods for which the indicators are compared;

– maintaining the unity of the method of calculating the compared indicators.

Topic question 3.2 Absolute indicators, relative indicators and average values

Absolute indicators reflect the quantitative dimensions of a phenomenon in units of measure, mass, volume, duration, area, cost and others, regardless of the size of other phenomena.

Relative indicators are the ratio of the magnitude of the phenomenon under study with the magnitude of some other phenomenon or with the magnitude of this phenomenon, but taken for another period or for another object. Relative indicators are obtained by dividing one value by another, which is taken as the basis for comparison. Relative values are expressed in the form of coefficients (with a base of 1) or percentages (with a base of 100).

In the analysis of economic activity, different types of relative quantities are used: spatial comparison, plan target, plan implementation, dynamics, structure, coordination, intensity, efficiency.

The relative value of spatial comparison is obtained as a result of comparing the levels of indicators related to different objects taken for the same period or at one point in time.

The relative value of the target is the ratio of the planned level of the current year indicator to its actual level last year or to the average for three to five previous years.

The relative value of plan implementation is the relationship between the actual and planned level of the indicator for the reporting period.

The relative value of the dynamics is the division of the indicator of the current period by its level in the previous period (month, quarter, year). They are called growth rates (growth) and are usually expressed as percentages or coefficients. Relative values of dynamics can be basic and chain. In the first case, each subsequent level of the dynamic series is compared with the base year, and in another - the level of the indicator of the next year relates to the previous one.

The structure indicator is the relative share (specific gravity) of a part in the total, expressed as percentages or coefficients.

The relative magnitude of coordination is the relationship between the parts of the whole.

The relative intensity value characterizes the degree of prevalence and development of a phenomenon in the relevant environment (for example, the degree of morbidity among personnel).

Relative values of effectiveness - the ratio of effect to resources or costs.

Average values are used in the analysis of economic activity for a generalized quantitative characteristic of a set of homogeneous phenomena on any basis.

Topic question 3.3 Grouping method. Balance sheet method

Grouping method.
Grouping information is dividing the mass of the studied set of objects into quantitatively homogeneous groups according to relevant characteristics.

Depending on the objectives of the study, typological, structural and analytical groupings are used.

An example of typological groupings could be population groups by occupation.

Structural groupings make it possible to study the internal structure of indicators and the relationships between its individual parts.

Analytical groupings are used to determine the presence, direction and form of connection between the indicators being studied.

Based on the complexity of construction, there are two types of groupings: simple and combined. With the help of simple groupings, the relationship between phenomena grouped according to any one characteristic is studied. In combined groupings, such a division of the population being studied is done first according to one characteristic, and then within each group - according to another characteristic, etc.

Balance method.
The balance method is used to reflect the ratios and proportions of two groups of interrelated and balanced economic indicators, the results of which should be identical.

The balance sheet method is used in the analysis of economic activity to verify the correctness of determining the influence of various factors on the growth of the performance indicator.

The balance method can be used to construct deterministic additive factor models.

The balance method is used to determine the influence of individual factors on the growth of a performance indicator.

Topic question 3.4 Methods for tabular and graphical presentation of analytical data

Tabular method.

The results of the analysis are usually presented in the form of tables.

There are three types of tables: simple, group and combined.

Simple tables list the units of the totality of the phenomenon being characterized. The purpose of a simple table is to list information about the phenomenon being studied. In group tables, data on individual units of the population being studied are combined into groups according to one significant characteristic. In combined tables, the material is divided into groups and subgroups according to several criteria. Group and combined tables are designed to establish connections between the phenomena being studied.

According to the analytical content, tables are distinguished that reflect:

– characteristics of the object being studied according to certain characteristics (contain indicators reflecting one or another economic phenomenon, and the level of this indicator for the reporting period for one or more objects);

– the procedure for calculating indicators (contain initial information and calculation of derived data necessary to calculate the required indicator);

– dynamics of the studied indicators (initial information is provided on the size of the studied indicators for a number of years in chronological order, on the basis of which the basic or chain growth and increment rates are calculated);

– degree of plan implementation (contains planned and actual data for the reporting period for each object, after which the absolute deviation from the plan and the percentage of its implementation are calculated);

– structural changes in the composition of indicators (contain data on the composition of the phenomenon under study in the base and reporting periods, on the basis of which the share of each element in the total size of the indicator under study and its change are calculated);

– interrelation of indicators on various characteristics (contain individual or group data on one of the indicators, which are ranked in

ascending or descending order and, accordingly, data on other indicators related to it are arranged);

– results of calculating the influence of factors on the level of the indicator under study (reflect information on factor indicators, then on the effective indicator and the change in the latter as a whole and due to each factor separately);

– summary results of the analysis (contain systematized research material on certain aspects of the organization's activities).

Graphic method.

Graphs are a large-scale depiction of indicators, numbers using geometric signs (lines, rectangles, circles) or conventionally artistic figures. They are of great illustrative value.

In the analysis of economic activities, diagrams are often used to graphically present information. In their shape they can be columnar, circular, linear, dotted, pyramidal, curly, etc. Based on their content, there are comparison charts, structural charts, dynamic charts, communication charts, control charts, etc.

Topic question 3.5 Chain substitution method, absolute difference method and relative difference method

Chain substitution method.

The chain substitution method is used to calculate the influence of factors in all types of deterministic factor models: additive, multiplicative, multiple and mixed. This method allows you to determine the influence of individual factors on changes in the performance indicator by gradually replacing the base value of each factor indicator in the scope of the performance indicator with the actual value in the reporting period. For this purpose, a number of conditional values of the performance indicator are determined, which take into account changes in one, then two, three and subsequent factors, assuming that the rest do not change. Comparing the size of the effective indicator before and after changing the level of a certain factor allows us to determine the impact of this factor on the change in the analyzed indicator.

When using the chain substitution method, you need to know the rules for the sequence of calculations: first of all, you need to take into account the change in quantitative and then qualitative factor indicators. If there are several quantitative and several qualitative indicators, then you should first change the value of the first order factors, and then the lower ones.

The algebraic sum of the influence of factors must necessarily be equal to the total change in the effective indicator.

As an example, this method can be presented as follows.

The initial factor model is presented as follows:

$$y = a \cdot b \cdot c \qquad (3.1)$$

At the first stage, several values of the performance indicator are calculated (basic (y_0), conditional ($y_{усл1}$, $y_{усл2}$), and reporting (y_1)) by sequentially replacing the basic values of factors (a_0, b_0, c_0) with reporting (a_1, b_1, c_1):

$$y_0 = a_0 \cdot b_0 \cdot c_0 \qquad (3.2)$$

$$y_{усл1} = a_1 \cdot b_0 \cdot c_0 \qquad (3.3)$$

$$y_{усл2} = a_1 \cdot b_1 \cdot c_0 \qquad (3.4)$$

$$y_1 = a_1 \cdot b_1 \cdot c_1 \qquad (3.5)$$

At the second stage, the absolute change in the effective indicator (Δy) is calculated:

$$\Delta y = y_1 - y_0 \qquad (3.6)$$

At the third stage, the quantitative influence of factors on the change in the performance indicator is determined (Δy_a, Δy_b, Δy_c):

$$\Delta y_a = y_{усл1} - y_0 \qquad (3.7)$$

$$\Delta y_b = y_{усл2} - y_{усл1} \qquad (3.8)$$

$$\Delta y_c = y_1 - y_{усл2} \qquad (3.9)$$

At the next stage, the correctness of the calculations is checked:

$$\Delta y = \Delta y_a + \Delta y_b + \Delta y_c \qquad (3.10)$$

Absolute difference method.
The method of absolute differences is used to calculate the influence of factors on the growth of a performance indicator in deterministic analysis, but only in multiplicative models and models of the multiplicative-additive type.

When using it, the size of the influence of factors is calculated by multiplying the absolute increase in the value of the factor under study by the basic (planned) values of the factors that are to the right of it, and by the actual values of the factors located to the left.

The algebraic sum of changes in the effective indicator due to individual factors was equal to its total change.

As an example, this method can be presented as follows.

The initial factor model is presented in the form of formula 3.1.

At the first stage, the basic and reporting values of the performance indicator are determined:

$$y_0 = a_0 \cdot b_0 \cdot c_0 \qquad (3.11)$$

$$y_1 = a_1 \cdot b_1 \cdot c_1 \qquad (3.12)$$

At the second stage, the absolute change in the effective indicator (Δy) is calculated:

$$\Delta y = y_1 - y_0 \qquad (3.13)$$

At the third stage, the absolute differences of factors (Δa, Δb, Δc) are determined:

$$\Delta a = a_1 - a_0 \qquad (3.14)$$

$$\Delta b = b_1 - b_0 \qquad (3.15)$$

$$\Delta c = c_1 - c_0 \qquad (3.16)$$

At the fourth stage, the quantitative influence of factors on the change in the performance indicator is determined (Δy_a, Δy_b, Δy_c):

$$\Delta y_a = \Delta a \cdot b_0 \cdot c_0 \qquad (3.17)$$

$$\Delta y_b = a_1 \cdot \Delta b \cdot c_0 \qquad (3.18)$$

$$\Delta y_c = a_1 \cdot b_1 \cdot \Delta c \qquad (3.19)$$

At the next stage, the correctness of the calculations is checked:

$$\Delta y = \Delta y_a + \Delta y_b + \Delta y_c \qquad (3.20)$$

Relative difference method.

The method of relative differences is used to measure the influence of factors on changes in the performance indicator only in multiplicative models. Here relative increases in factor indicators are used.

To calculate the influence of the first factor, it is necessary to multiply the base level of the effective indicator by the relative increase in the first factor.

To calculate the influence of the second factor, you need to add its change due to the first factor to the base value of the effective indicator and

then multiply the resulting amount by the relative increase in the second factor.

The influence of the third factor is determined in a similar way: it is necessary to add its change due to the first and second factors to the basic value of the effective indicator and multiply the resulting amount by the relative increase in the third factor, etc.

The algebraic sum of changes in the effective indicator due to individual factors was equal to its total change.

As an example, this method can be presented as follows.

The initial factor model is presented in the form of formula 3.1.

At the first stage, the basic and reporting values of the performance indicator are determined:

$$y_0 = a_0 \cdot b_0 \cdot c_0 \tag{3.21}$$

$$y_1 = a_1 \cdot b_1 \cdot c_1 \tag{3.22}$$

At the second stage, the absolute change in the effective indicator (Δy) is calculated:

$$\Delta y = y_1 - y_0 \tag{3.23}$$

At the third stage, the absolute differences of factors (Δa, Δb, Δc) are determined:

$$\Delta a = a_1 - a_0 \tag{3.24}$$

$$\Delta b = b_1 - b_0 \tag{3.25}$$

$$\Delta c = c_1 - c_0 \tag{3.26}$$

At the fourth stage, the quantitative influence of factors on the change in the performance indicator is determined (Δy_a, Δy_b, Δy_c):

$$\Delta y_a = y_0 \cdot (\Delta a / a_0) \tag{3.27}$$

$$\Delta y_b = (y_0 + \Delta y_a) \cdot (\Delta b / b_0) \tag{3.28}$$

$$\Delta y_c = (y_0 + \Delta y_a + \Delta y_b) \cdot (\Delta c / c_0) \tag{3.29}$$

At the next stage, the correctness of the calculations is checked:

$$\Delta y = \Delta y_a + \Delta y_b + \Delta y_c \tag{3.30}$$

TOPIC 4 PRINCIPLES OF ORGANIZING THE SEARCH AND ASSESSMENT OF ECONOMIC RESERVES

Topic questions:
4.1 Concept, economic essence and classification of reserves
4.2 Sources of reserves
4.3 Methodology for determining the amount of reserves

Topic question 4.1 Concept, economic essence and classification of reserves

In the analysis of economic activity, the concept of "reserve" means an additional source of funds or conditions, opportunities necessary to ensure the normal functioning of any object of economic activity, if negative deviations appear in its operation, or to transfer this object to a more efficient mode of operation.

Economic reserve is an opportunity to increase the efficiency of an organization based on the use of scientific and technical progress achievements and best practices.

The economic essence of reserves identified through the analysis of economic activity, in a narrow sense, is reflected in the possibility of increasing the economic efficiency of economic activity, that is, in a greater increase in cost indicators expressing the results of economic activity compared to the costs of material, labor and financial resources.

For a more complete identification and use, economic reserves are classified according to different criteria.

Based on spatial characteristics, the following are distinguished:

– on-farm reserves (identified and can be used only at the enterprise being analyzed; they are primarily associated with preventing losses and unproductive expenditure of resources);

– industry reserves (can only be identified at the industry level, for example, the development of new machine systems, new technologies, improved product designs, the development of new varieties of crops, animal breeds, etc.);

– regional reserves (can be identified and used within a geographic area, for example, the use of local raw materials, fuel, energy resources);

– national reserves (their use is possible only by carrying out measures at the national level of management, for example, changing the national economic management system, eliminating imbalances in the development of different sectors of production).

Based on time:

– unused reserves (missed opportunities to increase production efficiency relative to the plan or achievements of science and best practices over past periods of time);

– current reserves (opportunities for improving business results that can be realized in the near future (month, quarter, year));

– promising reserves (usually calculated for a long time, associated with significant investments, the introduction of the latest achievements of scientific and technological progress).

By stages of the product life cycle:

– reserves identified at the pre-production stage (reserves for increasing production efficiency by improving the design of the product, improving the technology of its production. It is at this stage that the largest reserves for reducing production costs are objectively contained);

– reserves identified at the production stage (reserves that do not affect the production process are associated with improving the organization of work, increasing its intensity, reducing equipment downtime, saving and rational use of raw materials);

–reserves identified at the operational stage (reserves for more productive use of the product and cost reduction (saving electricity, fuel, spare parts, etc.) depend mainly on the quality of work performed at the first two stages;

– reserves identified at the stage of product disposal (reduction in disposal costs, the possibility of reusing or selling recyclable materials).

By stages of the reproduction process:
– reserves in the sphere of production;
– reserves in the sphere of circulation.

By type of resource: reserves associated with the most complete and efficient use of land, means of labor, objects of labor and labor resources.

By nature of production:
– reserves identified in the main production;
– reserves identified in auxiliary production;
– reserves identified in service industries.

By type of activity:
– reserves identified in current activities;
– reserves identified in investment activities;
– reserves identified in financial activities.

By its economic nature and the nature of its impact on production results:

– extensive reserves (associated with the use of additional resources in production);

– intensive reserves (associated with the most complete and rational use of the existing production potential).

By detection methods:

– explicit reserves (they are easy to identify from accounting and reporting data);

– hidden reserves (related to the implementation of scientific and technological progress and best practices and which were not provided for by the plan or program).

Topic question 4.2 Sources of reserves

The main sources of reserves for increasing the efficiency of economic activity are:

– achieving scientific and technological progress, which is a promising source of innovation;

– improving the organization of management activities (organization of production itself, use of labor and other production resources);

– improvement of the business management system at all levels;

– achievements in the field of social and psychological sciences (significantly influence the behavioral factors of employees).

The main principle of searching for reserves for increasing the efficiency of economic activity is to find the possibility of saving the costs of living and embodied labor at all stages of the life cycle of a product or stages of economic activity while maintaining or improving the quality parameters of products (works, services).

Topic question 4.3 Methodology for determining the amount of reserves

The quantitative expression of the reserve is the difference between the possible (forecast) level of the indicator being studied and its actual value at the current time.

To determine the amount of reserves in the analysis of economic activity, a number of methods are used:

– direct counting method (used to calculate reserves of an extensive nature, when the amount of additional attraction or the amount of unconditional losses of resources is known, for example, the reserve for increasing production output is determined as follows: the additional amount of resources or the amount of unconditional losses of resources due to the fault of the enterprise is divided by their actual consumption per unit products or multiplied by the actual resource output);

– method of comparison (used to calculate the amount of reserves of an intensive nature, when the loss of resources or their possible savings are determined in comparison with the established norms of their consumption, for example, the reserve for increasing production is determined as follows: the identified reserve for reducing resource costs per unit of production through the introduction of scientific achievements and best practices is

multiplied by the planned volume of production and divided by the planned resource consumption per unit of production, taking into account the identified reserves for its reduction, or multiplied by the planned (possible) level of resource productivity);

– methods of deterministic factor analysis (method of chain substitution, method of absolute differences, method of relative differences, integral method, etc.) and others.

It is necessary to distinguish between such concepts as measuring reserves (calculating the value for each type) and assessing their real value for practical use (determining their balanced value, taking into account the real possibilities of their use in a given organization. To do this, the amount of duplication of each type of reserves is excluded from the total amount of reserves if they act simultaneously, in close interrelation).

TOPIC 5 ORGANIZATION AND INFORMATION SUPPORT FOR ANALYSIS OF ECONOMIC ACTIVITY

Topic questions:
5.1 Basic principles of organization, organizational stages of analysis of economic activity and its performers
5.2 Planning analytical work
5.3 Information support for analysis of economic activity
5.4 Analytical processing of information and registration results of analysis of economic activity
5.5 Using information technology to analyze economic activities

Topic question 5.1 Basic principles of organization, organizational stages of analysis of economic activity and its performers

The effectiveness of business activity analysis depends not only on a properly developed methodology, but also on its organization.

The basic principles of organizing the analysis of economic activity are:

– the principle of a clear distribution of responsibilities for conducting analysis between individual performers (duplication of the same work by different services is assumed, as a result of which the service time of various specialists is used more efficiently);

– the principle of ensuring the economy and efficiency of the analytical process (involves conducting the most complete and comprehensive research with minimal costs for its implementation);

– the principle of regulation and unification of analysis (the regulations provide for the development for each performer of a mandatory minimum of

tables and output forms of analysis; unification of analysis involves the creation of standard methods and instructions, standard programs, and uniform estimates).

The analytical work of the unit occurs at the following organizational stages.

– identification of subjects and objects, analysis of economic activities and responsibilities between specific services and divisions;

– planning of analytical work;

– information and methodological support for the analysis of economic activities;

– registration of analysis results;

– control over the implementation of proposals and recommendations made based on the results of the analysis.

In large industrial organizations, all economic services are managed by the chief economist or deputy director for economic affairs. He explains all the economic work at the enterprise, including the analysis of economic activities. He is directly subordinate to the economic planning department, the labor and wages department, the financial department, etc. The economic analysis department can be separated into a separate structural unit. In medium and small enterprises, analytical work is headed by a chief accountant or economist.

Analysis of economic activities includes the responsibilities of not only providers of economic services, but also technical departments (chief mechanic, power engineer, technologist, etc.). This explains the theme that, no matter what qualifications employees of economic services have, their development alone cannot be a deep and comprehensive analysis of the economic activities of the enterprise. Only through the joint efforts of economists, technicians, technologists, and managers of various production services, who have diverse principles on the issue under study, can it be possible to comprehensively solve the problem and find the most acceptable solution to it.

Topic question 5.2 Planning analytical work

An important place in the rational organization of analysis is occupied by planning analytical work.

Planning analytical work consists of drawing up two types of plan:

– a plan for organizing analytical work;

– a plan for conducting analysis on a particular topic (analysis program).

The plan for organizing analytical work, which is usually drawn up for a year, indicates:

– which divisions of the organization conduct the analysis (depending on the size and structure of the organization and its management, the analysis

of economic activities is carried out by: the service of the chief economist or deputy director for economic work; economic laboratories; financial department; economic planning department; accounting; department of labor and wages ; logistics department; marketing department; departments of chief designer, technologist, mechanics, energy and others;

– to what extent the analysis is carried out (by what indicators of the economic activity of its division or the organization as a whole);

– what is the frequency of analysis (either after reporting periods: year, quarter, month, or within a month, i.e. daily or per week, decade);

– who are the responsible persons for carrying out this type of analysis.

The analysis program indicates:

– name of the object of analysis, expressed in one or more indicators of a given unit or organization as a whole;

– the purpose of the analysis: either to evaluate the results of activities, or to monitor the progress of the plan, or to find internal reserves, etc.;

– sources of information or list of materials used for analysis;

– sequence of analysis;

– deadlines for completing the analytical work as a whole and for its individual stages, i.e. analytical work schedule;

– persons involved in the analysis and the distribution of the volume of analytical work between them.

Topic question 5.3 Information support for analysis of economic activity

Sources of information for analyzing economic activities are divided into:

– regulatory and planning sources (all types of plans that are developed in the organization (prospective, current, operational), as well as regulatory materials, estimates, design assignments, etc.);

– accounting sources (data that contains documents of accounting, statistical and operational accounting and reporting);

– non-accounting sources.

The non-account documents include the following:

– official documents (state laws, presidential decrees, government resolutions, orders of higher authorities);

– economic and legal documents (agreements, decisions of judicial authorities);

– scientific and technical information (publications, reports on the results of research work, etc.);

– technical and technological documentation;

– materials of special surveys of the state of production at individual workplaces (timing, working time photo, etc.).

– data on main competitors obtained from various sources of information;

– data on the state of the markets for material resources, capital;

– and others.

Information used to analyze economic activities is classified according to the following criteria:

1) in relation to the object of study, the information used to analyze economic activities is divided into:

– internal information (statistical, accounting, operational accounting and reporting data, planned, regulatory and other data developed in the organization);

– external information (data from statistical collections, periodicals and special publications, conferences, etc.).

2) in relation to the subject of the study, the information used to analyze economic activities is divided into:

– basic information;

– auxiliary information necessary for a more complete description of the subject area being studied.

3) according to the frequency of receipt, the information used to analyze economic activities is divided into:

– regular information;

– episodic information.

4) in relation to the processing process, the information used to analyze business activities is divided into:

– primary information (data from primary accounting, inventories, surveys);

– secondary information (that has gone through a certain stage of processing and transformation (reporting, etc.).

Requirements for organizing information support for analysis of economic activity:

– analyticality of information (the information system must provide the data necessary for an in-depth study of factors, identifying reserves and developing management decisions);

– reliability of information;

– efficiency of information (the faster information about completed business processes is received, the faster it is possible to analyze, identify and eliminate shortcomings);

– comparability of information;

– rationality of information (require minimum costs for collecting, storing and using data).

Topic question 5.4 Analytical processing of information and registration results of analysis of economic activity

The verified information is subjected to analytical processing using one of the methods for analyzing economic activity.

According to the general methodology for analyzing economic activities, analytical processing of information is carried out in a certain sequence. First, the actual indicators are compared with the basic ones (planned or indicators of previous periods), the degree of implementation of the plan, their dynamics, deviations in absolute and relative values are determined.

Then the factors that influenced these deviations, their relationship between each other and the analyzed indicator are established, the magnitude of their influence is measured, and the root causes of the formation of these factors are revealed and studied.

After analytical processing of information, they begin to study the nature of the identified reserves and their generalization, the real value of reserves for improving the economic activity of the organization is determined and appropriate conclusions and proposals are made. To activate the identified reserves, the necessary organizational and technical measures for their use are developed. In order to more fully use the reserves revealed by the analysis, various specialists of the organization take part in the development of measures for their implementation.

The results of the analytical study of the organization's activities are presented in the form of the following documents:
– analytical report (compiled for external users of the analysis);
– analytical certificate (intended for on-farm use).

The content of the analytical report should be sufficiently complete. It should include general questions reflecting the economic level of development of the organization, its business conditions, characteristics of the assortment and pricing policy, and the competitiveness of products.

After this, the dynamics of indicators characterizing the financial results, property and financial condition of the organization, its business activity, and operational efficiency are reflected.

The content of the certificate, in contrast to the analytical report, should be more specific, focused on reflecting shortcomings or achievements, identified reserves, and methods for their development. It does not provide a general description of the organization and the conditions of its activities.

The analytical part of the final documents must be justified and specific in style. It may contain analytical calculations themselves, tables where the data necessary for illustration is grouped, graphs, diagrams, etc. When preparing it, special attention should be paid to proposals made based on the results of the analysis. They must be comprehensively justified and

aimed at improving the results of economic activities and developing the identified on-farm reserves.

Topic question 5.5 Using information technology to analyze economic activities

Modern information technologies make it possible to automate the processing of all data when analyzing economic activities. Automation of analytical calculations allows:

– increase the productivity of economic analysts, do more in-depth research, and solve more complex problems;

– explore economic phenomena and processes more deeply and comprehensively, study factors more fully and identify reserves for increasing production efficiency;

– increase the efficiency and quality of analysis, its overall level and effectiveness.

When using information technologies to analyze business activities, organizational issues related to methodological, technical and software are resolved.

Methodological support is a system of general and specific methods of analysis.

Technical support includes a set of technical means designed for the operation of the information system: computers of any models; devices for collecting, processing, outputting information; data transmission and communication devices.

The software includes system-wide and special software products. Special software includes a set of programs developed for a specific subject area (in this case, to solve specific analytical problems).

TOPIC 6 ANALYSIS OF MARKETING ACTIVITIES

Topic questions:
6.1 The meaning and tasks of analyzing marketing activities
6.2 Product demand analysis
6.3 Risk assessment of unclaimed products
6.4 Analysis of product markets
6.5 Analysis of the organization's pricing policy

Topic question 6.1 The meaning and tasks of analyzing marketing activities

Necessary conditions for achieving self-sufficiency and self-financing of an enterprise in market conditions are the orientation of production towards consumers and competitors, flexible adaptation to changing market conditions.

Each enterprise, before planning production volumes and forming production capacity, needs to know what products, in what volume, where, when and at what prices it will sell them. To do this, you need to study the demand for products, their sales markets, their capacity, real and potential competitors, potential buyers, the ability to organize production at a competitive price, the availability of the necessary material resources, the availability of personnel with the necessary qualifications, etc. The final financial results, reproduction of capital, its structure and, as a consequence, the financial stability of the enterprise depend on this. In other words, the activity of any enterprise begins with marketing analysis.

The main objectives of marketing analysis are:

– study of effective demand for products, their markets sales and justification of the production and sales plan for products of the appropriate volume and range,

– analysis of factors that shape the elasticity of demand for products, and assessment of the degree of risk of lack of demand for products,

– development of strategy, tactics, methods and means of generating demand and stimulating product sales.

With the help of marketing, there is a constant search for new markets, consumers, types of products, areas of application of traditional products that can provide the company with the highest level of profit. Marketing acts as a tool for regulating production and sales, orienting the production activities of an enterprise and its structural policy towards market demand.

Topic question 6.2 Product demand analysis

Demand as an economic category characterizes the quantity of products that the buyer is willing and able to purchase at a certain price over a certain period of time in a certain market.

The level of demand is influenced by many factors: the price level for the products offered, their quality, the price level for interchangeable products, the income of buyers, the expectation of buyers for changes in their income, etc.

When analyzing demand for products, the level and dynamics of the following indicators are studied:

– price elasticity coefficient, which characterizes the degree of sensitivity of demand to price changes;

– coefficient of elasticity of demand by income, which characterizes the degree of sensitivity of demand to changes in consumer income.

The price elasticity coefficient is determined by the ratio of the percentage change in the quantity demanded for a certain type of product to the percentage change in the price for this type of product.

The coefficient of income elasticity of demand is determined by the ratio of the percentage change in the quantity demanded for a certain type of product to the percentage change in the income of buyers.

Demand is elastic if the value of these coefficients is greater than one. Demand is inelastic if the value of these coefficients is less than one.

When the elasticity coefficient is zero, demand is absolutely inelastic: no change in price entails a change in demand for the product. If the elasticity coefficient is equal to one (unit elasticity), then this means that the growth rate of demand is equal to the rate of price decline. Demand is absolutely elastic when, with a constant price or its increase, the demand for a product increases to the limit of purchasing power, which most often happens in conditions of inflation.

Topic question 6.3 Risk assessment of unclaimed products

The risk of unclaimed products is determined by the amount of possible damage to the organization as a result of customers refusing to purchase its products.

There are two groups of reasons for the risk of unclaimed products: internal and external.

Internal reasons:

– an error in the forecast of demand for products;

– incorrect pricing policy of the organization;

– decreased competitiveness of products, etc.

External reasons:

– insolvency of buyers;

– demography;

– political reasons, etc.

The risk of unclaimed products is divided into surmountable and insurmountable. The criterion for classifying a risk into one of the groups is the economic feasibility of innovations aimed at selling finished products to customers.

The risk of unclaimed products can be identified at the pre-production, production and post-production stages. The greatest effect is achieved if the risk is identified at the pre-production stage. Then the economic damage will include only the costs of market research, product development, etc. If the risk of lack of demand for products is detected at the production or post-production stage, this can seriously worsen the financial condition of the enterprise. The amount of damage, in addition to the costs listed above, will include the costs of preparation, development, production and partially sales of products.

Depending on the time of detection of the risk of lack of demand for products, management decisions may be different. In the first period, you can not start producing this type of product, replacing it with another. In the second period, it is still possible to make significant changes to the design, construction, and price of the product and thereby promote it to the market. If the risk is discovered after the product has been manufactured, then you need to think about how to avoid bankruptcy, because unclaimed products are a direct loss for the enterprise.

The consequences of lack of demand for products are:

– a reduction in profit or an increase in losses and, as a consequence, a decrease in the growth rate of equity capital or a decrease in its value, as a result of which the financial stability of the enterprise will decrease, in particular the degree of financial independence, the provision of its own working capital and other indicators,

– reduction and cessation of cash inflow, which requires the attraction of borrowed resources and increases the degree of financial dependence of the enterprise,

– an increase in the share of slowly sold or illiquid assets, which will lead to a deterioration in liquidity indicators.

Products must be produced if there is effective demand for it, supported by concluded contracts. Therefore, first, an analysis is carried out of the security of the production plan with concluded contracts for its sale. The analysis is carried out for each type of product. In the process of analysis, the availability of product output under contracts is determined (in relative terms) by relating the amount of the balance of finished products of a certain type and the plan for its production to the volume of supply under concluded contracts.

After this, the dynamics of the remains of each type of finished product is studied. To do this, the balances of finished products at the end of the year

(period) and at the beginning of the year (period) are compared, and their absolute and relative changes are determined.

Topic question 6.4 Analysis of product markets

At the first stage, an analysis of the dynamics of product markets over the past 3 years is carried out. Usually, two sales markets are distinguished: the domestic market and exports; if necessary and the necessary information is available, the analytical nature of this analysis can be increased. In the process of conducting it, the dynamics of the following indicators are studied for each type of finished product: volume of products sold in physical terms, unit price, cost per unit of product, profit from sales, profitability of sales, profitability of products sold.

At the next stage, an analysis of the structure of sales markets and their profitability is carried out in the context of each type of product sold.

Based on the analysis results, four product categories are distinguished:

– "stars" (types of products that bring the main profit to the organization and are the main source of economic growth);

– "cash cows" (types of products that generate profit do not require investment);

– "problem children" (new types of finished products that need to be promoted to the market until they are profitable);

– "dead weight" (types of products that do not contribute to the economic growth of the enterprise and do not bring profit).

When carrying out the analysis, it is necessary to take into account what stage of the life cycle each type of product is at in individual market segments.

The following stages of the product life cycle are distinguished:

– the zero stage is characterized by the study and testing of the idea of developing a new type of product, and then the type of product itself,

– the first stage (product launch and implementation), which determines whether the product will be successful in the market. Profit at this stage is low, since significant funds are spent on amortizing research, promoting products to the market,

– the second stage (growth and development of sales), at which the product begins to make a profit, quickly covers all costs and becomes a source of profit, although it requires even greater costs for advertising support for its promotion on the market,

– the third stage (maturity) - the product has a stable market, is in demand and generates regular income, that is, it is in the most profitable period, since it does not require costs for promotion to the market, but only for advertising support for its "fame",

– the fourth stage (saturation and decline), in which at first the sales volume decreases imperceptibly, and then sharply decreases for predictable

and unpredictable reasons: products that do not undergo any changes become boring to consumers or the need that it was intended to satisfy disappears.

The art is to catch and anticipate the decline in demand for finished products in time by improving them or replacing them with another type of product.

The results of the analysis allow the organization's management to develop the correct assortment policy for product release in accordance with the organization's development strategy.

Topic question 6.5 Analysis of the organization's pricing policy

One of the most significant areas of marketing analysis is the pricing policy of an enterprise in product markets. Prices provide the company with planned profits, competitiveness of products, and demand for them. Through prices, final commercial goals are realized and efficiency is determined activities of all levels of the production and sales structure of the enterprise.

Pricing policy is that the organization sets prices for products and changes them depending on the market situation in order to ensure the achievement of short-term and long-term development goals.

The analysis examines the following questions:

– to what extent prices reflect the level of costs (price justification);

– what is the likely reaction of buyers to price changes (elasticity of demand);

– whether a policy of incentive prices (discount system) is used, etc.

As a result, a comparative analysis of the price level for each type of product produced in a given organization is carried out with the industry average, with the average price level on the sales market, with the price of a competing organization.

The pricing policy of the enterprise should be adjusted taking into account stages of the product life cycle. At the stage of product penetration into the market, a "cream skimming" policy is usually applied. At the growth stage, pricing policies should focus on the long term. During the maturity stage, pricing policies tend to focus on short-term profits, while during the decline stage, discounts should be applied until a new product becomes available.

TOPIC 7 ANALYSIS OF PRODUCTION VOLUMES AND SALES OF PRODUCTS

Topic questions:
7.1 The meaning and tasks of analyzing production volumes and sales of products
7.2 Analysis of the dynamics and implementation of the production and sales plan
7.3 Analysis of product range and structure
7.4 Product quality analysis
7.5 Analysis of product competitiveness
7.6 Analysis of fulfillment of contractual obligations
7.7 Analysis of the rhythm of production
7.8 Analysis of factors and reserves for increasing production volumes and sales of products

Topic question 7.1 The meaning and tasks of analyzing production volumes and sales of products

The volume of production and sales of products are interdependent indicators. In conditions of limited production capabilities and unlimited demand, the volume of production comes first. But as the market becomes saturated and competition intensifies, it is not production that determines sales volume, but, on the contrary, the possible sales volume is the basis for developing a production program. An enterprise must produce only those goods and in such volumes that it can actually sell.

The growth rate of production and sales of products, improving their quality directly affect the amount of costs, profits and profitability of the enterprise, therefore the analysis of production and sales volumes is important.

The main tasks of analyzing production and sales volumes are:
– assessment of the degree of implementation of the plan and the dynamics of production and sales of products,
– determination of the influence of factors on changes in the values of these indicators,
– identification of on-farm reserves for increasing production and sales of products,
– development of recommendations for the development of identified reserves.

Topic question 7.2 Analysis of the dynamics and implementation of the production and sales plan

The volume of production and sales of products can be expressed in natural indicators, conditionally natural indicators, labor measures and cost measures.

Natural indicators (pieces, meters, tons and others) are used when analyzing production volumes and sales of products for individual types and groups of homogeneous products.

Conditional natural indicators are used for a generalized description of production volumes, for example, canneries use such an indicator as thousands of conventional cans, in the shoe industry, conventional pairs of shoes are used, calculated on the basis of their labor intensity coefficients, and others.

For a generalized assessment of production volumes in cases where, in conditions of multi-product production, it is not possible to express its total volume in natural or conditionally natural measures, standard labor costs are used.

General indicators of production volume are obtained using valuation, for which comparable or current prices are used.

The analysis begins with studying the dynamics of production volumes and product sales. In the process of analysis, the absolute change is determined, and the basic and chain growth rates and increments of these indicators for each year under study are calculated. Then the average annual growth and increment rates are determined using the geometric mean.

At the next stage, an analysis of the dynamics and (or) implementation of the plan for production volumes and sales of products for the reporting period (year, quarter, month) is carried out. In the process of analysis, the absolute change, the percentage of plan fulfillment and the growth rate of indicators are determined for each item of finished product. To carry out the analysis, a tabular method is used.

To conduct operational analysis, the implementation of the production plan for each day and on a cumulative basis from the beginning of the month can be studied. In the process of analysis, the absolute change and percentage of plan completion are determined for each item of manufactured product.

Topic question 7.3 Analysis of product range and structure

The assortment (nomenclature) and structure of production and sales of products have a great influence on the results of economic activity.

An assortment is a list of names of manufactured products indicating their release for each type.

Timely updating of the product range taking into account changes in market conditions is one of the most important indicators of the business activity of an enterprise and its competitiveness.

The structure of manufactured products is the share of each type of manufactured product in the total volume of manufactured products.

Changes in the production structure have a great impact on all economic indicators: output volume in value terms, material intensity, production cost, profit, profitability. If the share of more expensive products increases, then the volume of its output in value terms increases, and vice versa. The same thing happens with the size of profit when the share of highly profitable products increases and, accordingly, when the share of low-profitable products decreases.

First, an analysis of the implementation of the assortment plan is carried out. During the analysis process, the percentage of plan completion is determined for each product item.

After that, the level of the plan fulfillment coefficient for the assortment is studied, which is determined by the ratio of the actual volume of products produced within the plan target to the planned volume of production.

Next, we study the dynamics of the assortment renewal coefficient, which is determined by the ratio of the volume of production of new types of products to the total volume of manufactured products.

At the next stage, an analysis is carried out of the impact of changes in the structure of manufactured products on the volume of production in value terms. To carry out the analysis, the tabular method, the chain substitution method, etc. can be used. In this case, the initial factor model of the volume of products produced in value terms is the sum of the products of the total volume of products produced in physical terms, the share of each type of product produced in the total output and the price of products of each type.

Topic question 7.4 Product quality analysis

An important indicator of the performance of industrial enterprises is the quality of products. Its increase is one of the forms of competition, gaining and maintaining positions in the market. A high level of product quality helps to increase demand for products and increase the amount of profit not only due to sales volume, but also due to higher prices.

Product quality is a concept that characterizes the parametric, operational, consumer and other properties of the finished product, its reliability and level of standardization.

Indicators characterizing product quality are combined into three groups:

– generalizing indicators (these indicators characterize the quality of all manufactured products, regardless of their type and purpose),

– individual indicators (these indicators characterize one of the properties of a certain type of product),

– indirect indicators.

General indicators include:

– the share of new products in its total output;

– the share of innovative products in its total output;

– the share of products of the highest quality category in its total output;

– grade coefficient,

– the share of certified products in its total output;

– the share of exported products in its total output,

– and others.

The grade coefficient is defined as dividing the cost of manufactured products by the cost of manufactured products, calculated at the price of the highest grade.

Individual indicators include:

– usefulness (for example, fat content of food);

– reliability (for example, durability, which can be judged by the warranty period of use);

– manufacturability, that is, the effectiveness of design and technological solutions (for example, energy intensity);

– aesthetics.

Indirect indicators include:

– fines for low-quality products;

– volume and share in the total output of rejected products;

– losses from defects,

– and others.

At the first stage of the analysis, the dynamics and implementation of the plan according to the level of the above indicators are studied.

At the second stage, the impact of changes in product quality on such indicators as: volume of products produced in value terms, revenue from product sales and profit from product sales is studied.

For this purpose, factor models are used, which will be given below.

A factor model for calculating the quantitative impact of changes in product quality on the volume of products produced in value terms (ΔVPQ), containing the following factors: the volume of products produced in physical terms after improving product quality (VP1), the price of products produced after increasing their quality (PR1), and the price of products produced before increasing their quality (PR0).

$$\Delta VPQ = VP1 \cdot (PR1 - PR0) \qquad (7.1)$$

A factor model for calculating the quantitative impact of changes in product quality on the volume of products sold in value terms ($\Delta VPSQ$),

containing the following factors: the volume of products sold in physical terms after improving product quality (VPS1), the price of products sold after increasing their quality (PR1), and the price of products sold before increasing their quality (PR0).

$$\Delta VPSQ = VPS1 \cdot (PR1 - PR0) \qquad (7.2)$$

A factor model for calculating the quantitative impact of changes in product quality on the amount of profit from product sales ($\Delta PPSQ$), containing the following factors: the volume of products sold in physical terms after improving product quality (VPS1), the price of products sold after increasing their quality (PR1), the price of products sold before increasing their quality (PR0), the cost of a unit of products sold after improving its quality (CU1) and the cost per unit of products sold before improving its quality (CU0).

$$\Delta PPSQ = (VPS1 \cdot (PR1 - PR0)) - (VPS1 \cdot (CU1 - CU0)) \quad (7.3)$$

At the last stage, the reasons for the decrease in product quality and defective products are studied at the places of their occurrence and responsibility centers, and measures are developed to eliminate them.

The main reasons for the decrease in product quality:
– poor quality of raw materials,
– low level of technology and production organization,
– insufficiently high level of personnel qualifications,
– low quality equipment,
– and others.

Topic question 7.5 Analysis of product competitiveness

Competitiveness is a characteristic of a product that distinguishes it from competing products both in terms of the degree to which a specific customer need is satisfied and in terms of the costs of its production.

Assessing the competitiveness of products is based on a study of customer needs and market requirements.

In order for a product to satisfy the buyer's needs, it must meet certain parameters:
– technical parameters (product properties, scope of application and purpose),
– aesthetic parameters (appearance of the product),
– ergonomic parameters (compliance of the product with the properties of the human body),
– regulatory parameters (compliance of the product with current norms and standards),

– economic parameters (price level for the product, price level for its service).

The following stages of product competitiveness analysis are distinguished:

1) study of sales markets, collection of information about competing organizations;

2) determining a list of indicators for assessing the competitiveness of products (economic, technical, etc.);

3) determination of the level of single indicators (gi), which reflect the ratio of the level of any parameter of the analyzed product to the value of the same parameter of a competing product;

4) determining the level of group indicators (G), which combine single indicators for a homogeneous group of parameters, taking into account their weighting coefficients;

5) calculation of the integral indicator (I), which is the ratio of the group indicator for technical parameters to the group indicator for economic parameters;

6) development of proposals to improve the competitiveness of products.

If the value of the integral indicator is less than one, then the analyzed product is inferior to the competitor's product, and if the value of the integral indicator is greater than one, then it is superior to the competitor's product in terms of its parameters.

Topic question 7.6 Analysis of fulfillment of contractual obligations

Analysis of the implementation of contracts for the supply of products is important for each enterprise.

Failure to fulfill the plan under contracts for an enterprise results in a decrease in revenue, profit, and the payment of penalties. In addition, in a competitive environment, an enterprise may lose markets for its products, which will entail a decline in production.

When analyzing the fulfillment of contractual obligations, the implementation of the plan for the supply of products is studied for each month and on a cumulative basis from the beginning of the year.

After that, the level of the coefficient of fulfillment of contractual obligations is studied, which is determined by the ratio of the volume of actually shipped products within the planned level to the planned volume of product supply.

Finally, we study the dynamics of the duration of products being at the sales stage, which is determined by the ratio of the average balances of finished products to the one-day sales volume.

Topic question 7.7 Analysis of the rhythm of production

When studying the activities of an enterprise, analysis of the rhythm of production and shipment of products is important.

Rhythm of production – uniform production of products in accordance with the schedule in the prescribed volume and range.

Rhythmic work is the main condition for the timely release and sale of products. Irregularity worsens all economic indicators: deliveries under contracts are not fulfilled and the company pays fines for late shipment of products; revenue from product sales is not received on time; The wage fund is overspent due to the fact that at the beginning of the month workers are paid for downtime, and at the end - for overtime work. All this leads to an increase in production costs, a decrease in the amount of profit, and a deterioration in the financial condition of the enterprise.

There are two groups of indicators used to analyze rhythm of production:
– direct indicators,
– indirect indicators.

Direct indicators include:
– rhythm of production coefficient, which is determined by summing the actual share of product output for each period, but not more than the planned level;
– the coefficient of variation;
– the share of production for a certain period in the annual production volume.

Indirect indicators include:
– availability of additional payments for overtime work;
– availability of payment for downtime due to the fault of the organization;
– presence of losses from defect;
– existence of fines for late delivery of products.

In the process of analyzing the rhythm of production, the level and dynamics of the above indicators are studied.

Topic question 7.8 Analysis of factors and reserves for increasing production volumes and sales of products

Factors influencing the volume of production and sales of products are combined into three groups:
– the organization's supply of personnel and the efficiency of its use,
– the organization's provision of fixed assets and the efficiency of their use,
– the organization's provision of materials and the efficiency of their use.

The group "the organization's supply of personnel and the efficiency of its use" includes the following factors:

– average number of employees,

– average annual labor productivity per employee,

– the share of the volume of products sold in production.

The group "the organization's provision of fixed assets and the efficiency of their use" includes the following factors:

– average annual cost of fixed assets,

– capital productivity of fixed assets,

– the share of the volume of products sold in production.

The group "the organization's supply of materials and the efficiency of their use" includes the following factors:

– the amount of material costs consumed,

– material productivity,

– the share of the volume of products sold in production.

The main reserves for increasing production volumes and product sales include:

– creation of new jobs;

– increase in working hours;

– increase in average hourly labor productivity of workers;

– increasing the amount of equipment;

– increasing equipment operating time;

– increasing the average hourly output of equipment;

– reduction of excess material waste;

– reduction of material consumption rates for the production of a unit of product.

TOPIC 8 ANALYSIS OF THE USE OF THE ORGANIZATION'S PERSONNEL AND PAYROLL

Topic questions:
8.1 The meaning and tasks of analyzing the use of the organization's personnel and wage fund
8.2 Analysis of the organization's personnel supply
8.3 Analysis of the use of working time fund
8.4 Labor productivity analysis
8.5 Product labor intensity analysis
8.6 Personnel efficiency analysis
8.7 Payroll analysis
8.8 Analysis of the efficiency of using the wage fund

Topic question 8.1 The meaning and tasks of analyzing the use of the organization's personnel and wage fund

A sufficient supply of enterprises with the necessary workers with the necessary knowledge and skills, their rational use, and a high level of labor productivity are of great importance for increasing production volumes, improving their quality and production efficiency. In particular, the volume and timeliness of all work, the degree of use of equipment, machines, mechanisms and, as a result, the volume of production, its cost, profit and a number of other economic indicators depend on the enterprise's supply of personnel and the efficiency of its use.

The main tasks of analyzing the use of the organization's personnel and payroll are:

– study of the supply of personnel to the enterprise and its structural divisions in general, as well as by category and professions,

– determination and study of the dynamics of indicators characterizing the movement of personnel,

– analysis of the efficiency of using the organization's personnel,

– analysis of the composition and structure of the wage fund,

– analysis of the efficiency of using the wage fund,

– determining the size and direction of the influence of factors on changes in the value of indicators characterizing the efficiency of using the organization's personnel and payroll,

– identifying reserves for more efficient use of enterprise personnel and wages,

– development of measures for the development of identified reserves.

Topic question 8.2 Analysis of the organization's personnel supply

When analyzing an organization's supply of personnel, the actual availability of personnel by category and profession is compared with their planned need. In this case, the absolute deviation and percentage of coverage are calculated.

After this, an analysis of the dynamics of the composition and structure of the organization's personnel by category is carried out.

At the next stage, an assessment is made of the qualitative composition of the organization's personnel, which is characterized by the level of qualifications of workers, their age, education and work experience.

To assess the compliance of the qualifications of production personnel with the complexity of the work performed, the average tariff grade of work and the average tariff grade of workers are compared. If the actual average wage grade of workers is lower than its planned level, as well as below the average tariff grade of work, then this may lead to the production of lower quality products. If the average tariff category of workers is higher than the average tariff category of work, then workers need to make additional payments for using them in less skilled jobs. Such a comparison will make it possible to establish how correctly production personnel are selected and allocated to areas, and whether their wages are planned correctly.

Administrative and managerial personnel must be checked to ensure that the actual level of education of each employee corresponds to the position held.

After this, an analysis of the movement of the organization's personnel is carried out.

When analyzing the movement of personnel in an organization, the dynamics of the following indicators are studied:
– coefficient characterizing the turnover of the hiring of personnel, which is determined by dividing the number of hired personnel by the average number of personnel;
– coefficient characterizing the turnover of the staff departure, which is determined by dividing the number of retired personnel by the average number of personnel;
– coefficient characterizing the replacement of personnel, which is determined by dividing the difference between the number of hired personnel and the number of departed personnel by the average number of personnel;
– coefficient characterizing the staff turnover, which is determined by dividing the number of employees who quit at their own request and on the initiative of the organization's administration by the average number of personnel;
– coefficient of constancy of the organization's personnel, which is determined by dividing the employees who worked the entire year by the average number of personnel.

In the process of conducting the analysis, it is necessary to study the reasons for the dismissal of employees (at their own request, due to staff reduction, due to violation of labor discipline, etc.).

The tension in providing an enterprise with labor resources can be somewhat reduced due to a more complete use of the available workforce, an increase in worker productivity, intensification of production, comprehensive mechanization and automation of production processes, increasing the level of technical equipment of the enterprise, improving technology and organization of production. In the process of analysis, reserves for reducing the need for labor resources as a result of the above and other activities should be identified.

Finally, the reserve for increasing the volume of production in value terms is determined by creating additional jobs.

The reserve for increasing the volume of production in value terms due to the creation of additional jobs is calculated by multiplying the reserve for increasing jobs by the actual average annual labor productivity of one worker in the reporting period.

Topic question 8.3 Analysis of the use of working time fund

The completeness of personnel utilization can be assessed by the number of days and hours worked by one employee during the analyzed period of time, as well as by the degree of use of the working time fund. Such an analysis is carried out for each category of employees, for each production unit and for the enterprise as a whole.

At the first stage, an analysis of the use of working time is carried out, for which the planned balance of working time is compared with actual data. When analyzing the use of working time, the following types of time fund are used:

– calendar time fund (this time fund represents the calendar number of days of the reporting period),

– nominal time fund (this time fund is calculated as the difference between the calendar fund and the number of weekends and holidays),

– attendance fund (this time fund is calculated as the difference between the nominal fund and the number of days of absence from work and full-day downtime).

The purpose of the analysis is to identify reserves for increasing the volume of production by reducing the loss of working time.

To identify the causes of daily and intra-shift losses of working time, data from the actual and planned balance of working time are compared. Loss of working time can be caused by various objective and subjective circumstances not provided for by the plan: additional leaves with the permission of the administration, illnesses of workers with temporary loss of ability to work, absenteeism, downtime due to malfunction of equipment,

machinery, mechanisms, due to lack of work, raw materials, materials, electricity, fuel, etc. Each type of lost working time is analyzed in more detail, especially those that depend on the enterprise. Reducing the loss of working time for reasons depending on the workforce is a reserve for increasing production, which does not require additional capital investments and allows you to quickly get a return.

For a more complete assessment, it is necessary to study the use of working time fund by month of the reporting period: for personnel as a whole and for production personnel.

Having studied the loss of working time, it is necessary to establish unproductive labor costs, which consist of the cost of working time as a result of manufacturing rejected products and correcting defects, as well as in connection with deviations from the technological process.

Reducing lost working time is one of the reserves for increasing production output.

The reserve for increasing the volume of production in value terms (R↑VP) is determined by multiplying the reserve for reducing losses of working time (R↓LWT) due to the fault of the organization by the planned average hourly labor productivity of one worker (LP).

$$R{\uparrow}VP = R{\downarrow}LWT \cdot LP \qquad (8.1)$$

At the next stage, the dynamics or implementation of the plan is studied in terms of the number of days and hours worked by one employee of the organization.

After which a factor analysis of the working time fund is carried out. At the same time, they study the influence on changes in the working time fund (WTF) of such factors as: the average number of employees (or workers) (NE), the average number of days worked by one employee (or worker) during the reporting period (ND) and the average length of the working day (LWD).

$$WTF = NE \cdot ND \cdot LWD \qquad (8.2)$$

Topic question 8.4 Labor productivity analysis

To assess the level of intensity of personnel use, a system of labor productivity indicators is used.

Labor productivity is the output of one employee or one worker per unit of time.

To analyze labor productivity, indicators are used that are combined into two groups:
– generalizing indicators,
– private indicators.

General indicators include:

– average annual labor productivity of one worker (calculated by dividing the volume of production for the year under study by the average number of workers for the year),

– average daily labor productivity of one worker (calculated by dividing the volume of production during the period under study by the total number of man-days worked by all workers in the period under study),

– average hourly labor productivity of one worker (calculated by dividing the volume of production during the period under study by the total number of man-hours worked by all workers in the period under study),

– average annual labor productivity of one employee (calculated by dividing the volume of production for the year under study by the average number of employees for the year).

Private indicators include:

– time spent on producing a certain type of product,

– volume of products produced in physical terms per one man-day or one man-hour,

– and others.

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicators is studied and a factor analysis of some of them is carried out.

When conducting factor analysis, the influence on changes in the average annual labor productivity of one worker (LPaverage annual of one worker) is studied by such factors as: the average number of days worked by one worker per year (ND), the average length of the working day (LWD) and the average hourly labor productivity of one worker (LPaverage hourly of one worker).

$$LPaverage\ annual\ of\ one\ worker =$$
$$= ND \cdot LWD \cdot LPaverage\ hourly\ of\ one\ worker \qquad (8.3)$$

When conducting factor analysis, the influence of the following factors on changes in the average annual labor productivity of one employee (LPaverage annual of one employee) is studied: the share of workers in the total number of employees (SH), the average number of days worked by one worker per year (ND), the average length of the working day (LWD) and the average hourly productivity of one worker (LPaverage hourly of one worker).

$$LPaverage\ annual\ of\ one\ employee =$$
$$= SH \cdot ND \cdot LWD \cdot LPaverage\ hourly\ of\ one\ worker \qquad (8.4)$$

Topic question 8.5 Product labor intensity analysis

Labor intensity is the cost of working time to produce a unit of product of a certain type (specific labor intensity) or to produce the entire volume of production.

The labor intensity of a unit of production is calculated as dividing the labor costs for producing a certain type of product by the volume of production of a certain type of product in natural or conditionally natural terms.

The labor intensity of one ruble of products is calculated as dividing the total labor costs for the production of all products by the cost of manufactured products.

Reducing the labor intensity of products is the most important factor in increasing labor productivity. The increase in labor productivity occurs primarily due to a reduction in the labor intensity of products, namely through the implementation of a plan of innovative measures (introduction of advances in science and technology, mechanization and automation of production processes, improvement of the organization of production and labor), an increase in the share of purchased semi-finished products and components, revision of production standards, etc.

In the process of analysis, the dynamics or implementation of the plan is studied according to the level of the following indicators: specific labor intensity of a certain type of product, total labor intensity and average specific labor intensity, and also a factor analysis of some of them is carried out.

At the same time, they study the influence on changes in the average specific labor intensity of such factors as: the share of a certain type of product in the total volume of manufactured products in physical terms (SHcertain type) and the specific labor intensity of a certain type of product (SLIcertain type).

$$\text{SLI average} = \sum (\text{SHcertain type} \cdot \text{SLIcertain type}) \qquad (8.5)$$

It should be borne in mind that changes in the level of labor intensity are not always assessed unambiguously. Sometimes labor intensity increases with a significant share of newly developed products or an improvement in their quality. To achieve improved quality, reliability and competitiveness of products, additional labor and funds are required. However, the gains from increased sales volumes and higher prices, as a rule, cover the losses from increased labor intensity of products. Therefore, the relationship between the labor intensity of products, their quality, cost, sales volume and profit should constantly be in the focus of attention of analysts.

Topic question 8.6 Personnel efficiency analysis

The main indicator characterizing the efficiency of personnel use is the profitability of personnel (PP), which is determined by the ratio of profit from product sales (P) to the average number of employees (NE).

$$PP = P/NE \qquad\qquad (8.6)$$

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicator is studied and its factor analysis is carried out.

At the same time, they study the influence on changes in the profitability of personnel (PP) of such factors as: profitability of sales (PS), the share of sold products in the volume of manufactured products (SHs) and the average annual labor productivity of one employee (LPoe).

$$PP = \sum(PS \cdot SHs \cdot LPoe) \qquad\qquad (8.7)$$

Topic question 8.7 Payroll analysis

The use of labor resources in an enterprise and the level of labor productivity must be analyzed in close connection with wages.

Funds for wages must be used in such a way that the growth rate of labor productivity exceeds the growth rate of wages. Only under such conditions are opportunities created for increasing the rate of expanded reproduction.

In the process of analyzing the wage fund, systematic monitoring of the use of the wage fund should be carried out, as well as opportunities for saving it should be identified.

At the first stage of the analysis, the absolute and relative changes in the total amount of the wage fund are determined. The analysis of the wage fund is carried out for the organization as a whole, for each structural unit and categories of employees.

At the next stage, an analysis of the dynamics and implementation of the plan is carried out according to the level of composition and structure of the wage fund by type of payments, as well as by sources of payments.

At the next stage of the analysis, the dynamics or implementation of the plan is studied according to the level of the following indicators: the variable part of the wage fund, the time wage fund, the average annual wage, the average daily wage, and a factor analysis of some of them is carried out.

At the same time, they study the influence on the change in the variable part of the wage fund (VPWF) of such factors as: the total volume of products produced in physical terms (TVP), the share of a certain type of product in the total volume of products produced in physical terms (SH), the

specific labor intensity of products of a certain type (SLI) and the level of wages per person-hour (Wph).

$$VPWF = \sum(TVP \cdot SH \cdot SLI \cdot Wph) \qquad (8.8)$$

The influence of the following factors on changes in the time wage fund (TWF) is studied:

1) the average number of employees (NE) and the average annual salary per employee (Sae),

$$TWF = NE \cdot Sae \qquad (8.9)$$

2) the average number of employees (NE), the average number of days worked by one employee per year (ND), and the average daily wage of one employee (Wadoe),

$$TWF = NE \cdot ND \cdot Wadoe \qquad (8.10)$$

3) the average number of employees (NE), the average number of days worked by one employee per year (ND), the average duration of one working day (Dawd) and the average hourly wage of one employee (Wahoe).

$$TWF = NE \cdot ND \cdot Dawd \cdot Wahoe \qquad (8.11)$$

The influence of the following factors on the change in the average annual wage of one employee (Waaoe) is studied: the average number of days worked by one employee per year (ND), the average duration of one working day (Dawd) and the average hourly wage of one employee (Wahoe).

$$Waaoe = ND \cdot Dawd \cdot Wahoe \qquad (8.12)$$

The influence of the following factors on the change in the average daily wage of one employee (Wadoe) is studied: the average duration of one working day (Dawd) and the average hourly wage of one employee (Wahoe).

$$Wadoe = Dawd \cdot Wahoe \qquad (8.13)$$

At the end of the analysis, the growth rate of labor productivity and the growth rate of average wages are compared.

Topic question 8.8 Analysis of the efficiency of using the wage fund

To analyze the efficiency of using the wage fund, the following indicators are used:

– the volume of products produced in value terms per one ruble of the wage fund (VPPorwf) (this indicator is calculated by dividing the volume of production in value terms (VPP) by the wage fund (WF)),

$$VPPorwf = VPP/WF \qquad (8.14)$$

– the volume of products sold in value terms per one ruble of the wage fund (VPSotwf) (this indicator is calculated by dividing the volume of products sold in value terms (VPS) by the wage fund (WF)),

$$VPSotwf = VPS/WF \qquad (8.15)$$

– profit from the sale of products per one ruble of the wage fund (PSorwf) (this indicator is calculated by dividing the profit from product sales (PS) by the wage fund (WF)),

$$PSorwf = PS/WF \qquad (8.16)$$

– net profit per ruble of wage fund (NPorwf) (this indicator is calculated by dividing net profit (NP) by the wage fund (WF)).

$$NPorwf = NP/WF \qquad (8.17)$$

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicators is studied and a factor analysis of some of them is carried out.

At the same time, they study the influence on the change in the volume of production in value terms per one ruble of the wage fund of such factors as: the share of workers in the total number of employees, the average number of days worked by one worker per year, the average length of a working day, the average hourly productivity of one worker and the average annual salary of one employee.

The influence of the following factors on the change in the volume of products sold in value terms per one ruble of the wage fund is studied: the share of products sold in the volume of products produced, the share of workers in the total number of employees, the average number of days worked by one worker per year, the average duration of a working day, average hourly labor productivity per worker and average annual wage per employee.

On the change in profit from product sales per one ruble of the wage fund, the influence of such factors as: profitability of sales, the share of sold products in the volume of manufactured products, the share of workers in the total number of employees, the average number of days worked by one

worker per year, the average duration working day, average hourly labor productivity per worker and average annual wage per employee.

The influence of the following factors on the change in net profit per one ruble of the wage fund is studied: the share of net profit in the profit from sales of products, profitability of sales, the share of sold products in the volume of manufactured products, the share of workers in the total number of employees, the average number of days worked by one worker per year, the average working day, the average hourly labor productivity of one worker and the average annual wage of one employee.

TOPIC 9 ANALYSIS OF THE USE OF FIXED ASSETS

Topic questions:
9.1 The meaning and tasks of analyzing the use of fixed assets
9.2 Analysis of the organization's provision of fixed assets
9.3 Analysis of the efficiency of use of fixed assets
9.4 Analysis of production capacity utilization
9.5 Analysis of the use of technological equipment

Topic question 9.1 The meaning and tasks of analyzing the use of fixed assets

One of the most important factors in increasing the volume of production at industrial enterprises is their provision of fixed assets in the required quantity and range, as well as a more complete and efficient use of fixed assets.

The main tasks of analyzing the use of fixed assets are:

– study of the provision of the organization as a whole and its structural divisions with fixed assets,

– assessment of the efficiency of use of the organization's fixed assets,

– determination of the size and direction of influence of factors on changes in the value of indicators characterizing the efficiency of use of fixed assets,

– studying the level of use of the organization's production capacity,

– studying the level of use of the enterprise's production equipment,

– identifying reserves for more efficient use of the organization's fixed assets,

– development of measures to develop identified reserves for more efficient use of fixed assets of the enterprise.

Topic question 9.2 Analysis of the organization's provision of fixed assets

The analysis begins with studying the dynamics of the composition and structure of fixed assets. This analysis is carried out by groups and types of fixed assets; during the analysis, the active and passive parts of fixed assets are distinguished.

At the next stage, an analysis of the movement of fixed assets is carried out.

Analysis of the movement of fixed assets involves studying the dynamics or implementation of the plan based on the level of the following indicators:

– the coefficient of renewal of fixed assets (Crfa), which is determined by dividing the value of received fixed assets (FAr) by the value of fixed assets at the end of the period (FAep);

$$Crfa = Far/FAep \qquad (9.1)$$

– the period for renewal of fixed assets (Prfa), which is determined by dividing the cost of fixed assets at the beginning of the period (FAbp) by the cost of received fixed assets (FAr);

$$Prfa = FAbp/Far \qquad (9.2)$$

– the coefficient retirement of fixed assets (Cretfa), which is determined by dividing the value of retired fixed assets (FAret) by the cost of fixed assets at the beginning of the period (FAbp);

$$Cretfa = FAret/FAbp \qquad (9.3)$$

– the coefficient gain of fixed assets (Cgfa), which is determined by dividing the increase in fixed assets (FAi) by the cost of fixed assets at the beginning of the period (FAbp).

$$Cgfa = Fai/FAbp \qquad (9.4)$$

Before moving on to the next stage of analyzing the use of fixed assets, we need to know the types of valuation of fixed assets.

Currently, the following types of valuation of fixed assets are used in the Republic of Belarus:

– initial cost - the cost at which the asset is accepted for accounting as a fixed asset,

– revalued value - the value of a fixed asset after its revaluation,

– residual value - the difference between the initial (revalued) cost of a fixed asset and the amounts of depreciation and impairment accumulated on it over the entire period of operation,

– current market value - the amount of money that would be received if the fixed asset were sold under current market conditions.

At the next stage, an analysis of the technical condition of fixed assets is carried out.

Analysis of the technical condition of fixed assets involves studying the dynamics or implementation of the plan based on the level of the following indicators:

– depreciation coefficient of fixed assets (Cdfa), which is determined by dividing the amount of depreciation of fixed assets accumulated over the entire period of their use (Dfa) by the initial cost of fixed assets (FAic);

$$Cdfa = Dfa/FAic \qquad (9.5)$$

– the serviceability coefficient of fixed assets (Csfa), which is determined by dividing the residual value of fixed assets (FArc) by the initial cost of fixed assets (FAic).

$$Csfa = FArc / FAic \qquad (9.6)$$

After this, an analysis of the age composition of fixed assets is carried out.

At the next stage, an analysis of the organization's provision with certain types of fixed assets is carried out, which involves comparing their actual availability of fixed assets with their planned need.

Finally, the dynamics or implementation of the plan is studied according to the level of the main general indicators characterizing the level of provision of the organization with fixed assets, namely:

– capital-labor ratio (CLR), which is determined by dividing the average annual cost of fixed assets (FAac) by the average number of workers per day shift (NW);

$$CLR = FAac/NW \qquad (9.7)$$

– technical equipment of labor (TEL), which is determined by dividing the average annual cost of production equipment (PEac) by the average number of workers per day shift (NW).

$$TEL = PEac/NW \qquad (9.8)$$

Topic question 9.3 Analysis of the efficiency of use of fixed assets

In a market economy and competition, those producers who effectively use their resources, in particular the main means of production, operate successfully. Many indicators that characterize the activities of an enterprise depend on the efficiency of use of fixed assets.

Indicators characterizing the efficiency of use of fixed assets include:

– profitability of fixed assets (PROFfa), which is determined by dividing the profit from sales of products for the year (Psp) by the average annual cost of fixed assets (FA);

$$PROFfa = Psp/FA \qquad (9.9)$$

– capital productivity of fixed assets (CPfa), which is determined by dividing the cost of production for the year (VP) by the average annual cost of fixed assets (FA);

$$CPfa = VP/FA \qquad (9.10)$$

– capital productivity of the active part of fixed assets (CPapfa), which is determined by dividing the cost of production for the year (VP) by the average annual cost of the active part of fixed assets (FAap);

$$CPapfa = VP/FAap \qquad (9.11)$$

– capital intensity (CI), which is determined by dividing the average annual cost of fixed assets (FA) by the cost of manufactured products for the year (VP);

$$CI = FA/VP \qquad (9.12)$$

– capital productivity of machinery and equipment (CPme), which is determined by dividing the cost of production for the year (VP) by the average annual cost of machinery and equipment (ME).

$$CPme = VP/ME \qquad (9.13)$$

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicators is studied and a factor analysis of some of them is carried out.

At the same time, they study the influence on changes in the profitability of fixed assets (PROFfa) of such factors as: profitability of sales (PROFs), the share of sold products in the volume of manufactured products (SHs) and capital productivity of fixed assets (CPfa).

$$PROFfa = PROFs \cdot SHs \cdot CPfa \qquad (9.14)$$

The influence of the following factors on changes in capital productivity of fixed assets (CPfa) is studied:

1) the share of the active part of fixed assets in the total cost of fixed assets (SHap) and capital productivity of the active part of fixed assets (CPapfa),

$$CPfa = SHap \cdot CPapfa \qquad (9.15)$$

2) the share of the active part of fixed assets in the total cost of fixed assets (SHap), the share of machinery and equipment in the cost of the active part of fixed assets (SHme) and the capital productivity of machinery and equipment (CPme).

$$CPfa = SHap \cdot SHme \cdot CPme \qquad (9.16)$$

The influence of the following factors on changes in capital productivity of machinery and equipment is studied: the amount of equipment; average time worked by a piece of equipment per year; average hourly output of a unit of equipment and the average annual cost of a unit of equipment.

Topic question 9.4 Analysis of production capacity utilization

All final business results depend on the level of the material and technical base of the enterprise, on the degree of use of its production potential, in particular, the volume of output, the level of cost of production, profit, profitability, financial condition and others.

If the production capacity of an enterprise is not fully used, this leads to an increase in the share of fixed costs in their total amount, an increase in production costs and, as a consequence, a decrease in profits. Therefore, in the process of analysis, it is necessary to establish what changes have occurred in the production capacity of the enterprise, how fully the production capacity is used, how this affects the cost of production, the profit of the enterprise, and profitability indicators.

The production capacity of an organization is the maximum possible output of products given the achieved level of technique, technology and production organization.

Indicators characterizing the degree of utilization of production capacity include:

– production capacity utilization coefficient (Cpcu), which is calculated by dividing the actual (or planned) production output for the year (VP) by the average annual production capacity (PC);

$$Cpcu = VP/PC \qquad (9.17)$$

– product output per square meter of production area (VPsqm), which is calculated by dividing production output per year (VP) by the production area (Ap).

$$VPsqm = VP/Ap \qquad (9.18)$$

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicators is studied and their factor analysis is carried out.

Topic question 9.5 Analysis of the use of technological equipment

The main stages of analyzing the use of technological equipment:
1) study of the degree of involvement of existing equipment in production;
2) assessment of the degree of extensive equipment loading;
3) assessment of the degree of intensive loading of equipment;
4) general assessment of equipment use;
5) assessment of the influence of the extensiveness and intensity of equipment use on changes in the volume of production.

At the first stage, the dynamics or implementation of the plan is studied according to the level of indicators characterizing the degree of involvement of existing equipment in production, namely:
– utilization coefficient of available equipment (Cuae), which is determined by dividing the amount of operating equipment (Eo) by the amount of available equipment (Ea);

$$Cuae = Eo/Ea \qquad (9.19)$$

– utilization coefficient of installed equipment (Cuie), which is determined by dividing the amount of operating equipment (Eo) by the amount of installed equipment (Ei).

$$Cuie = Eo/Ei \qquad (9.20)$$

At the second stage, when assessing the degree of extensive equipment loading:
– the balance of equipment operating time is studied;
– the use of equipment operating time is assessed.

When studying the balance of equipment operating time, the following indicators are used:

– calendar time fund (which is determined by multiplying the number of calendar days in the reporting period by twenty-four hours and by the number of units of installed equipment);

– regime time fund (which is determined by multiplying the number of units of installed equipment by the number of working days in the reporting period and by the number of hours of daily work, taking into account the shift ratio);

– effective (possible) time fund (which is determined by subtracting time for repairs and modernization of equipment from the operating time fund);

– planned time fund (equipment operating time required to produce the planned volume of products);

– actual fund of worked time (time actually spent for production of products in the reporting period).

When analyzing the use of equipment operating time, the dynamics and implementation of the plan are studied according to the level of the following indicators:

– the coefficient of use of the calendar fund of time (Cucft), which is determined by dividing the actual fund of time worked (FTa) by the calendar fund of time (FTc);

$$Cucft = FTa/FTc \qquad (9.21)$$

– the coefficient of use of the regime time fund (Curft), which is determined by dividing the actual fund of time worked (FTa) by the regime fund of time (FTr);

$$Curft = FTa/FTr \qquad (9.22)$$

– the coefficient of use of the effective time fund (Cueft), which is determined by dividing the actual fund of time worked (FTa) by the effective (possible) fund of time (FTe);

$$Cueft = FTa/FTe \qquad (9.23)$$

– the coefficient of use of the planned time fund (the coefficient of extensive equipment loading) (Ceel), which is determined by dividing the actual fund of time worked (FTa) by the planned fund of time (FTp).

$$Ceel = FTa / FTp \qquad (9.24)$$

At the third stage, when assessing the degree of intensive loading of equipment, the dynamics of the coefficient intensive loading of equipment (Cile) is studied, which is determined by dividing the actual output on

average per machine per machine-hour (Oa) by the planned output on average per machine per machine-hour (Op).

$$Ceel = FTa/FTp \qquad (9.24)$$

At the fourth stage, when conducting a general assessment of the degree of equipment utilization, the dynamics or implementation of the plan is studied according to the level of the integral load coefficient (Cil), which is determined by multiplying the coefficient of extensive equipment loading (Ceel) by the intensive equipment load coefficient (Cile).

$$Cil = Ceel \cdot Cile \qquad (9.26)$$

At the fifth stage, to assess the influence of the extensiveness and intensity of use of homogeneous equipment on changes in the volume of production (VP), a factor model is used, which takes into account the influence on the volume of production in value terms of the following factors: the amount of homogeneous equipment (AE), the average number of days worked by a unit of equipment per year (ND), the shift ratio (Rs), the average duration of one shift (D) and the average hourly output of a piece of equipment (Oe).

$$VP = AE \cdot ND \cdot Rs \cdot D \cdot Oe \qquad (9.27)$$

TOPIC 10 ANALYSIS OF THE USE OF MATERIAL RESOURCES

Topic questions:
10.1 The meaning and objectives of analyzing the use of material resources
10.2 Analysis of the organization's provision with material resources
10.3 Analysis of the efficiency of use of material resources

Topic question 10.1 The meaning and objectives of analyzing the use of material resources

A necessary condition for fulfilling plans for the production of products, reducing their cost, increasing profits, and profitability is the complete and timely provision of the enterprise with raw materials of the required range and quality and their economical use.

The growth of an enterprise's need for material resources can be satisfied extensively (through the acquisition of more materials, energy, and others) or intensively (through a more economical use of existing reserves in the production process).

The main objectives of analyzing the use of material resources are:
– study of the organization's provision with material resources,
– assessment of the efficiency of use of material resources,
– determination of the size and direction of influence of factors on changes in the value of indicators characterizing the efficiency of use of material resources,
– identifying reserves for more efficient use of material resources,
– development of measures for the mastering of identified reserves.

Topic question 10.2 Analysis of the organization's provision with material resources

The level of provision of an organization with material resources is determined by comparing their actual availability with the planned need.

At the first stage of the analysis, the total need for each type of material resources to fulfill the production plan is determined. This takes into account the planned production volume of each type of finished product, the rate of consumption of material resources for the production of a certain type of finished product, as well as the planned balance of materials at the end of the year.

At the second stage, an analysis is carried out of the provision of the total need for materials to fulfill the production plan from the enterprise's own sources. To do this, the total demand for materials and the stock of materials in the warehouse at the beginning of the year are compared. In this case, the volume of materials to be purchased is determined in physical, cost and relative terms.

At the next stage, an analysis is carried out to ensure that the volume of materials to be purchased is covered by concluded contracts for their supply. In the process of analysis, for each type of material, the coverage of demand with concluded contracts in relative terms is determined, as well as the fulfillment of supply contracts in relative terms.

At the next stage, an analysis of the rhythm of supply of each type of material is carried out.

At the next stage, the state of warehouse stocks of materials is studied. To do this, their actual availability in the warehouse is compared with the stock norm. It is taken into account that the current stock of materials is determined by multiplying the delivery interval by the average daily consumption of material.

At the next stage, an analysis of the implementation of the plan for material consumption is carried out. It is taken into account that the consumption of a certain type of material in value terms is determined by multiplying the volume of production in physical terms, the consumption of this type of material per unit of production and the price of this type of material.

At the end, the change in the volume of production in physical terms is determined due to changes in the following factors: the amount of purchased materials, carry-over materials, excess waste and specific consumption of materials per unit of production.

Topic question 10.3 Analysis of the efficiency of use of material resources

To analyze the efficiency of using material resources, two groups of indicators are used: general indicators and specific indicators.

General indicators include:

– material productivity (MP), which is calculated by dividing the volume of products produced for the period under study (VP) by material costs for the period under study (MC);

$$MP = VP/MC \qquad (10.1)$$

– material intensity (MI), which is calculated by dividing material costs for the period under study (MC) by the volume of products produced for the period under study (VP);

$$MI = MC/VP \qquad (10.2)$$

– profit per ruble of material costs (Prmc), which is calculated by dividing the profit from sales of products for the period under study (Ps) by material costs for the period under study (MC);

$$Prmc = Ps/MC \qquad (10.3)$$

– the ratio between the growth rate of production volume and the growth rate of material costs (Rb), which is calculated by dividing the growth rate of production volume (GRvp) by the growth rate of material costs (GRmc);

$$Rb = GRvp/GRmc \qquad (10.4)$$

– the share of material costs in the cost of production (SHmc), which is calculated by dividing the material costs for the period under study (MC) by the total costs of production for the period under study (TCP).

$$SHmc = MC/TCP \qquad (10.5)$$

Private indicators include:

– specific material intensity of a unit of a certain type of product (SMIu), which is calculated by dividing the material costs per unit of product of a certain type (MCu) by the price per unit of product of the same type (PRu);

$$SMIu = MCu/PRu \qquad (10.6)$$

– raw material intensity (RMI), which is calculated by dividing the cost of consumed raw materials for the period under study (RM) by the volume of products produced for the period under study (VP);

$$RMI = RM/VP \qquad (10.7)$$

– fuel intensity (FI), which is calculated by dividing the cost of fuel consumed for the period under study (FC) by the volume of products produced for the period under study (VP);

$$FI = FC/VP \qquad (10.8)$$

– energy intensity (EI), which is calculated by dividing the cost of energy consumed for the period under study (EC) by the volume of products produced for the period under study (VP).

$$EI = EC/VP \qquad (10.9)$$

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicators is studied and a factor analysis of some of them is carried out.

At the same time, they study the influence on changes in the overall material intensity of such factors as: the volume of production in physical terms, the structure of products, the consumption of materials per unit of production, the price of a certain type of material resources and the price of a certain type of finished product.

The change in profit per ruble of material costs is studied by the influence of such factors as: profitability of sales, the share of sold products in the volume of production and material productivity.

The influence of such factors as: material consumption per unit of production, the price of a certain type of material resources and the price of a given type of finished product are studied on changes in specific material intensity.

TOPIC 11 ANALYSIS OF THE ORGANIZATION'S COSTS AND COST OF PRODUCTS (WORKS, SERVICES)

Topic questions:

11.1 The meaning and objectives of analyzing organization's costs and cost of product

11.2 Analysis of the composition and structure of costs for production of products by cost elements. Factor analysis of the total cost of production

11.3 Analysis of the level of costs per ruble of manufactured products

11.4 Analysis of the cost of individual types of products

11.5 Analysis of direct material costs and direct wages

11.6 Analysis of indirect costs

Topic question 11.1 The meaning and objectives of analyzing organization's costs and cost of product

The cost of production is the most important indicator of the economic efficiency of its production. It reflects all aspects of economic activity and accumulates the results of using all production resources. The level of production costs determines the financial results of enterprises, the pace of expanded reproduction, the financial condition of organizations, and the competitiveness of products.

Product cost analysis is of great importance in a cost management system. It allows you to study trends in changes in the level of costs, establish the deviation of actual costs from normative (standard) ones, the reasons for the occurrence of deviations, identify reserves for reducing the cost of production, and also develop measures for the development of identified reserves.

The main objectives of analyzing organization's costs and cost of product are:

– objective assessment of the implementation of the plan at cost and its changes relative to previous reporting periods,

– determination of the size and direction of influence of factors on changes in the value of indicators characterizing production costs and cost of production,

– identifying reserves for reducing costs of production and sales of products,

– assistance in developing the optimal amount of planned costs, planned calculations for certain types of products.

Topic question 11.2 Analysis of the composition and structure of costs for production of products by cost elements. Factor analysis of the total cost of production

Analysis of the total amount of production costs begins with studying its dynamics in absolute and relative terms.

After that, an analysis of the composition and structure of costs for production of products is carried out according to cost elements.

There are five cost elements:

– material costs;

– labor costs;

– contributions for social needs;

– depreciation of fixed assets and intangible assets used in business activities;

– other costs.

To analyze the composition and structure of production costs by cost elements, a tabular method is used. During the analysis, changes in both the amount of costs for each element and the specific weights of each economic element of costs in the total amount of production costs are calculated.

At the next stage, a factor analysis of the total cost of production is carried out.

For factor analysis of the indicator "total cost of production" (TCP), the following factor models are used:

1) a factor model that allows us to study the influence on changes in the total cost of production of such factors as: material costs (MC); labor costs (LC); contributions for social needs (CSN); depreciation (D); other costs (OC),

$$TCP = MC + LC + CSN + D + OC \qquad (11.1)$$

2) a factor model that allows us to determine the influence on changes in the total cost of production of the following factors: the volume of production of a certain type of product in physical terms (VPctp), the cost per unit of production of a certain type (Cctp),

$$TCP = \sum (VPctp \cdot \ Cctp) \qquad (11.2)$$

3) a factor model that allows us to determine the influence on changes in the total cost of production of the following factors: the total volume of production of finished products in physical terms (TVP), the share of a certain type of product in the total volume of output (SHctp), the cost per unit of a certain type of product (Cctp).

$$TCP = \sum (TVP \cdot SHctp \cdot Cctp) \qquad (11.3)$$

Topic question 11.3 Analysis of the level of costs per ruble of manufactured products

The level of costs per one ruble of manufactured products is a general indicator characterizing the level of production costs.

The indicator "level of costs per one ruble of manufactured products" is calculated by dividing the total cost of production by the volume of manufactured products in value terms.

In the process of analysis, the dynamics or implementation of the plan according to the level of the indicator "level of costs per one ruble of manufactured products" is studied, and a factor analysis of this indicator is also carried out.

For factor analysis of the indicator "level of costs per one ruble of manufactured products" (LCormp) the following factor models are used:

1) a factor model that makes it possible to study the influence on changes in the indicator "level of costs per one ruble of manufactured products" of such factors as: the volume of production of a certain type of product in physical terms (VPU), the cost per unit of product of a certain type (CU) and the price of a certain type of finished product (PRU),

$$LCormp = \sum(VPU \cdot CU)/\sum(VPU \cdot PRU) \qquad (11.4)$$

2) a factor model that makes it possible to study the influence on changes in the indicator "level of costs per one ruble of manufactured products" of such factors as: material intensity (MI); salary intensity (SI); intensity for contributions for social needs (ICSN); depreciation intensity (DI); intensity for other costs (IOC).

$$LCormp = MI + SI + ICSN + DI + IOC \qquad (11.5)$$

Topic question 11.4 Analysis of the cost of individual types of products

Analysis of the cost of certain types of products is carried out on the basis of these planned and reporting (or actual) calculations for certain types of finished products.

The analysis begins with studying the dynamics of the cost of a certain type of product in absolute and relative terms.

After that, an analysis of the composition and structure of the cost of a certain type of product is carried out according to cost items.

The following cost items are identified:
– raw materials and supplies;
– fuel for technological purposes;
– energy for technological purposes;

– basic wages of production workers;
– additional wages for production workers;
– contributions for social needs;
– costs of maintaining and operating equipment;
– losses from defect;
– general production costs;
– general business expenses,
– other.

To analyze the composition and structure of the cost of a certain type of finished product by cost item, a tabular method is used.

In the process of analysis, changes in both the amount of costs for each item and the specific weights of each costing item in the total cost of producing a certain type of product are calculated.

At the next stage, a factor analysis of the cost of a particular type of product is carried out.

To conduct a factor analysis of the cost of a particular type of product, a factor model is used to determine the influence of the following factors: the amount of fixed costs allocated to the entire output of a given type of product; volume of production of a certain type of product in physical terms; the level of variable costs per unit of product of a given type.

Topic question 11.5 Analysis of direct material costs and direct wages

Direct costs are costs that can be immediately attributed to the cost of a certain type of product.

Direct material costs and direct wages occupy a significant share in the cost of finished products, so their analysis is of great importance.

In the process of analysis, the dynamics or implementation of the plan is studied according to the level of the following indicators: the sum of direct material costs per unit of product of a certain type, the sum of direct material costs for the volume of production of a certain type of product, the total sum of direct material costs for the production of all products, the sum of direct wages per unit products of a certain type, the amount of direct wages for the volume of production of a certain type of product, the total amount of direct wages for the output of all products. Then their factor analysis is carried out.

When conducting factor analysis, the influence on the change in the indicator "sum of direct material costs per unit of product of a certain type" (DMCU) of the following factors is studied: consumption of materials per unit of product (CMU) and the price of a certain type of material resource (PRM).

$$DMCU = \sum(CMU \cdot PRM) \qquad (11.6)$$

When conducting factor analysis, the influence on the change in the indicator "sum of direct material costs for the volume of production of a certain type of product" (DMCctp) is studied by the following factors: the volume of production of a certain type of product in physical terms (VPctp), the consumption of materials per unit of production (CMU) and the price of a certain type of material resources (PRM).

$$DMCctp = \sum(VPctp \cdot CMU \cdot PRM) \tag{11.7}$$

When conducting factor analysis, the influence on changes in the indicator "total amount of direct material costs for the production of all products" (TDMC) of the following factors is studied: the total volume of production in physical terms (TVP), the structure of products (SHctp), the consumption of materials per unit of production (CMU) and the price of a certain type of material resources (PRM).

$$TDMC = \sum(TVP \cdot SHctp \cdot CMU \cdot PRM) \tag{11.8}$$

When conducting factor analysis, the influence on the change in the indicator "the amount of direct wages per unit of product of a certain type" (DWU) of the following factors is studied: the labor intensity of a certain type of product (LIctp) and the level of wages per man-hour (Wmh).

$$DWU = LIctp \cdot Wmh \tag{11.9}$$

When conducting factor analysis, the influence on the change in the indicator "the amount of direct wages per volume of production of a certain type of product" (DWctp) is studied by the following factors: the volume of production of a certain type of product in physical terms (VPctp), the labor intensity of a certain type of product (LIctp) and the level of wages per man-hour (Wmh).

$$DWctp = VPctp \cdot LIctp \cdot Wmh \tag{11.10}$$

When conducting factor analysis, the influence on the change in the indicator "total amount of direct wages for the output of all products" (TDW) of the following factors is studied: the total volume of production in physical terms (TVP), the structure of products (SHctp), the labor intensity of a certain type of product (LIctp) and the level of wages per man-hour (Wmh).

$$TDW = \sum(TVP \cdot SHctp \cdot LIctp \cdot Wmh) \tag{11.11}$$

Topic question 11.6 Analysis of indirect costs

Indirect costs are costs that, at the time of their formation, cannot be attributed to the cost of a certain type of product.

Indirect costs include the following comprehensive cost items:
– costs of maintaining and operating equipment,
– general production costs,
– general business expenses,
– commercial expenses.

The analysis begins with studying the dynamics of the total cost for each group of indirect costs separately in absolute and relative terms.

After that, an analysis of the composition and structure of each group of indirect costs is carried out separately, by cost item.

To analyze the composition and structure of indirect costs by cost item, a tabular method is used. In the process of analysis, changes in both the amount of costs for each item and the specific weights of each calculation item in the total amount of a certain group of indirect costs are calculated.

TOPIC 12 ANALYSIS OF THE FINANCIAL RESULTS OF THE ORGANIZATION

Topic questions:
12.1 The meaning and objectives of analyzing the financial results of an enterprise
12.2 Profit before tax analysis
12.3 Analysis of profit from current activities
12.4 Analysis of financial results from product sales. Analysis of the level of average selling prices
12.5 Analysis of financial results from investment activities and financial activities
12.6 Analysis of profitability indicators

Topic question 12.1 The meaning and objectives of analyzing the financial results of an enterprise

The financial result of an organization's activities is the profit or loss for the reporting period, that is, the difference between the income received and the expenses incurred.

Income is an increase in economic benefits during the reporting period by increasing assets or decreasing liabilities, which leads to an increase in the equity capital of the enterprise, not related to the contributions of the owners of the enterprise.

Expenses are a decrease in economic benefits during the reporting period by reducing assets or increasing liabilities, which leads to a decrease in the equity capital of the enterprise that is not associated with its transfer to the owners of the enterprise.

Currently, the main classification feature of an organization's income and expenses is the areas of activity of the enterprise. In accordance with this classification, income and expenses are divided into the following types:

– income and expenses for current activities:
– income and expenses from investment activities;
– income and expenses from financial activities.

We already know that financial result is the difference between income and expenses. Therefore, financial results can be classified similarly to income and expenses into the following types:

– financial result for current activities:
– financial result of investment activities;
– financial result of financial activities.

The amount of profit and the level of profitability depend on the production, supply, marketing, sales and financial activities of the enterprise. Therefore, these indicators characterize all aspects of the enterprise's economic activity.

The main objectives of analyzing the financial results of an enterprise are:

– control over the process of profit formation and its changes;
– analysis of profitability indicators;
– determination of the size and direction of influence of factors on changes in the value of indicators characterizing profit and profitability;
– identifying reserves for increasing the amount of profit and increasing the level of profitability;
– development of measures to develop identified reserves.

Topic question 12.2 Profit before tax analysis

The analysis begins with studying the dynamics of the amount of profit before tax in absolute and relative terms.

Then they analyze the dynamics of the composition and structure of profit before tax.

The components of profit before tax are:
– profit (or loss) from current activities;
– profit (or loss) from investment activities;
– profit (or loss) from financial activities.

To analyze the dynamics of the composition and structure of profit before tax, a tabular method is used. During the analysis, changes in both the amount of profit from each type of activity and their shares in the amount of profit before tax are calculated.

Finally, a factor analysis of profit before tax is carried out. The factors whose influence on the "profit before tax" indicator (PBT) are determined are the following: profit from current activities (PCA), profit from investment activities (PIA), profit from financial activities (PFA).

$$PBT = PCA + PIA + PFA \qquad (12.1)$$

Topic question 12.3 Analysis of profit from current activities

Current activities are the main income-generating activities of the enterprise and other activities that, in accordance with the accounting policies of the enterprise, do not relate to either financial activities or investment activities.

Income from current activities includes:
– revenue from sales of products (goods, works, services);
– other income from current activities.

Expenses for current activities represent the part of the enterprise's costs related to income from current activities received by the enterprise in the reporting period.

Expenses from current activities includes:
– cost of products sold (goods, works, services);
– administrative expenses;
– sales expenses;
– other expenses for current activities.

Thus, income and expenses for current activities are divided into:
1) income and expenses for main current activities;
2) income and expenses for other current activities.

The analysis begins with studying the dynamics of the amount of profit from current activities in absolute and relative terms. Then the dynamics of its composition is analyzed. To analyze the dynamics of the composition of profit from current activities, a tabular method is used.

At the next stage, a factor analysis of profits from current activities is carried out.

The influence of the following factors on changes in the "profit from current activities" indicator (PCA) is studied:
1) revenue from sales of products (RSP), cost of products sold (CPS), administrative expenses (AE), sales expenses (SE), other income from current activities (OI) and other expenses from current activities (OE);

$$PCA = RSP - CPS - AE - SE + OI - OE \qquad (12.2)$$

2) gross profit (GP), administrative expenses (AE), sales expenses (SE), other income from current activities (OI) and other expenses from current activities (OE);

$$PCA = GP - AE - SE + OI - OE \qquad (12.3)$$

3) profit from sales of products (PSP), other income from current activities (OI) and other expenses from current activities (OE).

$$PCA = PSP + OI - OE \qquad (12.4)$$

Finally, an analysis of the dynamics of the composition and structure of other income from current activities and other expenses from current activities is carried out separately. To carry out this analysis, a tabular method is used.

The following types of other income and other expenses for current activities are distinguished:

– income and expenses associated with other disposal of inventories (except for products, goods),

– income and expenses related to emergency situations,

– amount of reserves created to reduce the value of inventories, reserves for doubtful debts, as well as the recoverable amounts of these reserves,

– penalties, fines, penalties for violation of the terms of contracts, due for payment and receipt,

– other income and expenses for current activities.

Topic question 12.4 Analysis of financial results from product sales. Analysis of the level of average selling prices

The analysis begins with studying the dynamics of the amount of profit from product sales in absolute and relative terms.

After that, an analysis of the dynamics of the composition of the indicator "profit from sales of products" is carried out. To analyze the dynamics of the composition of profit from product sales, a tabular method is used.

At the next stage, a factor analysis of profit from product sales is carried out.

The influence of the following factors on changes in the level of the indicator "profit from sales of products" (PSP) is studied:

1) the total volume of products sold in physical terms (TVPS), the share of a certain type of products sold in the total volume (SHct), the price of a certain type of products sold (PRct) and the cost of a certain type of products sold (Cct);

$$PSP = \sum(TVPS \cdot SHct \cdot (PRct - Cct)) \qquad (12.5)$$

2) revenue from sales of products (RSP), cost of products sold (CPS), administrative expenses (AE), sales expenses (SE);

$$PSP = RSP - CPS - AE - SE \qquad (12.6)$$

3) gross profit (GP), administrative expenses (AE), sales expenses (SE).

$$PSP = GP - AE - SE \qquad (12.7)$$

At the next stage, the dynamics of the indicator "profit from the sale of a certain type of product" is studied in absolute and relative terms.

After that, the influence on the change in the level of the indicator "profit from the sale of a certain type of product" (PSct) of the following factors is determined: the volume of sold products of a certain type in physical terms (VPSct), the price of a certain type of sold products (PRct) and the cost of a certain type of sold products (Cct).

$$PSct = VPSct \cdot (PRct - Cct) \qquad (12.8)$$

At the next stage, the dynamics of the "average selling price" indicator is studied.

After this, the influence on the change in the level of the "average selling price" indicator (PRAS) of such factors as:

1) the volume of products sold of a certain type in physical terms (VPSct), the price of a certain type of product (PRct) and the total volume of products sold in physical terms (TVPS),

$$PRAS = (\sum(VPSct \cdot PRct))/TVPS \qquad (12.9)$$

2) the share of a certain type of products sold in the total volume of products sold (SHct) and the price of a certain type of products sold (PRct).

$$PRAS = \sum(SHct \cdot PRct) \qquad (12.10)$$

Topic question 12.5 Analysis of financial results from investment activities and financial activities

Investment activity is the activity of an enterprise in the acquisition, creation, sale and other disposal of investment assets, as well as in the provision and sale of financial investments, if, in accordance with the accounting policy, this activity does not relate to the main current activity of the enterprise.

Investment assets include:

1) fixed assets;

2) intangible assets;

3) profitable investments in tangible assets;

4) investments in long-term assets.

It identifies the following types of income and expenses for investment activities:

– income and expenses associated with the sale and other disposal of investment assets,

– income and expenses associated with participation in the authorized funds of other enterprises,

– the amount of surpluses, shortages, losses from damage to investment assets,

– income and expenses associated with the provision of temporary possession and use of investment real estate,

– other income and expenses for investment activities.

The analysis begins with studying the dynamics of the amount of profit from investment activities in absolute and relative terms.

At the next stage, a factor analysis of the indicator "profit from investment activities" is carried out.

When conducting factor analysis, the influence on changes in the level of the indicator "profit from investment activities" (PIA) is determined by such factors as: income from investment activities (IIA) and expenses from investment activities (EIA).

$$PIA = IIA - EIA \qquad\qquad (12.11)$$

At the next stage, an analysis is carried out of the dynamics of the composition and structure of separately income from investment activities and separately expenses from investment activities. To carry out the analysis, a tabular method is used.

Financial activities are the activities of an enterprise that lead to changes in the amount and composition of contributed equity capital, obligations on loans, borrowings and other similar obligations, if these activities do not relate to the current activities of the enterprise.

It identifies the following types of income and expenses for financial activities:

– interest payable for the use of credits and loans by the enterprise,

– income and expenses associated with the issue, placement, circulation and redemption of debt securities of its own issue,

– other income and expenses from financial activities.

The analysis begins with studying the dynamics of the amount of profit from financial activities in absolute and relative terms.

At the next stage, a factor analysis of the indicator "profit from financial activities" is carried out.

When conducting factor analysis, the influence on changes in the level of the indicator "profit from financial activities" (PFA) is determined by such factors as: income from financial activities (IFA) and expenses from financial activities (EFA).

$$PFA = IFA - EFA \qquad (12.12)$$

At the next stage, the dynamics of the composition and structure of separately income from financial activities and separately expenses from financial activities are analyzed. To carry out the analysis, a tabular method is used.

Topic question 12.6 Analysis of profitability indicators

Profitability is an indicator that determines the level of yield of a business.

Profitability indicators are combined into three groups:
– profitability indicators, for the calculation of which a cost approach is used,
– profitability indicators, for the calculation of which the income approach is used,
– profitability indicators, for the calculation of which the resource approach is used.

The group "profitability indicators, for the calculation of which the cost approach is used" includes the following indicators:
– profitability of products sold,
– profitability of current activities,
– profitability of investment activities,
– profitability of financial activities,
– other.

The indicator "profitability of products sold" (PROFPS) is calculated by dividing the profit from product sales (PPS)by the total cost of products sold (TCPS).

$$PROFPS = PPS/TCPS \qquad (12.13)$$

The indicator "profitability of current activities" (PROFCA) is calculated by dividing profit from current activities (PCA) by expenses for current activities (ECA).

$$PROFCA = PCA / ECA \qquad (12.14)$$

The indicator "profitability of investment activities" (PROFIA) is calculated by dividing the profit from investment activities (PIA) by the expenses of investment activities (EIA).

$$PROFIA = PIA/EIA \qquad (12.15)$$

The indicator "profitability of financial activities" (PROFFA) is calculated by dividing the profit from financial activities (PFA) by the expenses of financial activities (EFA).

$$PROFFA = PFA/EFA \qquad (12.16)$$

The group "profitability indicators, calculated using the income approach" includes the following indicators:
– profitability of sales,
– profitability of income from current activities,
– profitability of income from investment activities,
– profitability of income from financial activities,
– other.

The indicator "profitability of sales" (PROFS) is calculated by dividing profit from product sales (PPS) by revenue from sales of products (RSP).

$$PROFS = PPS/RSP \qquad (12.17)$$

The indicator "profitability of income from current activities" (PROFICA) is calculated by dividing profit from current activities (PCA) by income from current activities (ICA).

$$PROFICA = PCA/ICA \qquad (12.18)$$

The indicator "profitability of income from investment activities" (PROFIIA) is calculated by dividing the profit from investment activities (PIA) by income from investment activities (IIA).

$$PROFIIA = PIA/IIA \qquad (12.19)$$

The indicator "profitability of income from financial activities" (PROFIFA) is calculated by dividing profit from financial activities (PFA) by income from financial activities (IFA).

$$PROFIFA = PFA/IFA \qquad (12.20)$$

The group "profitability indicators, for the calculation of which the resource approach is used" includes the following indicators:

– profitability of fixed assets,
– personnel profitability,
– profitability of equity,
– other.

The indicator "profitability of fixed assets" (PROFFA) is calculated by dividing the profit from sales of products (PPS) by the average annual cost of fixed assets (FA).

$$PROFFA = PPS/FA \qquad (12.21)$$

The indicator "personnel profitability" (PROFP) is calculated by dividing the profit from product sales (PPS) by the average number of employees (NE).

$$PROFP = PPS / NE \qquad (12.22)$$

The "profitability of equity" indicator (PROFE) is calculated by dividing net profit (NP) by the average annual cost of equity (E).

$$PROFE = NP / E \qquad (12.23)$$

In the process of analysis, the dynamics or implementation of the plan according to the level of the above indicators is studied and a factor analysis of some of them is carried out.

At the same time, they study the influence on changes in the indicator "profitability of products sold" (PROFPS) of such factors as: the total volume of products sold in physical terms (TVPS), the share of a certain type of products sold in the total volume of products sold (SH), the price of a certain type of products sold (PR) and the cost of a certain type of products sold (C).

$$PROFPS = (\sum(TVPS \cdot SH \cdot (PR - C)))/(\sum(TVPS \cdot SH \cdot C)) \qquad (12.24)$$

The change in the indicator "profitability of a certain type of sold products" (PROFCT) is studied by the influence of such factors as: the volume of sold products of a certain type in physical terms (VPSct), the price of a certain type of sold products (PRct) and the cost of a certain type of sold products (Cct).

$$PROFCT = (VPSct \cdot (PRct - Cct))/(VPSct \cdot Cct) \qquad (12.25)$$

The change in the "profitability of sales" indicator (PROFS) is studied by the influence of such factors as: revenue from sales of products (RSP), cost of products sold (CPS), administrative expenses (AE), and sales expenses (SE).

$$PROFS = (RSP - CPS - AE - SE)/RSP \qquad (12.26)$$

The influence of factors such as profitability of sales (PROFS), the share of sold products in the volume of manufactured products (SHS) and the average annual labor productivity of one employee (LPE) are studied on the change in the "personnel profitability" indicator (PROFP).

$$PROFP = PROFS \cdot SHS \cdot LPE \qquad (12.27)$$

TOPIC 13 METHODOLOGY FOR SUBSTANTIATING MANAGEMENT DECISIONS BASED ON MARGINAL ANALYSIS

Topic questions:
13.1 General methodological approach to substantiating management decisions
13.2 Concept and analysis of marginal profit
13.3 Marginal analysis of profit from product sales. Marginal analysis of profitability indicators
13.4 Determination of break-even sales volume and safety zone of the organization. Determination of critical (threshold) values of fixed costs, variable costs per unit of production and selling price

Topic question 13.1 General methodological approach to substantiating management decisions

Marginal analysis is an effective tool in operational management.

Marginal analysis allows you to choose the best option for management decisions in the presence of alternatives regarding changes in production capacity, product range, pricing policy, equipment options, production technology, acquisition of components and others in order to minimize costs and increase profits.

Based on the functional relationship of costs, sales volume and profit, it is possible to calculate the volume of product sales that gives the same profit or the same amount of costs for various options for management decisions (various options for equipment, technology, prices, production structure, etc.).

When conducting marginal analysis, it is assumed that one of the two options under consideration has lower fixed costs, but higher variable costs per unit of production, while the other, on the contrary, has a higher amount of fixed costs, but a lower level of variable costs. Therefore, there is a point of intersection of the total costs of these options, which determines the volume of sales that provides the same amount of cost or profit.

If these conditions are not met, that is, if both fixed costs and unit variable costs for one option are greater than for the other option, then the cost lines or profit lines will not intersect.

You can also determine the sales volume at which the total cost will be the same but different options for management decisions.

Ultimately, based on the calculations performed, one of the analyzed options for management decisions is selected.

Topic question 13.2 Concept and analysis of marginal profit

Marginal profit is calculated as the difference between revenue from sales of products and variable costs attributable to products sold.

When analyzing marginal profit, the following indicators are used:

– indicator "marginal profit per unit of product",

– indicator "marginal profit per sales volume of a certain type of product",

– indicator "marginal profit for the entire sales volume".

The indicator "marginal profit per unit of product" (MPUct) is calculated as the difference between the price of a certain type of product (PRct) and the sum of variable costs per unit of a certain type of product (VCUct);

$$MPUct = PRct - VCUct \qquad (13.1)$$

The indicator "marginal profit per sales volume of a certain type of product" (MPSVct) is calculated by multiplying the volume of sold products of a certain type in physical terms (VSPct) and the difference between the price of a certain type of product (PRct) and the amount of variable costs per unit of a certain type of product (SUct),

$$MPSVct = VSPct \cdot (PRct - VCUct) \qquad (13.2)$$

The indicator "marginal profit for the entire sales volume" (MPESV) is calculated by summing the products of the total volume of products sold in physical terms (TVSP), the share of a certain type of product sold in the total volume (SHct), the difference between the price of a certain type of product (PRct) and the sum of variable costs per unit of a certain type of product (VCUct).

$$MPESV = \sum(TVSP \cdot SHct \cdot (PRct - VCUct)) \qquad (13.3)$$

In the process of analysis, they first study the dynamics or implementation of the plan according to the level of the above indicators, and finally carry out a factor analysis of some of them.

Topic question 13.3 Marginal analysis of profit from product sales. Marginal analysis of profitability indicators

In the process of analysis, the dynamics or implementation of the plan is studied in terms of the level of the indicator "profit from sales of products" and profitability indicators, after which a factor analysis of some of them is carried out.

The influence of the following factors on the change in the indicator "profit from the sale of a certain type of product" is studied: the volume of sold products of a certain type in physical terms, the price of a certain type of sold product, the sum of variable costs per unit of a certain type of product and the sum of fixed costs attributable to the volume of sold products of a certain type kind.

The influence of the following factors on the change in the indicator "total amount of profit from sales of products" is studied: the total volume of products sold in physical terms, the share of a certain type of products sold in the total volume, the price of a certain type of products sold, the amount of variable costs per unit of a certain type of product and the amount fixed costs attributable to the entire volume of products sold.

The influence of the following factors on the change in the indicator "profitability of sold products of a certain type" is studied: the volume of sold products of a certain type in physical terms, the price of a certain type of sold products, the amount of variable costs per unit of a certain type of product and the amount of fixed costs attributable to the volume of sold products of a certain type.

The influence of the following factors on the change in the indicator "profitability of sold products" is studied: the total volume of products sold in physical terms, the share of a certain type of products sold in the total volume, the price of a certain type of products sold, the amount of variable costs per unit of a certain type of product and the amount of fixed costs, accounting for the entire volume of products sold.

The change in the indicator "marginal profitability of sales of products of a certain type" is studied by the influence of the following factors: the volume of sold products of a certain type in physical terms, the price of a certain type of sold products and the amount of variable costs per unit of a certain type of product.

The influence of the following factors on changes in the indicator "marginal return on sales" is studied: the total volume of products sold in physical terms, the share of a certain type of products sold in the total volume, the price of a certain type of products sold and the amount of variable costs per unit of a certain type of product.

Topic question 13.4 Determination of break-even sales volume and safety zone of the organization. Determination of critical (threshold) values of fixed costs, variable costs per unit of production and selling price

Break-even is the state of an enterprise when the business brings neither profit nor loss.

Break-even sales volume in value terms (BEVinVT) is determined by dividing the amount of fixed costs (FC) by the share of marginal profit in revenue from product sales (SHMPinRPS).

$$BEVinVT = FC/SHMPinRPS \qquad (13.4)$$

Break-even sales volume in physical terms (BEVinPHT) is determined by dividing the amount of fixed costs (FC) by the difference between the price (PRU) and the amount of variable costs per unit of production (VCU).

$$BEVinPHT = FC/(PRU - VCU) \qquad (13.5)$$

The safety zone is calculated both by cost indicators and by physical indicators, and a fraction is used, the numerator of this fraction is the difference between the actual volume of products sold and the break-even sales volume, and the denominator of the fraction is the actual volume of products sold.

The change in the indicator "break-even sales volume in value terms" is studied by the influence of the following factors: the amount of fixed costs, the share of a certain type of sold products in the total volume, the price of a certain type of sold products and the amount of variable costs per unit of a certain type of product.

The influence of the following factors on the change in the "safety zone" indicator is studied: the actual volume of products sold in physical terms, the amount of fixed costs, price and the amount of variable costs per unit of product.

The critical (threshold) value of the amount of fixed costs is calculated by multiplying the volume of products sold in physical terms and the difference between the price and the amount of variable costs per unit of production.

The critical (threshold) value of the amount of variable costs per unit of production is calculated by the difference between the price and the ratio of the amount of fixed costs to the volume of products sold in physical terms.

The critical (threshold) price value is calculated by the sum of variable costs per unit of production and dividing the sum of fixed costs by the volume of products sold in physical terms.

TOPIC 14 THE ESSENCE AND PURPOSE OF ANALYZING THE FINANCIAL CONDITION OF AN INDUSTRIAL ORGANIZATION

Topic questions:
14.1 Concept, purpose and principles of analyzing the financial condition of an industrial organization
14.2 Methods for analyzing financial condition
14.3 Economic characteristics and composition of the balance sheet

Topic question 14.1 Concept, purpose and principles of analyzing the financial condition of an industrial organization

The financial condition of a commercial organization is its complex characteristic, which is formed in the process of all its economic activities under the influence of various external and internal factors.

The financial condition of an organization determines its competitiveness (solvency, creditworthiness).

The financial condition reflects all aspects of the organization's activities, its final results, which are of interest not only to managers and the entire team of employees of the organization itself, but also to its owners, creditors and investors, suppliers and other business partners.

The financial condition of an organization is an economic category that reflects the state of the organization's capital in the process of its circulation and the ability of a business entity to independently carry out and finance its activities at a specific point in time.

The main goal of financial analysis is to form an objective and accurate picture of the financial condition of the organization, its profits and losses, changes in the structure of assets and liabilities, in settlements with debtors and creditors, based on the calculation and analysis of a small number of key parameters, as well as comparison of the results obtained with the results of previous periods and searching for opportunities to improve the efficiency of the enterprise through rational financial policies.

Conducting financial analysis is based on compliance with the following principles:

– the principle of regularity (the analysis should be carried out at certain fixed and equal intervals of time, which makes it possible to identify existing difficulties and problems in the organization's activities);

– the principle of objectivity (the results of the analysis must reliably characterize the actual financial state of the organization's activities and give it an unbiased assessment);

– the principle of comprehensiveness (the analysis should cover all aspects of the organization's financial activities, as a result of this analysis the main relationships and interdependencies should be identified).

In its essence, financial analysis is a way of accumulating, summarizing and using financial information aimed at characterizing the current and future financial condition of an enterprise; determine real and possible ways of business development from the position of financial independence and self-sufficiency; identify possible sources of cash flow and assess the effectiveness and feasibility of their involvement in economic turnover.

Consequently, the main task of financial analysis is to study the reasons for the improvement or deterioration of the financial condition of a commercial organization over the analyzed period, analyze the quality of the financial condition and prepare recommendations for increasing the solvency and sustainability of the enterprise.

The main source for analyzing the financial condition is the organization's financial statements (balance sheet and other forms of financial reporting).

Topic question 14.2 Methods for analyzing financial condition

The purpose of financial analysis is not only to give an objective and comprehensive assessment of the financial condition of the organization, but also to identify reserves for improving the financial condition and propose reasonable measures aimed at improving it.

Analysis of the financial condition shows in which specific directions this work should be carried out, makes it possible to identify the most important aspects and the weakest positions in the financial condition of the enterprise.

An assessment of the financial condition of an organization can be carried out with varying degrees of detail depending on the goal of the person conducting the analysis, the information available, as well as software, technical and personnel support. The most appropriate is to conduct a separate express analysis and a detailed in-depth analysis of the financial condition.

Financial analysis makes it possible to evaluate:
– property status of the organization;
– degree of business risk;
– capital adequacy for current activities and long-term investments;
– need for additional sources of financing;
– ability to increase capital;
– rationality of raising borrowed funds;
– validity of the policy for the distribution and use of profits.

Traditionally, the following analysis methods are distinguished:
– reading accounting (or management) reporting;
– horizontal analysis;
– vertical analysis;

– trend analysis;
– comparative analysis;
– factor analysis;
– method of financial ratios.

Reading is a general acquaintance with the financial position according to the balance sheet, income statement, cash flow statement and explanatory information thereto.

Horizontal analysis consists of comparing the indicators of accounting or management reporting with similar indicators of previous periods or with the plan.

In this case, close attention should be paid to those cases when a change in one indicator, by its economic nature, does not correspond to a change in another indicator, or significant changes in any individual item are identified.

Vertical analysis is carried out in order to determine the specific weight of each individual item of a certain form of financial statements (balance sheet, profit and loss statement and others) in the overall final indicator and subsequent comparison of the result obtained with the data of the plan or the previous period.

Vertical analysis of the balance sheet, in particular, allows us to consider the relationship between short-term and long-term assets, equity and borrowed capital, and determine the structure of assets and liabilities by their elements.

Horizontal and vertical analysis complement each other and can be used simultaneously when compiling analytical tables.

Trend analysis is based on identifying and forecasting trends in the dynamics of individual indicators of financial statements in the future based on the calculation of relative deviations of reporting parameters for a number of periods (quarters, years) from the level of the base period. Thus, with the help of a trend, it becomes possible to carry out predictive analysis.

Comparative analysis is carried out on the basis of both intra-farm comparison, for example, of individual indicators of a particular business entity relating to different periods of activity, and inter-farm comparisons of indicators, primarily with competing organizations.

Factor analysis is the process of studying the influence of individual factors (reasons) on a performance indicator. An example of such an analysis would be assessing the impact of changes in individual asset items on the overall balance sheet total.

The method of financial ratios is based on the calculation of groups of financial indicators - ratios that characterize various aspects of the financial condition: current solvency and liquidity, financial stability and others. The use of financial ratios, divided into separate groups, allows you to present reporting information in the most convenient form for understanding.

The fact that financial ratios are relative measures allows comparisons to be made between different types of economic activities.

Calculation and analysis of financial ratios is one of the most well-known and frequently used analysis techniques, which allows you to see the relationships between indicators and evaluate trends in their changes.

The financial ratios used in the analysis process can be divided into certain groups, united by economic content. The following groups of indicators are distinguished:

– liquidity and current solvency;
– business activity and turnover of funds;
– business efficiency;
– activity on the securities market.

The mechanism for carrying out financial analysis involves using as a basis for comparative, factor and other methods of analysis not only planned or reporting data, as well as information obtained about the activities of other organizations, but also directly the levels of financial indicators themselves, determined either by higher organizations or leading firms-competitors, or normatively. This approach to financial analysis allows us to more fully ensure the financial conditions for sustainable development and justify directions for its improvement.

Topic question 14.3 Economic characteristics and composition of the balance sheet

Since the main source of information for financial analysis is the balance sheet and financial statements, we will further dwell in more detail on the concept and content of the balance sheet.

Currently, the balance sheet is the most important source of information for a wide range of users.

According to the data contained in the balance sheet, the owners of the organization and its administrative and managerial personnel can assess the financial position, dynamics and trend of changes in capital.

By interpreting the data obtained during the analysis of the balance sheet, interested users analyze the liquidity and solvency of the organization, its financial stability, business activity, and the rate of increase in its own working capital.

The balance sheet is the most important form of accounting financial reporting, on the basis of which the size of the property and the financial condition of the organization can be characterized.

The balance sheet is the main source of information for various users, namely: owners, managers and other persons associated with the management of the organization's property.

Using the balance sheet, you can determine the obligations assumed by the organization to shareholders, investors, creditors, buyers, sellers and other entities; whether the business entity is threatened by financial difficulties.

Balance sheet data is widely used by tax authorities, credit institutions, statistical authorities and other users.

The balance sheet is a method of generalized reflection in the valuation of an organization's funds and the sources of their formation as of a certain date.

Since ancient times, there has been an idea of the form of the balance sheet as a two-sided table. The left side of the table is usually called "Asset", the right side "Passive". If we use the economic interpretation, then the assets of the balance sheet reflect the funds of the organization, and the liabilities reflect the sources of these funds. The word "balance" means "equality" of something. This implies and conditions the equality of the sum of all asset items of the balance sheet and the sum of all liability items of the balance sheet.

The balance sheet consists of sections, each of which, in turn, includes a certain list of items. A balance sheet item can characterize one object or several homogeneous accounting objects.

The balance sheet consists of five sections:
1. Long-term assets,
2. Short-term assets,
3. Own capital,
4. Long-term liabilities,
5. Short-term liabilities.

The balance sheet asset includes sections:
1. Long-term assets,
2. Short-term assets.

The balance sheet liability (or passive) includes sections:
1. Own capital,
2. Long-term liabilities,
3. Short-term liabilities.

A balance sheet item is the main element of the balance sheet, which contains the value of an indicator characterizing a certain type of economic resources or sources of their formation.

Section of the balance sheet "I. Long-term assets" includes the following items:
1. Fixed assets (line code 110),
2. Intangible assets (line code 120),
3. Income investments in tangible assets (line code 130),
4. Investments in long-term assets (line code 140),
5. Long-term financial investments (line code 150),
6. Deferred tax assets (line code 160),
7. Long-term accounts receivable (line code 170),

8. Other long-term assets (line code 180).

The item "Fixed assets" (line 110) shows the residual value of fixed assets, defined as the difference between the original (revalued) cost of fixed assets and the accumulated amounts of depreciation and impairment on them.

The item "Intangible assets" (line 120) shows the residual value of intangible assets, defined as the difference between the original (revalued) value of intangible assets and the accumulated amounts of depreciation and impairment on them.

The item "Profitable investments in tangible assets" (line 130) shows the amounts of profitable investments in investment real estate, financial lease items (leasing) and other profitable investments in tangible assets. The residual value of investment property is defined as the difference between the original (revalued) cost of investment property and the accumulated depreciation and impairment amounts. The residual value of financial lease (leasing) items is determined as the difference between the initial (revalued) cost of financial lease (leasing) items and the accumulated depreciation and impairment amounts on them.

The item "Investments in long-term assets" (line 140) shows the amount of investments in long-term assets, as well as the cost of equipment for installation, building materials from the customer, developer.

The item "Long-term financial investments" (line 150) shows the amounts of long-term financial investments, the repayment of which is expected more than twelve months after the reporting date. If there are reserves for the depreciation of long-term financial investments, the indicator of this item, in connection with which reserves were created for the depreciation of long-term financial investments, is reduced by the amount of these reserves.

The item "Long-term accounts receivable" (line 170) shows accounts receivable, including advances issued, advance payments, the repayment of which is expected more than twelve months after the reporting date. If there are reserves for doubtful debts, the indicator of this item, in connection with which reserves for doubtful debts were created, is reduced by the amount of these reserves.

The item "Other long-term assets" (line 180) shows the balances of long-term assets, including the amount of deferred expenses to be attributed to the expenses of the reporting period more than twelve months after the reporting date.

Section of the balance sheet "II. Short-term assets" includes the following items:

1. Inventories (line code 210),
2. Long-term assets intended for sale (line code 220),
3. Deferred expenses (line code 230),
4. Value added tax on purchased goods, works, services (line code 240),

5. Short-term accounts receivable (line code 250),
6. Short-term financial investments (line code 260),
7. Cash and cash equivalents (line code 270),
8. Other short-term assets (line code 280).

The item "Inventories" (line 210) shows the balances of materials, animals for growing and fattening, work in progress, finished products and goods, goods shipped and other inventories.

Line 211 "materials" shows the remaining materials, as well as the amount of deviations of the actual cost of materials from their cost at accounting prices.

Line 212 "animals for growing and fattening" shows the cost of animals for growing and fattening.

Line 213 "work in progress" shows the balances of work in progress.

Line 214 "finished products and goods" shows balances of finished products, balances of goods, as well as sales costs related to balances of goods in the manner prescribed by law. In a catering organization, line 214 "finished products and goods" shows the remains of raw materials and finished products in kitchens and pantries.

Line 215 "goods shipped" shows the balance of goods shipped to customers.

If there are reserves for reducing the value of inventories, the indicators of the corresponding lines of the item "Inventories" (line 210), in connection with which reserves were created for reducing the value of inventories, are reduced by the amount of these reserves.

The item "Long-term assets intended for sale" (line 220) shows the balances of long-term assets recognized as intended for sale, as well as assets included in the disposal group recognized as intended for sale.

The item "Deferred expenses" (line 230) shows the amounts of deferred expenses and the amounts to be attributed to the expenses of the reporting period within twelve months after the reporting date.

The item "Value added tax on purchased goods, works, services" (line 240) shows the amount of value added tax.

The item "Short-term accounts receivable" (line 250) shows accounts receivable, including advances issued, prepayments, the repayment of which is expected within twelve months after the reporting date. If there are reserves for doubtful debts, the indicator of this item, in connection with which reserves for doubtful debts were created, is reduced by the amount of these reserves.

The item "Short-term financial investments" (line 260) shows the amounts of short-term financial investments (except for cash equivalents), as well as the amounts of long-term financial investments (except for long-term financial investments in the authorized capital of other organizations, contributions of participants in a joint venture agreement to the general property of a simple partnership), the repayment of which is expected within

twelve months after the reporting date. If there are reserves for the depreciation of short-term financial investments and (or) reserves for the depreciation of long-term financial investments, the indicator of this item, in connection with which reserves for the depreciation of short-term financial investments and (or) reserves for the depreciation of long-term financial investments were created, is reduced by the amount of these reserves.

The item "Cash and cash equivalents" (line 270) shows cash balances.

Section of the balance sheet "III. Own capital" includes the following items:

1. Authorized capital (line code 410),
2. Unpaid part of the authorized capital (line code 420),
3. Own shares (shares in the authorized capital) (line code 430),
4. Reserve capital (line code 440),
5. Additional capital (line code 450),
6. Retained earnings (uncovered loss) (line code 460),
7. Net profit (loss) of the reporting period (line code 470),
8. Targeted financing (line code 480).

The item "Authorized capital" (line 410) shows the balance of the authorized capital.

The item "Unpaid part of the authorized capital" (line 420) shows the receivables of the property owner (founders, participants) for contributions to the authorized capital. The indicator of this item is subtracted when calculating the total for section "III. Own capital".

The item "Own shares (shares in the authorized capital)" (line 430) shows the value of own shares (shares in the authorized capital) purchased from shareholders (participants). The indicator for this item is subtracted when calculating the total for section "III. Own capital".

The item "Reserve capital" (line 440) shows the balance of reserve capital.

The item "Additional capital" (line 450) shows the balance of additional capital.

The item "Retained earnings (uncovered loss)" (line 460) shows the balance of retained earnings (uncovered loss). The balance of uncovered loss shown under this article is deducted when calculating the total for section "III. Own capital".

The item "Net profit (loss) of the reporting period" (line 470) shows the balance of net profit (loss) of the reporting period. The balance of the loss of the reporting period shown under this item is deducted when calculating the total under section "III. Own capital". In the annual balance sheet, the item "Net profit (loss) of the reporting period" (line 470) is not filled in.

The item "Targeted financing" (line 480) shows the balance of targeted financing.

Section of the balance sheet "IV. Long-term liabilities" includes the following items:

1. Long-term loans and borrowings (line code 510),

2. Long-term obligations for leasing payments (line code 520),

3. Deferred tax liabilities (shares in the authorized capital) (line code 530),

4. Deferred income (line code 540),

5. Reserves for upcoming payments (line code 550),

6. Other long-term liabilities (line code 560).

Section IV "Long-term liabilities" provides information about liabilities that are expected to be settled more than twelve months after the reporting date.

The item "Long-term loans and borrowings" (line 510) shows obligations for long-term loans and borrowings, the repayment of which is expected more than twelve months after the reporting date.

The item "Long-term obligations for lease payments" (line 520) shows obligations for lease payments, the repayment of which is expected more than twelve months after the reporting date.

The item "Deferred income" (line 540) shows the amounts of deferred income and the amounts to be attributed to the income of the reporting period more than twelve months after the reporting date.

The item "Reserves for future payments" (line 550) shows the amount of reserves for future payments and those to be used more than twelve months after the reporting date.

The item "Other long-term liabilities" (line 560) shows liabilities that are expected to be repaid more than twelve months after the reporting date.

Section of the balance sheet "V. Short-term liabilities" includes the following items:

1. Short-term loans and borrowings (line code 610),

2. Short-term part of long-term liabilities (line code 620),

3. Short-term accounts payable (line code 630),

4. Obligations intended for implementation (line code 640),

5. Deferred income (line code 650),

6. Reserves for upcoming payments (line code 660),

7. Other short-term liabilities (line code 670).

Section "V. Short-term liabilities", provides information about liabilities that are expected to be settled within twelve months after the reporting date.

The item "Short-term loans and borrowings" (line 610) shows liabilities for short-term loans and borrowings.

The item "Short-term part of long-term liabilities" (line 620) shows the part of long-term liabilities recorded in the settlement accounts, the repayment of which is expected within twelve months after the reporting date, with the exception of accounts payable.

The item "Short-term accounts payable" (line 630) shows accounts payable accounted for in settlement accounts (except for obligations included

in the disposal group recognized as intended for sale and obligations under loans and borrowings), the repayment of which is expected within twelve months after the reporting date.

Line 631 "suppliers, contractors, performers" shows accounts payable to suppliers, contractors, performers.

Line 632 "for advances received" shows the amounts of advance payments and advances received from buyers and customers.

Line 633 "for taxes and fees" shows accounts payable for taxes and fees.

Line 634 "for social insurance and security" shows accounts payable for social insurance and security.

Line 635 "for wages" shows accounts payable to employees for wages, as well as accounts payable to employees for amounts accrued but not paid on time.

Line 636 "for lease payments" shows accounts payable for lease payments.

Line 637 "property owner (founders, participants)" shows accounts payable to the property owner (founders, participants) for the payment of dividends and other income from participation in the authorized capital of the organization.

The item "Liabilities intended for sale" (line 640) shows the obligations included in the disposal group recognized as intended for sale.

The item "Deferred Income" (line 650) shows the amounts of deferred income and those to be attributed to the income of the reporting period within twelve months after the reporting date.

The item "Reserves for future payments" (line 660) shows the amount of reserves for future payments and those to be used within twelve months after the reporting date.

TOPIC 15 ANALYSIS OF SOURCES OF FORMATION AND ALLOCATION OF CAPITAL OF THE ORGANIZATION. ANALYSIS OF EFFICIENCY AND INTENSITY OF CAPITAL USE

Topic questions:

15.1 The meaning, objectives and information support of the analysis of sources of capital formation

15.2 Indicators characterizing the structure of the balance sheet liabilities. Analysis of the availability, composition, structure and dynamics of sources of own and borrowed funds of an industrial organization

15.3 Methodology for assessing the cost of capital of an industrial organization and optimizing its structure

15.4 Concept, meaning, objectives, information support for analyzing the allocation of capital of an industrial organization and assessing its property status

15.5 Analysis of the dynamics of the composition and structure of assets of an industrial organization. Analysis of sources of formation of enterprise assets

15.6 General assessment of the property status of an industrial organization

15.7 The meaning, objectives, main directions and information support for analyzing the efficiency and intensity of capital use of an industrial organization

15.8 Indicators of efficiency and intensity of capital use

15.9 Main indicators characterizing the business activity of an industrial organization

15.10 Reserves for increasing the efficiency of capital use and the main directions of their search

Topic question 15.1 The meaning, objectives and information support of the analysis of sources of capital formation

In a market economy, business owners first of all face the problem of providing financing for the production and economic activities of the organization. All indicators of the enterprise's performance will depend on the availability and efficiency of use of financial resources.

Therefore, for a modern organization, when conducting financial analysis, the issues of assessing the sources of capital formation, searching for the optimal ratio of equity and borrowed capital in each individual case are of primary importance.

In this regard, at the present stage the priority and role of financial activity analysis is significantly increasing, one of the elements of which is a comprehensive systematic study of the mechanism for the formation,

placement and use of capital in order to ensure financial stability and financial security of organizations.

As noted earlier, the entire capital of an organization is divided into equity capital and debt capital. Consequently, the management of the organization must have a clear idea from what sources of resources it will carry out its activities, how optimal the capital structure is and how expediently it is transformed into fixed and working capital. The financial well-being of a business entity and the results of its activities will depend on all of the above.

During the analysis process it is necessary:

1) study the composition, structure and dynamics of the sources of capital formation of the organization;

2) establish the factors of change in their magnitude;

3) determine the cost of individual sources of capital, its weighted average price and factors of its change;

4) evaluate the changes that have occurred in the balance sheet liabilities from the point of view of increasing the level of financial stability of the organization;

5) justify the optimal ratio of equity and debt capital.

The main sources of information for analyzing the formation and placement of an organization's capital are the balance sheet, profit and loss statement, statement of changes in capital, cash flow statement and other forms of reporting, analytical accounting data that decipher and detail individual balance sheet items.

Topic question 15.2 Indicators characterizing the structure of the balance sheet liabilities. Analysis of the availability, composition, structure and dynamics of sources of own and borrowed funds of an industrial organization

The sustainable financial condition of business entities largely depends on how optimal the structure of capital sources is (the ratio of equity and borrowed funds). Therefore, the first stage in conducting financial analysis is to analyze the liability side of the balance sheet, primarily from the standpoint of the optimality of its structure.

The structure of the balance sheet liability represents the relationship of individual items of the balance sheet with the total balance sheet. In this case, it is possible to calculate both the structure of individual items of the balance sheet liability as a whole, and the structure of individual sections of the balance sheet.

As noted earlier, the liability side of the balance sheet consists of three sections:

– equity;

– long-term liabilities;

– short-term liabilities.

The need for equity capital is due to the need for business entities to self-finance their activities. It is the basis of their autonomy and independence.

The peculiarity of equity capital is that it is invested on a long-term basis and is subject to the greatest risk. The higher its share of total capital and the lower the share of debt, the higher the buffer that protects lenders from losses, and therefore the lower the risk of loss.

At the same time, if you finance your activities only with your own funds, then business owners run the risk of losing all their invested funds in case of failure. Also, by limiting themselves only to their own funds, business entities often deprive themselves of the opportunity to expand and develop their activities.

At the same time, it is worth noting that the presence of a large amount of borrowed funds reduces the financial stability of the organization and requires constant monitoring of the terms of repayment of credit resources and the need to ensure free funds in the current account.

Consequently, the financial position of the organization largely depends on how optimal the ratio of equity and debt capital is. Developing the right financial strategy in this matter will help many enterprises improve the efficiency of their activities and minimize the risks of bankruptcy.

When analyzing the liabilities of the balance sheet, you should use methods of both horizontal analysis and vertical analysis. Data at the beginning and end of the reporting period, planned and actual values can be compared. If it is necessary to conduct inter-farm analysis, in some cases the average annual values of balance sheet liability items are calculated.

The analysis is carried out in the following sequence:

1) the liability structure of the balance sheet is calculated as the ratio of the value of each individual line of the balance sheet to the total of the balance sheet;

2) deviations of data at the end of the year from data at the beginning of the year (or actual data from planned data) are determined, both in absolute amount and deviation in structure;

3) the deviations of the data at the end of the year from the data at the beginning of the year (or actual data from planned data) are determined as a percentage of the value at the beginning of the year (to the plan) - the growth rate is calculated;

4) the deviations of data at the end of the year from the data at the beginning of the year (or actual data from planned data) are determined as a percentage of the change in the balance sheet total.

In addition to calculating the structure of sources of capital formation (the share of equity and borrowed funds in the balance sheet), an important point is to establish the proportion between these two indicators. Thus, the

optimal situation is considered to be in which the ratio of equity and borrowed funds is sixty percent to forty percent, respectively.

Those, a situation where at least sixty percent of the organization's property is formed from its own funds, and no more than forty percent comes from borrowed funds. This situation is considered optimal, as it allows minimizing economic risks associated with a decrease in the liquidity and solvency of the organization.

However, there are exceptions to the proposed situation. Thus, in a business with a high degree of risk (various startups, venture capital), the share of borrowed funds can be several times higher than own. A similar situation can be observed in a business with a high rate of asset turnover, when the company's accounts have enough free funds to pay off its current obligations.

The ratio of debt capital to equity capital is called the financial risk ratio (financial leverage).

To assess the structure of capital formation, organizations also calculate the self-financing ratio - the ratio of the amount of self-financing income (reinvested profit + depreciation) to the total amount of internal and external sources of financial income.

This coefficient can also be calculated by the ratio of self-financing income to added value. It shows the degree of self-financing of the organization's activities in relation to the wealth created.

When carrying out the analysis, the dynamics of the indicator "sustainable economic growth coefficient" (CSEG) is studied, which is determined by dividing the factor "capitalized profit" (CP) by the factor "average annual amount of equity capital" (EC), after which its factor analysis is carried out.

$$CSEG = CP/EC \qquad (15.1)$$

The main provisions that are worth paying attention to when analyzing the composition and capital structure of an organization:

– during the analyzed period, there should be an increase in the value of the organization's own capital (due to an increase in retained earnings), which indicates the receipt of positive net profit values and the direction of it (all or part) for the development of the organization;

– the composition and structure of capital have a significant impact on the financial condition of the organization - on indicators of financial stability and liquidity. An organization can be recognized as more or less financially stable if equity capital exceeds borrowed capital, which will ensure compliance with the autonomy ratio standard; the excess of the total amount of equity capital and long-term liabilities over the amount of long-term assets, which will ensure a positive value of own working capital;

– the composition and structure of capital determine the level of financial risks of the organization. A high share of borrowed capital can make it dangerous to attract new borrowed funds. The higher the amount and share of borrowed capital, the higher the level of risks. The level of risks increases greatly when financing long-term assets at the expense of short-term liabilities, that is, in the absence of own working capital.

Topic question 15.3 Methodology for assessing the cost of capital of an industrial organization and optimizing its structure

Since the capital of an organization is one of the factors of production involved in business activities, it also has its own value and is characterized by the amount of costs for its attraction and placement.

The cost of capital of an organization is the price that the organization pays to attract it from various sources.

Thus, the cost of capital represents the part of the profit that the organization is obliged to pay for the use of attracted or generated capital. This indicator is the minimum required rate of profit from current activities. If the profitability of current activities is lower than the cost of capital, this may soon lead to a loss of liquidity and subsequently to bankruptcy of the enterprise.

The cost of capital can also be considered as a discount rate in matters of investment efficiency. If the price of invested capital seems higher than the rate of return on an investment project, then such a project will be unprofitable.

The organization's cost of capital indicator can act as a criterion when assessing the effectiveness of leasing. If the cost of financial leasing exceeds the cost of capital of a business entity, then the use of leasing for the formation of fixed capital is unprofitable.

The cost of borrowed capital indicator is used to assess the effect of financial leverage, which shows the increase in return on equity due to the use of borrowed funds. The effect will be positive if the price of borrowed funds is lower than the return on invested capital in operating assets.

And finally, the cost of capital is an important measure of the level of market value of open joint stock companies. When the cost of capital decreases, the market value of the organization increases, and vice versa.

Since the organization's capital is formed from various sources, it is necessary to evaluate each of them separately and carry out a comparative analysis of their value.

The indicator "cost of equity capital of the organization" is determined by dividing the factor "the amount of net profit paid to the owners of the enterprise in the reporting period" by the factor "average amount of equity capital in the reporting period".

The indicator "cost of additionally attracted capital through the issue of shares" is determined by dividing the factor "amount of dividends paid on shares" by the factor "amount of share capital".

The indicator "cost of borrowed capital in the form of bank loans" is determined by dividing the factor "interest paid on the loan" by the factor "amount of funds raised in the form of a loan".

The indicator "cost of borrowed capital raised through the issue of bonds" is determined by dividing the factor "interest paid on bonds" by the factor "current value of bonds".

The indicator "total cost of capital of the enterprise" is calculated by summing the multiplication of the factor "the share of a certain source of capital in the total amount of capital of the enterprise" by the factor "cost of a certain source of capital".

The assessment of the cost of capital must be completed by analyzing the marginal efficiency of capital, which is determined by the ratio of the increase in the level of return on invested capital to the increase in the weighted average cost of capital.

In addition to assessing the cost of capital, one of the important tasks of financial analysis is optimizing the capital structure. Solving the problem allows us to ensure the most effective proportions between its cost, profitability and financial stability of the business entity.

Optimization of the capital structure is carried out according to the following criteria:
– minimizing the weighted average cost of total capital;
– maximizing the level of return on equity;
– minimizing the level of financial risks.

Attracting additional capital, both from the organization's own sources and from borrowed funds, has its limits and is usually associated with an increase in its weighted average cost. When issuing additional shares and bonds in a saturated market, higher dividends or coupons must be paid to attract investors.

Attracting additional loans with a high level of financial leverage, and therefore financial risk, is possible only on the terms of an increased interest rate for the loan, taking into account the risk premium for the bank.

Topic question 15.4 Concept, meaning, objectives, information support for analyzing the allocation of capital of an industrial organization and assessing its property status

Reliable determination of the property status of an organization today is one of the most important issues facing the enterprise. Property should be understood as immovable things and movable things (including money and securities).

In relation to an enterprise, its property includes everything that the enterprise owns: fixed capital and working capital, expressed in monetary form and reflected in the organization's balance sheet.

At the same time, in financial accounting regarding legal entities, instead of the civil law concept of "property", the category "assets" is more often used.

Thus, the balance sheet asset makes it possible to give a general assessment of the change in the entire property of the organization, to identify long-term assets in its composition (Section I of the balance sheet) and short-term assets (Section II of the balance sheet), and to study the dynamics of the structure of the enterprise's property.

Assets are a collection of property and funds owned by an organization: buildings, structures, machinery and equipment, inventories, bank deposits, investments in securities, patents, copyrights and more. In the broadest sense of the word, these are any valuables that have monetary value and are valued in money.

Information about the organization's property is contained in the assets of the balance sheet. Using these data, it is possible to establish what changes have occurred in the assets of the enterprise, what part is its real estate, and what part is working capital, including in the sphere of production and in the sphere of circulation.

The main feature of the grouping of balance sheet asset items is the degree of their liquidity, that is, the speed of their conversion into cash. On this basis, all assets are divided into long-term assets (section I of the balance sheet) and short-term assets (section II of the balance sheet).

Assets are also divided into tangible assets (material, tangible) and intangible assets (intangible, not physical objects). Intangible assets include patents and property rights to inventions, industrial designs, copyrights and the like.

The organization's funds can be used both in internal circulation and outside it (accounts receivable, long-term and short-term financial investments, cash in bank accounts).

Short-term assets can be located in the sphere of production (inventories, work in progress, deferred expenses) and in the sphere of circulation (finished products in warehouses and shipped to customers, funds in settlements, short-term financial investments, cash in hand and in bank accounts, goods and other).

The financial position of the organization is directly evidenced by the composition and structure of its assets (property), capital and liabilities as of the beginning and end of the reporting period; changes in the allocation of funds and sources of their formation at the end of the year compared to the beginning of the year, and more.

This information allows you to identify the causes of deviations and assess the prospects for the development of the organization's financial position in the future.

Analysis of the organization's property status is the first stage of analysis of the financial condition. Therefore, in order to conduct the most complete and reliable analysis of the financial condition of an organization, it is necessary to conduct an analysis of the property status of the enterprise, which is one of the priorities in assessing the financial position of the organization.

The state of capital allocation and property status of the enterprise primarily depends on the results of its production and economic activities.

The main goal of analyzing the allocation of capital of an industrial organization and assessing its property status is the timely identification of problems in matters of capital allocation, as well as the development of directions for eliminating identified shortcomings in the allocation of capital and the property status of the enterprise.

The tasks of analyzing the allocation of capital of an industrial organization and assessing its property status:

– assessment of changes in the value of property during the reporting period;

– determining the role of individual elements of the structure in the formation of property;

– formation of directions for investing financial resources in long-term assets and short-term assets (the most mobile) and assessing the feasibility of these investments;

– detailed analysis of the efficiency of use, structure and dynamics of fixed assets and working capital;

– determination of the share of receivables in the organization's property, its composition and structure, receivables turnover indicators;

– identification of counterparties with the greatest debt among debtors in order to develop measures to reduce it.

The main sources of information for analyzing the allocation of capital of an industrial organization and assessing its property status are the balance sheet, profit and loss statement and other forms of accounting reporting, analytical accounting data that decipher and detail individual balance sheet items.

Topic question 15.5 Analysis of the dynamics of the composition and structure of assets of an industrial organization. Analysis of sources of formation of enterprise assets

As noted earlier, the balance sheet asset consists of two sections: long-term assets and short-term assets.

Section of the balance sheet "I. Long-term assets" includes the following items:
– Fixed assets,
– Intangible assets,
– Income investments in tangible assets,
– Investments in long-term assets,
– Long-term financial investments,
– Deferred tax assets,
– Long-term accounts receivable,
– Other long-term assets.

Section of the balance sheet "II. Short-term" includes the following items:
– Inventories,
– Long-term assets intended for sale,
– Deferred expenses,
– Value added tax on purchased goods, works, services,
– Short-term accounts receivable,
– Short-term financial investments,
– Cash and cash equivalents,
– Other short-term assets.

Analysis of capital allocation and assessment of the organization's property status is based primarily on relative indicators.

There are a large number of approaches to the analysis of the property status of organizations, both domestic and foreign authors. In general, all existing methods complement and reveal each other to some extent, as a result of which they should be used comprehensively.

The main points that you should pay attention to when analyzing the total assets of an organization:

– growth in the total value of assets is a favorable moment, indicating the expansion of the organization's activities. However, it is necessary to compare the growth rate of assets with the growth rate of sales (revenue). If the increase in revenue is greater than the increase in property, then there is an acceleration of asset turnover, therefore, the organization effectively manages its assets, and vice versa;

– a decrease in the amount of property indicates a reduction in economic turnover, which may lead to the insolvency of the organization;

– sharp fluctuations in the dynamics of assets over a number of periods indicate a significant change in the operating conditions of the organization, an ineffective asset management policy and require special attention, since in the future they can lead to problems with solvency. If there are sudden changes in the composition and structure of a company's assets, it is necessary to identify the reasons for these changes and how they affected the financial condition.

Let us separately focus on the analysis of the property structure (vertical analysis). At this stage, the specific weights of individual items of the organization's assets are calculated.

In many literary sources, the methodology involves dividing each asset item by the total amount of assets. However, it will be more useful for the analysis to calculate the specific weights of the individual component assets within the relevant section.

That is, the share of long-term and short-term assets in the total amount of assets is found, and then the share of each element of the assets of these sections is determined to the total amount of the corresponding sections of the balance sheet (for example, the share of fixed assets in the composition of long-term assets).

The results of such calculations will make it possible to determine what the structure of the property is (the ratio of long-term assets and short-term assets), as well as which items of long-term assets and short-term assets are the most significant.

When analyzing the asset structure, the following must be considered:

– the structure of assets (the ratio of long-term assets and short-term assets) depends on the scale of the organization's activities and on its industry sector. In industry (mechanical engineering, metallurgy, etc.) long-term assets predominate; their share can exceed sixty percent. Short-term assets predominate in industries such as trade, construction and others;

– in the structure of long-term assets, as a rule, fixed assets predominate, and, usually, their share is more than seventy percent. The structure of short-term assets is dominated by inventories and receivables, and, as a rule, their share is about ninety percent. The shares of short-term financial investments and cash are insignificant;

– from the point of view of liquidity and solvency of the organization, it is necessary that short-term assets prevail in the structure of assets, and accounts receivable, short-term financial investments and cash prevail in the structure of short-term assets.

Thus, the asset structure of an industrial organization ultimately determines the capital structure:

– to ensure financial stability, it is necessary to exceed equity capital and long-term liabilities over long-term assets;

– to ensure liquidity and solvency, a significant excess of short-term assets over short-term liabilities is necessary.

Topic question 15.6 General assessment of the property status of an industrial organization

When analyzing the property status of an enterprise on the basis of the balance sheet, indicators that characterize its property position are calculated,

and the change in these indicators over a year and over several years is determined.

Indicators characterizing the property status of an enterprise include:

Total capital is the amount of economic assets at the disposal of the organization. The amount of the company's capital is equal to the balance sheet total.

Equity capital is the enterprise's own funds as of a certain date, which are equal to the total of the third section of the balance sheet.

Own working capital – the amount of own funds that are in circulation. Own working capital determines the degree of solvency and financial stability of the organization.

To calculate the indicator "own working capital" (OWC) the following formulas are used:

1) a formula that takes into account the influence of such factors as: the "equity capital" factor (the result of the third section of the balance sheet) (EC), the "long-term liabilities" factor (the result of the fourth section of the balance sheet) (LTL) and the "long-term assets" factor (the result of the first section of the balance sheet) (LTA).

$$OWC = EC + LTL - LTA \qquad (15.2)$$

2) a formula that takes into account the influence of such factors as: the "short-term assets" factor (the result of the second section of the balance sheet) (STA) and the "short-term liabilities" factor (the result of the fifth section of the balance sheet) (STL).

$$OWC = STA - STL \qquad (15.3)$$

Attracted (borrowed) capital (BC) is the sum of long-term liabilities (LTL) and short-term liabilities (STL). It characterizes the amount of debt of the enterprise at the reporting date.

$$BC = LTL + STL \qquad (15.4)$$

Short-term assets (or current assets) - characterize funds located in inventories, expenses, cash and accounts receivable. Short-term assets are the result of the second section of the balance sheet.

They are called short-term assets because, unlike fixed assets and other long-term assets, they can be returned faster than other assets in the form of cash for settlements with debtors.

Short-term liabilities are debts that must be repaid within a year. Short-term liabilities are the result of the fifth section of the balance sheet.

Long-term assets are the sum of fixed assets and other long-term assets, which, unlike short-term assets (current assets), circulate more slowly. Long-term assets are the result of the first section of the balance sheet.

Long-term liabilities are loans and borrowings received for a long period (more than one year). Long-term liabilities are the result of the fourth section of the balance sheet.

To assess the property status of an enterprise based on the assets of the balance sheet, you can calculate the following indicators that reflect the structure of the enterprise's property:

1) the indicator "property dynamics" is calculated by dividing the factor "balance sheet total at the end of the period under study" by the factor "balance sheet total at the beginning of the period under study",

2) the indicator "share of long-term assets in property" is calculated by dividing the factor "long-term assets" by the factor "balance sheet total",

3) the indicator "share of short-term assets in property" is calculated by dividing the factor "short-term assets" by the factor "balance sheet total",

4) the indicator "share of cash and cash equivalents in short-term assets" is calculated by dividing the factor "cash and cash equivalents" by the factor "short-term assets",

5) the indicator "share of financial investments (except for cash equivalents) in short-term assets" is calculated by dividing the factor "financial investments (except for cash equivalents)" by the factor "short-term assets",

6) the indicator "share of inventories in short-term assets" is calculated by dividing the factor "inventories" by the factor "short-term assets",

7) the indicator "share of receivables in short-term assets" is calculated by dividing the factor "receivables" by the factor "short-term assets",

8) the indicator "share of fixed assets in long-term assets" is calculated by dividing the factor "fixed assets" by the factor "long-term assets",

9) the indicator "share of intangible assets in long-term assets" is calculated by dividing the factor "intangible assets" by the factor "long-term assets",

10) the indicator "share of financial investments in long-term assets" is calculated by dividing the factor "financial investments" by the factor "long-term assets".

Since almost all financial ratios characterizing the property position of an enterprise are industry specific, they do not have universal recommended values. Development of recommended values for these indicators is possible only within specific industries.

When analyzing financial ratios characterizing the property position of an enterprise, their dynamics are studied and a factor analysis of some of them is carried out.

When analyzing the property status of an organization, it is also necessary to assess the condition of the fixed assets used. For these purposes, the following indicators are calculated:

1. wear coefficient;
2. renewal coefficient;

3. retirement coefficient.

Topic question 15.7 The meaning, objectives, main directions and information support for analyzing the efficiency and intensity of capital use of an industrial organization

The capital of an industrial organization is a general indicator that characterizes in monetary terms the entire capital of an enterprise, expressed both in kind and in cash.

The definition of "capital" is ambiguously interpreted in the works of scientists in economics. Most often, it means the amount of share capital, the volume of investments and the amount of retained earnings, as well as all long-term sources of financing.

Often, the term "capital" is used to characterize the assets of an organization, distinguishing between fixed capital (long-term assets, including construction in progress) and working capital (short-term assets).

Thus, the term "capital" is used both in relation to sources of funds and in relation to assets. In the first case, when establishing sources, we talk about "passive capital", and when defining assets, we talk about "active capital", dividing it into fixed capital and working capital (long-term assets and short-term assets).

The efficiency of capital use is characterized by the results of its functioning in conjunction with the costs necessary to achieve these results.

Currently, the efficiency of capital use, as a rule, means the amount of profit received per ruble of invested capital.

Since the state of capital in the course of the organization's activities is constantly changing, then, in addition to the indicator of the amount of profit received, the efficiency of the functioning of capital should be determined by a more general indicator - the amount of capital growth for the period.

Therefore, it seems necessary to use several indicators as the main criteria when assessing the efficiency of capital use, namely:
– profit received by the organization during the reporting period,
– changes in financial condition indicators in general,
– changes in the organization's business activity indicators,
– the amount of capital growth of the enterprise for the period.

When determining the efficiency of capital use, both methods of financial and investment analysis and methods of comprehensive capital analysis should be used. This approach allows you to obtain a complete assessment from two positions for further comparison and determination of the degree of detail required.

Capital, passing successively through all stages of production, performs its own function in each. Not only does part of the capital necessary for organization alternately pass through three forms - money capital, productive capital and commodity capital, but also different parts of this

capital constantly exist next to each other in these three forms, and the relative size of these parts is constantly changing.

Consequently, capital, when calculating, assessing and analyzing it, must be considered from two positions: on the one hand, by the sources of its formation, and on the other hand, by the physical form of its existence.

A special place in the system of analysis of an organization's capital is occupied by the study of its current state, as well as indicators of the intensity and efficiency of its use. Approaches to capital analysis can be very diverse.

The main goal of analyzing the efficiency and intensity of capital use is to obtain a certain number of key (most informative) parameters that give an objective and accurate picture of the efficiency and intensity of capital use.

The goals of analysis are achieved as a result of solving a certain interrelated set of analytical problems. The analytical task is a specification of the goals of the analysis, taking into account the organizational, informational, technical and methodological capabilities of the analysis.

The main objectives of analyzing the efficiency and intensity of capital use are:
– determination of the impact of profit on capital;
– establishing capital gains;
– assessment of the impact on the financial position of the organization of changes in efficiency indicators and intensity of capital use.

The main sources of information for analyzing the efficiency and intensity of capital use are the balance sheet, profit and loss statement, capital flow statement, cash flow statement, statement of the presence and movement of fixed assets and other forms of reporting that detail individual items of the balance sheet.

Topic question 15.8 Indicators of efficiency and intensity of capital use

The efficiency of capital use is characterized by its profitability.

To analyze the efficiency of capital use, the following indicators are used:
– indicator "profitability of total capital",
– indicator "profitability of total capital after taxes",
– indicator "profitability of equity capital",
– indicator "financial leverage effect".

The indicator "profitability of total capital" (PROFTC) is calculated by dividing the factor "profit before taxes" (PBT) by the factor "average annual amount of total capital" (TC).

$$PROFTC = PBT/TC \qquad (15.5)$$

To carry out a factor analysis of the "profitability of total capital" indicator (PROFTC), a formula can be used that determines the calculation of the "profitability of total capital" indicator by multiplying the "profitability of sales" factor (PROFS) by the "total capital turnover coefficient" factor (CTCT).

$$PROFTC = PROFS \cdot CTCT \qquad (15.6)$$

The advantage of the profitability of total capital indicator is that it can be used to predict the amount of profit.

The indicator "profitability of total capital after taxes" (PROFTCAT) is calculated using the following formula, which includes the following factors: the factor "profitability of total capital" (PROFTC) and the factor "tax profit withdrawal coefficient" (CTPW).

$$PROFTCAT = PROFTC \cdot (1 - CTPW) \qquad (15.7)$$

The "profitability of equity capital" indicator (PROFEC) is calculated by dividing the "net profit" factor (NP) by the "average annual amount of equity capital" factor (EC).

$$PROFEC = NP/EC \qquad (15.8)$$

The indicator "financial leverage effect" (FLE) is calculated using the following formula, which includes the following factors: the factor "profitability of total capital after taxes" (PROFTCAT), the factor "price of borrowed capital" (PRBC), the factor "borrowed capital" (BC) and the factor "equity capital" (EC).

$$FLE = (PROFTCAT - PRBC) \cdot (BC / EC) \qquad (15.9)$$

The level of the indicator "financial leverage effect" shows by what percentage the amount of equity capital increases due to the attraction of borrowed funds.

The indicator "financial leverage effect" consists of two components:

1) the difference between the factor "profitability of total capital after taxes" (PROFTCAT) and the factor "price of borrowed capital" (for example, the interest rate for a loan or the loan interest rate stipulated by the contract) (PRBC).

$$(PROFTCAT - PRBC) \qquad (15.10)$$

2) financial leverage (dividing the "borrowed capital" factor (BC) by the "equity capital" factor (EC)).

$$(BC/EC) \qquad (15.11)$$

The positive effect of financial leverage occurs in cases where the level of the indicator "profitability of total capital after taxes" is higher than the cost of borrowed capital. Under this condition, it is beneficial to increase the financial leverage, that is, the amount of borrowed capital.

If the level of the indicator "profitability of total capital after taxes" is lower than the cost of borrowed capital, a negative effect of financial leverage is created, resulting in the "eating up" of equity capital and this can cause bankruptcy of the enterprise.

To characterize the intensity of capital use, the indicator "capital turnover coefficient" is used, which is determined by dividing the factor "revenue from sales of products" by the factor "average cost of capital for the reporting period".

Topic question 15.9 Main indicators characterizing the business activity of an industrial organization

The business activity of an organization is the effectiveness and efficiency of its production and commercial activities.

The business activity of an enterprise in the financial aspect is manifested, first of all, in the speed of turnover of its funds.

The information base for analyzing business activity is traditionally the accounting (financial) reporting of an organization. For the purposes of internal analysis, synthetic and analytical accounting data can also be used.

Analysis of an organization's business activity consists of studying the levels and dynamics of various financial coefficient of turnover.

Turnover coefficients show how many times certain assets of the enterprise are turned over during the analyzed period. The reciprocal value multiplied by three hundred and sixty days (or the number of days in the analyzed period) indicates the duration of one turnover of these assets.

Turnover indicators are important for any organization, since the volume of sales revenue depends on the speed of turnover of advanced funds.

Let us consider in more detail the indicators characterizing the level of business activity of the organization.

The indicator "asset turnover coefficient" (ATC) is calculated by dividing the factor "revenue from sales of products" (RSP) by the factor "average annual amount of assets" (A).

$$ATC = RSP/A \qquad (15.12)$$

The indicator "duration of one asset turnover" (DOAT) is calculated by dividing three hundred and sixty days by the "asset turnover coefficient" factor (ATC).

$$DOAT = 360/ATC \qquad (15.13)$$

The indicator "short-term asset turnover coefficient" (STATC) is calculated by dividing the factor "revenue from sales of products" (RSP) by the factor "average annual amount of short-term assets" (STA).

$$STATC = RSP/STA \qquad (15.14)$$

The indicator "duration of one turnover of short-term assets" (DOTSTA) is calculated by dividing three hundred and sixty days by the factor "short-term asset turnover coefficient" (STATC).

$$DOTSTA = 360/STATC \qquad (15.15)$$

The indicator "receivables turnover coefficient" (RTC) is calculated by dividing the factor "revenue from sales of products" (RSP) by the factor "average annual amount of receivables" (R).

$$RTC = RSP/R \qquad (15.16)$$

The indicator "duration of one turnover of receivables" (DOTR) is calculated by dividing three hundred and sixty days by the factor "receivables turnover coefficient" (RTC).

$$DOTR = 360/RTC \qquad (15.17)$$

Topic question 15.10 Reserves for increasing the efficiency of capital use and the main directions of their search

Assessing the efficiency of capital use is one of the important characteristics of the organization's performance and the feasibility of investing in its development. It reflects the competitiveness of products, its financial potential, and the efficiency of financial resource management. Efficiency of use refers to the ability of an organization to extract maximum profit from all economic resources at its disposal.

As noted above, capital consists of two components: fixed assets and working capital. Therefore, it is advisable to look for ways to increase the efficiency of capital use in two directions: the efficiency of use of fixed assets and the efficiency of working capital management.

An increase in the efficiency of fixed assets is expressed, first of all, in an increase in the volume of economic activity obtained without additional capital investments. The efficiency of using fixed assets largely depends on the production characteristics of a particular sector of the economy, the achieved level of labor organization, technology and other factors.

There are two main directions for improving the use of fixed assets: extensive and intensive.

The extensive direction is associated with an increase in the operating time of the means of labor over a certain period of time (month, quarter, year). The better the available fixed assets are used over time, the higher the return on assets.

Increasing the operating time of equipment, machines, and vehicles as a result of reducing downtime and increasing the shift ratio is an important factor in the intensification of all types of activities of cooperative enterprises and organizations.

An extensive way to increase capital productivity is especially important for such sectors of the economy as trade and procurement, where the share of the passive part of fixed assets (buildings, stores, bases, warehouses, procurement points, etc.) is relatively high.

The increase in work time here is achieved by reducing the time required to take inventory of inventory items; optimizing the daily operation of stores, procurement points, and catering establishments; eliminating equipment downtime; preventing loss of working time; reducing the time required for repair work and the like.

Intensive direction means an increase in the load of labor resources per unit of time. It is associated with improved use of material and labor resources, increased labor productivity, and reduced capital intensity and material intensity.

An intensive path of growth in capital productivity means better use of labor resources per unit of time. This is achieved through the introduction of scientific and technological progress, when functioning means of labor are replaced by modern, highly productive ones. In this regard, it is advisable to direct most of the capital costs to reconstruction, modernization, and technical re-equipment of existing enterprises, rather than to new construction.

In the system of measures aimed at increasing the efficiency of the organization and strengthening its financial condition, issues of rational use of working capital occupy an important place.

Since the financial position of organizations is directly dependent on the state of working capital and involves the comparison of costs with the results of economic activity and reimbursement of costs with their own funds, organizations are interested in the rational organization of working capital, that is, in organizing their movement with the minimum possible amount to obtain the greatest economic effect.

You should also not miss the fact that the main component of capital efficiency indicators is profit. Consequently, as profits increase, efficiency increases.

Many factors influence the increase in profit, but the main factor is cost or expenses. Thus, the main way to increase the effect of economic activity is to reduce costs.

Currently, when analyzing the actual cost of manufactured products, identifying reserves and the economic effect of reducing it, calculations based on economic factors are used.

Economic factors most fully cover all elements of the production process. They reflect the main directions of work of teams of organizations to reduce costs: increasing labor productivity, introducing advanced equipment and technology, better use of equipment, reducing administrative, managerial and other overhead costs, reducing defects and eliminating unproductive costs and losses.

TOPIC 16 ANALYSIS OF LIQUIDITY, SOLVENCY AND FINANCIAL STABILITY OF THE ORGANIZATION

Topic questions:
16.1 The concept, meaning and tasks of analyzing the financial stability and solvency of an industrial organization
16.2 Analysis of the financial stability of an industrial organization based on an analysis of the ratio of equity capital and debt capital. Types of financial stability
16.3 The concept of solvency and liquidity of an industrial organization. Balance sheet liquidity analysis
16.4 Analysis of accounts receivable and accounts payable
16.5 Creditworthiness analysis: concept, main tasks, calculation indicators and analysis methods

Topic question 16.1 The concept, meaning and tasks of analyzing the financial stability and solvency of an industrial organization

The financial condition of an organization can be characterized by a system of indicators that describe the state of capital in the process of its circulation and the organization's ability to finance its activities at a fixed point in time.

The results of production, financial, and commercial activities directly affect the financial condition of the organization.

Positively affects the position of the organization if the production and financial plan is fulfilled. Failure to fulfill the production plan, on the contrary, provokes an increase in the cost of work and a deterioration in the financial condition and deterioration in the solvency of the organization.

The financial condition of an organization can be stable, unstable (or, in other words, pre-crisis) and crisis.

The ability of an organization to pay its obligations on time and finance its activities, as well as to survive unforeseen shocks and remain solvent even in unfavorable times, indicates its stable position. Thus, solvency is an external manifestation of financial stability.

Independence from changes in market conditions and guaranteed solvency are best characterized by the concept of financial stability.

The concept of solvency refers to the sufficiency of liquid assets, such as cash and cash equivalents, to promptly pay in full all of its short-term obligations.

The excess of liquid assets over short-term liabilities indicates financial stability. From this we can conclude that the main sign of financial stability will be the presence of net liquid assets, obtained as the difference between all liquid assets and all short-term liabilities at a given point in time.

Financial stability is the most important indicator of an organization's performance, which is characterized by its ability to develop at its own expense, while maintaining its solvency and creditworthiness under conditions of an acceptable level of risk.

The essence of assessing financial stability is the assessment of the provision of reserves and costs with sources of formation. The degree of financial stability determines the degree of solvency of the organization.

The most general indicator of financial stability is the surplus or shortage of sources of reserves and costs. Assessing financial stability allows you to determine the financial capabilities of an enterprise for the long term.

The purpose of financial strength analysis is to assess the ability of an organization to pay its obligations and maintain ownership of the organization in the long term.

The main objectives of financial stability analysis are:
– objective assessment of financial stability;
– identification of factors affecting financial stability;
– development of options for specific management decisions aimed at strengthening financial stability.

Financial stability is important not only for individual enterprises, but also for the entire society, since its role as a whole consists of the level of financial stability of each element of the economic system.

Topic question 16.2 Analysis of the financial stability of an industrial organization based on an analysis of the ratio of equity capital and debt capital. Types of financial stability

Depending on the ratio of the total amount of reserves and costs and the sources of their formation, the following four types of financial stability are distinguished:

1. Absolute financial stability, characterized by the excess of own working capital over inventories and costs.

2. Normal financial stability, characterized by the fact that own and borrowed sources of funds are used to cover reserves and costs.

3. An unstable financial situation, characterized by a situation where own working capital is not enough to cover the amount of reserves and costs. Accordingly, the enterprise is forced to attract insufficiently justified additional sources of coverage.

4. A critical financial situation is characterized by a situation similar to an unstable financial situation, but it is aggravated by the presence of loans and borrowings that the enterprise has not repaid on time, as well as overdue receivables and payables.

The financial stability of an enterprise is characterized by its financial independence, as well as the degree of security of its long-term assets, inventories and costs, cash and receivables within the standard with its own capital and bank loans.

Financial stability in the long term is characterized by the ratio of equity and borrowed funds. However, this indicator provides only a general assessment of financial stability.

In economic practice, a system of the following indicators has been developed to analyze financial stability:

1. The "financial independence coefficient" indicator is calculated by dividing the "equity capital" factor by the "balance sheet total" factor.

The indicator "financial independence coefficient" characterizes what part of the assets is formed from own funds.

2. The indicator "financial dependence coefficient" is calculated by dividing the factor "balance sheet total" by the factor "equity".

The indicator "financial dependence coefficient" shows how much assets are per ruble of equity.

3. The indicator "debt coefficient (leverage coefficient)" is calculated by dividing the "borrowed capital" factor by the "balance sheet total" factor.

Indicator "debt coefficient (leverage coefficient)" characterizes what part of the assets is formed from borrowed funds.

An increase in the share of borrowed funds in the formation of an organization's assets is a sign of increased financial instability of the enterprise and an increase in the degree of its financial risks.

4. The indicator "debt coverage ratio with equity capital (solvency coefficient)" is calculated by dividing the "equity capital" factor by the "borrowed capital" factor.

The indicator "debt coverage ratio with equity capital (solvency coefficient)" characterizes the extent to which the enterprise's liabilities are covered by equity capital.

5. The indicator "financial leverage coefficient" is calculated by dividing the "borrowed capital" factor by the "equity capital" factor.

The indicator "financial leverage coefficient" characterizes the degree of financial risk.

6. The indicator "inventory coverage coefficient with own capital" is calculated by dividing the factor "own working capital" by the factor "inventories".

The indicator "inventory coverage coefficient with own capital" shows the share of own capital in the formation of the enterprise's material reserves.

7. The indicator "current debt coefficient" is calculated by dividing the factor "short-term liabilities" by the factor "balance sheet total".

The indicator "current debt coefficient" shows what part of the assets is formed from short-term borrowed resources.

8. The indicator "long-term investment structure coefficient" is calculated by dividing the "long-term liabilities" factor by the "long-term assets" factor.

The indicator "long-term investment structure coefficient" shows what part of fixed assets and other long-term assets is financed from borrowed funds, if long-term loans and borrowings are used for this.

Topic question 16.3 The concept of solvency and liquidity of an industrial organization. Balance sheet liquidity analysis

One of the indicators characterizing the financial condition of an organization is its solvency, that is, the ability to repay its payment obligations with monetary resources in a timely manner.

The main signs of solvency are:
– availability of sufficient funds;
– absence of overdue accounts payable.

Solvency analysis is necessary not only for the organization for the purpose of assessing and forecasting financial activities, but also for external investors.

In the process of an organization's relationship with the credit system and other organizations, the need to analyze its creditworthiness constantly arises.

Creditworthiness is the ability of an organization to timely and fully pay off its debts. Creditworthiness analysis is carried out by both banks issuing loans and organizations seeking to obtain them.

When analyzing the solvency and creditworthiness of an organization, the liquidity of the organization's assets and the liquidity of its balance sheet are calculated.

Asset liquidity is a value that characterizes the time required to convert assets into cash.

Balance sheet liquidity is the presence of short-term assets (current assets) in an amount sufficient to repay short-term liabilities. Balance sheet

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liquidity is achieved by establishing equality between the organization's liabilities and its assets.

The technical side of the analysis of balance sheet liquidity consists in comparing the enterprise's funds reflected in the assets of the balance sheet with the liabilities of the enterprise reflected in the liabilities of the balance sheet.

For the convenience of comparing assets and liabilities, balance sheet indicators are grouped. The grouping of assets and liabilities of the balance sheet is carried out in accordance with two rules.

First rule. Balance sheet assets should be grouped by their degree of liquidity and arranged in descending order of liquidity.

Second rule. Balance sheet liabilities should be grouped by their maturity dates and arranged in ascending order of payment terms.

First stage. Grouping of balance sheet assets. The assets of an enterprise, depending on the speed of their conversion into cash, are divided into four groups:

1. the most liquid assets (A1). This group includes cash and short-term financial investments;

2. quickly realizable assets (A2) – short-term receivables;

3. slowly selling assets (A3) – inventories and costs, long-term receivables;

4. hard-to-sell assets (A4) – fixed assets, intangible assets, construction in progress.

Second stage. Grouping of balance sheet liabilities:

1. the most urgent obligations (P1) – accounts payable;

2. short-term liabilities (P2) – short-term loans and borrowings and other short-term liabilities;

3. long-term liabilities (P3) – long-term loans and borrowings;

4. permanent liabilities (P4) – sources of own funds.

Third stage. Determination of balance sheet liquidity. To determine the liquidity of the balance sheet, it is necessary to compare the calculations made for groups of assets and groups of liabilities.

The balance sheet is considered liquid subject to the following ratios of groups of assets and liabilities: A1 more or equal P1; A2 more or equal P2; A3 more or equal P3; A4 less or equal P4.

Comparison of the first and second groups of assets (A1 and A2) with the first two groups of liabilities (P1 and P2) shows current liquidity, i.e. solvency or insolvency of the enterprise at the time closest to the time of analysis.

A comparison of the third group of assets and the third group of liabilities (A3 and P3) shows promising liquidity, i.e. forecast of the solvency of the enterprise.

Fourth stage. Determination of liquidity dynamics and factors affecting liquidity.

By comparing the actual ratios of the analyzed organization with the normative ones, one can make a conclusion about the liquidity of the balance sheet, creditworthiness and prospects for payment capabilities, as well as draw a conclusion about the attitude towards the organization as a business partner and borrower in the business world, and what is required from the organization's management, including and from the financial manager, to improve the financial condition of the enterprise.

When assessing solvency, the following indicators are used:

1 The "current liquidity ratio" indicator (CLR) is calculated by dividing the "short-term assets" factor (STA) by the "short-term liabilities" factor (STL).

$$CLR = STA/STL \qquad (16.1)$$

The standard value of the "current liquidity ratio" indicator for industrial enterprises is one point seven and above.

2 The indicator "own working capital ratio" (OWCR) is calculated using the following formula, which includes such factors as: the "equity capital" factor (EC), the "long-term liabilities" factor (LTL), the "long-term assets" factor (LTA) and the "short-term assets" factor (STA).

$$OWCR = (EC + LTL - LTA)/STA \qquad (16.2)$$

The standard value of the indicator "own working capital ratio" for industrial enterprises is zero point three tenths and higher.

3 The indicator "ratio of financial liabilities with assets" (RFLA) is calculated using the following formula, which includes such factors as: the "short-term liabilities" factor (STL), the "long-term liabilities" factor (LTL) and the "balance sheet total" factor (BST).

$$RFLA = (STL + LTL)/BST \qquad (16.3)$$

The standard value of the indicator "ratio of financial liabilities with assets" for industrial enterprises is less than zero point eighty-five hundredths.

If we calculate the indicator "current liquidity ratio" using the previously specified formula, then almost every enterprise that has accumulated large inventories, some of which are difficult to sell, turns out to be solvent. Therefore, banks and other investors give preference to the quick ratio.

4 The "quick liquidity ratio" indicator (QLR) is calculated using the following formula, which includes such factors as: the "cash and cash equivalents" factor (CCE), the "short-term financial investments" factor (STFI), the "short-term receivables" factor (STR) and the "short-term liabilities" factor (STL).

$$QLR = (CCE + STFI + STR)/STL \qquad (16.4)$$

The value of the "quick liquidity ratio" indicator is considered sufficient if it is from zero point seven to one. However, it may be insufficient if a large share of liquid funds consists of receivables, part of which is difficult to collect in a timely manner. If cash and cash equivalents (securities) occupy a significant share of short-term assets, then this ratio may be smaller.

The indicator "absolute liquidity ratio" (cash ratio) complements the previous indicators.

5 The "absolute liquidity ratio" indicator (ALR) is calculated using the following formula, which includes such factors as: the "cash and cash equivalents" factor (CCE), the "short-term financial investments" factor (STFI) and the "short-term liabilities" factor (STL).

$$ALR = (CCE + STFI)/STL \qquad (16.5)$$

The higher the level of the "absolute liquidity ratio" indicator, the greater the guarantee of debt repayment, since for this group of assets there is practically no danger of loss of value in the event of liquidation of the enterprise and there is no time period for converting them into means of payment.

The value of the "absolute liquidity ratio" indicator is considered sufficient if it is from zero point two tenths to zero point twenty five hundredths.

Topic question 16.4 Analysis of accounts receivable and accounts payable

The purpose of the analysis is to determine the size of accounts receivable and accounts payable, study their composition, structure and dynamics, as well as identify the impact of changes in settlement transactions on the financial condition of the organization.

Accounts receivable analysis is carried out in the following sequence:

– analysis of absolute and relative indicators of the condition, structure and changes in accounts receivable;

– analysis of the state of accounts receivable by period of formation;

– calculation of receivables turnover indicators, the share of receivables in the total volume of short-term assets, assessment of the ratio of the growth rate of receivables to the growth rate of sales revenue;

– analysis of the ratio of accounts receivable and accounts payable.

To analyze the composition, structure and dynamics of the company's receivables, a tabular method is used.

For a more in-depth analysis, a summary table is compiled in which receivables are classified according to the period of formation. Regular compilation of such a table allows you to present a clear picture of the status of settlements with debtors and identify overdue receivables.

In the process of analyzing receivables, receivables turnover indicators are calculated and assessed, which characterize the number of debt turnovers during the analyzed period, as well as the average duration of one turnover.

To assess accounts receivable turnover, the following indicators are used:

1 The indicator "receivables turnover ratio" is calculated by dividing the factor "revenue from sales of products" by the factor "average annual amount of receivables".

2 The indicator "duration of one turnover of receivables" is calculated by dividing three hundred and sixty days by the factor "receivables turnover ratio".

3 The indicator "share of receivables in the total volume of short-term assets" is calculated by dividing the "receivables" factor by the "short-term assets" factor.

4 The indicator "share of doubtful accounts receivable as part of total accounts receivable" is calculated by dividing the factor "doubtful accounts receivable" by the factor "total accounts receivable".

The indicator "share of doubtful accounts receivable as part of total accounts receivable" characterizes the "quality" of accounts receivable. The upward trend indicates a decrease in the liquidity of the enterprise.

In the process of analyzing accounts payable, accounts payable turnover indicators are calculated and evaluated over time:

1 The indicator "accounts payable turnover ratio" is calculated by dividing the factor "revenue from sales of products" by the factor "average annual amount of accounts payable".

2 The indicator "duration of one turnover of accounts payable" is calculated by dividing three hundred and sixty days by the factor "accounts payable turnover ratio".

The higher the level of the indicator "duration of one turnover of accounts payable," the higher the risk of non-payment of accounts payable.

Next, an analysis of the ratio of receivables and payables is carried out. In this case, the absolute difference between accounts receivable and accounts payable is calculated, after which its dynamics are analyzed.

Then the indicator "ratio of accounts receivable and accounts payable" is calculated and its dynamics are studied.

The indicator "ratio of accounts receivable and accounts payable" is calculated by dividing the factor "accounts receivable" by the factor "accounts payable".

If the value of the indicator "ratio of accounts receivable and accounts payable" exceeds one, then accounts receivable cover accounts payable.

The fact that short-term accounts payable is fully covered by short-term accounts receivable, which is a positive factor that indicates the potential ability of the organization to pay its creditors without attracting additional sources of financing.

Topic question 16.5 Creditworthiness analysis: concept, main tasks, calculation indicators and analysis methods

Creditworthiness is the financial and economic state of an organization in which there is confidence in the effective use of borrowed funds, the ability and willingness of the borrower to repay the loan in accordance with the established terms of the agreement.

Credit assessment is most often carried out in the banking industry.

The methodology for assessing creditworthiness in each organization may be different. The composition and content of assessment indicators are determined by the very concept of creditworthiness.

First of all, the selected indicators should reflect the financial and economic condition of the enterprise in terms of the efficiency of placement and use of borrowed funds, as well as all funds in general, and make it possible to assess the ability and willingness of the borrower to make payments and repay loans within a certain time frame.

The choice of indicators for assessing creditworthiness depends on the priorities that the organization sets for itself.

Due to the fact that organizations differ greatly in the nature of their production and financial activities, it is not possible to formulate unified universal guidelines for studying creditworthiness and calculating relevant indicators.

In modern international practice, there are no firm rules for studying creditworthiness, since it is almost impossible to take into account all the numerous specific characteristics of clients.

Indicators characterizing creditworthiness include:
– absolute liquidity ratio;
– current liquidity ratio;
– turnover of short-term assets;
– coefficient of ownership (autonomy);
– profitability of sales;
– growth rate of short-term assets turnover;
– and others.

The main stages of conducting a creditworthiness analysis:
– analysis of balance sheet liquidity,
– analysis of the organization's liquidity indicators;
– analysis of turnover indicators;
– analysis of profitability indicators of the enterprise;
– analysis of financial stability indicators.

Each stage of the analysis reflects various financial and economic aspects of the organization's functioning, and only a comprehensive analysis makes it possible to assess the creditworthiness of the organization.

TOPIC 17 ANALYSIS OF CASH FLOW OF AN INDUSTRIAL ORGANIZATION

Topic questions:
17.1 The economic essence of cash flow and its types
17.2 The meaning, objectives and information support of cash flow analysis
17.3 Analysis of dynamics and factors of change in cash flow volumes
17.4 Cash flow balance analysis
17.5 Analysis of the intensity and efficiency of cash flow: indicators, methods of their calculation and analysis
17.6 Ways to optimize cash flows

Topic question 17.1 The economic essence of cash flow and its types

The activities of an organization are inextricably linked with cash flow. Business transactions carried out by organizations cause either the expenditure of funds or their receipt.

The continuous process of cash flow over time is cash flow.

The concept of "cash flow" is complex and includes various types of cash flows serving the economic activities of the organization.

The complex and diverse activities of an enterprise generate complex cash flows, which are classified according to various criteria.

1. Sign "according to the scale of servicing the economic process":

– cash flow for the organization as a whole. This is the most aggregated type of cash flow, which accumulates all types of cash flows serving the economic process of the organization as a whole;

– cash flow for individual structural divisions (responsibility centers) of the organization. Such differentiation of an organization's cash flow defines it as an independent object of management in the system of organizational and economic structure of the organization;

– cash flow for individual business transactions. In the system of the economic process of an organization, this type of cash flow should be considered as the primary object of independent management.

2. Sign "by type of economic activity":

– cash flow from operating (current) activities. It is characterized by cash payments to suppliers of raw materials and materials; to third-party providers of certain types of services that provide operational activities:

wages to personnel involved in the operational process, as well as those managing this process; tax payments of the organization to budgets of all levels and to extra-budgetary funds; other payments related to the implementation of the operational process. At the same time, this type of cash flow reflects cash receipts from product buyers; from tax authorities in order to recalculate overpaid amounts and some other payments provided for by international accounting standards;

– cash flow from investment activities. It characterizes payments and receipts of funds associated with the implementation of real and financial investments, the sale of retiring fixed assets and intangible assets, the rotation of long-term financial instruments of the investment portfolio and other similar cash flows serving the investment activities of the organization;

– cash flow from financial activities. It characterizes the receipts and payments of funds associated with attracting additional share capital or share capital, obtaining long-term and short-term loans and borrowings, payment in cash of dividends and interest on deposits of owners and some other cash flows associated with the implementation of external financing of the organization's economic activities.

3. Sign "by the nature of cash flow in relation to the organization":

– internal cash flow. It characterizes the totality of receipts and expenditures of funds within the organization. These receipts and payments are associated with transactions determined by the organization's monetary relations with personnel, founders (shareholders), subsidiaries, etc. In the overall cash flow of the organization, its internal cash flow occupies a small share;

– external cash flow. This type of cash flow serves the organization's operations related to its monetary relations with business partners (suppliers of raw materials, buyers of products, commercial banks, insurance companies, etc.) and government authorities tax authorities, customs services, arbitration courts, etc). The volume of this type of cash flow constitutes a predominant part of the organization's total cash flow.

4. Sign "according to the direction of cash flow":

– positive cash flow, characterizing the totality of cash inflows into the organization from all types of business operations (the term "cash inflow" is used as an analogue of this term);

– negative cash flow, characterizing the totality of cash payments to organizations in the process of carrying out all types of its business operations (the term "cash outflow" is used as an analogue of this term).

When characterizing these types of cash flows, you should pay attention to the high degree of their interrelation. The insufficiency of volumes in time of one of these flows causes a subsequent reduction in the volumes of another type of these flows. Therefore, in the organization's cash flow management system, both of these types of cash flows represent a single (complex) object of financial management.

5. Sign "according to the volume calculation method":

– gross cash flow. It characterizes the entire totality of receipts or expenditures of funds in the period of time under consideration in the context of its individual intervals;

– net cash flow. It characterizes the difference between positive and negative cash flows (between the receipt and expenditure of funds) in the period under consideration in the context of its individual intervals. Net cash flow is the most important result of an organization's financial activities, largely determining the financial balance and the rate of increase in its market value.

The calculation of the "net cash flow" indicator (NETCF) for the organization as a whole, its individual structural divisions (responsibility centers), various types of business activities or individual business operations is carried out according to the following formula, which includes the following factors: the "positive cash flow" factor (POSCF) and the "negative cash flow" factor (NEGCF).

$$NETCF = POSCF - NEGCF \qquad (17.1)$$

As can be seen from the previously presented formula, depending on the ratio of the volumes of positive and negative flows, the amount of net cash flow can be characterized by both positive and negative values, which determine the final result of the corresponding economic activity of the organization and ultimately influence the formation and dynamics of the size of its cash balance assets.

6. Sign "according to the level of volume sufficiency":

– excess cash flow. It characterizes a cash flow in which cash receipts significantly exceed the organization's real need for targeted spending. Evidence of excess cash flow is a high positive value of net cash flow that is not used in the process of carrying out the economic activities of the organization;

– deficit cash flow. It characterizes a cash flow in which cash receipts are significantly lower than the organization's real needs for targeted spending. Even if the amount of net cash flow is positive, it can be characterized as deficit if this amount does not meet the planned need for spending cash in all planned areas of the organization's economic activity. A negative value of the amount of net cash flow automatically makes this flow scarce.

7. Sign "according to the level of balance of volumes of interrelated cash flows":

– balanced cash flow. It characterizes this type of total cash flow for a separate business transaction, structural unit or organization as a whole, for which a balance is ensured between the volumes of positive and negative types (taking into account the envisaged increase in cash reserves);

– unbalanced cash flow. It characterizes this type of total cash flow for a separate business operation, a structural unit ("responsibility center") or the organization as a whole, for which the balance sheet relationship discussed above is not provided. Within the organization as a whole, both deficit and excess total cash flow is unbalanced.

8. Sign "by stability of formation time intervals":

– regular cash flow at regular time intervals within the period under review. Such a cash flow of receipt or expenditure of funds is in the nature of an annuity;

– regular cash flow with uneven time intervals within the period under review. An example of such a cash flow is a schedule of leasing payments for leased property with uneven time intervals agreed upon by the parties for their implementation throughout the leasing period of the asset.

9. Sign "by forms of use of funds":

– cash flow. It characterizes that part of the organization's total cash flow that is serviced directly by cash. The organization's cash flow is an integral part of the country's cash circulation;

– non-cash cash flow. It characterizes that part of the organization's total cash flow that is serviced by a variety of credit and deposit instruments of the financial market (checks, credit cards, letters of credit, bills, bank deposits, etc.).

In modern valuation practice, a distinction is made between capital cash flow, shareholder cash flow or cash flow for equity, free cash flow or cash flow for all invested capital. Moreover, all types of cash flow can be calculated in both nominal and real prices.

Main types of cash flows:

– CCF (CapitalCashFlows) - cash flow for the entire capital of the organization. This cash flow is available to the organization's shareholders and creditors,

– ECF (EquityCashFlows) - cash flow for the organization's equity capital, this cash flow is available to the organization's shareholders,

– FCF (FreeCashFlows) - "cleared" cash flow, like CCF, is the cash flow available to the organization's shareholders and creditors, but not including tax payments.

Topic question 17.2 The meaning, objectives and information support of cash flow analysis

An important prerequisite for good cash flow is the production and sale of profitable products. Even if, according to the financial statements, the organization is profitable, it may experience certain difficulties in paying urgent obligations.

The discrepancy between the actual cash flow and the amount of profit reflected in the statements is a consequence of the use of different methods of generating information.

Information about cash flow is generated using the cash method, that is, based on the fact of their movement in bank accounts. Actual cash flows do not match the reported profits.

If, for example, you use the method of recognizing profit from the sale of products as they are shipped, then cash flow and profit calculation may not coincide in time. Products are considered sold in one time period, and money for them will be received in another, therefore, when analyzing the financial condition of an organization, focusing only on profit data can lead to an increase in financial risk.

The main purpose of cash flow analysis is to assess the organization's ability to generate cash in the amount (and on time) necessary to implement planned expenses, identify the causes of cash shortages (excesses), determine the sources of their receipts and areas of spending to control current liquidity and solvency organizations.

The main tasks of analyzing an organization's cash flows include:
– assessment of the optimal volume of cash flows of the organization;
– assessment of the optimality of cash flows by type of business activity:
– assessment of the composition, structure, directions of cash flow;
– assessment of the dynamics of cash flows;
– identifying and measuring the influence of various factors on the formation of cash flows,
– identification and assessment of reserves for improving the use of funds;
– development of proposals for the implementation of reserves to increase the efficiency of use of funds.

The main information source for cash flow analysis is the cash flow statement. The cash flow statement contains information about cash balances at the beginning and end of the reporting period, positive and negative cash flows in the context of the organization's current, investing and financial activities. Each section of the report contains items of income and items of expenditure of funds.

Topic question 17.3 Analysis of dynamics and factors of change in cash flow volumes

The main task of cash flow analysis is to identify the level of sufficiency of cash generation, the efficiency of their use in the operation of the enterprise, as well as the balance of the company's positive and negative cash flows in volume and time.

It is advisable to carry out the analysis of cash flows for the organization as a whole, as well as in the context of the main types of its economic activities, for individual structural divisions (responsibility centers) in stages.

The first stage is an analysis of the dynamics of the organization's positive cash flow by individual sources.

When analyzing the dynamics of an organization's positive cash flow, the growth rate of positive cash flow is compared with the growth rate of the company's assets, with the growth rate of production volume and with the growth rate of product sales volume, the level is studied and a factor analysis of the indicator "positive cash flow growth rate" is carried out.

The indicator "positive cash flow growth rate" (PCFGR) is calculated using the following formula, which includes the following factors: the "positive cash flow for the previous period" factor (PCFPP) and the "positive cash flow for the reporting period" factor (PCFRP).

$$PCFGR = (PCFRP – PCFPP)/PCFPP \qquad (17.2)$$

When analyzing the dynamics of an organization's positive cash flow, special attention is paid to studying the ratio of funds raised from internal sources and external sources, as well as identifying the degree of dependence of the company's development on external sources of financing.

The second stage is an analysis of the dynamics of the company's negative cash flow, as well as an analysis of the structure of this flow by areas of cash expenditure.

When analyzing the dynamics of an organization's negative cash flow, the proportionality of the company's development through the expenditure of funds is studied, in what areas the funds were used, to what extent the amount of the principal debt on previously attracted loans and borrowings was repaid, the level is studied and a factor analysis of the indicator "negative growth rate" is carried out. cash flow".

The indicator "negative cash flow growth rate" (NEGCFGR) is calculated using the following formula, which includes the following factors: the "negative cash flow for the previous period" factor (NEGCFPP) and the "negative cash flow for the reporting period" factor (NEGCFRP).

$$NEGCFGR = (NEGCFRP – NEGCFPP)/NEGCFPP \qquad (17.3)$$

Topic question 17.4 Cash flow balance analysis

When analyzing the balance of positive cash flow and negative cash flow, both in total volume and over time, the dynamics of the "net cash flow" indicator is studied, which is the most important performance indicator of the organization's financial activity, as well as an indicator of the level of

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balance of its financial cash flows as a whole. For this purpose, the "net cash flow growth rate" indicator is calculated.

The indicator "net cash flow growth rate" (NETCFGR) is calculated using the following formula, which includes the following factors: the "net cash flow for the previous period" factor (NETCFPP) and the "net cash flow for the reporting period" factor (NETCFRP).

$$NETCFGR = (NETCFRP - NETCFPP)/NETCFPP \qquad (17.4)$$

When analyzing the balance of cash flows, the importance of net profit in the formation of net cash flow is determined, the factors influencing its growth are assessed, namely: it is revealed what exactly influenced the increase in net profit to a greater extent: an increase in the number of products sold, a decrease in its cost, or rising product prices.

To determine the degree of balance of cash flows, the following indicators are used:

– the "cash flow inflow coefficient" indicator (CFIC) is calculated by dividing the "net cash flow" factor (NETCF) by the "cash balance at the beginning of the period under study" factor (CBBPUS).

$$CFIC = NETCF/CBBPUS \qquad (17.5)$$

– the "cash flow subsidence ratio" indicator (CFSR) is calculated by dividing the "net cash flow" factor (NETCF) by the "positive cash flow" factor (PCF).

$$CFSR = NETCF/PCF \qquad (17.6)$$

– the "cash adequacy ratio" indicator (CAR) is calculated by dividing the "positive cash flow" factor (PCF) by the "negative cash flow" factor (NEGCF).

$$CAR = PCF/NEGCF \qquad (17.7)$$

– the indicator "cash outflow coverage ratio" (COCR) is calculated by division, the numerator of the fraction contains the sum of the "cash balance at the beginning of the period under study" factor (CBBPUS) and the "positive cash flow" factor (PCF), and the denominator of the fraction contains the "negative cash flow" factor (NEGCF).

$$COCR = (CBBPUS + PCF)/NEGCF \qquad (17.8)$$

– the "absolute liquidity ratio" indicator (ALR) is calculated by dividing the "cash balance" factor (CB) by the "short-term liabilities" factor (STL).

$$ALR = CB/STL \qquad (17.9)$$

When analyzing the balance of cash flows, the dynamics of the previously indicated indicators are studied and a factor analysis of some of these indicators is carried out.

Topic question 17.5 Analysis of the intensity and efficiency of cash flow: indicators, methods of their calculation and analysis

Indicators of the quality of cash flows characterize the share of each element (or cash flow for a certain type of activity, or cash flow for a certain source of generation) in the total cash flow.

Indicators characterizing the quality of cash flows include:

– the indicator "share of cash inflow from current activities in the total cash inflow" (SHICA) is calculated by dividing the factor "positive cash flow from current activities" (PCFCA) by the factor "total positive cash flow" (TPCF).

$$SHICA = PCFCA/TPCF \qquad (17.10)$$

– the indicator "share of cash inflow from investing activities in the total cash inflow" (SHIIA) is calculated by dividing the factor "positive cash flow from investing activities" (PCFIA) by the factor "total positive cash flow" (TPCF).

$$SHIIA = PCFIA/TPCF \qquad (17.11)$$

– the indicator "share of cash inflow from financial activities in the total cash inflow" (SHIFA) is calculated by dividing the factor "positive cash flow from financial activities" (PCFFA) by the factor "total positive cash flow" (TPCF).

$$SHIFA = PCFFA/TPCF \qquad (17.12)$$

– the indicator "share of cash outflow from current activities in the total cash outflow" (SHOCA) is calculated by dividing the factor "negative cash flow from current activities" (NEGCFCA) by the factor "total negative cash flow" (TNEGCF).

$$SHOCA = NEGCFCA/TNEGCF \qquad (17.13)$$

– the indicator "share of cash outflow from investing activities in the total cash outflow" (SHOIA) is calculated by dividing the factor "negative cash flow from investing activities" (NEGCFIA) by the factor "total negative cash flow" (TNEGCF).

$$SHOIA = NEGCFIA/TNEGCF \qquad (17.14)$$

– the indicator "share of cash outflow from financial activities in the total cash outflow" (SHOFA) is calculated by dividing the factor "negative cash flow from financial activities" (NEGCFFA) by the factor "total negative cash flow" (TNEGCF).

$$SHOFA = NEGCFFA/TNEGCF \qquad (17.15)$$

– the indicator "share of net cash flow from current activities in total net cash flow" (SHNETCFCA) is calculated by dividing the factor "net cash flow from current activities" (NETCFCA) by the factor "total net cash flow" (TNETCF).

$$SHNETCFCA = NETCFCA/TNETCF \qquad (17.16)$$

– the indicator "share of net cash flow from investing activities in total net cash flow" (SHNETCFIA) is calculated by dividing the factor "net cash flow from investing activities" (NETCFIA) by the factor "total net cash flow" (TNETCF).

$$SHNETCFIA = NETCFIA/TNETCF \qquad (17.17)$$

– the indicator "share of net cash flow from financial activities in total net cash flow" (SHNETCFFA) is calculated by dividing the factor "net cash flow from financial activities" (NETCFFA) by the factor "total net cash flow" (NETCFFA).

$$SHNETCFFA = NETCFFA/TNETCF \qquad (17.18)$$

To carry out the analysis, the dynamics are studied and a factor analysis of profitability indicators calculated using the "net cash flow" indicator is carried out.

Profitability indicators calculated using the "net cash flow" indicator:

– the indicator "profitability of assets" (PROFA) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "average annual value of assets" (A).

$$PROFA = NETCF/A \qquad (17.19)$$

– the indicator "profitability of long-term assets" (PROFLTA) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "average annual cost of long-term assets" (LTA).

$$PROFLTA = NETCF/LTA \qquad (17.20)$$

– the indicator "profitability of short-term assets" (PROFSTA) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "average annual cost of short-term assets" (STA).

$$PROFSTA = NETCF/STA \qquad (17.21)$$

– the indicator "profitability of total capital" (PROFTC) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "average annual cost of total capital" (TC).

$$PROFTC = NETCF/TC \qquad (17.22)$$

– the indicator "profitability of own working capital" (PROFOWC) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "average annual cost of own working capital" (OWC).

$$PROFOWC = NETCF/OWC \qquad (17.23)$$

– the indicator "profitability of sales" (PROFS) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "revenue from sales of products" (RSP).

$$PROFS = NETCF/RSP \qquad (17.24)$$

When analyzing the intensity and efficiency of the use of funds, the following indicators are used:
– the "cash turnover ratio" indicator (CTR) is calculated by dividing the "negative cash flow" factor (NEGCF) by the "average cash balance" factor (CB).

$$CTR = NEGCF/CB \qquad (17.25)$$

– the indicator "duration of one cash turnover" (DOCT) is calculated by dividing three hundred and sixty days by the factor "cash turnover ratio" (CTR).

$$DOCT = 360/CTR \qquad (17.26)$$

– the indicator "profitability of cash balance" (PROFCB) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "average cash balance" (CB).

$$PROFCB = NETCF/CB \qquad (17.27)$$

– the "cash inflow profitability" indicator (PROFCI) is calculated by dividing the "net cash flow" factor (NETCF) by the "positive cash flow" factor (PCF).

$$PROFCI = NETCF/PCF \qquad (17.28)$$

– the indicator "profitability of cash outflow" (PROFCO) is calculated by dividing the factor "net cash flow" (NETCF) by the factor "negative cash flow" (NEGCF).

$$PROFCO = NETCF/NEGCF \qquad (17.29)$$

The results of the analysis allow the organization's managers to identify not only the dynamics of cash flow, but also how they are used in the process of activity, whether their volume ensures the financial stability and solvency of the organization, whether the remaining funds are sufficient to finance activities in the future.

Topic question 17.6 Ways to optimize cash flows

The results of the analysis are used to identify reserves for optimizing the organization's cash flows and their planning and control for the coming period.

Optimization of an organization's cash flows is one of the most important functions of cash flow management, aimed at increasing the level of their efficiency in the planned period.

The main tasks of cash flow optimization:

– identification and implementation of reserves that allow reducing the organization's dependence on external sources of raising funds;

– ensuring a more complete balance of positive and negative financial flows in time and volume;

– ensuring a closer relationship of cash flows by type of economic activity of the organization;

– increasing the amount and quality of net cash flow generated by the organization's economic activities.

Planning of an organization's cash flows in the context of their various types is predictive in nature due to the uncertainty of a number of its initial premises.

Cash flow planning should be carried out taking into account various alternative calculation options for different scenarios for the development of initial factors (optimistic, realistic, pessimistic).

The objects of control of the organization's cash flows are:

– fulfillment of established planned targets for the formation of the volume of funds and their expenditure in the prescribed areas;

– uniformity of cash flow formation over time;

– liquidity of cash flows and their efficiency.

The previously indicated indicators are monitored in the process of monitoring the economic activities of the organization.

TOPIC 18 ANALYSIS OF THE EFFECTIVENESS OF INVESTMENT AND INNOVATION ACTIVITIES

Topic questions:

18.1 Contents and main objectives of investment activity analysis

18.2 Analysis of the volume of investment activity

18.3 Analysis of the effectiveness of real investments

18.4 Analysis of the effectiveness of innovation activities

18.5 Analysis of sources of financing for innovations and other investment projects

Topic question 18.1 Contents and main objectives of investment activity analysis

The purpose of investment analysis is to objectively assess the need, possibility, scale, feasibility, profitability and safety of short-term and long-term investments; determining the directions of investment development of the company and priority areas for effective investment of capital; developing acceptable conditions and basic guidelines for investment policy; prompt identification of factors (objective and subjective, internal and external) influencing the occurrence of deviations in actual investment results from previously planned ones and, finally, justification of optimal investment decisions that strengthen the competitive advantages of the company and are consistent with its tactical and strategic goals.

Investment analysis consists of two parts:

– analysis of capital investments,

– analysis of financial investments.

Objectives of capital investment analysis:

– comprehensive assessment of the need and availability of the required conditions for long-term investment;

– justification for the choice of sources of financing and assessment of the cost of capital;

– identification of external and internal factors affecting the economic, budgetary and environmental efficiency of investments; forecasting the results of investment projects;

– justification of optimal management decisions to minimize risk and maximize project implementation targets;

– implementation of post-investment monitoring and development of recommendations for improving quantitative and qualitative investment results.

Objectives of financial investment analysis:

– conducting comprehensive research and summarizing extensive macroeconomic and political information on the conditions for the implementation of financial investments;

– organization of operational monitoring of changes in the state of the securities and loan capital markets;

– assessment of the current and forecasting of future financial stability of the issuing enterprise or potential debtor;

– determination of the optimal amount of highly liquid short-term financial investments;

– justification of risk and profitability parameters of financial transactions acceptable to the investor;

– optimization of the investment portfolio and assessment of its effectiveness;

– analytical justification during the development of the emission project.

The process of making capital investments and the process of making financial investments are combined in the general investment process.

The similarity of the information base for the analysis of capital investments and the analysis of financial investments, users of information, types of analysis, basic approaches in organization and methodology unites both directions within a single concept in understanding the essence and content of the analysis of investment activity.

Topic question 18.2 Analysis of the volume of investment activity

Investments are investments in the assets of an enterprise in order to expand the scale of activity, increase profits, increase the competitiveness and market stability of the enterprise.

Based on investment objects, the following types of investments are distinguished:
– real investments,
– financial investments.

Real investments are investments in updating the existing material and technical base of the enterprise; increasing its production capacity; development of new types of products or technologies; innovative intangible assets; construction of housing, social and cultural facilities, environmental costs and others.

Financial investments are investments of capital in securities, corporate joint ventures that provide guaranteed sources of income or supplies of raw materials, sales of products, and others.

Based on the nature of participation in the investment process, the following types of investments are distinguished:
– direct investments,
– indirect investments.

Direct investment involves the direct participation of the investor in the selection of investment objects and investment of capital.

Indirect investment is the investment of investor capital with the help of intermediaries.

According to the investment period, the following types of investments are distinguished:
– short-term investments (up to one year),
– long-term investments (for a period of more than one year).

Based on the level of investment risk, the following types of investments are distinguished:
– risk-free investments for which there is no risk of loss of capital or expected income;
– low-risk investments, the risk of which is significantly lower than the market average;
– medium-risk investments, for which the risk level approximately corresponds to the market average;
– high-risk investments, where the risk is significantly higher than the market average;
– speculative investments, investing capital in the most risky projects for which the highest level of investment income is expected.

According to the forms of ownership of the invested capital, the following types of investments are distinguished:
– private investment,
– public investment.

Private investment is the investment of capital by private individuals and legal entities of the non-state sector.

Public investment is the investment of capital from state-owned enterprises, as well as state budget funds.

According to the regional affiliation of investors, the following types of investments are distinguished:
– national (domestic) investments,
– foreign (external) investments.

Investments are of great importance for the future position of the enterprise. With their help, expanded reproduction of fixed assets of both production and non-production nature is carried out, and the material and technical base of enterprises is strengthened.

This allows enterprises to increase production volumes, profits, and improve the working and living conditions of workers.

The cost, range, quality, novelty and attractiveness of products, and their competitiveness depend on the size and efficiency of investments.

The task of analyzing the volume of investment activity is to assess the dynamics and degree of implementation of the plan, to find reserves for increasing the volume of investment and increasing their efficiency.

In the process of analysis, it is necessary to study the dynamics and implementation of the plan for the total amount of investment, as well as for the main areas of investment activity: construction of new facilities, acquisition of fixed assets, investments in intangible assets, long-term financial investments and others.

It is also necessary to analyze the implementation of the investment plan for each construction and installation project and study the reasons for deviations from the plan.

The implementation of the construction work plan is influenced by the following factors: availability of approved design estimates and financing; provision of construction with labor and material resources.

One of the main indicators when analyzing real investments is the implementation of the plan for putting construction projects into operation. It is not recommended to begin the construction of new facilities if the plan for commissioning those already started is not fulfilled, as this leads to the dispersion of funds between numerous facilities, stretching out construction time, freezing capital in unfinished construction and, as a result, reducing the return on capital investments and the efficiency of the enterprise as a whole.

Delaying construction work leads to an increase in unfinished construction balances, which is undesirable and is regarded as an irrational use of invested capital.

In this regard, it is necessary to find out what changes have occurred in the balances of unfinished construction during the reporting period. To do this, its actual amount at the end of the year is compared with the planned amount and with the amount at the beginning of the year and the reasons for deviations from the plan are studied.

In the process of analysis, the technical readiness of each object is calculated, defined as the ratio of the planned cost of work actually completed from the beginning of construction of the analyzed object to its full planned cost. A comparison of the actual and planned levels of technical readiness of facilities shows compliance with construction deadlines.

If construction is carried out using an economic method, then it is necessary to analyze the cost of construction work. For this purpose, the

actual cost of the work performed is compared with the estimated cost of capital construction in general and for individual objects.

After this, the reasons for cost overruns or cost savings for each cost item are studied in order to find reserves for reducing the cost of construction of facilities.

Expenses for the acquisition of fixed assets and their modernization occupy a large share in the total volume of investments. When studying this issue, it is necessary to consider the implementation of the plan for the acquisition of fixed assets by total volume and by item.

It should be borne in mind that an increase in the amount of investment for these purposes could occur not only due to the amount of acquired property, but also due to an increase in its value.

The volumes, dynamics and structure of investments in financial instruments (shares, bonds) and joint ventures should also be studied.

Topic question 18.3 Analysis of the effectiveness of real investments

When making business decisions about long-term investments, there is a need to analyze their effectiveness, the main purpose of which is to determine whether future benefits will justify today's costs. This requires a long-term analysis of the income from investment projects and the costs of their implementation.

The main methods for assessing the effectiveness of real investments are:

– calculation of the payback period of investments,
– calculation of the profitability of investment index,
– calculation of net present value,
– calculation of internal rate of return.

These methods are based on a comparison of the volume of proposed investments and future cash flows. The first two methods for assessing the effectiveness of real investments can be based both on the accounting value of cash receipts and on discounted income, the rest - only on discounted income, taking into account the time component of cash flows.

The essence of the method for assessing the effectiveness of investment projects "calculating the payback period of investments" is to determine the period necessary for the investment to pay for itself. It is the simplest and for this reason the most common.

If the income from an investment project is distributed evenly over the years, then the payback period of the investment (PP) is determined by dividing the amount of investment costs (IC) by the amount of annual income (AI).

$$PP = IC/AI \qquad\qquad (18.1)$$

If the income flow is uneven, the payback period is determined by directly calculating the number of years during which the income will compensate for the investment costs of the project, that is, the income will be equal to the expenses.

When using the method of "calculating the payback period of investments," large errors arise, since the unevenness and speed of income receipt are not taken into account.

It should be noted that the method of "calculating the payback period of investments" can only be used as an auxiliary indicator. The disadvantage of this method is that it does not take into account the difference in project income received after the initial costs have been recouped.

Therefore, when assessing the effectiveness of investments, it is necessary to take into account not only the payback period, but also the return on invested capital, for which the profitability of investment index is calculated.

Indicator "profitability of investment index" (PI) is calculated by dividing the expected amount of income (EAincome) by the expected amount of investment (EAinvestment).

$$PI = EAincome/EAinvestment \qquad (18.2)$$

However, this indicator, calculated on the basis of the accounting value of income, has its drawbacks: it does not take into account the distribution of cash inflows and outflows by year and the time value of money.

More scientifically based is the assessment of investment efficiency, based on methods of discounting cash flows: net present value, discounted payback period, discounted profitability, internal rate of return.

The "net present value" method can be characterized as follows: the present value of cash inflows minus the present value of cash outflows (that is, this method involves discounting cash flows in order to determine the effectiveness of investments).

Discounting of cash flows is the reduction of different-time (relating to different time points) values of these cash flows to their value at a certain point in time, which is called the moment of reduction. In this case, discounting of cash flows is carried out from the moment of financing.

Since the cash inflow is distributed over time, it is discounted at the interest rate (r).

An important point is the choice of the level of interest rate at which discounting is carried out. In the economic literature, it is sometimes called the comparison rate, since efficiency is often assessed precisely when comparing investment options.

Despite the difference in names, this rate should reflect the expected average level of loan interest on the financial market.

A major factor in determining interest rates is risk consideration. Risk in the investment process, regardless of its specific forms, ultimately appears in the form of a possible decrease in the real return on invested capital compared to the expected return.

Since this decrease manifests itself over time, it is proposed to introduce an amendment to the level of the interest rate as a general recommendation for taking into account possible losses from reduced returns.

The adjustment to the level of the interest rate should characterize the return on risk-free investments, that is, it is necessary to add some risk premium, taking into account both the specific risk associated with the uncertainty of obtaining income from a particular investment, and the market risk caused by the market situation.

The calculation of "net present value" (NPV) includes the following steps:

– the current value of investment costs for the project (IC_0) is determined,

– the current value of future cash receipts from the project (PV) is calculated, for which cash flows for each year (CF) are reduced to the current date,

$$PV = \sum(CF_n/(1 + r)^n) \qquad (18.3)$$

– the current value of investment costs (IC_0) is compared with the current value of future cash receipts from the project (PV), the difference between them is the net present value of the project (NPV).

$$NPV = PV - IC_0 = (\sum(CF_n/(1 + r)^n)) - IC_0 \qquad (18.4)$$

If the level of the "net present value" indicator is greater than zero, then the investment project should be accepted. If the level of the "net present value" indicator is less than zero, then the investment project should be rejected. If the level of the "net present value" indicator is equal to zero, then the investment project is not profitable, but also not unprofitable.

If, at the end of the project implementation period, it is planned to receive funds in the form of the liquidation value of equipment or the release of part of working capital, they must be taken into account as income for the corresponding periods.

If the project does not involve a one-time investment, but sequential multiple investments of financial resources over several years, then the following formula is used to calculate the "net present value" indicator.

$$NPV = (\sum(CF_n/(1 + r)^n)) - (\sum(IC_j/(1 + r)^j)) \qquad (18.5)$$

It should be noted that the "net present value" indicator reflects a forecast assessment of changes in the economic potential of the organization in the event of the adoption of the project in question.

The "net present value" indicator is additive in the time aspect, that is, the net present value of various projects can be summed up. This is a very important property that distinguishes this criterion from all others and allows it to be used as the main one when analyzing the optimality of an investment portfolio.

Thus, using the net present value method, it is possible to fairly accurately estimate the profitability of projects. This method is used as the main one when analyzing the effectiveness of investment activities, although this does not exclude the possibility of using other methods.

The discounted payback period of an investment is the time required for the amount of discounted cash income to cover the amount of discounted investment costs.

The "discounted payback period" indicator (DPP) is calculated using the following formula.

$$DPP = (\sum(ICj/(1 + r)^{j}))/(\sum(CFn/(1 + r)^{n})) \qquad (18.6)$$

Since discounting reduces cash income, the discounted payback period of the project is always greater than the simple payback period calculated on the basis of the accounting value of cash income.

The discounted payback period, as well as the simple payback period of investment projects, is an indicator of liquidity, not the profitability of investment projects. He also ignores cash income received after the payback period of investment costs.

The indicator "discounted payback period" is supplemented by the indicator "discounted profitability index of investment projects" (DPI), which is calculated using the following formula.

$$DPI = (\sum(CFn/(1 + r)^{n}))/(\sum(ICj/(1 + r)^{j})) \qquad (18.7)$$

Unlike net present value, this indicator is relative. An investment becomes profitable when its profitability exceeds the average rate of return on cash deposits in the capital market.

The profitability index is convenient to use when choosing an investment project option from a number of alternative options. The selection criterion is the maximum profitability of the investment object.

One of the indicators that is used to evaluate the effectiveness of investments is the "internal rate of return" (IRR) indicator.

The internal rate of return is the discount rate at which the discounted earnings from a project are equal to the investment costs. The internal rate of

return determines the maximum acceptable discount rate at which funds can be invested without any losses for the owner.

The value of the "internal rate of return" indicator (IRR) is found from the following equation.

$$(\sum(CF_n/(1 + IRR)^n)) - IC_0 = 0 \qquad (18.8)$$

The economic meaning of the "internal rate of return" indicator is that it shows the expected rate of return, or the maximum allowable level of investment costs in the project being evaluated.

An investment is effective if the internal rate of return is greater than or equal to the specified discount rate. If this condition is met, the investor can accept the investment project, otherwise the investment project must be rejected. When comparing several investment projects, preference is given to the project with the highest internal rate of return.

This method of assessing the effectiveness of investments is the reverse of the "net present value" method. It is focused not on finding the level of the "net present value" indicator at a given discount rate, but on determining the "internal rate of return" indicator with a given value of the "net present value" indicator equal to zero.

Topic question 18.4 Analysis of the effectiveness of innovation activities

Innovation is the profitable use of innovations in the form of new technologies, types of products, processes.

The transformation of a new idea (innovation) into an innovation is called the innovation process, and the introduction of an innovation to the market is called commercialization.

Innovative activities are aimed at the practical use of scientific, scientific and technical results and intellectual potential in order to obtain new, radically improved products, their production technology, labor organization, management system in order to increase competitiveness and strengthen the market position of the enterprise.

Innovation is considered to be the main factor ensuring the growth and prosperity of an enterprise. The main goals of innovation are to minimize the cost of products (services) and increase its competitive advantages.

The following types of innovations are distinguished:
– product and technological;
– basic and improving;
– strategic and adaptive.

Product innovation is the release of fundamentally new or improvement of existing types of products and services in order to improve

their consumer properties and competitive advantages, which helps to increase the volume of product sales.

Technological innovations are aimed at increasing the level of the operating process by improving the applied and using new, more advanced equipment and production technology, introducing advanced methods of labor organization, and improving the enterprise management system.

Technological innovations have a direct impact on cost savings: reduction in material intensity, energy intensity, labor intensity, capital intensity of manufactured products (work performed and services provided), as well as on the amount of profit of the enterprise.

Basic innovations involve the creation of fundamentally new products and technologies.

Improving innovations are inventions that improve production technology or the quality characteristics of manufactured products.

Strategic innovations are innovations, the use of which provides the advantage of the "first move", as a result of which the enterprise can receive high profits and take a leadership position in the market of goods and services.

Adaptive innovations are innovations that enterprises implement following the leader in order to prevent falling behind in competition for sales markets.

Innovation development is one of the main areas of strategic analysis carried out at the level of senior management.

The main objectives of strategic analysis in the development of innovations are:

– determining the technical and economic characteristics of innovation, assessing its quality, increasing the level of competitiveness of products;

– determining the amount of investment for the development and implementation of innovation;

– identifying opportunities for developing innovation: financial, personnel, material and technical;

– determination of the payback period of innovation;

– assessment of the effectiveness of innovation.

A distinction should be made between innovation and investment, although there is a very close connection between them.

The innovation process is impossible without investment, and investment without innovation does not make economic sense, since such an approach preserves backwardness in the field of engineering and technology, which ultimately reduces the competitiveness of the enterprise.

Given the close relationship between innovation and investment, sometimes the same indicators are used to assess the effectiveness of innovation and investment, which is not entirely correct.

For an investment project, the main criterion is its financial efficiency in terms of attractiveness to investors. For an innovative project, not only

financial results are important, but also its novelty, which satisfies the needs of consumers and manufacturers.

The indicators used to assess the effectiveness of innovation activities are combined into three groups.

The first group includes indicators characterizing the production effect of innovation:

– increase in production volume,
– increase in added value,
– saving material resources,
– reduction in production costs,
– reduction of labor costs,
– increase in labor productivity,
– reduction in material consumption,
– cost reduction,
– and other indicators.

The second group includes indicators characterizing the financial efficiency of innovation:

– increase in marginal profit,
– increase in profit from product sales,
– increase in net profit,
– increase in net cash flow,
– increasing the level of profitability of sold products,
– increasing the level of profitability of sales,
– increasing the level of profitability of assets,
– increasing the level of profitability of equity,
– and other indicators.

The third group includes indicators of investment efficiency of innovations:

– calculation of the payback period of investments,
– calculation of the profitability of investment index,
– calculation of net present value,
– calculation of internal rate of return.

The only peculiarity is that it is necessary to take into account the entire amount of investment costs of the enterprise in the commercialization of innovation, starting with investments in research and development and ending with the process of launching production and entering the market.

All of the above indicators are used for a comprehensive assessment of the effectiveness of investing in innovative projects, both in general and for individual objects.

Topic question 18.5 Analysis of sources of financing for innovations and other investment projects

The successful implementation of an investment plan in innovative and other projects largely depends on the availability of sources of financing for the enterprise.

Simultaneously with the study of the dynamics and implementation of the capital investment plan, it is necessary to analyze the implementation of the plan for the formation of sources of their financing.

Financing of innovation and investment activities is carried out both from the enterprise's own funds (profit, reserve capital) and from borrowed funds (long-term bank loans, loans, leasing). In addition, budgetary allocations may be allocated for state-owned enterprises.

The method of financing an investment project is understood as a method of attracting investment resources in order to ensure the financial feasibility of the project.

The main methods of financing investment projects are:
– self-financing (investing only from one's own funds);
– corporatization, as well as other forms of equity financing;
– credit financing (investment loans from banks, issue of bonds);
– leasing;
– budget financing;
– mixed financing (based on various combinations of the above methods).

In this case, it is necessary to distinguish between gross and net investments. Gross investment is the volume of all own investments in the reporting period. Net investment is less than gross investment by the amount of depreciation charges in the reporting period.

If the amount of net investment is a positive value and occupies a significant share in the total amount of gross investment, then this indicates an increase in the economic potential of the enterprise, which directs a significant part of the profit into the investment process.

On the contrary, if the amount of net investment is a negative value, then this means a decrease in the production potential of the enterprise, "eating away" not only its profit, but also part of the depreciation fund.

If the amount of net investment is zero, this means that investment is carried out only through depreciation charges and that there is no economic growth in the enterprise and the basis for increasing profits is not created.

In the process of analysis, it is necessary to study the implementation of the plan for generating funds for investment activities in general and by main sources and establish the reasons for deviations from the plan.

It is also necessary to analyze changes in the structure of sources of funds for these purposes, to establish how optimally the own and borrowed funds are combined. If the share of the latter increases, this can lead to

instability of the enterprise's economy and an increase in its dependence on banks and other organizations.

The share of borrowed sources of financing capital investments depends on the following factors:

– sufficiency of own funds to update and expand the material and technical base of the enterprise;

– the level of real interest rates on long-term bank loans, taking into account inflation expectations and the effect of financial leverage;

– the level of credit intensity of the enterprise and its accessibility to obtaining a long-term loan;

– the achieved level of financial leverage (the ratio of equity and borrowed capital), which determines the financial stability of the enterprise.

Attracting one or another source of financing for investment projects is associated with certain costs for an enterprise: the issue of new shares requires the payment of dividends to shareholders; bond issues require interest payments; obtaining a loan requires paying interest on it, using leasing requires paying remuneration to the lessor, and so on.

Therefore, during the analysis process, it is necessary to determine the price of different sources of financing and select the most profitable ones.

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The lecture notes "Analysis of economic activity" cover issues of the theory of analysis of economic activity, the method and methodology of conducting a comprehensive analysis of economic activity both in general and in the context of its individual areas: analysis of the use of fixed assets, analysis of the use of personnel, analysis of costs, analysis of financial results, as well as analysis of the financial condition of the organization.

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