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# **Assessment in Accounting: Concept and Tools**

Monograph

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## Abstract

The monograph is devoted to the study of the valuation in accounting (financial, managerial, actuarial) accounting, in the interests of business management and information support for interested parties.

Reliable standing display of all accounting objects is carried out through the mechanisms of evaluation. Modern change of their dominants in the system of international standards consists, in particular, in a gradual transition first to the widespread use of fair value measurement, and then to the mixed assessment model, as well as polyvariability in valuation for financial and management accounting, the use of actuarial mathematics in determining the value business. This requires the development of elements of a particular system, presented in the work.

The study of complex objects is impossible without an evolutionary retrospective, periodization and systematization of their development trends. Therefore, it is important to establish a valuation for the genesis as a tool for accounting and managing and implementing forecasts for its near future.

The transparency and validity of the formation of data on the cost of accounting objects and, on their basis, a reliable representation of the elements of financial statements, is a matter of internal contradiction — between the categorical requirements of institutional and legal norms and the evaluator of subjectivity of the valuer. Ways to mitigate this contradiction, through the variability of accounting policies for valuation for various purposes and various objects, are also explored in the work. Each economic entity is closely associated with stakeholders, groups of influence, which causes the need to study the relationship between the degree of satisfaction of groups of value influence and the value of the enterprise itself for such groups. To determine the degree of this dependence, an analysis of the sensitivity of the enterprise's value to the satisfaction of the groups of value influence is conducted, making it possible to identify priority areas for their future activities.

The monograph is intended for researchers, teachers, graduate students and doctoral students, university students, accountants and managers, other professionals interested in evaluation problems.

## Keywords

Valuation, evaluation, historical cost, fair value, mixed valuation model, present value, discounting, actuarial accounting.

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## Preface

In modern conditions of strengthening and accelerating globalization processes, the problems associated with the issues of cost valuation, is one of the most important and complex in the theory and practice of accounting. From the theoretical and methodological foundations of accounting depends on the reliability of the value display of all its objects in the capital circulation process. The change in the dominant evaluation, the gradual transition first to the increasingly widespread use of fair value measurement, and then the development of a mixed evaluation model, the use of actuarial mathematics in determining the value of a business requires the development of elements of a certain integrated system. Therefore, the formation of a systematic and reasonable concept for the evaluation of objects and, on its basis, the development of methodological and technological instruments appropriate for the needs of modern business for the needs of cost valuation in accounting, is in our opinion an urgent task of a scientific and applied nature.

Adequate cost valuation of accounting objects provides one of its main objectives — providing users with information about the capital formation processes of an enterprise in any phase of its life cycle.

Ensuring the transparency and validity of the formation of data on the value of accounting objects, and, on its basis — a reliable representation of the elements of financial statements, which is a matter of internal contradiction. Contradictions between, on the one hand, often categorical requirements of institutional and legal norms, relative variability of cost information received according to their instructions, from which its previously determined valuation can completely or significantly lose credibility and, on the other hand, the subjectivity of the subject's «evaluation object», that is, the appraiser. The possibility of mitigating such a contradiction — in particular, through the variability of accounting policies on evaluation in modern conditions — is also a challenge to develop.

Over the past decades, in accounting theory and practice, there has been a gradual change in many of the postulates of the evaluation concept, in particular, a gradual abandonment of the priority of historical evaluation in favor of fair and current (discounted) value, which envisage enhancing the role of the evaluation subject as the one who has judgments about the value of its object. Such a trend can be observed by analyzing trends in the development of international accounting and reporting standards, primarily IFRS.

Requirements to the needs of interested users of accounting information, their goals, the desire to improve management decisions that make, necessitates the constant need to modernize the cost valuation system, the need to form and implement the most representative information. Therefore, the development of the theoretical and methodological apparatus of the value formation process based on the principles of orderliness and organization requires clarifying and displaying the manifestations of the relationship between user goals, the time factor and the specifics of the business situation in the context of institutional and objective economic constraints of accounting data and reporting indicators.

It is impossible to explore any object without ascertaining its sources, determining the stages of evolution and periodization, and systematizing the trends in its development. Therefore, it seems important to clarify the evaluation genesis as an instrument for accounting and management and on the basis of its analysis and the implementation of forecasts for its future.

The generalized result of the evaluation of both the process and the instrument — the cost valuation of the size of the enterprise's capital — ensures the solution of one of the main tasks of accounting — information support for all users both about the capital formation process and its distribution and use in the circulation; and also cover the occurrence and repayment of obligations, the formation, distribution and use of profits. That is, the processes, and the basis, and as a result of which the calculation is worth calculating capital — that is, in the end — the value of the business.

Any economic entity is closely connected with the environment, and first of all — stakeholders, groups of influence. In this regard, it is necessary to consider the question of the relationship between the satisfaction degree of groups of value influence and the value of an enterprise for such groups. To determine the degree of such dependence, studies of the sensitivity of the value of an enterprise to the satisfaction of value influence groups are provided, it will allow to highlight such areas that should become priorities in the future activities of these subjects.

Understanding and significance of cost valuation in accounting is constantly changing, requiring rethinking of its functional load, eliminating discrepancies in the interpretation of basic concepts, finding the main approaches to the implementation of practical procedures for calculating the cost, solving controversial issues of application, in particular — regarding historical cost and fair value, improving set of rules for calculating fair value for various purposes. In this it is also possible to see the relevance of the topic of work. In our opinion, the existing shortcomings of the cost valuation can be eliminated by an in-depth study of the process of cost formation, its constructive and, conversely, destructive manifestations, and on their basis by improving the theory of cost valuation and developing a common methodology of evaluation procedures, justifying the principles for constructing this process and setting the limits variability of types of value and methods of their calculation; specific business conditions.

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# **Chapter 1**

## **Theoretical basis of evaluation in accounting and reporting**

### **1.1 The essential characteristics of valuation and evaluation in determining the value of accounting objects**

Measurement is a prerequisite for scientific knowledge. Under the measurement, the close terminological correspondence of which, in fact, is the valuation, it is possible to understand the assignment of specifically defined entities to objects or events according to certain parameters. For objects with which the economy operates, the priority parameters are numerical, for the most part — cost parameters.

How was succinctly determined by E. S. Hendriksen and M. S. van Breda, «valuation is assignment of a numerical value to an indicator or a property of an object» [1].

One of the main features of accounting is the reflection of economic assets, the sources of their formation and economic processes in monetary terms, then in value measurement. Consequently, accounting is able to reliably display only those means, processes and phenomena that may be subject to such measurement.

The importance of a reliable and relevant valuation lies in the fact that the reliability of indicators reflected both in the financial statements — for the needs of primarily external users, stakeholders, and indicators — absolutely depend on it, and are disclosed in the financial statements (and financial and management), and in the accounting registers, which serve as a basis for making management decisions by internal users, primarily management.

The cost measurement of accounting objects in accounting and its place in the formation of accounting and reporting information is determined by the fact that it is due to the need to create, document, summarize and control information, which characterizes all accounting objects. Thus, the cost measurement of accounting objects is a means of their universal presentation (exposure) and bringing accounting objects in the same form.

In the early 20s of XX century one of the classics of accounting theory, the Swiss scientist I. F. Sherr having defined «the problem of evaluation,

the heaviest in balance...» [2, p. XV], indicated that «the monetary value in accounting is a measure of economic goods and their quantity, their exchange value. Considering this, the cash account is the main one, and the quantitative account is a minor element of accounting.» [2, p. 14].

This form reflects the accounting objects in a single monetary meter, allows to further manipulate with them to test registration in primary accounting documents, interrelated modeling and reflect transactions in the accounts using double entry and interconnect data from analytical and synthetic accounting, providing comparisons documented credentials with information on the actual availability of assets and liabilities on a specific date in the inventory process, and ones — generates an array of data during the balance of generalization and formation of the information in the circuit of accounting (financial and management) reporting. That is, it passes through the outline through the entire set of methodological techniques of accounting, in fact, being present and being implemented in each of them.

As rightly noted by P. Nimchynov, the monetary evaluation is «not a component of the accounting method as well as not the method in other economic disciplines (political economy, statistics, finance, sectoral economies, etc.) where it is used. Monetary evaluation is a condition in which there is an accounting can be carried out». At the same time, it performs the functions of not so much a method as a universal measurer of objects adopted in the national economy» [3, p. 133]. Such a broad approach to defining the essence of valuation can be conventionally described as «super-methodologically».

In a certain way, such a vision can be traced in the studies of prof. N. Maliuha. She notes that «valuation is the process of realizing the positive or negative significance of any economic phenomena, the results of labor, the forms of production and labor activity, material actions, business achievements to meet human needs, interests, goals of the subject» [4, p. 24].

Noting the importance of cost measurement in the accounting process, Ya. Sokolov and V. Sokolov note: the cost measurement «became the basis of a double entry» [5, p. 44]. Also Ja. Sokolov pointed out: «Outside of a monetary evaluation, there is not and can't be an accounting system. Thanks to the valuation, accountants achieve the impossible: they reduce money, materials, licenses, foreign currency, fixed assets, debts, expenses, embezzlement, shortages into one total amount (asset) and work with it, all thanks to a single measure: conditional and unconditional» [6, p. 198].

Finalizing the exceptional role of evaluation, Ya. Sokolov says bluntly: «Valuation is the heart of the accounting methodology» [6, p. 364].

The ability to display objects of accounting and reporting in monetary (value) form is achieved in various ways. In the last century, the thesis of V. Palii and Ya. Sokolov on the reflection in accounting of methods of value measurement, which are divided into the actual valuation and calculation: «a comparison of economic phenomena and processes inherent in accounting, based on valuation and calculation» [7, p. 125].

Ja. Sokolov also emphasizes that «valuation, being the central problem of accounting and bookkeeping, should be considered from at least three points of view:

- according to the subject;
- according to the method;
- according to its function in the information reflection of business processes» [5, p. 211].

Determining the place of valuation, Ya. Sokolov, nevertheless, insists on its definition precisely as a methodological device «valuation is a method (our emphasis) is the transfer of accounting objects from a natural meter to a monetary one; the assignment of monetary value for the object [8, p. 197].

Prof. V. Shvets explains the valuation in a similar way — as «the method of the cost measurement of economic means, the sources of their formation» [9, p. 155], also proceeding from its traditional definition as one of the methodological methods of accounting.

Vasyl and Valeriia Sopko note: «Evaluation of economic facts (phenomena and processes) is a prerequisite for recording them in the system of accounting evidence — documents, registers (accounts) and reporting. Evaluation in accounting is a common measure that allows to summarize all the economic facts: phenomena and processes as a set. Evaluation is also a composite method of accounting and its principle, without which accounting by a dual (dual) system cannot be carried out» [10, p. 155].

L. Lovinska also considers valuation as an element of the accounting method. «Valuation is a component of the accounting method, with the help of which the cost measurement of accounting objects, the creation of qualitative characteristics of accounting and economic information and information support for the analysis of the financial condition of the enterprise and the effectiveness of its management are carried out» [11].

By the way, the first to characterize the valuation as a component of the accounting method were S. Tatur (1952) and M. Leontiev (1953).

Romanian researchers Iulia Jianu, Roxana Ruiu, Ionel Jianut, Mihaita Ruiu note [12]: «Valuation should be viewed as a definition of value, and measuring — as an operation. By promoting the idea of «theorizing» (developing the theory of accounting) valuates in accounting, we could miss the necessary — cost».

Z. Tuiakova gives the following definition: «valuation is a focused, orderly process of calculating the value of an object of accounting observation in monetary terms, or expressing an opinion about the value of an object, which is carried out by an economic entity or a professional appraiser ... whose results are reflected in the financial statements taking into account the requirements to qualitative characteristics of financial information» [13, p. 154].

Finally, the IFRS Concept explains valuation as the process of determining the monetary amounts for which the elements of the financial statements should be recognized and presented in the Balance Sheet and

Income Statement [14]. Also, in the valuation, the Basis understands the subject's scientifically based opinion about the value of the object that is being evaluated.

Both recent concepts, by the way, are based on the characterization of evaluation as a process, and not just a method or a way.

Thus, in the theory of accounting, certain ambivalence arises by definition of valuation. On the one hand, most researchers consider it as a methodical technique and an integral element of the method of accounting. On the other hand, it is also quite convincingly, by many scientists it is characterized more widely — not as a method (or not only as a method or methodical device), but as the main necessary condition ensuring the implementation of all accounting methods, or as a process of implementing such methods. The definitions themselves, not summarized in a particular system, carry in their essence certain definitions of inconsistency.

In our opinion, such a contradiction of concepts can be removed by applying the complementarity postulate, first formulated by Niels Bohr, who introduced such concepts as «method of description», «principle of description» into the methodology of science in connection with the interpretation of quantum mechanics.

Its essence can be formulated as follows: to reproduce the integrity of a phenomenon at a certain stage of its cognition, it is necessary to apply such mutually exclusive and mutually intertwined, that is, «additional» classes of concepts that can be used separately depending on special (experimental, etc.) conditions, but only taken together exhaust all information on the object, which is amenable to description.

Evaluating the value of the discovery of N. Bohr, M. Born [15, p. 532] wrote: «the principle of complementarity is a completely new way of thinking. Opened by Bohr, it applies not only to physics. This method leads to further liberation from the traditional methodological limitations of thinking, summarizing the important results».

Thus, the principle of complementarity is a general scientific methodological concept, allowing for the need to use different, sometimes opposite theoretical models to describe one reality. In our study, let's try to apply this principle, which will allow to find the most complete construction of the description of the object.

Summarizing the views of scientists of our time on the essential characteristics of the valuation of the identified basic principles, as a method and as a process, are given in Appendix A. The analysis of the valuation definitions reflected in it allows to distinguish at least two approaches to its understanding, which can be seen in modern accounting literature.

The first principle is that valuation is considered as a process leading in one way or another to transforming the characteristics of the accounting object from a heterogeneous natural or intangible form into a universal — cost form, through which other elements of the accounting method are



implemented and its tasks are performed. Such an approach, in our opinion, is as complex as possible and at the same time allows to focus on a certain parameter (for example, the onset of an unfavorable event in the definition given by O. Fomina [16, p. 67–70]).

The second principle is based on the priority of the evaluation characteristic as a method of reception, the method by which the measurement of the cost parameters of an object is carried out. As noted by prof. P. Haidutskyi and V. Zhuk [17, p. 74] «in modern Ukraine, as in Soviet times, views dominate valuation as a methodical instrument for the value expression of economic processes and phenomena».

All of the above visions were unified in application for the purpose of monetary measuring. However, it is possible to note that its exclusive use on accounting objects is limited and not quite exhaustive. D. Alexander, A. Britton and E. Jorissen ironically describe the imperfection of a monetary meter (in this example, the euro), with which they try to measure the value of an object (pencil): «Euro is as elastic as a tape! For example, in relation to the dollar, the euro is changing, as far as we know from published data on exchange rates. More importantly, the euro is changing in absolute terms, as indicated by the published inflation data. The value of the euro is not clearly defined and is not constant. However, accountants use it as if it is both clearly defined and constant» [18, p. 74].

Therefore, taking into account such restrictions on the actual evaluation of objects, it is possible to use broader interpretations. On the basis of the neoclassical approach to the formation of value (according to consumer and exchange valuates) prof. A. Evtukh proposed to use the original qualitative and quantitative approach to determining the value. The essence of this principle lies in the fact that the norms (limiting dimensions for possible parameters), the formation of values are based on the qualitative characteristics (utility and limitations), and the normative value of value — on quantitative indicators, that is, the amount of money or cash equivalents, as the most likely price in the market [19, p. 17].

Justifying the concept, which involves not only the cost measurement of objects, the author emphasizes that «the process of objectification of subjective attitudes to value in market conditions is carried out consistently. The first step in this case is the emergence of the desire of a market entity to own an item of subjective value for it, then this item is evaluated on the basis of social value — market value, the next step for a potential buyer is to compare the value of the goods with the value of the money they own. If the subjective factors (demand) coincide with the objective value (price), goods are purchased. So, the movement of money is accompanied by objectification of value relations, which is at the same time a unique means of displaying stable, objective connections in the economy» [19, p. 17].

By the way, the idea of using non-monetary measures in evaluation is not new. In the 20–30s of XX century, M. Smith and S. Klepikov, believed

that the basis of a single measure in the account should be based on the costs of the conditional reduced energy units (they called «erg»). The idea of a subject meter for accounting was suggested by A. Chaianov, who believed that when measuring, it would be advisable to apply a conventional unit that would reflect the size of the material embodied in the subject of labor – the amount of raw materials and instruments of production. P. Amosov, A. Savich and A. Izmailov were supporters of the use of the natural measure in the valuation [20, p. 9]. This «accounting neo-physiocracy» was formed at the beginning of the USSR with the direct influence of the Marxist doctrine, had the function of state economic ideology, namely, the dominant then view of the fast and unconditional dying of money in any capacity, but this possibility itself deserves attention, concluding an element of current ration.

In the potential use for accounting purposes of both monetary and non-monetary measures, we see an open corridor in the application of this principle when generating indicators in an integrated reporting system, which provides for the disclosure of information not only in cost indicators.

Thus, despite the multiplicity of the valuation concept, the theory can hardly avoid a contradiction in the interpretation of its essence, without going beyond the limited scope of this concept. Therefore, in modern accounting literature, along with the valuation concept, a more complex concept appears – evaluation.

It is the use of the term «evaluation» for the purpose of accounting in the interpretation of researchers that has a much wider range of meanings than the «valuation» itself.

I. Suprunova determines that «evaluation is the process of determining the valuation of accounting objects» [21, p. 481].

As noted by prof. T. Marenych, «accounting valuation is the process of expressing economic information in monetary terms, which is reflected in accounting and financial reporting in order to meet the needs of users of accounting data. And evaluation, as one of the methodological techniques (elements) of accounting, should be considered as a system of methods for measuring the value of accounting objects. Depending on the specific goals and objectives of accounting, analysis, control, assets, liabilities, expenses, incomes are evaluated according to different approaches. For example, fixed assets can be valued at initial, residual, overvalued, liquidation value, net realizable value, etc. More often, different methods are combined» [22, p. 21].

Not as identical terms consider the concept of valuation and evaluation in accounting and prof. Iulia Jianu and her colleagues. Valuation by them is considered as an operation itself, and evaluation (that is, measuring) is already a process, a set of operations or actions. The authors estimate the evaluation result is the cost [12, p. 203].

«Cost is the result of a theoretical approach, it can either be obtained as a result of a simple comparison or as a result of a more or less complex

calculation carried out using a formula, method, or a mathematical-economic model» [12, p. 203].

Regarding the concept of evaluation and its place in accounting instruments among researchers there is no definite unanimity among the researchers. Also, the evaluation period is practically not fixed in the regulatory field, domestic and at the IFRS level. By the way, in the Ukrainian legislation concerning the regulation of accounting, there is practically no interpretation of the term «valuation» itself, which in itself is a significant conceptual problem! The only interpretation we have found is given in P(S)A in the public sector 125 «Changes in accounting valuation and correction of errors» and contains the following definition: «accounting valuation is a preliminary valuation that is used to distribute expenses and incomes between the respective reporting periods». This interpretation is extremely fragmentary and can't claim to be used to define a concept regarding the description of a wide range of accounting objects [23, p. 3].

So, having investigated a number of visions of authoritative scientists on the problem of determining value in the interests of accounting, let's try to make our own generalizations.

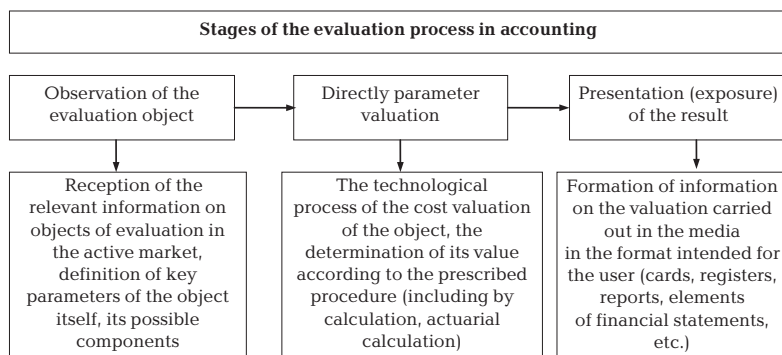
Valuation is an expression in arbitrary units of a certain characteristic, that is, equivalent measures, of an object that is measured (valuated). For the purposes of accounting and reporting, the key concept of valuation of objects in modern conditions is objectively the value determined in monetary terms. Thus, valuation should be considered as the sum of conditional monetary units for expressing elements of financial statements, based on their cost and other relevant parameters, the purpose of establishing which is providing users with relevant and comparable information for decision-making.

At the same time, valuation in accounting is seen by a process (and at the same time a method) the assignment of a monetary equivalent to accounting objects, elements of financial statements for their reflection in the accounting system and reporting on the basis of their value and other important parameters, for exposure to external users and processing for the purpose of managing the business by users. Also, evaluation, in our opinion, is identical to the concept of measurement, since the latter is an element of the accounting method of the procedural approach, which provides for the actual valuation and costing.

It is possible to expand the boundaries of the contour of the term «evaluation» by including, in addition to the actual valuation and costing, a component of the actuarial costing. Under it, in a broader sense, we see the definition of the value of the business as a whole, as well as the calculation of the fair value of one share in accordance with the models of residual operating profit and anomalous growth of operating profit.

The final goal of the valuation and evaluation is determination whether the accounting objects are at the reporting date.

As a process, evaluation form a sequence of observation stages for an object (for example, monitoring the market of financial assets, is not yet the definition of a parameter as the valuation subject), the actual measurement (cost measurement as valuation by a methodical approach or the calculation of value (another parameter) using a specific mathematical model) and presentation (exposure, publication) of the measurement result to the user of information in a predetermined format (for example, a pricing map or information). The model of the evaluation process is shown in Fig. 1.1.



**Fig. 1.1** Stages of evaluation as a process and their characteristics.

*Source: developed by the author*

Valuation (and calculation, as its form is complicated), as methods of cost measurement of accounting objects, allows forming data on accounting objects at various stages of the organization's capital circulation: when preparing resources (supplying) production, works, services and their sales.

In contrast to the valuation itself, the calculation is primarily aimed at determining the actual cost of products, works, services, is a more complex procedure, which provides for the autonomous formation of direct costs for types of products, accounting and synthesis of indirect costs for their places of types of products, accounting for work in progress, calculating the cost of production based on the valuation method adopted in the accounting policies of the organization, accounting for the costs of subsidiary products production and distribution of them in workshops – supporting services, products, works, taking into account losses from rejection, etc. Thus, calculation is a special and difficult, methodically solitary valuation, represents «...a way to measure cost by summarizing heterogeneous costs in a single monetary measure and their grouping by types of products, works, services» [7, p. 128].

Classification of valuation in accounting has no less than the essence of the valuation itself.

Thus, in the Section 6 of the Conceptual Basis of Financial Reporting «Valuation», in the 2018 revision [24], there are four types of valuation used in IFRS:

- historical value;
- fair value;
- current (or the same) value;
- possible selling price (redemption value) (BC 6.8).

According to the concept of V. Sokolov and Ya. Sokolov, leaving the evaluation of the study on the subject, according to the method and for its function in the information reflection of business processes, the classification of valuates can be carried out according to six main principles [5]:

- by measured object (individual and aggregate);
- by relation of measurement subject to valuation (historical and costing);
- by relation to the calculation criteria to the subject of the valuation (objective and subjective);
- by type of measurement (nominal and fixed);
- by type of settlement (expense, receipt and conditional);
- by time of belonging (valuation that took place in the past, present and future with respect both to the point in time at which they are calculated and to the point at which they are calculated).

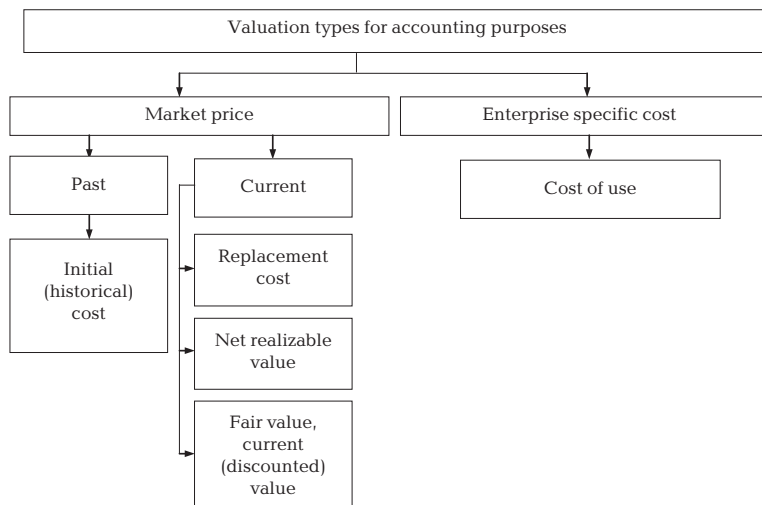
L. Lovinska carried out the classification of valuation for accounting purposes, based on the use of physical and financial concepts of capital preservation. According to her, all accounting valuation are divided into two large aggregates: historical (based on the financial concept of capital preservation), the purpose of which is profit valuation for current costs, and current (based on the physical concept of capital preservation), used to objectively evaluate the balance sheet items [11].

The original systematization of approaches to reviewing types of valuation is proposed by I. Suprunova [21]. The researcher identifies three types of value acquisition of the value of objects: an accounting valuation, an independent and expert one. They differ in essence, subjects, regulations, methods of implementation.

In their research prof. N. Maliuha [4] identifies the following features of the valuation classification:

- by the object, which is measured: individual, aggregate;
- by the criterion of calculation: objective, subjective;
- depending on the further use of the property: at cost; at market price;
- by the subject of measurement: historical, calculation;
- by type: nominal, fixed, property items in the balance, direct, indirect;
- by time: by the time of measurement, by the moment for which the results are intended;
- by calculation methods: permanent, restored, others;
- by type of revaluation: markdown, revaluation surplus.

K. Nobs, exploring the features of measuring the cost of accounting objects in the UK (based on international financial reporting standards), suggests the following classification of valuation (Fig. 1.2).



**Fig. 1.2** Classification of valuation and types of value (based on the classification of K. Nobes [26])

When using historical cost when evaluating objects depending on the quality of costs, there is a real possibility of fairly accurate calculation of the financial results of the organization, which is one of the goals of accounting and financial statements, allowing to meet the economic interests of a fairly wide range of users, internal and external. As rightly noted by E. S. Hendriksen and M. F. van Breda, «in any case, the asset valuation must meet the requirements of the financial statements» [1, p. 327]. So, to calculate the most accurate financial result, a historical (actual) valuation of assets of an economic entity is necessary, due to the cost property of accounting objects. Historical value, despite its uniqueness and documentary, is the value of the past, and therefore is usually not an objective definition at the current moment. Comparing the theories of static and dynamic balances, Ya. Sokolov emphasizes this property of objects of monetary (value) measurement and its disclosure in reporting: «the more accurate is the valuation of the financial result, the less accurate is the valuation of funds (due to the use of dynamic balance theory)» [8, p. 419].

V. Karpova, interpreting the valuation as a process of formation of the value of accounting objects, invests in its definitions the possibility of using various types of valuation (historical and current) separately for accounting and for accounting (financial) reporting, calling their choice the influence

of the time factor. Therefore, the researcher on this basis makes, in fact, a radical difference between the actual accounting and accounting (financial) statements [25, p. 31].

Considering the above approaches to the choice of valuation of accounting objects in order to reflect them in the financial statements according to international financial reporting standards and national accounting standards, the classification in terms of stages of the accounting cycle should be as follows (Table 1.1).

**Table 1.1** Types of valuation in the context of the stages of the accounting cycle [27]

Valuation date	Types of cost under IFRS	Types of cost for NAS	Example
1	2	3	4
Valuation at the date of recognition (initial cost)	Historical prime cost	Historical cost, residual value	Inventories, fixed assets, intangible assets
	Fair value		Inventories, fixed assets, intangible assets (as a contribution to the authorized capital, as a result of the exchange, etc.); financial assets and liabilities
Valuation at the balance sheet date	Lowest: historical cost or net realizable value		Stocks
	Prime cost model or revaluation model	Residual value, which is defined as the initial cost, minus depreciation	Fixed assets, intangible assets, investment real estate
	Lowest: book value or fair value minus expenses		Non-current assets held for sale and disposal groups
	Lowest: fair value or present value of minimum lease payments		Rental objects
Valuation at the balance sheet date	At fair value and equity method (investments in associates)	Fair value, cost, according to the equity method (in associates and subsidiaries and in joint activities with the establishment of a legal entity) and at amortized cost	Financial investments
	Fair value, amortized cost	– Current, which is a financial asset – at net realizable value; – current, which are not a financing asset – at the service cost; – long-term interest accrued – at present value	Financial assets
	Fair value, amortized cost	Long-term – present value; current – repayment value	Financial liabilities
	Best valuation, present value	Resource valuation	Provision

Continuation of Table 1.1

1	2	3	4
Valuation at the disposal date	Liquidation value, book value	Liquidation value, residual value	Fixed assets, intangible assets
	The identified cost of the corresponding unit of inventory; weighted average cost; the cost of the first time inventory (FIFO); regulatory costs; Selling price		Stocks
Value measurement of future income or expense streams, valued under current conditions	Current (discounted) cost		Expected dividends, future investment profit margin, long-term assets (or liquidation group), if it is expected that the sale will take longer than a year

According to the asset valuation, the researcher notes that in accounting it is necessary to preserve their «historical value until the time of disposal, avoiding arbitrary revaluations. The real value of assets at any given time can be cited as additional information in the financial statements» [25, p. 169].

Important factors in the evaluation are also the limits of accuracy and certainty (or uncertainty). Thus, according to the IFRS Conceptual Framework (IASB, 2010) «valuation can provide relevant information, even if such valuation is subject to a high level of measurement uncertainty. However, if the measuring uncertainty is high, the valuation is less relevant than it would be if it were caused by a low measuring uncertainty. An uncertainty of measurement arises when the measure of an asset or liability can't be directly recorded, but must be measured» [14].

The financial statements of the organization, in our opinion, should consist on the basis of the static theory of balance sheet in terms of using the property of profitability in evaluating objects and applying various types of current valuation (according to the latest trends of International Financial Reporting Standards — using a mixed model), as well as the modern ideology of IFRS.

At the same time, it seems to us that the correct developments for countries in transition (in particular, for Ukraine) on the basis of IFRS national regulatory documents, comprehensively described both the essential features of the valuation and the options for applying the possible options for valuation and evaluation regarding the preparation of financial statements.

So, the vision of the properties of cost and profitability in valuation and evaluation of the accounting objects, allows us to justify the use of the polyvariance of valuation — and separately for the purposes of current accounting and financial reporting. The application of the obtained results can provide an opportunity to get reliable information to evaluate the financial



condition and financial results of economic entities, and therefore — an adequate picture of their property status, the value of the business as a whole.

Regardless of what methods and procedures of evaluation are used by the economic entity, they should be based on the most objective cost of the registered object. And at the same time — the desire of users of accounting information to have an idea about the value of accounting objects in various conditions of operation of a business generates various valuation methods.

As a result, we quote the wonderful idea of Hill L. E. and Owen D. W. [28]: «There is a similarity between truth and cost, value. Truth has a price and the price must be true, and the cost must be true. Cost is the highest form of truth».

## **1.2 Genesis, evolution and periodization of value measurement methods in accounting and reporting**

The genesis of the accounting methodology went through six main stages: naturalistic (4000 – 500 BC), cost (500 BC – 1300), digraphic (1300 – 1850) theoretical-practical (1850 – 1900), scientific (1900 – 1950) and modern [6]. Actually accounting, that is, ensuring the dual reflection of business transactions in the accounts and the periodic compilation of the balance, accounting becomes at the third — the digraphic stage. However, the need for valuation is associated with each of the six stages, and the evaluation is correlated with the last five.

Since the appearance of valuation in terms of value for accounting purposes, which is implicitly recorded already in ancient times and began to be used for the purposes of dual accounting in Italy of the end of the XIII — beginning of the XIV century there are two main models of value measurement:

- in historical prices — that is, at the cost of acquiring or creating an object corresponding to the moment of its acquisition (creation), as documented at that moment;
- in current prices (adjusted replacement prices, market prices, in measuring the fair value, finally, at the residual value). The whole further history of evaluation in accounting is the evolution, coexistence, and sometimes the opposition of these basic concepts.

The use of multivariance in measuring various accounting objects with their history reaches the times when the accounting itself appears.

In particular, the Roman architect Vitruvius [29] recorded that with the construction of buildings, the initial cost of the walls of public buildings was reduced annually by one eightieth (in fact, straight line wear was described here). On the other hand, brick walls were usually valued at the amount in which their construction cost (that is, at historical cost).

In early studies of the digraphic period, the accounting for the basic principles of accounting valuation did not have a clear and unambiguous

formalization; they did not contain recommendations for the use of specific principles of value measurement. The multilevel principles for constructing evaluation methods provided for the use of various criteria – at selling (as high as possible) prices valid in the current period and at historical cost (cost price). Some of the assets (for example, fixed assets, finished products) were mainly proposed to be valued at cost (historical evaluation), and others (for example, goods) at retail prices. Studying the problem of value measurement of property, Luca Pacioli does not give unambiguously specific guidance on valuation in all aspects of its application, but rather tended toward the evaluation principle in the current, even adjusted parameters. He noted that the valuation can't be lower than the cost of actual costs, since it should stimulate the sale of goods at high prices.

The treatise «On Accounts and Records» reads: «...for all things, you will put ordinary prices. Appoint the latter better higher than lower, for example, if it seems to you that a thing costs 20, then say 24 so that you can make a better profit» [30].

In this case, the author proceeds from current sales, even the highest possible prices. At the same time, the founder of modern accounting becomes in essence the founder of creative accounting, since the implementation of this principle led to a systematic overestimation of the amount of capital and at the same time to a decrease in the amount of this income.

«And so you will continue to transfer other articles on all other goods, making up a separate article about any business ... You should accept the cost at the current rate indicated on the appropriate inventory sheet, choosing any coin to evaluate the article, which, however, should be reduced to one type when choosing, because it is inconvenient to make samples of articles expressed in different money» [30].

Further, Pacioli writes about product pricing either at purchase prices (see Note 5 to Chapter 20 of the Treatise), or at cost price (see Section 18). It is characteristic that the Florentine Pacioli describes both the revaluation accounting that prevailed in Tuscany and the accounting model in Venice, where the cost valuation is prevailed [31, p. 28].

The following important studies in accounting theory regarding evaluation are associated with the name of Jacques Savary (1622–1690), the author of the «three balances» concept, from which one can start the reading of modern visions of dynamic and static accounting schools, economist, merchant and lawyer, one of the authors of the commission, developed the regulations of French commercial law. Savary's contribution to the work of the commission was so significant that the code adopted on the basis of his work was called the Savary Code.

The reports of Savary at the meetings of the commission were revised by him into the book «The Perfect Entrepreneur», the provisions of which became the basis of the static accounting model [32], within the framework

of which it is preferable to use valuation precisely at fair or market (as its derivative or kind) of value, as well as the constant use of revaluations.

According to the valuation of the goods (professional property), Savary does not take into account the possible price of their sale, which may overstate or underestimate the profit, which is not yet in reality.

Savary, however, admits of exceptions in the cost valuation:

- 1) if the price of the goods can be measured below cost, if the manufacturer has lowered it or wholesale prices have fallen;
- 2) if the prices for obsolete goods are reduced;
- 3) if the prices for damaged or unusable goods are significantly reduced [33, p. 325].

«This also includes the question of how prices are set for goods. Therefore, one should be careful not to rate them higher than they are actually worth at the moment, since this leads to the fact that one can become rich «only on paper» [34, p. 18].

It should be noted that Savary shows the personal property of the owners in the valuation of the entire business, since it is important for lenders to know how much money can be gained from selling the property in the event of a collapse of the borrower or debtor, thereby opposing modern principle of autonomy.

In the case of fictitious liquidation, there can be no other property evaluation than the possible sale price, which is reflected in current market valuation, but which can't be considered objective from the standpoint of current accounting.

To justify the application of the possible sale price of J. Savary in *Le parfait negociant* applies the «principle of lowest prices». If the sales prices at the reporting date as a result of a change in fashion or other price reduction are lower than the initial acquisition costs, then in appraising such movable and immovable property (and in some cases, commodity stocks), market prices are applied.

And, on the contrary, with the growth of the current market value, which arose on the date of the creation of the balance of fictitious liquidation, the objects should be evaluated at their cost.

The idea of static balance was declared mainly by lawyers, who believed that reporting should primarily provide information on whether the company is able to pay its obligations. Since real means of payment can be detected only as a result of the sale of an enterprise's assets (or at least their valuations at current (agreed by counterparties) prices), they argued that, first, these prices should be used as baseline for reporting a, secondly, the final result of the enterprise can be calculated only after its actual liquidation.

Since in practice there can be no actual liquidation, it was proposed to make a fictitious liquidation, which is, based on the results of the inventory, we should evaluate each object at the prices of its possible sale. Thus,

current prices become the basis for the preparation of the balance in the framework of static accounting.

Historicism in evaluation is at the basis of the dynamic concept of balance, however, such valuation themselves, as already noted, were used much earlier. In particular, in 1860, A. Gilbo proposed to evaluate the inventory of historical value, regardless of the conditions and period of use [35], which made it possible to determine the feasibility of acquiring it at a specific price in primary documents and calculate the financial result for each individual sale operation.

The development and proper formalization and definition of the concept of «dynamic balance» belong to the German scientist Eugen Schmalenbach (1873 – 1955).

Schmalenbach distinguishes between the «real» value of the property (a practical analogue of the term «fair value») and its «book value» as the basis for depreciation. At the same time, the objective value of the assets corresponds to the purpose of displaying the property status, but not the purpose of calculating the profit of the company. The change in the value of the enterprise as a result of changes in the actual value of its property has nothing to do with the amount of the company's profit as a criterion of the effectiveness of its economic activity [36, p. 168 – 169].

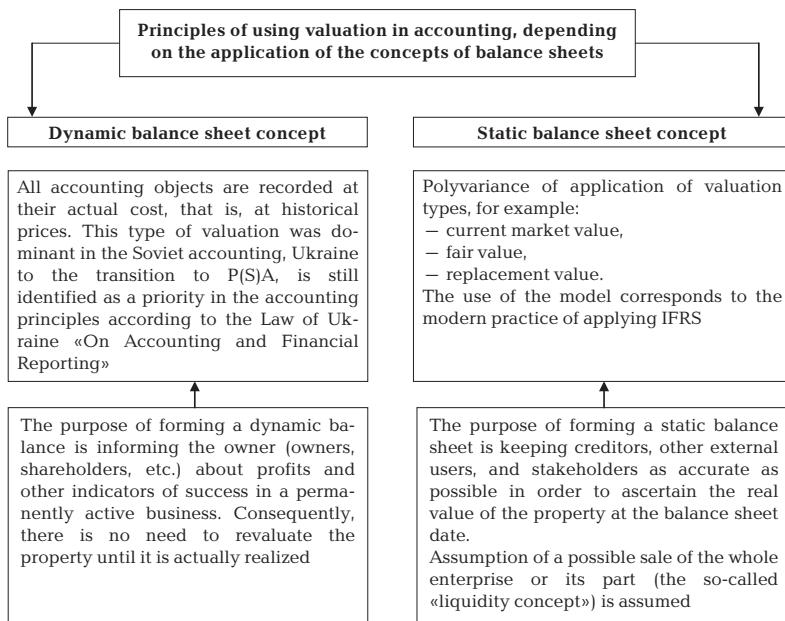
Such a statement makes Schmalenbach a supporter of the modern interpretation of the principle of the economic autonomy of the company as a subject of accounting, which provides, among other things, the need for separate consideration of the company's profits and the profits of its owners. At the same time, the growth of the real value of the property is the profit of the owners, but not the profit of the company. The company's profit can be formed by the dynamics of the actual value of its assets only in the case when the company's activity consists in investing funds in certain assets in order to generate income from the growth of their value. The distinction between the firm's profit and its owners' profit is, according to Schmalenbach, the basis for the clarity of the firm's activities in its balance sheet and subordinates accounting to the rule that «can't distribute profits more than they are received» [36, p. 169].

At the same time, Schmalenbach emphasizes that the valuation of the assets of a firm, which is used for the purpose of calculating profits, will not reflect their real value. It is fictitious from the point of view of the current state of affairs, but at the same time it is objective as the basis of the company's income with its costs. Thus, a fictitious and completely artificial, outdated valuate at historical prices represents the most realistic and accurate amount of the company's profits.

The aim of the balance sheet is therefore to calculate the financial results of the company, and therefore, «the balance only serves to demonstrate the property status of the company, which is necessary to calculate its financial result» [36, p. 168].

Fig. 1.3 is a summary of approaches to evaluation according to the static and dynamic concepts of balance sheets is presented.

An alternative to evaluating historical prices is the use of valuation, in one way or another, based on the revalued value of objects, and in most cases this is due to the need for maximum reliability and fairness of their measurement.



**Fig. 1.3** Principles for using valuation in static and dynamic balance concepts.

*Source: compiled by the author*

The development of the theory of fair value can be compared with a spiral, which, having its beginnings in the ancient world and having no direct relation to accounting, having gone through several rounds, has now become an unconditional trend for cost measurement both for accounting and for its rigid contours.

The entire development of public relations (up to the appearance of codified norms for regulating the life of society) is connected with the need to conduct a valuation in the aspect of public perceptions of justice. At the same time, the system of legal regulation as a universal criterion of justice also falls under this valuation, since the rules in any law must also be objectively fair.

However, when a question arises about the general definition and some parameters of justice as such (and not only about the validity of actions

in a particular case) are set, then very substantial theoretical problems usually arise. There are views, the essence of this concept is almost impossible to generalize fully enough, because for this, such a meaning should have an objective character, while «justice is always subjectivity, it is understood primarily as a projection of one's own interests. Even common interests imposed on the subject are not perceived by it as fair, if they contradict its interests» [37].

If, on the other hand, there are no subjective grounds for determining the content of justice, this concept can turn into a certain illusion, which it is inappropriate to use to characterize and evaluate real social and economic phenomena and processes.

When applied to economic entities, fair value measurement has a history of more than two thousand years. The first presentation of the idea of a fair price as a criterion for a fair exchange, in which the parties to the exchange receive their share, rather than making money at the expense of another, belongs to Aristotle and is set forth in his ethical doctrine.

In the book five «Nicomachean ethics», where the virtue of justice is analyzed in various manifestations, Aristotle distinguishes two of its forms:

- The general justice, or established by law as an absolute virtue in relations with others, is the full implementation of the law, if the law itself is established correctly. This is the political form of such virtue.
- Justice is private, which concerns the distribution or exchange of property and honors among citizens. It is distributive justice that establishes proportional equality between members of a community depending on the value of each of them. Due to this justice eliminates inequalities arising from private transactions.

The basic provisions of Aristotle on a fair exchange are as follows:

- an exchange occurs if the participants in a transaction are linked by mutual need, and that which is to be exchanged is, in a certain sense, solitary and has a common measure of evaluation;
- a general degree of exchange is necessary, which in practice is replaced by money, which is a conditional criterion established not by the inner nature of the phenomenon, but by agreement between people;
- the exchange is fair if the ratio of the parties reflects the contribution ratio to the object of evaluation of their labor;
- carrying out exchanges between themselves, people participate in the general life of a society (policy), and without fair exchanges it is impossible [38, p. 246 – 248].

Aristotle did not finally formulate a definitive decisive criterion, on the basis of which it would be possible to judge which proportion of exchange is fair and which is not, although his theses contained two key measures – the work that results in the proposed benefit to exchange, and the need that is expected from the benefits received in the exchange. And the condition for determining the size of the «due» is that «everything that participates in the

exchange must somehow be compared». As a measure of comparability is the coin, that is, money [39, p. 142].

The next stage in the formation of views on a fair price refers to the times of the Roman Empire, or rather, to the era of the early Dominate and the rule of Diocletian (from the end of the 3rd century AD).

Right of ancient Rome since I century BC distinguished categories of price and value of items of civilian traffic. In classical Roman law, considered the purchase and sale transactions, did not put forward strict requirements for the sale price of the value of the goods.

Increasing centralization of state administration during the period of the Dominate and wider intervention of state regulation in all spheres of public and economic life has reinforced a great deal of specifics in the price determination.

The price (*pretium*) should correspond to the following features: to be determined (*certum*), real (*verum*) and fair (*iustum*) [40, p. 273 – 276].

The determined price is a certain specific amount that the parties have determined for the goods. In addition, the way these parties used to determine it could be determined. The real price is the real price, objectively exists on the market, and not a fictitious one, used for hidden gift giving.

Finally, the fair price – *iustum pretium* – provided for a fairly close match between the value of the goods (for the seller) and its selling price.

The term «*iustum pretium*» is found in several edicts of Diocletian. The most significant among them is the edict on the prices of goods (301) [41, p. 359 – 397]. He set the maximum allowable prices for basic foodstuffs and services throughout the Roman Empire. This edict set firm prices for about 1,000 food products and prices for the work of artisans and representatives of other professions.

However, its adoption violated one of the basic rules of the Roman jurisprudence of the classical period for sale and purchase: that the price is set to the free discretion of the parties, taking into account good faith (that is, without the use of deception, coercion or threats). Thus, the «will» of the Diocletian edicts was considered the will of the regulator, although it was manifested for ethical reasons to prevent speculation and unjustified enrichment of sellers in times of crisis. Consequently, in the interpretive interpretation of fair value, we see it as a kind of antipode of the market price.

Diocletian himself linked price regulation with the requirements of «humanity itself» and the need to counter the greed of sellers [41, p. 376]. Such price regulation (primarily for food) is not enough, in fact, one main goal – prevention of famine in crisis, lean years, and then – the political and economic stability of the Empire.

In the early and mature Middle Ages, the codified Roman law continued to play a huge influence on the legal and economic components of the social life of the countries of Europe.

The further development of the concept of fair exchange is connected with the works of medieval canonists, primarily Thomas Aquinas (second half of the 13th century). His reasoning about fair value was based on the development of the ideas of Aristotle on the interpretation of the concept of exchange law and justice and full equivalence in exchange. The fair value of any item, according to them, should be measured by the balance of the needs of people and the cost of labor for its creation [42].

According to Thomas Aquinas, the criterion of justice is the result of subjective valuation of the two sides, exchanged. First of all, it is a subjective valuation of the measure of damage or loss by the seller that it will incur by selling a certain resource or product. This damage is generally correlated with the cost of its acquisition or production. But no less important is the buyer's subjective valuation of the value of this product, that is, the degree of its need for it. The seller must also take into account the quality of the goods, setting a price on it. In his further reasoning, Thomas Aquinas mainly considers the average price set for this product in the presence of average conditions as a «fair price» [42].

In the works of the thinker, we find the statement that the ideal price should be considered «price, which serves as a measure of the value of life-giving things. ... If the price exceeds the value of a thing or vice versa — the value of a thing exceeds the price, the equality that justice requires is increased. Therefore, it is unfair and illegal to sell a thing more expensive or cheaper than its cost» [Ya. Sokolov, V. Sokolov. Accounting history. Moscow: Finance and Statistics, 2004, 272 p., p. 40].

Thomas also believed that «it is sinful to resort to deception in order to sell a thing more than its fair price, since deceiving our neighbor, we harm it». The demand for a fair price stems from the very purpose of purchase and sale — the mutual profitability of exchange [42]: «buying and selling seems to be based on the mutual benefit of both parties, because one needs what the other has, and vice versa, as the Philosopher believes [Aristotle] in «Politics».

Thomas categorically condemns precisely delusion as a motive and instrument of conscious action, and not accidentally undervalued or overpriced. Speaking about quality, Thomas makes a distinction between explicit and hidden flaws in detail. Like modern rules on consumer protection, the thinker concludes that in a situation where the seller does not disclose latent defects to the buyer, he is deemed to be deceived and has the right to demand termination of the contract with the refund paid [5, p. 34].

Canonists — followers of Thomas Aquinas developed his ideas of fair value. Citing the famous medievalist Jacques Le Goff [43, p. 193], we present the vision of a fair price by a theologian of the thirteenth century. Alexander of Hales:

«The fair price is the price applied in a particular place. It is stable and consistent with the common good nature of prices in trading operations. This is ... the exact opposite of what is commonly understood by the notion of competition and free fluctuations in supply and demand».



Also important is the connection of the proximity of justice to the category of «caritas» — sympathy for one's neighbor (most often, the poor or the disadvantaged). Again quoted by Le Goff, «in all the major theologians of the thirteenth century, William of Auvergne, Bonaventure and Thomas Aquinas, the concept of fair prices correlated with *justicia* — justice, always based on *caritas*» by Goff [43, p. 194].

The development of economic ideas of Thomism, in particular and in the valuation, was quite consistent, if not doctrinal, throughout the Middle Ages. Thus, the concept of a fair price was adhered to by the Master of the Sacred Chamber Silvestro Mazzolini, or Sylvester (1456 – 1523), the author of the work «*Summa Summarum*», 1514 – 1515, which was at that time the most complete Encyclopedia not only on theology, but also on economic issues.

To the question, «it is allowed for someone to sell its item for as much as possible», Sylvester gave a negative answer in his early work «*The Golden Rose*» (1503). Because justice requires equalization of the things being exchanged, and the reference, that is, fair price is «that which usually consists in a given place and at a given time», «is established on the basis of a common valuation by people», «is not the only accurate one». As a result, Sylvester said: «It is allowed to be correlated with a thing and vice versa — so it will be if it is sold at the current price for cash or if it is sold for as much as possible, in the absence of deception, coercion and inexperience» [44, p. 31 – 32].

The further genesis of the economic doctrine of Thomism, including the equivalence of exchange, was reflected in the works of scientists of the Salamanca school, one of the directions of the late scholasticism, formed at the University of Salamanca (Spain) in the XVI century, representatives of which further developed the teachings of Thomas Aquinas in particular — in terms of explaining economic phenomena.

One of its founders, Francisco de Vitoria, in his lectures given in the years 1534 – 1535, considered the basic fair price set by the state or prevailing in the market as a result of subjective valuations of people who determine the need for a product [44, p. 34 – 35]. The very method of pricing, which Vitoria has made dependent on the number of market participants, is close to the modern understanding of the conditions of market and cost pricing:

«When there are many sellers and buyers, it is unfair and illegal for the buyer to buy cheaper and the merchant to sell more than the fair price, that is, to calculate the price on the basis of costs, and it's no excuse that the latter bought somewhere a higher price». An exception was made only for luxury goods, the need (and hence the price in the market of which) is not dictated by an objective need for them.

A further vision of the fair evaluation — or in modified terms — of market value, then the replacement price, which relate to its purely accounting application, and relate to the formation of the fictitious elimination of J. Savard mentioned above. It provides for the use of property evaluation at the price of a possible (foreseen, but not realized) sale, and the measure

of equity, as well as according to the views of scientists of Salamanca, is the demand for assets.

We see further development of the concept of fair value in the 19th century.

Excessive supply of capital in the market leads to the creation of numerous enterprises in the real economy sector. The importance of large enterprises requiring significant investments is growing and is financed by investors through stock markets. This, in turn, requires an improved presentation of financial information.

The answer to the need of society for accounting information was the development of a regulatory framework in the field of economics, in particular, legislative consolidation of the established accounting and reporting practices of enterprises. In Germany, this document became the all-German trade information (*Allgemeines Deutsches Handelsgesetzbuch*), 1861. This document for the first time secured the use of accounting valuates at replacement prices, in fact, at fair value. Article 31 is devoted to the valuation of assets, which stated that all physical assets and receivables should be measured at fair value. Additionally, Article 239A in redaction of 1870 regulated accounting in more detail. In particular, it was suggested that securities listed on exchanges should not be valued above their current market value [45].

Also, in the section «Additional rules on the valuation of asset items» of this code it is stated: «§ 137. In the valuation, if no other rules are established, the usual cost should be used as a basis.

§ 138. Regular value is determined by the price that could be obtained in normal circulation when alienating according to the properties of another object, taking into account all the circumstances affecting the price» [2, p. 131 – 132].

The main organizational principle of the Anglo-American accounting school, so far, is methodological independence. The development of the fair value concept in the UK appeared with the advent of Joint Stock Company Acts in 1844 and 1856, which required a «correct and correct view» of the state of affairs of the company, by obtaining asset valuations as of the last date. This requirement was based on the assumption that the value of the balance should be an indicator of the ability to conduct business and pay off debts. Consequently, market (but de facto — not just) valuation was used by the majority of non-public companies, and especially by the banking sector. Although UK law established standard invoice forms for certain enterprises and required accounts to be audited, it did not detail the methods and rules of evaluation.

From the late nineteenth century to the mid-twentieth in the United Kingdom, a mixed accounting model was used with a prevailing valuation at historical cost.

A gradual turn towards historical cost was also observed in Germany. Among its factors were not only methodological inconsistency, but also

dishonesty and frank fraud of managers of commercial enterprises, led to a surge in financial abuse in the 70s of the nineteenth century.

In Germany, the concept of «fair value» was interpreted rather conservatively; the wording of the article Consolidation did not endorse the valuates above historical, while allowing the valuation below the fair value to create reserves for «hard times». The crisis, which began in May 1873 after the collapse of the stock market in Vienna, subsequently spread to the entire world economy and became a severe and prolonged financial crisis of the nineteenth century. One of the means of salvation in a crisis was the accounting of securities at historical cost. Accounting regulators of joint-stock companies changed the direction towards historical accounting by adopting the Law on Joint-Stock Companies of Germany in 1884, aimed at preventing the unjustified distribution of profits among shareholders.

Cost accounting for joint stock companies experienced several reforms in 1931 and 1965. In 1986, as part of the new edition of the German Trade Code, the principle of accounting at historical cost became (and still is) mandatory for non-stock companies.

In the United States, the appearance of the term «fair value» in the regulatory field can be traced back to 1898, when the Supreme Court ruling established that regulated industries have the constitutional right to «fair compensation of the fair value» of enterprises. Which and in Europe, the reason for establishing the fair value of the company was the use of the market value of its shares and bonds. Lee, T. A. Review of «The Routledge Companion to Fair Value and Financial Reporting» / T. A. Lee // Accounting and Business Research. — 2008. — 38 (1). — P. 93–96.

And the disappointment motives for fair value were similar to European ones. When in the United States, due to the financial crisis of 1929 and the Great Depression, a practical ban (as we shall see, temporary) took place on the evaluation of financial assets at replacement prices. Consequently, after the collapse of the stock market in 1929 at the New York Stock Exchange, the American Institute of Accountants (AIA) asked for help in developing the standards to be followed by companies — participants of the stock exchange [46].

Another consequence of the fall in the stock market was the creation of the Securities and Exchange Commission (SEC). The formation of this body in 1934 initiated the strengthening of state supervision and control in the capital markets due to the New Deal of Roosevelt.

In the practice of accounting, it was generally accepted to evaluate at historical cost, although without strict definitions of all aspects of application, since after the Great Depression there was a general tendency towards conservatism in accounting. This implied in practice the abandonment of the use of «current valuation» (valuation at current market value) or «valuated values» (the present value of expected returns) for such non-current assets as equity assets, fixed assets and intangible assets. By 1940, the

practice of revaluation of fixed assets was practically excluded from the financial statements of the United States [47].

The release by the Accounting Research Department (ARD) «Accounting Research (ARS) 3» in 1962 can be described as the birth of the modern era in the valuation for accounting needs. This study included provisions that questioned the priority of historical value for asset evaluation. In particular, the study recommended that any «objectively determined» changes (for example, changes in price levels and changes in replacement cost) on the value of assets should be recorded [46].

The next step of the accounting methodology in the appraisal loop was the product of the American Accounting Association (AAA). The Regulations on the Fundamentals of Accounting Theory (ASOBAT), issued in 1966, recommended compliance with four properties of accounting information:

- relevance;
- authenticity;
- impartiality;
- measurability.

Despite this, accounting at initial cost still dominated theory and practice and continued to underlie the paradigm of the first GAAP standards issued.

At the new stage of development of accounting in the United States, the Financial Accounting Standards Board (FASB), established in July 1973, has become the main body for the development of evaluation principles.

An important event that affected the shift in the priority of accounting at historical cost was the loan-loan crisis of the late 1980s. It exposed the flaws in accounting at historical cost, and the Securities Commission advised the FASB to apply developments in valuating market valuations for debt securities — as assets of financial institutions.

The International Committee first included the concept of fair value in 1977 in IAS 17, Rent Accounting. Following IAS 17, the concept of «fair value» was included in IAS 16 «Fixed assets», IAS 18 «Revenue», IAS 22 «Combining companies».

The development of the use of financial instruments in the late 80s stimulated the creation of the same name IAS 39. A joint working group consisting of the International Accounting Standards Committee and the developers of accounting standards of the main participating countries developed a methodology by which enterprises should take into account financial instruments and similar assets, valuating the present value of expected cash flows discounted at the current market rate of return. The purpose of the working group on accounting on this basis was to reduce the anomalies of existing mixed accounting approaches and the need for comprehensive hedge accounting. The development of IAS 39 finalized the principles of IFRS at fair value.

In September 2006, the Financial Accounting Standard Board (FASB) published a financial accounting standard Fair value measurement (hereinafter

referred to as SFAS No. 157), which is a guide to determining fair value in accordance with US GAAP.

SFAS No. 157 [48] specifies that fair value must be understood as the selling price. «Fair value is the price that could be obtained from the sale of an asset or pay transfer obligations in the framework of a normal transaction between market participants at the evaluation date».

After the last global financial and economic crisis of 2008–2009. In order to prevent threats of such crises in the future, the Council for International Financial Reporting Standards has developed a new standard — IAS 13 «Fair value measurement» [49]. This standard, which came into force in January 2013, integrated existing views on the determination of the fair value of assets and liabilities, and also provided a new definition. According to section 9 of IAS 13, the fair value is «the price that would have been received for the sale of an asset or paid for the transfer of a liability in a normal transaction between market participants at the valuation date».

IFRS 13 defines approaches to determining fair value based on the separation of all accounting objects into non-financial assets and liabilities (fixed assets, intangible assets, investment property) and financial assets and liabilities — financial instruments (long-term bonds, options, forward contracts, futures contracts).

The text of the standard specifies that an enterprise should use such evaluation methods, are acceptable under the circumstances, and for which information is available that is sufficient for determining fair value.

The purpose of using such methods is setting the price at which the transaction would be carried out on a voluntary basis at the evaluation date in current market conditions.

The genesis of the concept of fair value and the stages of its formation are also given in Appendix B.

However, there is still a discussion about the appropriateness of the allocation of fair value as a separate type of valuation of accounting objects. So, according to prof. G. Kireitsev, the fair value can't be the basis of accounting evaluation, «as a method of quantifying economic reproduction, and therefore cannot be the basis of a methodology for measuring the facts of economic life». The introduction of the category of «fair value» into scientific practice and economic practice, in the opinion of the professor, is the recognition of the element of destructive ideologization of economics [50].

And accounting scientists and practitioners unanimously state that among the main detonators of the global financial and economic crises (150, and 90, and 10 years ago), there was the use of unreliable (overestimated) valuation of the assets of an enterprise using the fair value [51, p. 62]. What are the ways to solve the problem we see now?

In 2013, at the 36th congress of the European Association of Accountants, member of the IFRS Council, Philippe Danjou, in a report on the results of the development of changes to the conceptual framework of

financial statements, reported that the use of several types of valuates in accounting was called a mixed valuation model.

Hans Hoogervorst, Chairman of the Council for International Financial Reporting Standards (IASB), in 2015 delivered a speech at the IFRS conference in Paris. He devoted his speech to the topic of valuing assets and liabilities. They noted the following:

«Historical cost to some extent is based on fair value; it needs a certain degree of current measurement in order to remain relevant. It is not at all free from the subjectivity of revaluations and is far from always stable ... Historical value is very sensitive to abuse. Summing up the above: all vulnerabilities, usually referred to as fair value, are also relevant for historical ones. Both costs – historical and current – have their own advantages and disadvantages. So, do not constantly neglect one in favor of the other. In the end, everything remains to be chosen by the preparer itself, but the general recommendations here are:

If the business nature involves the use of assets in combination with other assets for the production of goods or the provision of services, this, other things being equal, indicates more to use historical cost.

If the nature of the business involves more asset trading or liabilities in active markets, this indicates a greater application of fair value.

If the characteristics of assets and liabilities are such that they are highly sensitive to market factors, this, all other things being equal, indicates more to use the present value» [52].

And all of the above is now reflected in Chapter 6 of the Conceptual Framework for Financial Reporting, edition 2018 [24].

### **1.3 International Accounting Standards as a component of the modern institutional environment in the context of the evaluation of objects**

The institutional environment is a clear orderly set of institutions that define the framework conditions for the functioning and development of economic entities.

Institutional economics defines the institutional environment as «a set of basic political, social and legal rules that form the basis for production, exchange and distribution and define the framework of human behavior» [53].

Logically, summing up the above definitions of the institutional environment, it is necessary to focus on the object of study chosen by us. They have international financial reporting standards in the context of evaluation of objects. The definition of the concept of international financial reporting standard (hereinafter IFRS) is provided in the Law of Ukraine «On Accounting and Financial Reporting in Ukraine» and in Article 1 they are interpreted as «documents adopted by the Council on International

Accounting Standards that define the procedure for preparing financial statements» [54].

There are 16 IFRS; there are also international accounting standards (hereinafter IFRS), which are applied under IFRS. These regulations were used to create national accounting regulations (standards) and held a leading position. Today, all changes occurring in the accounting methodology caused by changes in IFRS are reflected in changes in national P(S)A.

All objects of the account, at their first appearance at any enterprise, have their cost and additional expenses depending on the method of their receipt. All these costs must be taken into account in the initial cost of the object of accounting. The methodological basis for the formation of information about accounting objects is concentrated in the national provisions (standards) of accounting (hereinafter P(S)A). The latter have been developed and are aimed at the implementation of the Program for Reforming the Accounting System Using International Standards [55].

The list of existing IFRS and IFRS for small and medium enterprises is given on the website of the Ministry of Finance of Ukraine. And the information specified in them concerns all accounting objects that an enterprise may possess.

Using the requirements of the International Financial Reporting Standards for creating regulatory regulations In Ukraine, it begins by taking into account the requirements of the Conceptual Framework for Financial Reporting, which contains the basic principles, concepts and rules including the main criteria for evaluating accounting objects. Thus, part 6 of the Conceptual Framework describes various bases for evaluating objects and focuses on factors that must be taken into account when selecting them [14]. These Conceptual Foundations 2018 define several types of valuation. Two main ones are distinguished from them:

- 1) at historical cost (in domestic standards of initial cost);
- 2) at current value [14].

These types of valuation, at historical cost and current value of accounting items, are described in many IFRS and IAS.

In addition to these types of valuation, they also do not exclude fair value, cost of use, cost of implementation and present value [14].

The calculation of the fair value takes into account the requirements of IFRS 13 «Fair value measurement», and the calculation of the cost in the cost of use and sale is determined in accordance with IAS 36 «Impairment of Assets». The selection of the valuation base in both standards takes into account the factors indicated in the previous sections of the Conceptual Basis of Financial Reporting, which should be considered when choosing the valuation base, and corresponding to the qualitative characteristics of useful information – relevance and correctness of presentation [14].

Point of view on the need for evaluation and recognition in IFRS starting with IFRS 1 «First application of International Financial Reporting

Standards», which indicates the need to include them with the provisions of the accounting policies of each enterprise [56, IFRS1].

IFRS 2 «Share-based Payment» contains requirements for the valuation of transactions related to equity settlements, which are valued based on the fair value of the equity instruments provided, the determination of the fair value of the equity instruments granted (taking into account the following approaches: Approach to the terms of the acquisition of rights; Approach to the terms of the non-acquisition of rights; Approach to the basis of renewal, after the date of acquisition of the right) [56, IFRS 2].

IFRS 3 «Business Combinations» specifies requirements for the recognition and valuation of identified acquired assets, incurred liabilities and any uncontrolled interest in the acquired enterprises in order to merge the business. These principles and conditions for the recognition, classification or designation of identified assets acquired and liabilities assumed in a business combination, evaluation principles, and exceptions from the recognition or valuation principles. Determination of the fair value of the equity instruments provided; Approach to the terms of the acquisition of rights; Approach to non-acquisition terms; Approach to the basis of renewal In addition, the requirements for recognition and evaluation of goodwill or profit from a bargain are described. The specified standard contains a section «Valuation Period», which refers to the initial accounting of a business combination, the concept of «valuation period» gives possible options for the consequences of evaluating objects during this period [56, IFRS 3].

The requirements of IFRS 5 «Non-current assets held for sale and discontinued operations» in the valuation apply to all recognized long-term assets (in national standards «non-current assets») and liquidation groups (as specified in section 4), except for the assets listed in section 5, which should be further measured according to the relevant standards. Valuation of long-term assets (or disposal groups) classified as held for sale is described in detail [56, IFRS 5].

The requirements of this IFRS do not apply to the following accounting items:

- a) deferred tax assets (IAS 12 «Income taxes»);
- b) assets arising from employee benefits (IAS 19 Employee Benefits);
- c) financial assets in the application of IAS 39 «Financial Instruments»;
- d) non-current assets that are treated in accordance with the fair value model set out in IAS 40 Investment Property;
- e) non-current assets measured at fair value less costs to sell in accordance with IAS 41 «Agriculture»;
- f) contractual rights under insurance contracts as defined in IFRS 4 «Insurance Contracts» [5, IFRS 5].

The methodological basis for the formation of valuation information in IAS 6 Exploration and Valuation of Mineral Reserves relates to the need



for improvements in existing accounting and expenditure and expenditure accounting practices (if it comes to budgetary funds):

- a) for exploration and valuation;
- b) business entities that recognize the assets of exploration and valuation – to evaluate such assets for impairment in accordance with this IFRS and value any impairment in accordance with IFRS 36 «Impairment of assets»;
- c) disclose information that defines and explains the amounts in the financial statements of an enterprise arising from exploration and evaluation of mineral reserves, and helps users of financial statements to understand the amounts, time and certainty of future cash flows from any recognized exploration and valuation assets [56, IFRS 6].

IFRS 7 «Financial Instruments: Disclosures» contains requirements for business entities to provide in their financial statements disclosures that enable users to evaluate:

- a) the significance of financial instruments for the financial condition and performance of an enterprise;
- b) the nature and level of risks associated with financial instruments and to which the business entity is exposed during the period and at the end of the reporting period, and how the business entity manages these risks.

The principles of this IFRS supplement the principles of recognition, valuation and presentation of financial assets and financial liabilities in IFRS 32 Financial Instruments: Presentation and IFRS 9 Financial Instruments. In addition, the emphasis in the evaluation of financial instruments for displaying them in the financial statements, namely, the «Financial Statements Report» and the «Profit and Loss Report» is in distinguishing between objects arising in operations [56, IFRS 7].

The requirements of IFRS 8 «Operating Segments» in the valuation consist in the need to reflect in the financial statements provided to the chief operating officer, the amount of each article of the segment to which the valuation should be applied, in order to make decisions about the allocation of resources to the segment and evaluation of its performance. Adjustments and deletions made in the preparation of the company's financial statements and the distribution of income, expenses and profits or losses are included in the definition of the reported segment profit or loss only if they are included in the segment profit or loss valuation, it is used by the chief operating officer. Also, only those assets and liabilities that are included in the valuates of the segment assets and segment liabilities used by the chief operating officer are recorded in this segment. If the amounts are allocated to the reported profit or loss, the assets or liabilities of the segment, they should be distributed on a reasonable basis [56, IFRS 8].

IFRS 9 «Financial Instruments» contains the regulation of valuation regarding the emergence of financial assets and financial liabilities in the context of classification groupings. Also highlights the requirements for

the formation of the initial valuation of both financial assets and financial liabilities. The following are options for further valuation of financial assets:

- a) at amortized cost;
- b) at fair value through other comprehensive income;
- c) at fair value through profit or loss [56, IAS 9].

A slightly different option for further valuation is given for financial obligations. They depend on their classification given in sections 4.2.1 – 4.2.2 [56, IFRS 9].

In addition, valuation at the amortized cost of financial assets using the effective interest method, modification of contractual cash flows is reviewed. It is indicated on the valuation of expected credit losses by a business entity, which evaluates expected credit losses by a financial instrument, reflects:

- a) an objective and probability-weighted amount determined by valuating a certain range of possible results;

- b) time value of money;

- c) reasonably necessary and corroborated information about past events, current conditions and forecasts of future economic conditions can be obtained without undue cost or effort at the reporting date [56, IFRS 9].

The requirements for valuation of financial instruments are detailed in this standard, complementing the requirements of IFRS 7 for their correct reflection in the financial statements of an enterprise.

IFRS 10 «Consolidated Financial Statements», IFRS 11 «Joint Activities», IFRS 12 «Disclosure of information on interests in other business entities» do not contain requirements for the application of any method for the evaluation of objects.

As noted above, IFRS 13 «Fair value measurement» defines the concept of «fair value», provides a method for calculating it; contains in one IFRS a conceptual framework for measuring fair value; and notes the requirements to disclose fair value measurement. The specified meaning of this standard does not apply to objects that arise in the course of business and are subject to the regulation of the following IFRS and IAS: a) operations, payment for which is carried out on the basis of shares in the scope of IFRS 2 «Payment based on shares»; b) lease operations in the scope of IFRS 17 «Leases»; and c) valuation somewhat similar to fair value, but not fair value, such as net realizable value in IAS 2 «Inventories» or the value used in IAS 36 «Impairment of Assets» [56, IFRS 13].

In addition to the valuation of objects, IFRS regulates information to be reflected in the reporting of business processes. So in IAS 15 «Income from contracts with customers» contains requirements for valuating progress towards the full satisfaction of the obligation to perform, these methods for evaluation of progress and its reasonable valuation. The application of the requirements of this standard contains exceptions relating to:

- a) lease agreements that belong to the scope of IFRS 17 «Leases»;
- b) insurance contracts related to the scope of IFRS 4 Insurance Contracts;

c) financial instruments and other contractual rights or obligations relating to the scope of IFRS 9 «Financial Instruments», IFRS 10 «Consolidated Financial Statements», IFRS 11 «Joint Activity», IAS 27 «Separate Financial Statements» and IAS 28 «Investments in associates and joint ventures»;

d) non-monetary exchanges between business entities in the same business line in order to simplify sales to customers or potential customers.

For example, this standard does not apply to a contract between two oil companies that have agreed to exchange oil, in time to meet the requirements of its customers in various specific geographic locations [56, IAS 15].

The new IAS 16 «Leases» contains recommendations and requirements for valuation: 1) the tenant — at the date of commencement of the lease, the tenant recognizes the asset by right of use and the lease liability. The asset under the right of use is evaluated at historical cost, which includes: a) the amount of the initial valuation of the rental liability (section 26); b) any rental payments made on or before the date of commencement of the lease, minus any incentives to rent; c) any initial direct costs incurred by the tenant; and d) costs that the tenant will incur in the process of dismantling and moving the underlying asset, restoring the place where it is located, or restoring the underlying asset to a condition required by the lease terms, unless such expenses are incurred for the purpose of producing stocks. The lessee is liable for such expenses either as of the commencement date of the lease or as a result of the use of the underlying asset for a certain period.

The initial valuation of the lease liability arises from the lessee, who values the lease liability at the present value of the lease payments that are not paid on that date. Rental payments should be discounted by applying the allowable interest rate on the rental, if such a rate can be easily determined. If such a rate can't be easily determined, then the tenant applies the additional borrowing rate of the tenant. As at the commencement date of the lease, lease payments included in the valuation of the lease liability consist of the following payments for the right to use the underlying asset during the lease term, which were not paid at the date the rental began:

a) fixed payments (including Part B 42) for deducting any rental incentives to be received;

b) changes in rental payments, which depend on the index or rate, are initially valued using such an index or the rate at the date of lease commencement (as described in section 28);

c) the amounts that are expected to be paid by the tenant for guarantees of liquidation value;

d) the price of the fulfillment of the acquisition opportunity, if the tenant is reasonably confident that he will take advantage of this opportunity (evaluated taking into account the factors described in sections B37 – B40) and termination of the lease.

In addition to the initial asset valuation of the use right and lease obligations, there are other types of valuation of these objects, namely, further evaluation, other evaluation models and revaluation [56, IAS 16].

IFRS 17 Insurance Contracts sets out the principles for recognizing and valuation, presenting and disclosing insurance contracts in the application of this standard. Valuation upon initial recognition (sections B36 – B95). Upon initial recognition, an entity values a group of insurance contracts as the sum of:

a) cash flows, which consist of: 1) valuation of future cash flows (sections 33 – 35); 2) adjustments to account for the time value of money and financial risks associated with future cash flows, to the extent that financial risks are not taken into account in valuates of future cash flows (section 36); and 3) non-financial risk adjustments (section 37);

b) the contractual service margin evaluated using sections 38 – 39 [56, IFRS 17].

Valuation of future cash flows (sections B36 – B71). An entity considers all future cash flows within each contract within a group in the valuation of a group of insurance contracts (see section 34). In applying section 24, a business entity has the right to measure future cash flows at a higher level of aggregation, and then distribute the corresponding cash flows between separate groups of contracts. Valuation of future cash flows have:

a) include, in an impartial manner, all available reasonably necessary and corroborated information, which is available without undue cost or effort, about the amount, timing and uncertainty of the respective future cash flows (see sections B37 – B41). To do this, the enterprise values the expected value (i. e. weighted average probability) for the full range of possible outcomes;

b) reflect the point of view of the entity subject to the consistency of valuates of any relevant market variables with the observed market prices for the respective variables (see sections B42 – B53) made on such a date (see sections B54 – B60);

c) be explicit: the subject evaluates the adjustments for non-financial risk separately from the performance of other valuations (see section B90).

In addition, an entity evaluates cash flows separately from adjustments for the time value of money and financial risk, except in the case of a combination of these valuates in the most optimal way of valuation (see Section B46) [56, IAS 17].

For small and medium-sized enterprises is also the relevant IFRS (hereinafter IFRS for SMEs). This standard contains a list and definition of concepts and basic principles for the preparation and presentation of financial statements for small and medium-sized enterprises, their description, scope, quality characteristics, financial condition (including the main objects of accounting: assets, equity, liabilities. Their definitions and recognitions are provided). The next item on the requirements is Valuation Validity,

Valuation of assets, liabilities, income and expenses, where the interpretation of the «valuation» concept is provided, and it is also indicated that the common evaluation bases are historical cost and fair value and their definitions are outlined. Further focused on the Fundamental Principles of Recognition and Valuation, which states that the requirements of this IFRS for the recognition and valuation of assets, liabilities, income and expenses are based on the basic principles that are laid down in the IASB Concept of preparation and presentation of financial statements and in the full range of IFRS. In addition, the accrual principle is considered as mandatory for use in the financial statements since, with the exception of information on cash flows, an enterprise should be accrual accountable, according to which the recognition of items as assets, liabilities, equity, income or expenses occurs when they are meet the definition and recognition criteria of these articles. The significance of initial valuation is also noted. «At initial recognition, an entity must measure assets and liabilities at historical cost if this standard does not require an initial evaluation using another method, such as fair value. It also indicates further valuation of financial assets and financial liabilities, non-financial assets and non-financial liabilities, as well as the conditions for the application of the collapse of the valuation in the accounting objects [56, IFRS for SMEs].

Taking into account the requirements of normative legal acts of international importance, as the conceptual framework for the preparation and presentation of financial statements, IFRS, IFRS for SMEs and IFRS, where the basic accounting principles are made public, allows an individual approach to the creation of national P(S)A, differ in names and quantities from IFRS, but take into account all the requirements for the methodological basis for the formation of information for display about objects in accounting and reporting. This fact allows to assert their importance as a component of the modern institutional environment in the context of the evaluation of objects.

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## **Chapter 2**

# **Conceptual provisions for the valuation application for accounting**

### **2.1 Methodological approaches to the evaluation of objects for various purposes**

One of the important issues that arise in accounting and require proper compilation and solution is the valuation of assets. Valuation determines the composition of objects to be reflected in the accounting records. Its functions is significantly expanded, types and methods of calculation are diversified.

The purpose of the valuation is the formation of the main task, which should be solved as a valuation result. The objectives of the valuation include: full and correct name of the object of valuation, type of valued assets and goods; type of valued property rights; valuation date.

All accounting items are subject to valuation in accordance with Article 4 of the Law of Ukraine «On Accounting and Financial Reporting in Ukraine» [54]. In the course of business activities, valuation is necessary for various purposes, in particular:

- 1) receipt and disposal of assets;
- 2) occurrence of rights and obligations;
- 3) purchase and sale, rental property, insurance, investing, liquidation of the enterprise.

International Accounting Standards provide for the possibility of applying several different types of valuation simultaneously with varying degrees and in various combinations.

This fact quite clearly identified the problems that arose in the accounting of Ukrainian enterprises after the transition to the principles of a market economy. This problem has become even more urgent in the context of the need to carry out an accounting valuation of the value of an enterprise in order to create a system of information support for value-oriented enterprise management, since accounting valuation put forward new requirements by users of accounting information.

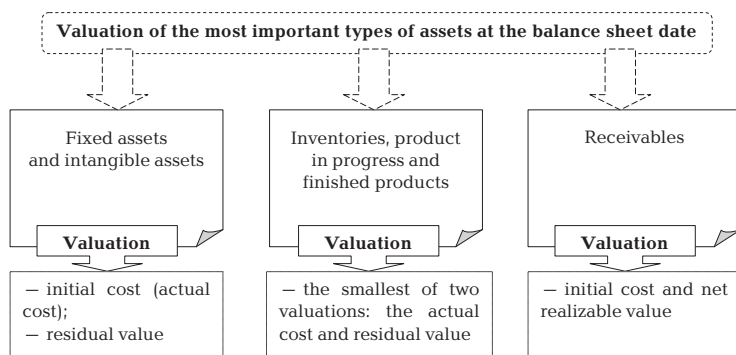
The problems of asset valuation in Ukraine and abroad were investigated by many specialists, among them S. Golov, R. Gracheva, D. Gontar, V. Zhuk, V. Ivashkevich, G. Kireitsev, V. Kovalev, O. Kirei, M. Koriagin,

L. Lovinska, N. Maliuha, M. Ogiichuk, V. Palii, Ya. Sokolov, V. Savchenko, V. Savchuk, I. Chalyi and others.

But, despite the large number of publications on this issue, the problems of valuating accounting objects for various purposes remain unresolved and controversial. The decisive role that valuation today performs in accounting is viewed from different points of view. Performing an accounting role of a functional role with respect to users of accounting information suggests that they may put forward various requests for the application of a valuation methodology.

As a result, in the accounting system, the valuation of the same object may be feasible based on the use of different valuation methods depending on user requests. When determining user requests, there are goals that are pursued by a user using account information. For the borrower, the necessary information about the value of the assets that it can receive as a result of the sale of the enterprise, for the investor — the potential value of the assets of the enterprise, which is determined on the basis of their ability to generate future economic benefits and the like.

This opinion is also confirmed by prof. S. S. Tuiakova [57, p. 312], which notes that the current stage of development of accounting is characterized by the use of alternative methods of valuation of objects of accounting supervision, with the result that the methodology of valuation remains one of its most difficult problems. Methods for valuating the most important types of assets at the balance sheet date are shown in Fig. 2.1.



**Fig. 2.1** Methods for evaluating accounting items at the balance sheet date.

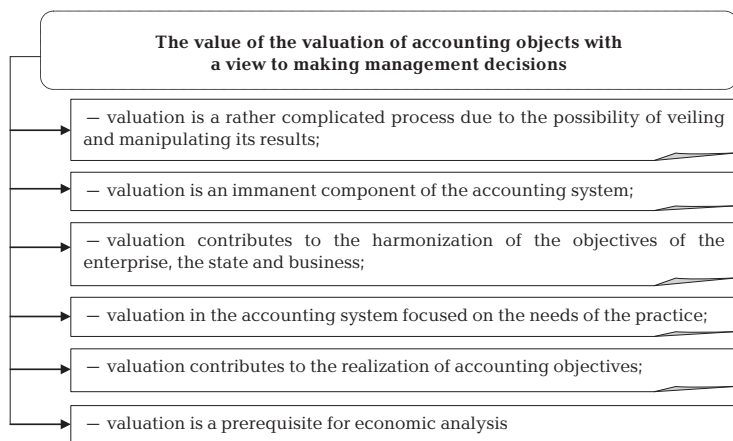
*Source: compiled by the author*

In general, valuation of accounting objects is one of the most important prerequisites for the formation of reliable and relevant information by the accounting system, and knowledge of its fundamental conceptual foundations allows users to understand the essence of data and

information to be disclosed in financial statements, making effective management decisions.

Fig. 2.2 summarizes the value of the evaluation of accounting objects in the economic activities of enterprises for various purposes with the purpose of making management decisions.

The main condition for the recognition of assets as assets is the possibility of a reliable valuation of their value. Let's consider the methodological approaches to the valuation of fixed assets, in most cases, occupy the largest share in the assets of enterprises.



**Fig. 2.2** Valuation for various purposes.

*Source: compiled by the author*

Valuation of fixed assets is the determination of the value of fixed assets of an enterprise for the purposes of accounting and analysis, economic calculations and forecasts. In accounting, fixed assets are valued in monetary terms. The Law of Ukraine «On Accounting and Financial Reporting in Ukraine» [54] and the Regulation (Standard) of Accounting 1 «General Requirements for Financial Reporting» [58] valuation is defined as the process of value measurement of accounting objects.

In general, the valuation covers all accounting processes. As for fixed assets, it is used in the following of its manifestations:

- initial cost, depreciation value, liquidation value, depreciation amount, depreciation of fixed assets, revalued cost are regulated by the Accounting Regulation (Standard) 7 «Fixed Assets» [59];
- fair value is regulated by the Accounting Regulation (Standard) 7 «Fixed Assets» [59];
- fair value of investment property is determined by the Accounting Regulation (Standard) 32 «Investment Property» [60];



- amount of expected compensation, the net realizable value of the asset is governed by the Accounting Regulation (Standard) 7 «Fixed Assets» [59] and Accounting Regulation (Standard) 28 «Reducing the usefulness of assets» [61];

- the present value of future cash flows from an asset is determined by Accounting Regulation (Standard) 28, «Decrease in the usefulness of assets» [61].

Valuation of fixed assets in accounting was investigated by scientists M. Bondar, S. Golev, T. Jihadze, V. Kozak, A. Kirei, Yu. Krot, L. Lovinska, N. Maliuha, A. Makeeva, A. Naumchuk, A. Strybul [62, p. 15; 63, p. 18; 64, p. 21; 65, p. 117; 66, p. 40, 67, p. 76; 11, p. 239; 68, p. 15; 69, p. 23; 70, p. 276; 71, p. 187].

A large-scale valuation study as an element of the accounting method was conducted by N. Maliuha. In her works, the development of valuation ideas, scientific contradictions of the concept of valuation at cost and market prices are considered [72, p. 27]. L. Lovinska criticizes the types of valuation used to account for fixed assets [11, p. 122 – 153]. Not covered in the scientific literature remain the consequences of the use of unjustified valuations of fixed assets for the reliability of indicators of financial and statistical reporting.

The main criteria for valuing the value of fixed assets established in the domestic business practice, I. Blank divided into:

- 1) value of non-current assets is determined by the nature of their use in the economic activity of the enterprise;

- 2) value of non-current assets depends on the stage of their life cycle and time factor;

- 3) value of non-current assets depends on the inflation factor [73].

According to the first of these criteria, namely the nature of use in economic activity, fixed assets have an operating and investment value.

According to P(S)A 7 «Fixed Assets», six types of cost are used to account for transactions with fixed assets:

- 1) the initial value is the historical (actual) cost of non-current assets in the amount of cash or the fair value of other assets paid (transferred) spent to acquire (create) non-current assets;

- 2) value that is depreciated is the initial or revalued value of the non-negotiable assets minus their liquidation value;

- 3) liquidation value is the amount of funds or the value of other assets that an enterprise expects to receive from the sale (liquidation) of non-negotiable assets after the expiration of their useful life (exploitation), less expenses associated with the sale (liquidation);

- 4) residual value – definition is not given in the standards;

- 5) revalued cost – the value of non-current assets after their revaluation;

- 6) fair value is the amount at which an asset can be exchanged, or payment of a liability as a result of a transaction between knowledgeable, interested and independent parties [59].

The reliability of the valuation of fixed assets of hotels depends on the choice of the valuation option. According to the Law of Ukraine «On Accounting and Financial Reporting in Ukraine», the initial value is considered a priority when evaluating the assets of an enterprise [54].

Features of the formation of the operating value of fixed assets are characterized by the specifics of their value cycle of the cycle, consisting of three main stages.

At the first stage, the enterprise has formed fixed assets in the process of its use and depreciation transfer their value to work and services. This process is carried out during many operating cycles and continues until complete depreciation of certain types of non-current operating assets.

At the second stage in the process of selling goods, works and services, the depreciation of fixed assets is accumulated at the enterprise in the form of a depreciation fund.

At the third stage, the funds of the depreciation fund as part of the company's own financial resources are directed to the reproduction of existing (current and capital repairs) or the acquisition of similar new types (investments) of non-current operating assets.

Taking into account the peculiarities of the value circulation of fixed assets, a process of managing these types of long-term assets is built, the purpose of which is ensuring their timely updating and increase the efficiency of their use.

Having determined the operating value of non-current assets, a utility valuation should be made for a particular enterprise. The principle of utility on which such valuation is based is that any asset has value only if it is useful to a business entity in the course of its operating activities for the implementation of a particular function.

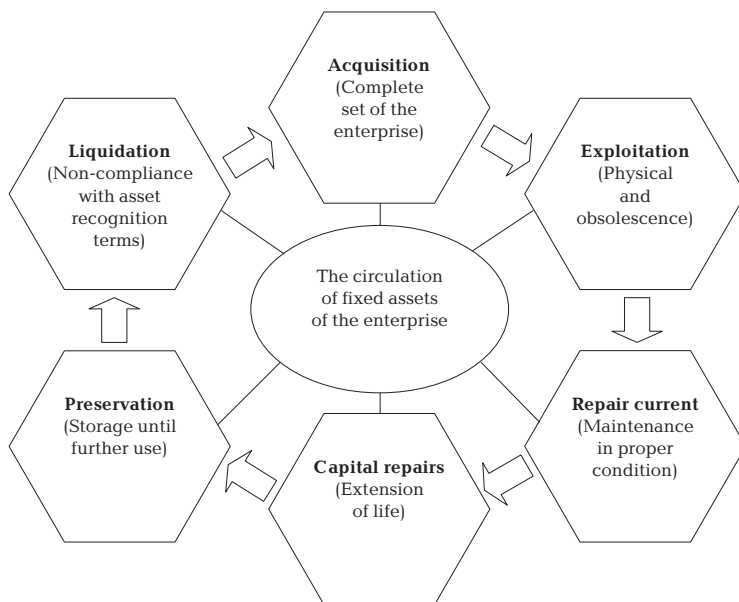
Considering the investment value, it should be noted that this is a valuation of a real investment project, certain types of fixed assets, taking into account the expected level of profitability, risk, liquidity and other indicators of their investment attractiveness for a particular investor.

Depending on the stage of the cycle and the time factor, the fixed assets are involved in the operating cycle and are in constant motion, therefore their value can be determined only on a certain specific date (Fig. 2.3).

Most economists agree that when valuating fixed assets in the context of inflationary processes, the application of the initial value can lead to negative consequences. Even in the conditions of constant prices, the potential of fixed assets does not remain unchanged, since the service life is reduced, they become morally obsolete. Fixed assets acquired at different times and have the same characteristics will have different values. And carrying out constant revaluations increases the expenses of the enterprise, which ultimately affects the financial result of the enterprise.

V. Kozak notes that there is no such valuation that would satisfy the requirements of all users of financial statements. Valuation of fixed assets at fair

value allows to relatively accurately shows (determines) the property status of the enterprise [65, p. 117]. A Strybul argues that fair value valuation provides an opportunity to evaluate the prospects for the enterprise in its further development [71, p. 185]. In addition, the most developed accounting systems IFRS and US GAAP are focused on the widespread use of valuation of assets at fair value. Therefore, we recommend the use of fair value in the valuation of fixed assets that provides an opportunity to more accurately evaluate the current state of fixed assets and determine the prospects for their future use.



**Fig. 2.3** The circulation of fixed assets in enterprises for valuating process.

*Source: compiled by the author*

Differences in the views of domestic and foreign scientists on the application of «fair value» in order to evaluate fixed assets are defined in Table 2.1.

This trend is due to the fact that fair value has certain advantages over historical cost, since it does not depend on: the date and costs associated with the occurrence of the liability and the acquisition of assets; a particular enterprise; intentions of an enterprise to place assets and liabilities.

Supporters of the use in accounting for fixed assets of fair value are: S. Golov, V. Ivashkevych, M. Kuter, V. Kazak, L. Lovinska [11; 63; 65; 74; 75].

A. Kirei, V. Kovalev, V. Palii equate fair value to market value [66; 76; 77]. S. Golov believes that the concept of «fair value» in the sense in which it is used in accounting is not synonymous with the term «market value» [63].

**Table 2.1** Suggestions of various authors on the use of valuation of fixed assets at fair value. *Source: compiled by the author*

Author	Research and suggestions of various authors
S. Golov [17, p. 5]	The concept of «fair value» in the sense that it is used in accounting is not synonymous with the term «market value»
A. Gudzynskiy, G. Kireytsev, V. Savchuk [33, p. 11]	Regulatory consolidation of the concept of «fair value» means the rejection of the etymological meaning of the category of «fair value» and indicates an active offensive capital on man
Grachova [34, p. 12 – 13]	Fair value may be the initial cost of assets received free of charge
V. Ivashkevych [29, p. 41]	The use of the term «fair value» is legitimate, and it should be used as practicable
O. Kirei [20, p. 41]	Instead of fair value in national standards, it is better to use the concept of «market value»
M. Kuter [30, p. 58]	Accounting for fair value measurement is one of the main theoretical and practical problems of the 21st century
N. Kutsmida [35, p. 26]	Problems in the formation of cost in many cases arise due to the lack of a uniform method of recommendations (provisions) on its definition
O. Kundria-Vysotska [36, p. 222]	Fair value is not characterized by the time of the exchange transaction, but by its conditions. Fair value implies conditions such as independence, awareness and interest of the parties. Fair value is the basis of the initial value of assets acquired by the enterprise, since the amount paid by the buyer is the main component of the actual cost of the asset acquired
V. Kozak [19, p. 117]	There is no such valuation of fixed assets that would satisfy the requirements of all users of financial statements, but the valuation of fixed assets at fair value allows to relatively accurately show (determine) the property
V. Kovalov [31, p. 62]	Considers fair value as market value
L. Lovinska [9, p. 91]	The qualitative characteristics of fair value measurement only emphasize the need to use such valuation. However, the weak side of a fair valuation is its conditional nature, because it is not determined by a real business transaction, it is not documented
Mises Ludwigfon [37, p. 125]	The concept of «fair» and «fair» price value has no scientific value; This is a disguise that hides the real situation. Since market prices are entirely determined by the subjective valuation of existing enterprises, the market price will never coincide with the final price
Ja. Sokolov, V. Sokolov [38, p. 142]	Introduction to accounting the concept of «fair value» is equivalent to the elimination of accounting in our understanding
V. Palii [32, p. 8]	«Fair value» is a notional term that determines the reliably known market value of an item, which is the corresponding value
I. Chalyi [39, p. 4]	Fair value is applied when an accountant cannot take responsibility for the accuracy of the amount of the historical valuation or in the absence of an objectively universal monetary gauge

Opponents of using fair value for valuation are A. Gudzynskiy, Ja. Sokolov, V. Sokolov and Ludwig von Mises, who prefer initial and book value [5; 78; 79].

N. Kutsmda notes that problems in the formation of cost in many cases arise due to the lack of uniform guidelines (provisions) on its definition [80].

The harmonization of the accounting system in Ukraine with international standards has led to the appropriate application of fair value in the national accounting rules (standards). However, in practice, determining fair value presents certain difficulties, since IFRS and national regulations (standards) contain only general guidelines on the fair value of the relevant assets and liabilities. Therefore, the trend of spreading fair value measurement is perceived differently in both developed and transition economies [63, p. 3].

The application of fair value in the conditions of markets is only in its infancy, is associated with certain difficulties and places new demands on the quality of accounting and analysis. M. Kuter believes that accounting for fair value is one of the main theoretical and practical problems of the 21st century [75].

That is why the application of the concept of the fair value of fixed assets of hotel farms is necessary and promising. However, differences in approaches to the interpretation of this concept, primarily due to the lack of a single clear classification of valuations used in accounting, and the variety of valuation types undertaken in the text of International Financial Reporting Standards require further research.

In accordance with the accounting principles defined in the Law of Ukraine «On Accounting and Financial Reporting in Ukraine» [54], namely the principle of prudence, accounting methods should be applied in accounting, which predetermine underestimated valuations of liabilities and expenses and overestimated valuation of assets and income enterprises.

Therefore, if the value of a fixed asset, according to which it is reflected in accounting, differs from its real value, then the value of such fixed assets must in any case be brought into line with their fair value.

The most popular procedure for adjusting the balance sheet assets in accounting is revaluation of fixed assets. The revaluation model is used for fixed assets whose fair value can be valued reliably. In this case, property, plant and equipment are recorded at revalued amounts, which are the fair value at the date of the revaluation, less accumulated depreciation and further accumulated impairment loss. The fair value of the machines and equipment available to the enterprise is their market value, determined by expert judgment. Expert valuation of land and buildings is usually carried out by professional valuers based on market data.

Foreign investors who intend to finance the business of Ukraine, analyzing the financial statements of enterprises requiring recovery, faced with a violation of the qualitative characteristics of the financial statements – reliability, which is defined by International Financial Reporting Standards.

Revaluation is conducted voluntarily, by decision of the enterprise and is determined in the Order on the accounting policies of enterprises. This point of view complies with the requirements of IAS 16 «Fixed Assets» [56, IAS 16], which provides for the use of two asset valuation methods: with and without revaluation.

Revaluation procedure established in clause 16 of P(S)A 7 «Fixed assets»: «If the residual value of an item of property, plant and equipment differs substantially from its fair value at the balance sheet date, the company has the right to revalue the item of fixed assets» [59].

This issue is covered in more detail in Letter No. 04230 – 04108, which states that an entity is a characteristic of accounting information that determines its ability to influence the decisions of users of financial statements [81].

The threshold of materiality is an absolute or relative value, which is a quantitative sign of the materiality of accounting information.

The subjects of determining the materiality of accounting information are the bodies authorized to regulate accounting and financial reporting issues, and the owner(s) or an authorized body (official) that manages the enterprise in accordance with the legislation and constituent documents.

Objects of materiality are: the activities of the enterprise as a whole; separate business transactions and accounting objects; financial statements.

The threshold of materiality of accounting information for individual accounting objects related to assets, liabilities and equity of an enterprise is 5 %, when the basis for determining the threshold is the total of all assets, all liabilities and equity capital [81].

The Ministry of Finance in Letter No. 04230 – 04108, in particular, indicates that the threshold of materiality to reflect a revaluation or decrease the utility of accounting objects may be equal to or 1 % of the company's net profit (loss), or 10 % deviation of the residual value of accounting objects from their fair value. The same threshold of materiality is fixed in paragraph 34 of Methodical recommendations No. 561 [82]. The threshold of materiality of each enterprise is set independently in the order for the accounting policy.

In addition, according to Article 7 of the Law of Ukraine «On the valuation of property, property rights and professional valuation activities in Ukraine», in case of revaluation of fixed assets for accounting purposes, their valuation is obligatory, that is, the process of determining their value at the evaluation date by special regulatory acts, using a procedure which is the result of practical activity of the subject of valuation activity [83]. This means that the Law of Ukraine «On the valuation of property, property rights and professional valuation activities in Ukraine» obliges to involve professional experts in order to determine the fair value of fixed assets. The performance of the valuation procedure must be confirmed by a property valuation report (property valuation report), which is drawn up and signed by an expert, sealed and signed by the head of the valuation entity.

The services of professional property valuation experts constitute significant costs for enterprises, in particular, in Ukraine there are not enough professional organizations that are competent in this field. In addition, the Law of Ukraine «On the valuation of property, property rights and professional valuation activities in Ukraine» does not provide for sanctions for violating the revaluation procedure [83]. The Code of Ukraine «On Administrative Offenses» in Article 164 provides for penalties for violation of legislation in the field of financial issues in the form of a penalty for poor-quality accounting and distorted information displayed in the financial statements [84].

When self-evaluation fixed assets of an enterprise, the principle of accounting prudence may be violated, therefore, hotel management should use professional experts to evaluate fixed assets to determine the need for revaluation. The frequency of revaluations depends on fluctuations in the fair value of fixed assets, is overestimated.

The lack of objectivity of accounting valuations has led to the fact that today it is impossible to analyze the real state and depreciation of fixed assets according to statistical data on hotel facilities in Ukraine.

Valuation of reserves in accounting is an important element of the organization of economic activity of the enterprise. Inventories are one of the most significant objects in the total structure of current assets. Their use for the needs of production is of great importance in the activities of the enterprise, in particular the operating room, which is characterized as the main activity of the enterprise, for which it was created and it functions.

On the reflection in the accounting of stocks, there is a certain set of problematic issues that do not allow the accountant to fully correctly evaluate and reflect the results in source documents, registers of accounting and reporting. In this case, the need to study the issue of stock valuation and systematization of information on the problems that were discovered in the work of scientists and ways to solve them.

In particular, K. Posylaeva and Yu. Krot made a justification of the optimal methods for valuating inventory when they are used, taking into account the peculiarities of agricultural production [85].

Yu. Goncharov and I. Kravchenko in their work consider the use of methods for valuating the disposal of inventories in modern conditions and they have analyzed the provisions of the regulatory approach to inventory accounting [86]. Features of the valuation of accounting objects are investigated by A. Kiliar, who identified and justified the main factors influencing the valuation of reserves; considered the use of such bases of valuation as the present value and fair value in the value measurement of reserves [87].

N. P. Dombrovska, in her work, carried out a critical analysis of the methodology for valuating reserves, determined by national P(S)A [88].

If the methodology for valuating reserves at admission and disposal is established in accordance with P(S)A 9 «Inventories», and the company

has the right to choose the valuation method for disposal of these objects [89]. The essence of the methodology for valuating the reserves at receipt in accordance with P(S)A 9 «Inventories» is presented in Table 2.2.

**Table 2.2** Valuation of reserves by source of income [89]

Valuation	Essence
At initial cost	<ul style="list-style-type: none"> <li>– purchased for a fee: valuation takes into account the totality of costs, which include: amounts paid in accordance with the contract to the supplier (seller) minus indirect taxes; import duty amounts; the amount of indirect taxes in connection with the acquisition of stocks that are not reimbursed to the company; transportation and procurement costs; other expenses directly related to the acquisition of stocks and bringing them to the state in which they are suitable for use in the planned purposes</li> <li>– are manufactured by the enterprise's own forces, their production cost is recognized, which is determined according to paragraph 16 of P(S)A 16 «Costs»</li> <li>– made to the authorized capital of the enterprise: the fair value agreed with the founders (participants) of the enterprise is recognized, taking into account the costs directly related to the acquisition of stocks and bringing them to the state in which they are suitable for use in planned purposes</li> <li>– received by the enterprise free of charge: their fair value is recognized, taking into account expenses directly related to the acquisition of stocks and bringing them to the state in which they are suitable for use in planned purposes</li> <li>– acquired as a result of an exchange for similar stocks: it is equal to the book value of the transferred stocks. If the carrying amount of the transferred inventory exceeds their fair value, then the initial value of the inventory received is their fair value. The difference between the carrying amount and the fair value of the transferred inventory is included in the expenses of the reporting period.</li> <li>– purchased in exchange for unsuitable stocks: the fair value of the reserves received is recognized</li> </ul>

Based on the sources of scientific information, there is more discussion on the issue of valuating reserves when they are disposed of, which one is better to use in the practice of an enterprise, depending on what type of activity the company is engaged in, the effect is trying to get as a result of the core business.

Table 2.3 provides valuation of the reserves when they are in the retirement of the enterprise.

First of all, it should be noted that, in accordance with the current legislation on inventory accounting, in particular P(S)A 9 «Inventories», they can be valuated upon retirement by one of the following methods: the identified cost of the corresponding inventory unit; weighted average cost; the cost of the first time inventory (FIFO); regulatory costs; selling prices.



**Table 2.3** Valuation of reserves at their disposal and their essence [89]

Valuation	Essence
According to the identified cost of the corresponding unit of production	Released reserves are valued, and services performed for special orders and projects, as well as stocks that do not replace each other
According to weighted average cost	Valuation is carried out for each unit of stocks by dividing the total value of the balance of such stocks at the beginning of the reporting month and the cost of inventories received in the reporting month by the total number of inventories at the beginning of the reporting month and inventories received in the reporting month
According to the cost of the first time inventory	Valuation is based on the assumption that stocks are dropped in the sequence in which they arrived at the enterprise (reflected in the accounting records), that is, the stocks that are the first released into production (sales and other disposals), evaluated at the cost of the first inventory receipts
According to sale price	Valuation is based on the use by retail enterprises of the average percentage of the trade mark-up of goods
According to standard costs	It consists in the application of norms of expenditures per unit of production (works, services), which are established by the enterprise, taking into account the normal levels of use of stocks, labor, production capacity and current prices

Regarding the advantages and disadvantages in the practical application of methods for valuation of the disposal of stocks, as defined by the current legislation, the information in the form of views of scientists presented in Appendix C is systematized.

Accounting of work in progress is carried out in valuation when the valuation of work in progress balances and the distribution of current expenses between finished products and work in progress are carried out.

One of the most difficult questions of the accounting policy of the unfinished production is the procedure for evaluating its balances. First of all, it is necessary to determine the list of articles for which work in progress is valued. There are two views on this problem. The first is that work in progress must be evaluated in the same order in which the cost price of the finished product is formed, that is, evaluated for all calculation items. This view is explained by the fact that overhead costs associated with the production of the entire volume of products: as completed processing, and partial readiness. And also the fact that next month the work in progress will turn into finished products.

Proponents of the second opinion argue that limiting the cost of work in progress only by variable (direct) costs does not significantly affect the cost of production of finished products, but it allows speeding up and sim-

plifying the formation of the cost of work in progress and making initial information more suitable for analyzing and making decisions on managing production costs.

According to the current industry guidelines, work in progress at the end of the reporting period is valued in most sectors of the economy (such as the engineering and metalworking industries, the rolling industry of ferrous metallurgy, food production, etc.) In accordance with the procedure for calculating the cost of finished goods, except for losses in the result of the rejection and the costs related to the finished product, namely: compensation for the wear and tear of special tools Stands and devices for special purposes and other special expenses; the costs associated with the preparation and development of production, non-production costs [90].

As G. Davydov notes, at the enterprises of the chemical industry, except for mining enterprises and enterprises producing varnishes and paints, dyes and organic products, in steel-making, meat and dairy industries, work in progress is valued at the planned shop cost. That is, in these industries, work in progress balances are evaluated using the full costing method.

In the extractive industries (shoe industry, yeast and finishing production), work in progress is evaluated for such items as «Raw materials», «Purchased components, semi-finished products, works and services of industrial nature of third-party enterprises and organizations», «Fuel and energy for technological goals», «Basic salary», «Additional salary», «Deductions for social events».

According to the actual costs of raw materials and basic materials, work in progress remains to be valued at enterprises producing lacquers and dyes, dyes and organic products, in malt shops of enterprises of the beer and soft drinks industry, spinning production of the textile industry, at the bakery and alcohol industry, and the pasta production. Thus, in these areas, the method of recording work in progress at direct costs is actually used [90].

At the level of current legislation on accounting, the main regulatory document regulating the formation of the cost of work in progress is P(S)A 16 «Expenses» and 9 «Inventories» [56, IAS 39; 89]. According to P(S)A 9 «Inventories», the balance of work in progress at the end of the month should be evaluated in the order in which the cost price of the finished product is formed, that is, for all items of expenditure.

But for the formation of such valuation requires some time, and the current economic conditions require rapid decision-making. In addition, the analysis is traditionally based on variable costs, such as those that can be changed in the current period. Therefore, information on the cost, calculated at variable costs, is used in determining pricing policies, the rationale for the structure of commodity output, and the like. This necessitates the determination of the cost of work in progress and in terms of variable costs.

One of the important elements of the valuation in accounting is the finished product. In accounting, finished products in accordance with P(S)A 9 «Inventories» are valued at their actual cost, which can only be determined

after compiling information on production costs, the distribution of overhead costs of the reporting period and the calculation of production costs.

In the accounting department on the basis of delivery invoices, acceptance reports, acceptance reports and other documents, a statement of finished goods for the reporting month is kept. In it, products are manufactured by production, grouped by item numbers and displayed both at discount prices and at actual cost. This approach provides control of deviations from planned (normative) indicators.

The cost of sold finished products is determined by the methods of inventory disposal, discussed above.

To account for and summarize information on the availability and movement of agricultural products, account 27 «Agricultural Production» is used. According to P(S)A 30 «Biological assets», such products are valued at fair value, reduced by the amount of expected costs at the place of its sale.

Receivables also belong to the most important types of assets; therefore, methodological approaches to its evaluation are important in the course of an enterprise's activity.

Upon initial recognition by an enterprise of receivables, they should be evaluated at fair value plus transaction costs directly related to the financial asset.

After initial recognition, an entity measures accounts receivable at amortized cost using the Effective Interest Method. This method of calculating depreciation using the effective interest rate of a financial asset. In turn, the Effective Interest Rate is the rate that exactly discounts the expected flow of future cash payments before the maturity date to the current net book value of the financial asset.

If there is objective evidence that an impairment loss occurred on loans and receivables or investments held to maturity and recorded at amortized cost, then the damage amount is valued as the difference between the asset's book value and the present value of valued future cash flows (except for future credit losses were not incurred), discounted at the original effective interest rate of the financial asset (that is, the effective interest rate calculated at the initial recognition). The carrying amount of the asset is reduced directly or by using the reserve account. The amount of damage is recognized in profit or loss.

An entity needs to evaluate whether there is objective evidence of impairment separately for financial assets that are separately significant and (individually or in aggregate) for financial assets.

If an entity determines that there is no objective evidence that a separately valued financial asset is impaired (whether or not it is material), it includes the asset in a group of financial assets with similar credit risk characteristics and values them for impairment as a whole. Assets that are separately valued for impairment and for which an impairment loss is recognized or continues to be recognized are not included in the cumulative impairment valuation.

If in a subsequent period the amount of the impairment loss decreases and this decrease may be objectively related to an event occurring after the impairment was recognized (for example, an improvement in the debtor's credit rating), then the impairment loss is previously recognized to be reversed (either directly or by adjusting the reserves account). Reversals should not result in a carrying amount of a financial asset that exceeds the amount that the amortized cost should owe in the event that the impairment is not recognized at the date of reversal. The reversal amount is recognized in profit or loss.

The Balance total includes the net realizable value of accounts receivable for products, goods, work, services, which is defined as the difference between the initial value of accounts receivable and the allowance for doubtful debts:

The amount of the reserve for doubtful debts is determined on the basis of:

- solvency of individual debtors or
- based on receivables classification.

Regardless of which method for calculating the allowance for doubtful debts is chosen, enterprises need to classify current accounts receivable for products, goods, works, and services by default, since this information is disclosed in the notes to the financial statements.

The classification of accounts receivable for products, goods, works, services is carried out by grouping accounts receivable according to the terms of their non-repayment with the establishment of a coefficient of doubtfulness for each group. The coefficient of doubtfulness is established by the enterprise on the basis of the actual amount of uncollectible receivables for products, goods, works, services for previous reporting periods.

In the context of the growing role of a specific group of users of accounting information in the financial market, there are changing requests for a valuation methodology that is used in the accounting system for various purposes of enterprise asset management.

Under such conditions, special attention should be paid to carrying out scientific research related to the analysis of the interest of various user groups on the application of various valuation methods for particular types of accounting objects, in particular, those users who are interested in receiving information on the value of the enterprise.

## **2.2 Accounting policy of the enterprise in the valuation of objects: the formation of tasks, restrictions and ways of implementation**

One of the most important features of accounting, distinguishes it from other types, is the mandatory use of a money measure. The universality of this value provides the usefulness of accounting for its users. Thus, the presence of a money measure allows to carry out various business transactions between various business entities, to evaluate both the condition of the

property and its sources, and the results of operations. At the same time, the objectivity and validity of the valuation is crucial. It is important that at the time of making a management decision on determining the directions for the use of economic resources, it was possible to predict the possible consequences of a perfect choice. Thus, a thoroughly formed accounting policy of an enterprise in the valuation of accounting objects is the key to the accuracy and reliability of financial statements.

The accounting policy of the company should contain information about the valuation methods that are used in the organization of accounting and should be based on the requirements: NP(S)A 1 «General requirements for financial reporting», IAS 39 «Financial instruments: recognition and valuation» and IFRS 13 «Valuation fair value [56, IAS 39; 56, IAS 13; 58].

The main standard applied in the selection and application of accounting policies, accounting for changes in accounting policies, changes in accounting valuations and correcting errors of the previous period, is IAS 8 «Accounting policies, changes in accounting valuations and errors» [56, IAS 8]. The purpose of this standard is defining criteria for selecting and changing accounting policies, determining the accounting treatment and disclosing information about changes in accounting policies, changes in accounting valuations and correcting errors.

An example of choosing accounting policies is: electing an accounting model used by a business entity in its investment property, a fair value model or a cost model (IAS 40); for fixed assets, the choice of accounting policies will be the choice of their accounting according to the cost model or the revaluation model (paragraph 29 of IAS 16).

Accounting policies are specific principles, fundamentals, agreements, rules and practices applied by an enterprise in the preparation and presentation of financial statements.

A change in accounting valuation is an adjustment to the carrying amount of an asset or liability or the amount of the periodic consumption of an asset, which is the valuation result of the current status of assets and liabilities and the expected future benefits and liabilities associated with them. Changes in accounting valuations are a consequence of new information or new developments and are not corrections of mistakes.

If there is no IFRS that specifically applies to an operation, other event or condition, management personnel must apply judgment when developing and applying accounting policies, so that the information is:

- by the way for users making economic decisions;
- reliable in the sense that the financial statements:
  - accurately reflects the financial position, financial results and cash flow of the company;
  - reflects the economic essence of operations, other events or conditions, and not just the legal form;
  - neutral, that is, free from prejudice;

- prudent;
- complete in all essential aspects.

In forming such a judgment, management personnel should be guided and take into account in a downward order:

- IFRS requirements dealing with such and related issues;
- determination of recognition criteria and the concept of valuation of assets, liabilities, income and expenses in the Financial Reporting Concept.

In forming judgment, management personnel should also take into account the very provisions of other bodies that develop and approve standards, apply a similar conceptual framework for developing standards, other professional accounting literature and industry practices, provided they do not contradict IFRS and the Financial Reporting Concept.

According to A. Zagorodnii, the main requirement for valuation is its reality, which is ensured by the reliability of accounting data and the principles of accounting for business transactions [91].

Adopted IFRS 13 «Fair value measurement» declares the application of fair value to assets, liabilities, non-financial assets, own equity instruments of business entities. To fair value measurement, the following methods are proposed: market, cost and income approaches.

The existing national P(S)A does not establish the procedure for calculating the corresponding types of value of fixed assets, intangible assets, securities, stocks, finished products, etc., including fair value. The fair value for many objects is equal to their market value (that is, the value prevailing in the market with a certain supply and demand). In the case when an active market is not formed, an expert valuation can be used to justify the fair value. Valuers choose a valuation base corresponding to market value or non-market value types.

The evaluation process is a procedure for providing accounting objects with certain monetary values that are received in such a way that they can be used for the final valuation of assets.

Objects can be divided into property (receivables, buildings, long-term securities) and actions and events (sales of goods and services, payment of dividends).

Before valuating an object, one should select the indicator by which it will be evaluated; for example, for receivables, this could be the amount of the debt and the expected date of repayment; for buildings and equipment – production capacity, costs at the time of purchase, the amount of funds needed now for their replacement, etc.

The above approaches to the valuations of accounting objects are formed in response to the processes that occur in the economies of countries. A number of scientists from different countries of the world dealt with accounting problems and financial reporting.

The outlined position is supported by N. Maliuha, pointing out that each of the valuations is necessary for solving a certain range of tasks. In his

research, the scientist identifies the following characteristics of the valuation classification: for the object that is measured: individual, aggregate; by criterion of calculation: objective, subjective; depending on the further use of the property: at cost; at market price; relative to the subject of measurement of valuations: historical, calculation; by type: nominal, fixed, property items in the balance, direct, indirect; by time: by the time of measurement, by the moment for which the results are intended; by calculation methods: permanent, restored, others; by type of revaluation: markdown, revaluation surplus [68].

Classification signs for each of the specified grounds are closely interrelated, and each of them can be deployed for all the others. Any of the methods can have several times and measures rely on different criteria and value both individual and aggregate objects.

I. Suprunova identifies three types of obtaining the value expression of the value of objects: an accounting valuation, an independent one and an expert one.

They differ in essence, subjects, regulations, methods of implementation. In addition, each of the above types of valuation is currently acceptable for use in the formation of accounting data that meets the requirements of national and international accounting standards and financial statements. The differences of these types of valuation are in the subjects of their implementation, the degree of compliance with market conditions and the level of application of professional judgment or subjective market factors. It should be emphasized that an accountant and, above all, an accountant-practitioner should know and be able to apply all logically possible evaluations, but adhere to the wisdom of centuries — the initial valuation, since it is the basis of accounting.

Accounting valuation is associated with accounting valuation. Due to business uncertainty, not all items of financial statements can be accurately measured, but only pre-evaluated (predicted). Accounting valuation is a preliminary valuation, which is used by an enterprise for the purpose of distributing expenses and revenues between the respective reporting periods. Preliminary valuations are used in accounting for the calculation of the allowance for doubtful debts, in case of impairment of assets, revaluation of non-current assets, etc.

The main objectives of effective accounting valuation:

- 1) calculation of the value of assets for their conservation and rational use;
- 2) determining the amount of liabilities for managing financial stability;
- 3) valuation of business processes to calculate their results.

In the practice of economic activity, various methods of valuation and types of evaluation are used, formed in connection with the variety of relations within the framework of economic activity.

The valuation classification in accordance with the Ukrainian NP(S)A is as follows:

1. At the historical value — assets are recorded as amounts paid in cash or cash equivalents or at fair value issued to acquire them at the time of purchase.

2. At the continuous value — assets are reflected in the amount of cash and cash equivalents, which would have been paid in case of acquisition of the same.

3. At the sale value — the assets are reflected in the amount of cash or cash equivalents, which could be obtained at the current moment by selling the asset in the course of ordinary sale.

4. At the current value — assets are recorded at the present discounted value of future net cash inflows, which are expected to generate an asset in the ordinary course of business.

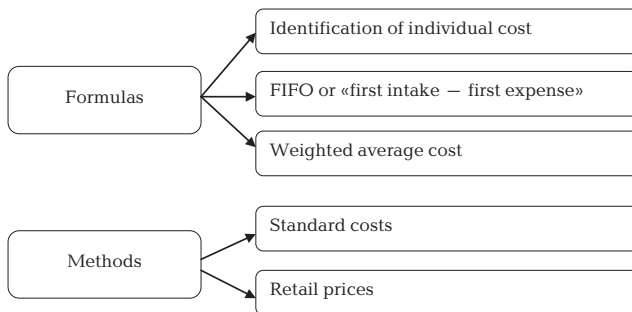
The documentary basis of accounting, subject to compliance with all legislative requirements, ensures the valuation validity. At the same time, the time factor leads to a valuation distortion, and, consequently, leads to a discrepancy between the cost indicators of accounting for the external environment.

The processes of change in economic value determine the need to bring the valuation to this level. In case of inflation or deflation, the indexation of the enterprise's property and its sources remains a challenge. It is unjustified to carry out an exceptional situation that results in inaccurate accounting valuation, as well as the possibility of evaluating future value.

According to the revaluation model, after the asset is recognized an item of property, plant and equipment (the fair value of which can be evaluated) should be taken into account at a revalued amount, which is the fair value at the date of the revaluation, less accumulated depreciation and accumulated impairment losses.

Revaluations are carried out with sufficient regularity so that the carrying amount does not differ significantly from that which would be determined using fair value at the end of the reporting period.

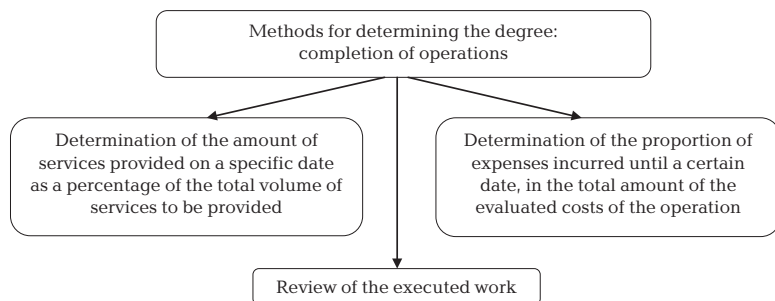
For example, for stocks, the choice of accounting policy will be the choice of the formula (method) for determining the cost of inventories in accordance with IFRS 2 (Fig. 2.4), which provides for three formulas and two methods for determining the cost of inventories, discussed in paragraph 2.2.



**Fig. 2.4** Methods for determining the cost of inventory in the formation of the accounting policies of the company defined by IFRS



For income from the provision of services in accordance with IAS 18, the choice of accounting policies will be the methods used to determine the degree of completeness of transactions involving the provision of services. This standard provides three methods for determining the degree of completeness of operations (Fig. 2.5).



**Fig. 2.5** Methods for determining the completion degree of operations.

*Source: compiled by the author*

Valuation usually has a monetary value. But in some cases (for example, for making forecasts and making decisions) data in physical terms may be needed — equipment performance or the number of employees.

In particular, the valuation of fixed assets should express the cash fleet of machines and equipment, its performance, as well as age and expected service life. It is obvious that this information in monetary terms is impossible to express. Accountants have long recognized the need for such information, so it has a certain place in the annexes and notes to the financial statements. Moreover, in the conditions of instability of the economic situation, the use of a non-monetary measure allows a more objective valuation of the condition of the property and the possibility of its use.

Increased need to ensure the valuation reliability arises in times of inflationary processes, since changes in value are not always timely reflected in accounting in accordance with the dynamics of the market.

The presence of inflation primarily changes the valuation of assets and liabilities, in particular:

- 1) tangible and intangible non-monetary components of the property, the accounting valuation of which differs from the market in accordance with changes in the purchasing power of the monetary unit or the general level of prices for goods, works and services. As a result, it is necessary to recalculate the indicators of the main forms of financial reporting, which leads to a change in the structure of sources of property;

- 2) obligations in accordance with the concluded agreements. The subject of the obligation in the legal sense is «there is no abstract value known,

but banknotes in a certain amount of counting units. Changes in the purchasing power of money, contracts, followed from the date of conclusion, do not change the amount of the debt; these changes do not affect the payment force of money, which is always determined «at face value».

In this case, it is a legal valuation of obligations, expressed either in the amount of the transaction price determined by the parties (obligations the basis of which is the contract), or in the amounts established in accordance with the law (obligations the basis of which is the law) or in the amounts of compensation damage recognized by the passive party to the obligation, or awarded by the court (obligations, the basis of which is a delict). At the same time, during the time from the moment the obligation arises to the moment of its redemption, the amount can change only through the action of the indicated factors, that is, in accordance with the contract.

At the same time accounting valuation is the basis of economic. The latter defines completely different rules for valuating the obligations of economic entities, based on the principle of the time value of money. The calculation of the evaluated value involves either calculating the «today's» amount in tomorrow's money — this is the so-called procedure for building up or calculating the «tomorrow's» amount in «today's» money — the discounting procedure.

Such an approach (of course, with a certain degree of relativity) makes it possible to establish how much the amount due to receive will depreciate over the period from the date the obligation arises to the date of its redemption. The depreciation of money in time regarding the activities of a particular business entity is determined by two factors: inflation and the percentage of the company's profits.

Forecasting allows to create the necessary reserves of management, provides an opportunity to maintain the stability of management in times of deteriorating economic activity.

At the same time, accounting regulations now form the legal principle of nominalism as the basis for accounting for liabilities. This means that receivables and payables must be shown in the financial statements in amounts due to be received or paid on a specific date in accordance with the contract, law or delict.

Due to the pronounced effect of inflationary processes on the business process as a whole, decision making is complicated by the fact that incomes and expenses associated with price changes should be taken into account. For example, inflation losses are clearly manifested when accounts receivables arise: enterprises are forced in courts to demand from debtors not only a refund, but also a return on losses from inflation. In this case, the expansion of the accounting objects. One of them is inflation losses, which are calculated on the basis of current civil law.

The consolidation of such a norm in the current legislation has become recognition of the existence of inflationary processes and created a mechanism of supposed insurance against possible losses in this case.

Accruing payments to compensate for the borrower's losses due to inflationary depreciation of the monetary unit in which the amount of debt is measured is one of the tools that discipline debtors because they are not fulfilled by the debtor to repay debt. The procedure provided by the Civil Code gives the lender the opportunity to repay the debt, taking into account the established inflation index for the entire period of delay. The financial resources obtained in this way can be used to generate additional income by forming deposit funds or acquiring financial instruments. The main problematic issue that arises in this case is a documentary justification for the possibility of charging and collecting compensation for inflation losses.

To reflect income in the amount of accrued inflationary interest in accounting, it is necessary to have documents confirming:

- 1) existence of a monetary obligation between the creditor and the debtor (such confirmation is the terms of the contract for cash settlements, primary documents confirming the performance of work or shipment of products, and therefore, debt for the values or services received);

- 2) monetary obligation must be expired. That is, in accordance with the contract and primary documents, it can be established that the conditions of the contract are fulfilled by the lender, but the cash debt remained unpaid.

The procedure for compensation for such losses is regulated by Article 625 of the Civil Code of Ukraine. This article provides that a debtor who has delayed the fulfillment of a monetary obligation must, at the request of the creditor, pay the amount of the debt, taking into account the established inflation index for the entire period of the delay, as well as 3 % per annum of the overdue amount, unless a different interest rate is established by the contract or law. So, inflation charges on the amount of debt and interest per annum are included in the monetary obligation.

The presence of the allocation of various penalties due to violations of the implementation of the contract allows to organize analytical accounting for the correct identification of accounting objects for the timely receipt of information about the benefits and losses due to inflationary processes and the execution of transactions.

Table 2.4 presents the main elements and content of the asset valuation operations that form the basis for the valuation and should be taken into account when organizing accounting at the enterprise. Therefore, in the process of formation of accounting policies, each company must justify the methodology for valuating work in progress in accordance with the organizational features of production and information management requests.

The order of formation of accounting policies for the valuation of work in progress is affected by a significant number of factors.

Enterprises with a wide range of products or in which a large number of parts and assemblies are included in certain types of finished products, as well as processing operations are characterized by insignificant labor intensity and, at the same time, workmanship of parts manufacturing, evaluate

work in progress in conditional products (for example, in machine sets). These enterprises are mainly engineering. In these industries, a simplified valuation of work in progress in terms of wages is used: the article «basic wages of production workers» is conventionally valued at 50 % of the price applicable for this shop for all processed parts.

**Table 2.4** Valuation of enterprise assets in connection with the P(S)A requirements.

*Source: compiled by the author*

Basics of asset valuation	The content of asset valuation operations in an enterprise
Target	Installation (recognition) of conformity (non-conformity) of an object to an enterprise's assets
Objects	<ul style="list-style-type: none"> <li>– objects of property that come to the enterprise;</li> <li>– costs that lead to increased economic benefits from the use of fixed assets;</li> <li>– deregistered objects;</li> <li>– objects intended for revaluation</li> </ul>
Regulatory framework for valuation	<ul style="list-style-type: none"> <li>– legal and regulatory framework for the performance of work (provision of services);</li> <li>– guidelines for property valuation;</li> <li>– legislation on income tax (normal prices);</li> <li>– requirements stipulated by the P(S)A (see Section 2 of the article)</li> </ul>
Holding period	<ul style="list-style-type: none"> <li>– asset creation;</li> <li>– the moment the object arrives at the enterprise;</li> <li>– preparation of financial statements;</li> <li>– asset retirement</li> </ul>
Valuating body	<ul style="list-style-type: none"> <li>– enterprise commission for valuation;</li> <li>– specialized independent expert (valuation) organization, independent specialist – property valuer</li> </ul>
Organization of valuation (expert) work at the enterprise	<ul style="list-style-type: none"> <li>– indication in the order on the accounting policy of the enterprise provides for the valuation procedure;</li> <li>– order of the head of the establishment and the powers of the valuation committee at the enterprise, the choice of method of conducting the evaluation;</li> <li>– development of regulations on the valuation committee;</li> <li>– creation of valuation service: inclusion in the structure of the enterprise or the appointment of employees to the commission members, the issuance of the order (instruction) of the head</li> </ul>
Documentation of the completed valuation	Expert opinion, the act of acceptance of the object, act of valuation, conclusion of the transfer of the object in the assets, conclusion of the disposal of the object from the assets
Scope of valuation	All assets entering the enterprise and all assets registered are valued
Valuation results	<ul style="list-style-type: none"> <li>– the amount of the initial value of the asset is determined;</li> <li>– the amount of the revalued value of the asset is determined;</li> <li>– write-off of an asset from the balance</li> </ul>

In enterprises of individual production, work in progress is evaluated by the sum of actual expenses for each order in progress. Overhead costs are attributed to the cost of each order in proportion to the wages of the main production workers.

At enterprises characterized by mass and serial type of production, work in progress is valued, based on the norms of costs for each line of direct costs, taking into account the degree of readiness of work in progress. The consumption of materials and wages are attributed directly to each unit of work in progress, and overhead costs are added to the distribution base as a total amount for all details on interest. At these enterprises, the valuation of work in progress depends on the technological conditions for increasing production costs.

In practice, such options for increasing costs are common:

- uniform growth;
- at the beginning of the production process there is a significant increase in costs (due to the expenditure of raw materials and materials), the growth of which then continues evenly;
- at first, uniform, but at the final stage there is a significant increase (due to purchased components and semi-finished products).

In enterprises in the first group, work in progress is valued according to the level of readiness. In enterprises where expenses grow, respectively, for the second option, work in progress is valued at 50 % of processing costs and cost of materials. According to the third option, the cost of each unfinished product materials is included in the amount of 100 %, and the cost of processing at the level of 50 %.

The valuation of work in progress balances is influenced by the option of consolidated cost accounting used in the enterprise and must be determined during the formation of accounting policies. In the process of the construction of production costs for the semi-finished option, the final balances of work in progress are valued at the cost of primary raw materials or semi-finished products at the previous stage of processing and processing costs within this workshop. In this case, in the costs of the unfinished production of each workshop are reflected not only their own costs for processing work in progress, but also the costs of processing the previous workshops.

In the process of the construction of production costs for an unfinished product option to evaluate the balances of work in progress, first determine the total number of parts that are in process in this workshop and in the following workshops according to the process. Then this number of parts is valued based on either the standard amount of expenses of such a workshop for processing a unit of these parts, or from the planned or actual cost of processing such parts in this workshop. In addition, if the accounting of work in progress is conducted in an exploded section, the costs of the workshop for processing units of parts are charged to parts that are located in such a workshop at a rate of 50 %, and to parts in the following workshops — in full.

At the first stage of processing in the valuation of work in progress include the cost of primary materials for all parts, remained in the work in progress.

That is, for the use of an unfinished product option, the expenses of each workshop only reflect their own expenses and only a part of the expenses related to the finished products are written off monthly for finished products. The cost of parts transferred to the following shops, not included in the finished products, continue to be accounted for the shops as part of their work in progress. Costs in work in progress in each workshop in this case do not correspond to the actual presence of work in progress within this workshop.

The specified procedure for the valuation of work in progress allows to determine the share of shop expenses in the cost of production for the enterprise as a whole, but does not provide a definition of shop cost.

So, in the order about the accounting policy, a variant of the consolidated cost accounting should be defined, which will allow to evaluate the work in progress.

## **2.3 Application of fair value measurements in accordance with international accounting standards**

The information provided by the financial statements is becoming increasingly focused on the use of fair value measurement. This is evidenced by the introduction since 2013 of IFRS 13 «Fair value measurement», which is entirely devoted to its application and interpretation. The purpose of the standard is forming a unified approach to interpreting the category of fair value, as well as the theoretical basis for its definition for the elements of financial statements that are subject to such evaluation.

However, subjectivity, that is, judgments of individuals who are an integral part of choosing possible methods for determining fair value, can lead to a situation where financial statements, in which fair value measurements are applied, may lose their ability to be fair and reliable.

Exploring the use of fair value in modern accounting standards, we should pay attention to the US practice, from which its current interpretation in IFRS was borrowed.

According to the definition of US tax laws [92, p. 28] Fair Market Value (FMV) is the price for which property can be exchanged when implementing a mutually beneficial agreement between a voluntary buyer and a voluntary seller, each of whom has the necessary information about all material facts and acts without forcing to buy – sales, having sufficient exposure time of the property being valued, on the free and open market.

The priority for regular accounting is the fair market value of FMV and fair value – FV [93, p. 129–138, p. 133–134]. With a close enough relationship, they are still certain essential features of difference. These differences can be generalized and systematized in a certain way (Table 2.5).

**Table 2.5** Comparative characteristics of signs  
in the interpretation of concepts of fair market value and fair value.

*Source: compiled by the author*

Fair market value – FMV	Fair value – FV
Voluntary buyer. It acts solely on its own will, without pressure or coercion to make a deal	The buyer does not always act voluntarily. For example, it can be a buyer who does not pay a price higher than the one that was formed in a certain period of time in the market
The seller acts solely on its own will, that is, it is such that he does not have an excessive desire or is not forced to sell, at any price, and not in such a way that he would expect a price that is not reasonable for the existing market. Also, the voluntary seller is interested to sell the object at the maximum possible price on the open market	The seller does not always act voluntarily
Neither side is under pressure	The buyer is not always under pressure; seller may resist pressure
Equilibrium cost is relative to both sides	The concept of equity relates primarily to the seller, in the context of its insolvency to keep its share in the company's share capital
It is stipulated that both the seller and the buyer are equally aware of the terms of the transaction and have all the available information about the benefits and reservations regarding him	There is no such foresight
It can be used in any government (including tax) valuation	The most common standard for valuating the value of property shares in the capital of minority rights and squeezed in shareholders
It is carried out priority from the position of the owner of the funds (the buyer)	It is carried out from the position of the owner of the assets put up for sale (the seller)

The use of fair value in the evaluation of objects of accounting began to require — earlier or somewhat later norms of the following national standards: P(S)A 7 «Fixed assets», P(S)A 8 «Intangible assets», P(S)A 9 «Stocks» (When forming the initial cost of stocks contributed to the authorized capital of the enterprise, received by the enterprise free of charge, acquired as a result of exchanging for similar (unlike) stocks), P(S)A 12 «Financial Investments», P(S)A 13 «Financial instruments», P(S)A 22 «Influence of inflation», P(S)A 32 «Investment property», P(S)A 34 «Payment based on shares» [94, p. 54]. The definition of fair value itself is contained only in P(S)A 19 «Combining enterprises», paragraph 4.

At the same time, the Law of Ukraine «On Accounting and Financial Reporting» does not contain any mention of the very fact of the existence of a certain «fair value».

Fair value and international standards are not fully explained. Citing definitions of fair value, IFRS 13 [49] does not contain comprehensive rules and methods for calculating it. The purpose of the standard is only:

- give a «definition of fair value»;
- lay out «in a single IFRS basis for valuating fair value»; and
- specify the requirements for «disclosure of fair value measurements» (paragraph 1 of the standard).

The systematization of definitions of fair value in accounting standards is implemented in Table 2.6 below.

By speaking about a possible approach to calculating fair value, Standard 13 first returns to the question of the purpose of this action.

In general, to fair value measurement is the determination of the price at which the transaction, which is carried out in an organized market, for the sale of an asset between market participants at the valuation date in current market conditions, would take place. That is, in essence, the initial price at the valuation dates from the point of view of the market participant who holds the asset.

In particular, in accordance with paragraph 62 of the Standard, the purpose of using one of the possible valuation methods is «determination of the price at which an ordinary asset sale transaction or transfer of an obligation between market participants at the date of the valuation of current market conditions» would take place. The three, as the Standard shows, the «most widely used» methods of such valuation are «market approach», «cost approach» and «income approach».

At the same time, paragraph 61 of the Standard clarifies: «An enterprise should apply evaluation methods that are appropriate to the circumstances and for which there is enough data for fair value measurement, maximizing the use of relevant open input data and minimizing the use of closed input data».

Also, Appendix A of IAS 13, which contains definitions of terms used by the standard, defines the content of these valuation approaches as follows.

- The market approach is «a valuation method that uses prices and other relevant information generated by market transactions with identical or comparable (i. e., similar) assets, liabilities or a group of assets and liabilities, such a business».
- The cost approach is «a valuation method that displays the amount that would be needed now to replace the productive capacity of an asset (often referred to as the current replacement cost)».
- The income approach is «valuation method that convert future amounts (for example, cash flows or income and expenses) into a single current amount (i. e., discounted). The fair value is valued on the basis of the value that is affected by current market expectations for such future amounts».



**Table 2.6** Fair value measurement  
in the US GAAP System, International and National Accounting Standards.

*Source: compiled by the author*

No.	Regulatory act	Definition
IFRS		
1	IFRS 2 «Share-based Payment»	The amount for which the asset can be exchanged, the settlement on the obligation was made, or the equity instrument was provided during the implementation transactions between knowledgeable, interested and independent parties
2	IFRS 13 «Fair value measurement»; This definition is also referred to by the IFRS Conceptual Framework	The price that would be received for the sale of an asset or paid for the transfer of a liability in a normal transaction between market participants at the valuation date.
3	IFRS 17 «Leases» (from 2019, a replacement with IFRS 16 «Leases» is provided for)	The amount by which it is possible to exchange an asset or pay off debt in transactions between knowledgeable, interested and independent parties
SFAS (US GAAP)		
4	SFAS № 107 «Disclosure of information on the fair value of financial instruments»	The amount for which the instrument can be exchanged during the current transaction between the interested parties, and the transaction should not be forced
5	SFAS № 142 «Goodwill and other intangible assets»	The cost at which this asset may be sold or acquired during the current transaction
6	SFAS № 133. Accounting for derivative instruments and hedging activities. Accounting for derivatives and hedging operations	The cost at which assets (liabilities) may be acquired (transferred to the balance sheet) or sold (redeemed) during the current transaction (transaction) between the parties
7	SFAS № 157 «Fair value measurement»	The price that would have been received from the sale of an asset or paid for the transfer of a liability in a normal transaction between market participants at the valuation date
P(S)A – Ukraine		
8	P(S)A 19 «Association of Enterprises», p. 4	The amount at which an asset can be exchanged or a liability paid as a result of a transaction between knowledgeable, interested, and independent parties

At its core, the listed options are rather separate types of valuation of accounting objects than variants of the same methodology; they are united only by the requirement of a sufficiently hypothetical «justice» in relation to their potential results.

In accordance with the International Valuation Standards of IVS 2011 (paragraph 39 of IVS 2011): «Fair value is the valuated price of an asset or liability when it is exchanged between identified (i. e. specific) informed and interested parties, which properly reflect the respective interests of these parties» [95].

International valuation standards specify how fair value determined for purposes other than using for financial reporting differs from market value (and fair value in accounting interpretation): fair value requires a price that is recognized as fair for two specific parties in an agreement, taking into account the respective advantages or disadvantages that each party will receive from the operation. On the contrary, there is a reservation for determining the market value, so that any benefits that would not be available to all market participants should be ignored.

Under the term «market value», valuation standards understand the most likely price at which the evaluated object can be alienated on the open market in a competitive environment, when the parties to the transaction act reasonably, having all the necessary information, and the agreement does not reflect any extraordinary circumstances.

Therefore, fair value for valuation purposes defines a broader concept than market value. Although in most cases the price that is fair for both parties in a transaction will be equal to the price obtained as a result of a market transaction, there may be cases where the determination of fair value will require taking into account aspects to be ignored in determining market value. For example, any element of special value arising from a combination of interests of counterparties.

The market value of the property can be determined under the following conditions:

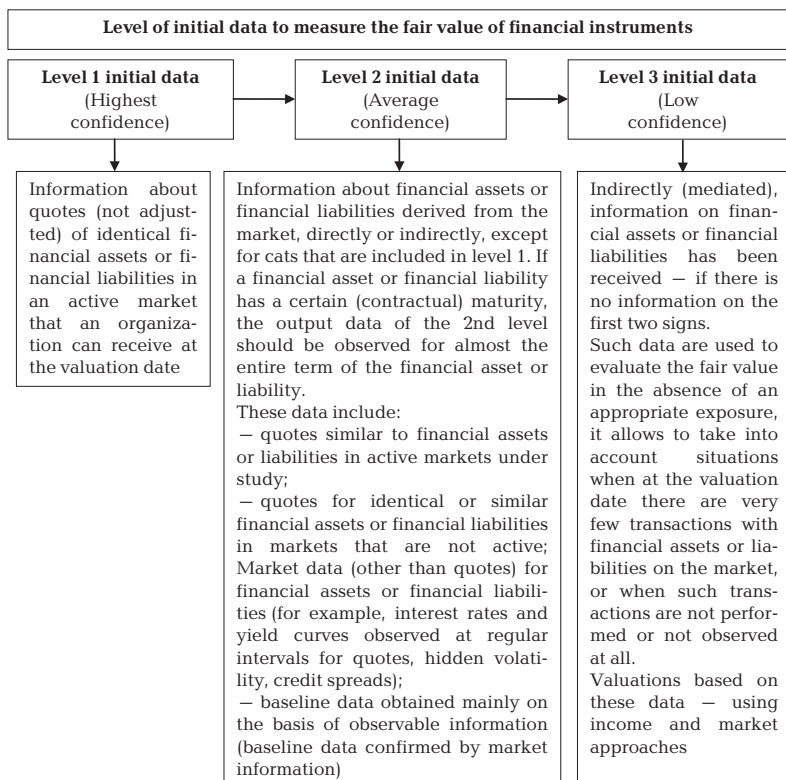
- one of the parties to the transaction is not obliged to dispose of the object of evaluation, and the other party is not obliged to accept execution;
- the parties to the transaction are well aware of the subject matter of the transaction and act in their own interests;
- the transaction price is a reasonable remuneration for the object of evaluation and coercion to make a transaction with respect to the parties to the transaction with any of the parties;
- payment for the property being valued exists in cash.

Being essentially one of the functions of the economic situation in the market, the market value is determined on the basis of the basic valuation principles — supply and demand, substitution, balance, conformity. In addition, economic factors such as utility, purchasing power, scarcity and the like affect the market value. In other words, the market value reflects the current balance of forces operating in the market and the expected trend of changes in this ratio.

Consequently, fair value relative to the purposes of professional valuation (PV) is the value determined directly in exchange, and fair value for financial reporting purposes arises from an analysis of IFRS 13 refers to the

valuation bases aimed at reflecting prices that prevail in open observable markets. Although there are some cautions in IFRS 13.

Thus, for the purpose of a more consistent and comparable disclosure of the fair value measurement of financial instruments and related information, a hierarchical structure of data levels can be used to evaluate it [56, IFRS 13, paragraph 38, 39]. When constructing it, it is possible to distinguish three levels of input data, to be processed sequentially – uncorrected information, data obtained in the market directly or indirectly and indirectly obtained data (Fig. 2.6). At the same time, the valuation uncertainty grows if the financial instrument moves from the 1st level to the 2nd or 2nd level to the 3rd. In addition, for the 2nd and especially – for the 3rd level there is a wide range of valuation uncertainty – depending on the availability of market data, the level of complexity of the financial instrument, and the like.



**Fig. 2.6** Hierarchical structure of fair value measurement of financial instruments.

*Source: compiled by the author on the basis of [56, IAS 13]*

It is advisable (especially in unstable markets, such as domestic) to adjust the definition of value, taking into account the uncertainty factors regarding the valuation itself, in order to adjust it to the risks. Such an adjustment will allow for a certain optimization of the market participant in setting prices. This will help to reflect the uncertainties associated with the risks arising from pricing or cash flows for a financial instrument. Examples include such model adjustments:

- Adjustment based on credit risk. Some models do not take credit risk into account, including the risk of contractor's failure to fulfill contractual obligations or their own credit risk.
- Adjustment for liquidity risk. In some models, the average market price can be calculated, even if the concept of preparation of financial statements may provide for the use of an amount adjusted for liquidity – in particular, the difference between the purchase and sale prices. For example, when applying such a correction in view of liquidity, which is more dependent on professional judgment, one can find out that some financial instruments are illiquid, and this will significantly reduce their valuation.
- Adjustment to other risks. The value determined using a model that does not take into account all other factors that market participants would take into account when setting prices for a financial instrument may not represent the fair value at the valuation date, and therefore it is advisable to adjust it separately.

Such adjustments will not reach the goal if the value obtained as a result of adjusting the evaluated value of a financial instrument does not correspond to the fair value itself – according to its definition in the relevant concept of preparing financial statements. An example is an adjustment using a more conservative (minimal) approach to valuation.

In modern concepts of preparation of financial statements, the most reliable evidence of the fair value of a financial instrument is the price of current operations carried out in an active market (that is, initial information of level 1). Quotes of financial instruments included in quotation lists of exchanges or revolving in liquid over-the-counter markets can be obtained directly from exchanges or external – as independent as possible – sources of price information. When using quotes, it is important that the management of the organization understands what underlies such a quote. This is necessary in order for management to obtain confidence that the price will reflect objective market conditions at the valuation date. Quotes received from outside or from stock exchanges may provide sufficient evidence to confirm fair value in cases where, for example:

- prices are not outdated or irrelevant;
- quotations reflect prices at which dealers would conduct actual operations with a financial instrument with sufficient regularity and in sufficient volume.

In the absence of current observations of market data on the price of a financial instrument (that is, output data of level 1), in order to carry out its valuation, it will be necessary to collect other price indicators necessary when applying the method of valuation.

These price indicators can be:

- recent transactions with the same instrument, including transactions carried out after the reporting date. At the same time, it is necessary to consider whether there is a need to make adjustments taking into account changes in market conditions for the period between the valuation date and the date of the transaction, since these operations do not always reflect market conditions that existed at the reporting date. In addition, it is possible that the transaction constitutes a forced agreement, and therefore the price applied does not reflect the price of the transaction as part of an ordinary trade operation;
- current or recent transactions with similar instruments (this indicator is often referred to as «analog price»). Such an analogue price needs to be adjusted for the difference between the analogue and the instrument being valued, for example, the difference in terms of liquidity risk or credit risk that exists between the two instruments [56, IFRS 13, paragraph 38 (ii)];
- indexes that relate to similar tools. As with transactions with similar instruments, adjustments will be required to account for the differences between the instrument being evaluated and the instrument or instruments on the basis of which the index was compiled.

The concepts of fair presentation of financial statements quite often use hierarchical structures of fair value measurement — such as the one above. This usually means that as the uncertainty increases, the requirements for the volume and degree of detail disclosed will increase. Therefore, to make a distinction between levels of hierarchy, it may be necessary to use a subjective component — that is, already guessing.

So, despite the existing positive features in the application of fair value, there are quite significant drawbacks, in particular:

- fair value does not always reflect the true financial condition of business entity;
- expansion of the impact of fair value on a large number of assets (primarily financial), industries, and even countries with different levels of development, apply the same valuation model, generally cause uncertainty about the possibilities of the very existence of such a universal measurement system all countries active markets are developed;
- recognition of income from revaluation of assets may lead to a significant adjustment of the financial situation of the organization in subsequent years, which in turn will put pressure on the payment of dividends for which the organization may not have enough funds;
- application of complex mathematical calculations.

And here we again come to the conclusion that now «justice» is rather a qualitative characteristic of valuation than the determination of its specific method.

Returning to the practice of accounting for the United States, let's note that GAAP US requires (or allows) a combination of both types of measurements to be used — at fair market value or at fair value. Nevertheless, the emphasis is precisely on the priority of the application of fair value, since it is believed that it is she who exposes the users of financial reports with the most accurate and adequate information.

In this regard, one question arises: can the parties, the counterparties really be independent and objectively informed when evaluating? And to what extent is the assumption of good awareness and impartiality of the parties in determining the current price of the object of valuation not subjective, and the subjectivity itself is malicious? And if the experience of economic crises of the XIX — XX centuries it may seem obsolete to us, referring to the recent past.

Almost eighteen years have passed since the great collapse of the sadly Enron Corporation. On the scenes of the West End and Broadway with great success the production of the musical with the same name — «Enron». John Kay, in an article [96] published in The Financial Times, notes:

The musical Enron begins with the president of this American energy trader, Jeffrey Skillin (now in prison) drinking champagne with his colleagues. Not celebrating a good deal, or actually raising, or a new record for the company's stock, but celebrating the receipt of a letter from the securities trading commission and stock exchanges that approved the *widespread use of accounting at current prices* in Enron business.

The absence of truly free and active markets, where hidden cartel agreements would operate, of markets with real, and not simulated, competition depreciate accuracy by using fair value measurement. On the other hand, in determining «justice», the main flaw can be the valuers' subjectivity itself (or more precisely, valuation customers who will influence them) — motivated by certain interests, or one based directly on certain unconscious errors. The imperfection of the methodology in the recognition and valuation of goodwill, competencies, other components of implicit assets also does not give grounds to consider fair value as the only panacea for all areas of application.

The fair value accounting system assumes that companies value and report their resources in essence, at an agreed fair value, and can reflect negative (for themselves) changes in their condition and structure under the influence of market conditions very radically. For example, if the present value of the object is much lower than the initial (historical) value, there will be significant write-offs in the balance sheets, that is, losses.

Such obvious losses may ultimately lead to a loss of investor and counterparty confidence, and especially if there is no developed and truly free market in the national economic space for exposing and determining, ultimately, any value at all.

If countries with strong and stable market traditions face similar problems, can we talk about transitional economies like Ukraine? Such a «fair» value can be consciously or unconsciously falsified or distorted — either for lack of awareness, or consciously, for misleading users of accounting reports. So are there sufficient counteractions to the manipulation of the «invisible hand»?

It is also characteristic that the specialists of one of the largest international organizations of professional accountants ACCA (The Association of Chartered Certified Accountants) also believe that:

1) fair value accounting has a number of significant advantages and derivatives;

2) for this reason, IFRSs still include various principles for determining costs and fair value measurement — as long as ACCA sees no reason for expanding the use of fair value in accounting standards, especially in areas where markets do not exist;

3) the initial value can be shown in the financial statements, if fair value is used, so that users can make decisions about the specified value of assets.

Financial reporting is intended to inform stakeholders about the state of the company, and not to provide the regulator with an instrument of financial stability [97].

As noted in the XIX century by Windelband «Any valuation assumes as a measure of its own, a certain goal and meaning and value only for the one who recognizes this goal». That is, the valuation methodology in general, and the use of fair value — in particular — should proceed primarily from the purpose for which the information obtained will be used.

Alfred King also notes the same thing: «Each time, if necessary, conduct a valuation, first ask two questions:

1) who is this cost information intended for?

2) for what purpose will this cost information be used?» [92, p. 31].

At the same time, in financial accounting and reporting, in documents that declare a company's accounting policies and notes to financial statements, the methodology for conducting such valuation should be explained in detail and as detailed as possible. It should also be easy to trace the history of all corrections, revaluations and other cost transformations in determining the value. Finally, all technical procedures must be codified and their parameters must be determined.

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## **Chapter 3**

# **Methodology and technology for evaluation of objects in the system of management decision making**

### **3.1 Methodology for selecting the optimal evaluation type for determining the value of various objects in business management**

In the conditions of a market economy, management accounting and analysis of the effectiveness of organizations based on their data are objectively necessary. Analysis using management accounting data is one of the main conditions that allow management to make the right management decisions, so the survival and success of any organization in a market economy, with its inherent high competition, is largely determined by the degree of management accounting development, its ability to objectively and impartially determine the cost indicators of the organization, resorting to valuation activities.

It should be said that L. Vorotina, V. Vorotin, V. Lisniak, V. Polishchuk, A. Drapikovskiy, I. Ivanova, V. Yesipov, L. Yefremova, S. Yefremov, T. Calinescu, Yu. Romanovska, A. Kyrylov, V. Loiko, A. Kalabukhova, Yu. Dechtiarenko, M. Likhogrud, Yu. Mantsevykh, Yu. Palekha, V. Opara, A. Dombrovskaya and others are addressed asset valuation issues in recent years.

The researchers note that there is a close relationship between valuation activity and management accounting, although they note that valuation activity is not a direct and ongoing task of this form of accounting. Apparently it is precisely for this reason that evaluation is not an ongoing process, the need for evaluation arises sporadically, the problem of evaluation from the point of view of management accounting has not been widely reported in the scientific literature.

At the same time, when it comes to management accounting as a system that is able to accumulate and provide comprehensive information, such an «information layer» as the value of assets does not fall out of the field of view of management accounting.

Informational conditionality of the management accounting process requires attention to various aspects of the enterprise, organization, including



information relating to the value of assets, the company's liabilities, is ensured by their valuation, and the use of valuation methods in management accounting occurs in practice when people who take management solutions, there is a need for objective information regarding the value of assets and liabilities.

In these cases, management accounting data becomes the main source of information within the business valuation, valuation of assets and liabilities that are on the balance sheet of organizations. Understanding the key value of the category «Asset Value» to characterize the property complex, processes in the economic system, let's conclude that the «value» concept is fundamental as a complex indicator of the degree of significance, usefulness, feasibility of obtaining a particular result of activity, as well as the «value» of resources providing this result. Valuation is the determination of the value of the property in specific market conditions at a particular point in time. It is necessary to resolve controversial issues of distribution of property in the case of enterprise restructuring (equipment valuation), determining the cost of capital investments (valuation of contribution from authorized capital), etc. An enterprise often needs to estimate the value of various properties for sale, purchase, lease, depositing property as collateral for a loan, making a contribution to the authorized capital, revaluation of fixed assets.

Meanwhile, valuation plays a significant role in substantiating decisions made by market participants and is a tool for business management [98, p. 22].

Let's note that in modern economics, valuation activity is an important and often mandatory addition to accounting for transactions and legal registration of transactions with property. According to Article 3 of The Law of Ukraine «On the valuation of property, property rights and professional valuation activities in Ukraine» determined that property valuation, property rights (hereinafter — property valuation) is the process of determining their value at the valuation date according to the procedure established by regulatory and legal acts, specified by law and is the result of practical activities of the subject of valuation activity [83].

Let's pay attention to the fact that management accounting, unlike financial accounting, is unformalized by the system of providing information, respectively, within the framework of management accounting, valuation can be carried out both according to the procedure established by regulatory acts and by using other evaluation techniques that can provide objective information regarding the cost assets.

If we consider the valuation activity as a process, then such activity is defined as the activity of the subjects of management accounting, aimed at establishing the market value or other value with respect to the objects of valuation.

The purpose of the valuation is determination of the value of the object, which is the property and property rights that are subject to valuation. Objects of valuation are classified according to various criteria, in particular, objects of valuation in material and non-material form, in the form of an

integral property complex [99]. Objects of valuation can be both separate material objects, and a set of things, is the property of a person (including enterprises), as well as property rights and other real rights, rights of claim and obligations, works, services, information [100].

In management accounting, valuations include: all types of real estate; vehicles; securities; intellectual property; business (operating enterprise); cars and equipment. The main objectives of the valuation is providing information to the management of the company during the sale of property, rent, during tenders, auctions, tenders; when the need arises for insurance services; in the process of privatization; calculation of tax, duties, fees; transfer of ownership; transfer in trust and the like.

Turning to the practical evaluation, it is advisable to draw attention to the fact that, according to V. Shevchuk, M. Koriagin is a mistake to assume that the value of the company is an objective value. The fact is that the value of a company essentially depends on what plans are built on it by interested parties (in the case of acquisition, an investor and/or seller) [101], according to objective information about the value of assets becomes the area in which management accounting operates.

Valuation of business, property is always carried out with a specific purpose (determining the sale price, obtaining a mortgage loan, property insurance). This goal is called «purpose of the valuation» and determines the choice of evaluation methodology [102].

It is advisable to emphasize the following circumstances that initiate a company's valuation:

- restructuring, including reorganization, disaggregation or liquidation;
- full or partial change of ownership (purchase or sale of the company);
- privatization of state enterprises;
- renting the company to justify the amount of rent;
- identification by the owner of the company of the method of its most effective use;
- acquisition of land for its use in a specific planned way;
- investment decision (evaluation of the effectiveness of investment projects, including the project of financial recovery of the company or participation in joint investment projects);
- creation of a joint venture (valuation of the company's contribution) credit check;
- the exit of the founder or the adoption of a new one;
- inheritance settlement insurance;
- the division of property, the introduction of real estate as a share in the authorized capital of a new company;
- clarify the value of the company's property as a base for taxation [103].

The evaluation result is the calculated value of the market value of the object of valuation, which is one of the basic concepts of economics and, at the same time, one of the most ambiguous and even controversial. Various

economic schools for all the time of their existence explained the nature of cost in different ways — by costs, utility, supply and demand balance, amount of information [104].

Virtually all of these elements (costs, utility, etc.) create business value and require consideration when evaluating it. It should be noted that the standard factors of influence on the value of the enterprise can be divided into external, which can't be influenced by the enterprise, and internal, which can be influenced by the enterprise. The main goal of the top management of an enterprise is creating conditions for its functioning, under which it will be most protected from the influence of external factors and the formation of a set of key success factors affecting the value of the enterprise. For each level of management, a set of indicators may be different with the obligatory determination of a person responsible for the implementation of a particular factor. The main task of management is ensuring the maximization of the enterprise value [105].

According to V. Kutsyk, in the process of the company valuation, it is necessary to find appropriate valuation methods that are appropriate to apply on the basis of internal and external conditions. It is possible to evaluate a business with different approaches and methods. The approach is a specific set of methods and procedures that were formed on the basis of the development of certain models, trends, etc. and by which the evaluated value of the enterprise [106].

Valuation methods used in practice, in any case, are based on both objective (market) indicators and subjective (investment) cost measurements of the performance of business entities. Regarding the valuation in modern science there are the following methodological positions

The first position is a look at the valued property of the institutional and economic environment (market). This is a public valuation of the market value of the object or value in exchange.

Another position is formed in accordance with the individual (and in this sense, subjective) goals and/or criteria of the stakeholders — owners, investors. This is the identification and expression in a standardized form of the owner's subjective perceptions of value in use or investment value. In this case, from the point of view of the subject, both its expenses and the utility of the object should be reflected in the cost. Thus, the valuer must identify, on the one hand, the real socio-economic component of the valuation, and on the other hand, it relates to the object of an individual having its own subjective position regarding the value of objects, but in objective market conditions [107].

From the above methodological position, it follows that although the «real» value of a property is categorized, it can be variable, but depends on the influence of objective and subjective factors [100].

That is, depending on the circumstances at the same time, an enterprise may have several different values. In addition, its value affects the time, place, circumstances of its manifestation (including the current enterprise or not), as well as professionalism and subjective judgments of the valuer. Thus, the cost is not a fact, but a value judgment, formed on the basis

of the facts available to the valuer and the calculation methods applied by it. Market value reflects the collective judgment of all participants in transactions and depends on the activity of this market [103].

In addition to the definition of the concept of value, the question of the relationship between the concepts of cost and value, including their definition in the process of translation into Ukrainian of German «wert» and English «value», becomes relevant.

In the classic work of G. Foster [108], the main provisions of the initiated movement «from cost to value» are stated, according to which a revision and improvement of the methodological basis of cost analysis and valuation will be required.

In the scientific literature, market cost is defined as the most probable price at which a given evaluated object may be alienated on the basis of a transaction in a competitive environment, when the parties to the transaction act with all available information about the subject property, and the transaction price does not affect any extraordinary circumstances [109].

Scientists note that in practice, valuations most often seek to determine precisely the reasonable market cost. However, some objects of valuation do not have sufficient liquidity, in particular, not circulating in an open, mass and competitive market, are tightly controlled and regulated by the state, information is closed and limited. At the same time, the market cost of the enterprise is a dynamic economic phenomenon, it should also be considered in the process of evaluating the object.

Of fundamental importance is the fact that the qualitative valuation does not limit itself to taking into account only one expenditure, but necessarily takes into account the economic image: the position of the enterprise in the market; time factor; risks; competition level. The valuer approaches the definition of value from the standpoint of the economic concept of the firm, and it is this concept that becomes the basis of valuation in management accounting, which is able to determine value by parameters that are not subject to traditional financial accounting.

The concept takes into account such factors as time, risk, intangible assets, external competitive environment and internal features of the object being evaluated. According to this view on the valuation, the market value of any object generates income is defined as the present value of the expected future cash flow discounted at the interest rate, representing the profit rate required by investors, taking into account the risk of investment [110, p. 112].

At the same time, when it comes to valuation, market value enters into competition with fair value, although, according to scientists, it can be simplified to assume that a business valuation is an estimate of the fair value of a company or any part of it.

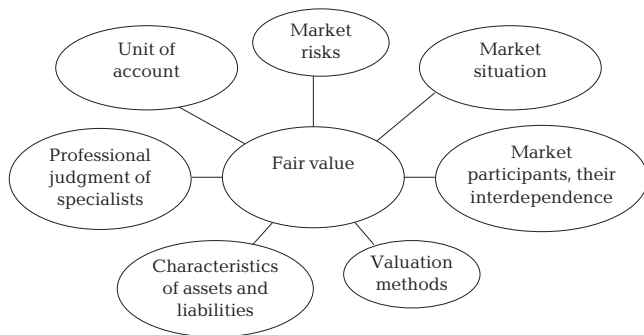
According to P(S)A 8, «fair value» is the amount at which an asset can be exchanged or liabilities paid as a result of transactions between knowledgeable, independent, and independent parties.

In a study based on an analysis of the combination of formulations proposed by economists [98; 109; 111; 104], the following essential features of the «fair value» concept are highlighted:

- 1) fair value is a cost characteristic of accounting objects;
- 2) the main objects of valuation are assets and liabilities;
- 3) valuation at the fair value of elements of financial statements is carried out according to certain rules;
- 4) fair value is formed in an agreement between market participants.

The highlighted significant features of fair value measurement in accounting allowed the author to formulate the following definition: fair value in terms of management accounting is one of the types of valuation of assets and liabilities for their recognition and reflection in management accounts at the reporting date in the current market conditions.

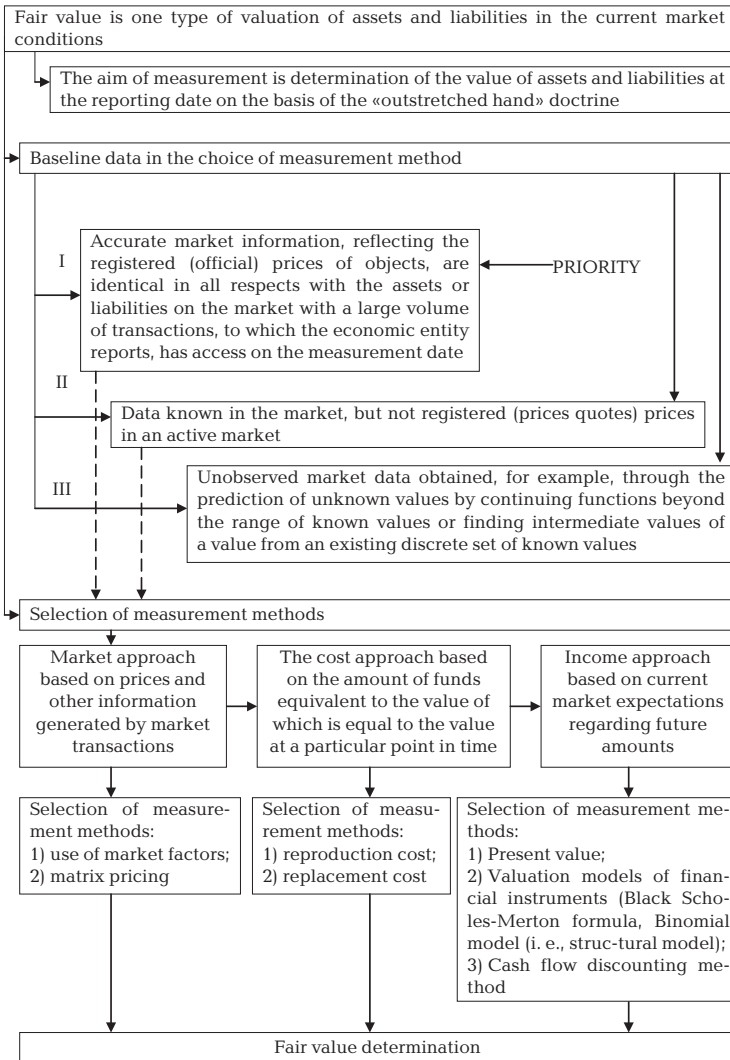
It is possible to identify factors affecting the process of establishing the fair value of the object (Fig. 3.1).



**Fig. 3.1** Factors affecting the fair value process. *Source: compiled by the author*

Further, taking into account the factors cited above, we propose an algorithm in choosing methods for fair value measurement with a view to maintaining management accounting, which allows timely determination of the real value of objects of management accounting and elements of management reporting (Fig. 3.2).

This scheme gives grounds to state that the evaluation process is systemic. It is also unconditional that, like any system, the system of valuation activity must have integrity (all elements are interconnected), structure (each element is necessary in the system), purposefulness (there must be a goal for the system as a whole), this activity in terms of its methodology should be based on the principles defining the most significant provisions of the evaluation. These rules include: the principle of continuity or continuation of economic activity, the principle of individual valuation and the principle of payments.



**Fig. 3.2** Algorithm in choosing fair value measurement methods for management accounting. *Source: compiled by the author*

At the same time, it should be recognized that despite the sufficiently detailed regulation of the principles and rules of evaluation, their practical implementation depends on a number of subjective factors. This is primarily due to the diversity of facts of economic life, which can't be taken

into account when the valuation process is just beginning. That is why, as L. Tymoshchuk notes, the theoretical basis for the property valuation methodology is a systematic approach to determining its main elements. The property valuation process takes place according to a specific procedure and with the help of generally accepted valuation methods, but it can be variable, since there are several valuation methods, and their choice is determined, first of all, by the type of valuation object and the purpose for which such valuation is carried out. In accordance with the National Standard No. 1 «General concepts of property valuation and property rights», the following basic methodological approaches are used to property valuation in Ukraine: income, cost, comparative [15].

Let's describe these methods:

- market approach – a common way to determine the value of a company and/or its own capital, in which one or more methods are used, based on a comparison of the company with similar investments already sold;
- income approach – a common way to determine the value of a company and/or its own capital, in which one or more methods are used, based on the recalculation of expected incomes;
- cost approach – elemental valuation of the company. The total value of the object is obtained by summing the values of all its elements. The application of the cost method gives a pessimistic valuation of the object, however, in conditions when the stock market has not yet been formed, and market information is missing, this approach is often the only possible one [8].

Usually, when evaluating a business, depending on the objectives of the evaluation, the conditions in which the evaluation is carried out, the state of the object itself and the economic environment in which the valuation takes place, a combination of several methods are most appropriate in a particular situation [106].

Each of these three approaches suggests the use of its inherent valuation methods.

The discounting cash method flows is based on forecasting the flows from a given business, which are then discounted at a discount rate corresponding to the income rate required by the investor.

The income capitalization method is used in cases where the income of the enterprise is stable. According to the capitalization method, the market value of a business is determined by the ratio of the net business income for the year to the capitalization ratio. If it is assumed that the future income of the enterprise will differ from the income for the previous period and will be unstable in the forecast period, then the valuation is carried out using the method of discounting cash flows.

The market value of a business by the method of net assets is defined as the difference between the sums of the market values of all the assets of an enterprise and its liabilities.

The liquidation value of an enterprise is defined as the difference between the total value of all assets of the enterprise and the cost of its liquidation.

The cost approach is used to evaluate enterprises with significant tangible assets and new enterprises.

The capital market method is based on an analysis of the market prices of shares of similar enterprises. Data on the value of shares of comparable similar enterprises with appropriate adjustments can serve as guidelines for determining the value of the shares of the evaluated company.

The transaction method is based on an analysis of the acquisition prices of controlling stakes in comparable enterprises or of an entire enterprise. The main difference from the capital market method is that the first determines the value of a controlling stake of shares, allows to fully manage the enterprise, and the second determines the value of the enterprise at the level of a non-controlling stake.

The sectoral coefficient method allows to calculate the approximate value of the business according to the formulas derived from industry statistics. It is used for approximate valuations of the value of an enterprise and is based on the use of recommended ratios between price and certain financial parameters [112].

The final selection of the necessary methods is carried out from the standpoint of elementary logic. For example: if the purpose of the valuation is determination of the liquidation value, then the application of the income approach does not make sense, while the investment value will be determined by the income approach methods [113].

It should be noted that the above methods for valuating the enterprise are not used in isolation, but complement each other. To evaluate a particular enterprise, several methods are applied, taking into account various approaches. Further, the obtained results using various methods are compared with each other in order to determine the total value of the valuated company or its assets [109].

In scientific work [114] it is noted that the three approaches are interconnected. Each of them involves the use of different types of information obtained in the market.

For example, the base for the cost approach is the data on current market prices for materials, labor, etc.; for the income approach, discount rates and capitalization ratios, which are also calculated based on market data.

In the income approach, income is put at the forefront as the main factor determining the value of an object. The greater the income brought by the object of evaluation, the greater the value of its market value while other things being equal. Here, the duration of the period for obtaining possible income, the degree and type of risks accompanying this process matter. The income approach is the calculation of the present value of future income that will arise from the use of property and its possible further sale. In this case, the principle of waiting applies.



The comparative approach is especially effective when there is an active market for comparable properties. The accuracy of the valuation depends on the quality of the collected data. Applying the aforementioned approach, the valuer must collect reliable information about recent sales of comparable properties. These data include: economic characteristics, sales, location, terms of sale and financing terms.

The effectiveness of this approach is reduced if: there were few transactions; the moment of their occurrence and the moment of evaluation are shared by a long period of time; the market is in an abnormal state, as rapid changes in the market lead to a distortion of indicators. A comparative approach is based on the application of the principle of substitution. For comparison, the objects competing with the evaluated business are selected. Usually there are differences between them, and therefore it is necessary to make an appropriate adjustment of the data, to study the economic indicators over time.

The cost approach is most suitable for evaluating enterprises with heterogeneous assets, including financial assets, as well as when a business does not generate sustainable income. Methods of the cost approach should be used when evaluating special types of business (hotels, motels, etc.), in insurance. The information collected includes data on evaluated assets (land prices, construction specifications, etc.), salary data, materials costs, equipment costs, profits and builders' overhead costs in the local market. The cost approach is difficult to apply when evaluating unique objects with historical value, aesthetic characteristics, or obsolete objects. The cost approach is based on the principles: substitution, best and most efficient use, balance, economic value, economic separation.

The income approach is usually the most appropriate for business valuation, but the practice of evaluating the market value of companies also requires the parallel use of comparative and cost approaches [111].

According to the results of the valuation of the object, each of the subjects uses the obtained analytical information to solve a well-defined task.

In relation to the above-mentioned subjects of business valuation, let's present a classification of various types of problems that are being solved (Table 3.1).

In determining any type (name) of valuation, it is important to ensure the identity of the output data. The information that appears in the valuation procedures should have informational transparency for all subjects potentially interested in establishing reliable valuations of the value of the enterprise (business).

In determining the value of the enterprise, the choice of the moment (date) of the valuation is of fundamental importance.

Recommendations on the choice of the valuation moment depend on the proposed evaluation form. To obtain current valuates, it is desirable to take into account the possibility of obtaining information contained in periodic reporting (accounting balance sheet, statement of financial performance,

working capital balances, sales and profit forecasts). Obtaining a value of an enterprise in the form of monitoring is recommended to be carried out quarterly, semi-annually or yearly.

**Table 3.1** Classification of types of tasks solved by various subjects in the system of valuation activity. **Source:** compiled by the author according to [111]

Subject of valuation	Name of the valuation	Type of solved problem
Enterprise as a legal entity	Current	Providing economic security, survival
	Planned	Development of a plan (strategy) for the development of an enterprise
Owner	Basic	Choosing an economically viable option for disposing of property
	Restructuring	Drawing up unifying or separating balances
	Commercial	Justification of the price of the sale of the enterprise or its part
	Liquidation	Establishing the amount of revenue for the orderly liquidation of the enterprise
Credit institutions	Credit	Check the financial capacity of the borrower
	Mortgage	Determination of the possible size of the loan issued on bail
	Insurance	Determination of the insurance premium
Insurance companies	Compensatory	Determination of the amount of insurance payments upon occurrence of an insured event
Stock exchanges	Informational	Calculation of market characteristics
	Shareholder	Checking the validity of securities quotes
Investors	Investment	Check the economic feasibility of investments
	Marginal	Determination of the maximum allowable purchase price of the enterprise in order to include it in the investment project
	Privatization	Preparation of the enterprise for privatization (development and implementation of a set of measures)
State and municipal bodies	Fiscal	Determining the taxable base for charging various types of taxes
	Arbitration	Establishment of proceeds from compulsory liquidation through bankruptcy proceedings
	Social	Development of social development plans

At the same time, as already noted, management accounting can be based on other modified approaches to evaluation. In the works of scientists [98; 100; 109] it is recommended to carry out evaluation using the methodology of balance sheet valuation, during which the company's assets can be represented as an equation (compiled by the author):

$$A = O + E,$$

where  $O$  – obligations;  $E$  – equity.

When a market valuation in this equation there is another component – intangible assets and equality takes the form (compiled by the author):

$$A + IA = O + E.$$

These assets include such elements as value, warranties, insurance policies, licenses, positive customer relationships, value of a reliable company image (goodwill), and others.

When it comes to market valuation, equity can be determined by the formula (compiled by the author):

$$E = (A + IA) - O = (A - O) + IA.$$

Using this equation, it is easy to explain why firms with negative balance sheet capital are still perceived by the market as something valuable (for example, insolvent deposit institutions, credit organizations that are on the verge of bankruptcy). The reason is that negative balance sheet equity is offset by the value of intangible assets.

Analyzing the possibilities of evaluation from the point of view of managerial accounting, let's turn to the fact that in modern conditions of the development of the world economy the role of intellectual and information resources is increasing. The people and the knowledge they possess, intangible assets and professional competence of personnel have become one of the main factors in creating new value. This is the modern concept of value creation, and therefore the models for managing the development of modern companies should be restructured. A significant part of changes in management must be determined by moving from the past, focused on financial capital and tangible assets, to the future, focused on intellectual capital and intangible assets [115].

A company's ability to create new value can be defined as the value of intellectual capital. Determining the market value of the business, the valuer receives the cumulative value of the entire economic entity. From the point of view of value models that are found in western sources [107; 108], the company's value is as follows:

$$\text{Company value} = \text{Asset value} - \text{obligations}$$

or

$$\begin{aligned} \text{Value} = & \text{Tangible assets} + \text{financial assets} + \\ & + \text{intangible assets} - \text{the company's liabilities.} \end{aligned}$$

Analyzing the value of any business, it is possible to distinguish three main components that generate value:

- material component (tangible assets);
- financial component (financial assets);
- intangible (intellectual) component (intangible assets).

According to the results of the valuation of the object, each of the subjects – users of management accounting uses the obtained analytical information in order to make a decision regarding the management of the asset, taking into account its value.

Accordingly, the evaluation process should be considered an integral part of management accounting, which requires professional training, which requires that this process be standardized in a certain way, which will greatly contribute to the development of this area of management accounting.

### **3.2 Valuation in the system of management accounting standards: problems of experience adaptation**

World experience shows that the implementation of procedures and the use of valuation tools in the management accounting system largely ensure the growth of economic efficiency of commercial organizations due to the correct and objective analysis of the situation in terms of asset valuation. For the practical use of these tools, constant work is needed to determine the most effective approaches to the valuation organization within the framework of management accounting; the science and practice of management, accounting and valuation activity has formed.

Today, in the practice of valuation, various standards are used, which greatly facilitate the practice of this activity, giving it a certain unity.

In this case, we are talking about both national and international standards, although, of course, it is international standards that are prioritized in terms of the level of dissemination and the level of unification of valuation activities.

Considering this form of accounting from the point of view of the possibilities of standardization of the evaluation process, it should be noted that, unlike financial accounting, this system, that is, a management accounting system that is not formalized, can be independently formed at an enterprise without taking into account regulatory prescriptions that strictly regulate financial accounting. According to its scope of action, management accounting most often focuses on the internal consumer, can change the form and methods of providing and collecting information depending on management needs. The following objectives are characteristic of this accounting system: providing the necessary information to the administration for the operational management of production and decision-making for the future; calculation of the actual cost of production (works and services) and deviations from the established norms,

standards, plans and valuations; planning and control of financial and economic activities, capital investments; introducing new technologies.

In the works of K. Drury, R. Harrison, G. Norin, P. Brewer, N. Bondar, Yu. Veryga, S. Melnyk, N. Khomenko, N. Gnylytska, R. Korshykova, A. Popliuiko and others, presents the main approaches to the organization of management accounting in enterprises, its tools and analytical and informational capabilities, a flexible, informal approach to the organization of management accounting is noted, does not fit into the framework established by laws and instructions, is a system that has its own individual characteristics that determined by the specific information needs of the management of each particular enterprise.

By the way, this «uniqueness» does not hinder the work on standardization of management accounting. In the works of researchers it is noted that the development of standards, or rather regulations in the part of management accounting, which is of a recommendatory nature, not only possible, but also of great benefit to specialists [116].

Management accounting standards have been published in a number of countries, which are advisory in nature; they contribute to the rapid dissemination of new views and practices among management accounting organizations.

The Institute of Management Accounting USA for 30 years has been developing a system of management accounting (Statements on Management Accounting – SMA). They are also called management accounting standards. Unlike American GAAP, and IFRS, management accounting standards are not binding, but recommendatory in nature, so it's more correct to call them «recommendations» or, by analogy with domestic regulatory standards, management accounting provisions.

The United States Professional Institute of Management Accountants has developed five groups of standards: management accounting objectives; terminology; concepts; practice and technology (methodology) of accounting processes management. The first group includes SMAs, which define management accounting, highlight its principal goals, qualifications and responsibility of specialists, norms (ethics) of behavior, and even curricula for preparing for passing professional exams.

The second group is limited to one Provision – Management Accountant Glossary. Development and publication of such a provision in Ukraine is particularly relevant, since the terminology of domestic management accounting is ambiguous, in some aspects it does not correspond to international practice.

The third group of SMA is dedicated to management accounting concepts.

The fourth group (practice and methodology of management accounting) is the most numerous. It includes several SMAs related to the distribution of separate groups of indirect costs; a number of SMAs dedicated to management tasks and accounting procedures for such objects as materials, fixed assets, financial instruments; a number of SMAs regulating

management accounting in the part of transport logistics management, quality management, storage costs management; process-based cost management based on ABC-costing (activity-based costing). This also includes SMA with strategic management accounting and benchmarking.

The fifth group, «accounting process management», includes SMAs that contribute to the effective organization of management accounting in the enterprise. Provisions regulate issues of introducing electronic document management, generating effective reporting, methods for evaluating the work of specialists, reengineering processes and functions of systems that provide informational interaction at an enterprise, and methods for measuring the efficiency of operations that ensure these processes [117].

Considering the basic principles and concepts embodied in these standards, it can be noted that the main idea of their appearance is that users all over the world can clearly understand the statements prepared by the company. The rule of management accounting is that the company develops individually, what is called «by itself», reporting. This is due to the fact that the features of a business strongly influence the nature of the information needed by management for making decisions.

However, the use of standards may also be useful in management accounting. If the accounting system is built according to certain generally accepted rules, it is easier to perceive the personnel. In addition, the standard can define requirements, the fulfillment of which improves the quality and transparency of reporting [118].

In this context, researchers introduce a new principle into the management accounting system — the principle of unifying the elements of the cost accounting system, which includes the following units: unification of production costs at enterprises engaged in one type of activity and, as a rule, members of one division. The division of production processes, and accordingly the costs of the main and auxiliary ones, is carried out on the basis of technological schemes of production; unification of the composition of managerial, commercial, social (serving production) expenses for all enterprises of the holding with the aim of further rationing. Determining the composition of expenses and their typification is carried out on the basis of corporate policies in the field of personnel management and social security; unification of cost allocation bases for typical processes in order to obtain comparable information on various enterprises and reduce the impact of the cost accounting treatment on reporting figures [119].

Thus, despite the non-formalized nature of management accounting, a certain experience of its standardization still exists, which can positively affect the development of standards — regulations that define the basic elements of evaluation as part of management accounting.

Let's note that when it comes to the need to include asset valuation in management accounting, this process requires a certain ordering, which is facilitated by its standardization, which can provide a valuation, as an

element of management accounting of a certain orderliness, to make this process understandable and objective.

Standardization of valuation activity is necessary due to the fact that this activity provides an information basis for making economic management decisions, contributes to the process of accounting for the value of assets of economic entities, is implemented to a decent degree consistently and systematically, in accordance with the absence of a specific algorithm, the valuation turns into a chaotic process that does not obey the principles of management accounting, the most important of which are the principles that form the composition and procedures of management account, determine the list to the object of observation, their classification and characteristics of units, including non-financial information, business operations monitoring procedures implemented by the company in real time, the list of internal reporting figures for short periods of time. [118]

Scientists V. Voronin, E. Liance, M. Mamchyn, L. Vorotina, V. Vorotin, V. Lisniak, V. Polishchuk, Yu. Dekhtiarenko, M. Lykhogrud, Yu. Mantsevysh, Yu. Palekha, O. Drapikovskiy, I. Ivanova, L. Yefremova, S. Yefremov, T. Calinescu, Yu. Romanovska, O. Kyrilov, T. Panasko and others, who are developing conceptual areas of property valuation, believe that standards should be taken into account when developing property valuation methodologies, as well as in the process of creating the regulatory framework for the aforementioned valuation.

Of course, when it comes to management accounting standards can only be advisory in nature, but they are important from the point of view of creating a reliable and transparent valuation system within modern management accounting.

The legislation of Ukraine determines that a standard is a regulatory document based on consensus, adopted by a recognized body that establishes for general and repeated use of a rule, instruction or characteristic about an activity or its results, and is aimed at achieving an optimal degree of orderliness in a certain area; in turn, standardization is an activity consisting in establishing provisions for universal and multiple use in relation to existing or potential tasks and is aimed at achieving an optimal degree of orderliness in a particular area [120].

If, however, refer to the developments of scientists [121; 122], the standard should be considered as an attribute of the modern development of a market economy with its inherent system of international cooperation, it requires harmonization of existing national standards with international rules for valuation, while the main results of standardization activities should be: increasing the degree of compliance of their services/processes functional purpose, eliminating differences in results when it comes to using different approaches to valuing companies' assets.

In modern evaluation practice, both international and national valuation standards have been developed, the analysis of which is necessary in order to adapt foreign evaluation experience to the demands of domestic

users of management information, or more precisely, in order to streamline asset valuation activities in management accounting practice.

So let's take a closer look at the standards in question.

1. The International Valuation Standards [123] are developed by the International Valuation Standards Council – an independent non-profit organization that develops and implements generally accepted standards for asset valuation worldwide in the interests of the international community. The International Valuation Standards Council (IVSC) includes specialists from a wide range of different industries, one way or another connected with valuer, including professional valuation institutions, independent valuers, developers of industry standards, as well as regulators of valuation services and academics [124].

These standards are recognized as the most authoritative and correspond to the best international practices.

According to K. Li, N. Antyl, international valuation standards allow for a clearer understanding of the basic conditions of valuation; emphasize the differences between a valuation conducted with a view to financial documentation or reporting, and a valuation conducted in other circumstances; clarify terminology that allows ambiguous interpretation at the international level; ensure adherence to best valuation methods and practices; adherence to professional and ethical standards; use the necessary material, which allows for a deeper understanding and effective application of standards in valuation activities [103].

Knowledge of international valuation standards makes management decisions most effective when they are related to:

- internationalization of domestic business activity;
- transfer of ownership of the evaluated object;
- restriction or encumbrance of property rights;
- investing capital in an existing or prospective object;
- organization and control of valuation activity [125].

The basic principles and methods of property valuation are based on the theory of valuation, which arose at the end of the XIX century.

Valuation standards are developed on three levels: global, European, national. The rules established by the standards are a system of interrelated norms, which is determined, first of all, by the structure of the norms' construction of each of the standards. Sections of standards are composed in a certain sequence: the purpose of the standard and its scope; definition of terminology; sequence of valuation; methodology of a particular base cost. An independent section of each standard is devoted to the rules for compiling an evaluation report. This structure is repeated for each of the standards, as a whole makes the International Valuation Standards a single balanced and full-fledged act [126].

The first edition of the IVS was published in 1985 and the third edition of IVS-1994 consisted of 4 basic standards. Today, the tenth edition of IVS-2013 has been published [126].



The 1994 edition of the IVS reflected all the agreements reached between the International Valuation Standards Committee (IVSC) and the International Accounting Standards Committee (IASC) before the IVS publication. In particular, the published annex to standard 3 IVS «Valuation for financial statements and relevant accounting accounts», adopted in May 1999, deals with the exclusion of the concept of «market value for existing use» from the IVS; therefore, such property (real estate which the owner takes) must be valued at market value.

The most recent changes in the IVS were a consequence of global harmonization achieved in 2013 between representatives of various disciplines related to financial management, namely: investors and securities specialists who are members of the International Organization of Securities Commissions (IOSCO), accountants work under International Accounting Standards (IAS), and valuers, in which, apart from the IVSC, up to 2000, the European Group of Valuers' Associations (TEGoVA).

IVS-2000 and IVS-2013 significantly changed the structure of standards: completely new sections were included and some of the old sections were deleted, some sections were renamed, and some new concepts were introduced [78].

The results of a comparative analysis of the composition of materials in the IVS editions are given in Table 3.2.

Explanations to the table:

- «+» – there is material in the IVS;
- «-» – there is no material in the IVS;
- «s/c» – the material has undergone significant changes in comparison with the previous edition;
- «m/c» – the material has undergone minor changes compared with the previous edition;
- «w/c» – the material is transferred from the previous edition without changes.

In the IVS-2000 compared to the previous editions, 9 new sections were introduced, among which for valuers, in our opinion, the Code of Conduct, Types of Property, international guidelines on the valuation IV «Real Estate», IV 4 «Intangible assets», IV 8 «Replacement cost taking into account wear and tear», glossary are of particular interest. In addition, the IVS-2000 significantly changed and renamed the old standards IVS 3 and IVS 4, which came to be called the International Valuation Application, respectively: IVA 1 «Valuation for financial statements» and IVA 2 «Valuation for credit purposes».

In more detail changes in IVS-2000 standards were stated in [127; 128].

The evolution of the IVS continued and 2013 In the IVS-2013, compared with the IVS-2000, six new sections were included and two were withdrawn, including the International Valuation Guidelines IV 5 «Valuation based on the concept of an existing enterprise».

**Table 3.2** Evolution of the content of International Valuation Standards (IVS).*Source: compiled by the author*

No.	The name of the material is included in the IVS	Edition 1994 – 1999	Edition 2000	Edition 2013
1	Preface, informational messages from the IVSC	+	s/c	s/c
2	Introduction	+	s/c	m/c
3	General valuation concepts and principles (GVCP)	+	n/e	m/c
4	Code of Conduct	–	new	w/c
5	Types of property (real estate, movable property, business, financial interests)	–	new	w/c
6	International Valuation Standards (IVS)			
6.1	Introduction to IVS 1 and 2	–	new	m/c
6.2	IVS 1. Market value as a valuation base	+	m/c	m/c
6.3	IVS 2. Valuation bases other than market value	+	m/c	m/c
7	International valuation application (IVA)	–		
7.1	IVA 1. Valuation of cost for financial statements (draft)	IVS 3	s/c	s/c
7.2	IVA 2. Valuation for crediting purposes	IVS 4	new	m/c
8	International Valuation Guidelines (IVG)			
8.1	IV 1. Real estate	(Annex 1)	new	w/c
8.2	IV 2. Valuation for leasing purposes	–	new	w/c
8.3	IV 3. Valuation of the cost of machinery and equipment	AG No. 3	w/c	w/c
8.4	IV 4. Intangible assets	(Annex 2)	new	w/c
8.5	IV 5. Valuation based on the concept of the existing enterprise	AG №1	m/c	withdrawn
8.6	IV 6. Business valuation	AG No. 4	w/c	m/c
8.7	IV 7. Valuation in the presence of hazardous and toxic substances	AG No. 2	w/c	m/c
8.8	IV 8. Replacement cost taking into account wear and tear (draft)	(Annex 4)	new	s/c
8.9	IV 9. Cost Valuation Reporting (Project)	–	–	new
8.10	IV 10. Analysis of discounted cash flow (project)	(Annex 3)	–	new
9	Comments	–		
9.1	Investment property (introduction for valuers IAS-40 «Investment Property», adopted by the IASC)	–	new	withdrawn – Partially in IVA1
9.2	Cost valuation in emerging markets	–	–	new
9.3	Checking the possible impact of standards and research reports of the Basel Committee on Banking Supervision (BCBS) on valuation for borrowed purposes	–	–	new
9.4	Valuation of public sector assets	–	–	new
10	Glossary	–	new	s/c
11	Index	–	–	new

The most important thing in the considered changes is that the opportunity has appeared to mark precisely on the evolution of international valuation practice that is that the methodological foundations of the valuation experience only minor changes later.

The most important for understanding the content of the valuation activity sections of the IVS remained during this time almost unchanged. These are General valuation concepts and principles (GVCP), IVS 1 «Market Value as a Valuation Base» and IVS 2 «Valuation Bases Other Than Market Value». In the above-mentioned sections of a few dozen pages there is the necessary minimum of knowledge, without which the practical occupation of professional valuation activities is impossible.

The main and significant changes that took place in the IVS are related to what the use of International Valuation Application (IVA) came to call in the latest editions. The above-mentioned IVAs directly characterize the relationship between the valuation activity of accounting and financial and credit activities.

It is changes in the last two professional disciplines that necessitate appropriate approvals, not only in the IVA, but, as well as to a minor extent, in three main sections. In particular, that which is the object of valuation, at the present stage, property is first of all recognized, and already in the context of financial statements — assets. Previously, the above concepts were used in reverse order, which could lead to a mix of valuation and accounting procedures [83].

Changes that occur in recent years in the accounting system (reporting), in several aspects can be described as the perception of the elements of the valuation activity (or, more broadly, of financial management). Never before have experts from different types of accounting used such analytical methods as, for example, cash flow discounting, which is now included in a number of IFRS standards [129] as an «acceptable alternative method».

In order to bring together the positions of valuers and accountants on the main methodological concepts and principles, approaches to property valuation for accounting reports — in IVA 1, unlike the former IVS 3, many IFRS provisions are described in detail, in particular, possible cases of applying IVA 1 are considered, general concepts about financial statements and the purpose of their compilation are given, situations are considered in which conflicts may arise between accountants and valuers. In order to avoid the above conflicts, IVA 1 pays considerable attention to the classification of assets from the point of view of accountants and valuers, provides definitions of the accounting concept of «fair value», and states that it can be determined both on a market basis for non-specialized assets and on non-market assets for specialized objects or facilities with disabilities implementation. In the latter case, as a cost indicator, the most frequently used replacement costs are taking into account depreciation, which for financial statements are considered an acceptable surrogate for market-related value.

The latter standard contains a definition, both in the valuation area (representing depreciation expenses taking into account depreciation, specialized property items, property with a limited market) and financial statements (reimbursed amount, net sale price, value in use, acceptable rate of return functional capacity). The difference between the fair value (for accountants) and market value (for valuers) comes down mainly to the exposure time (public offer) of the property, which is necessary for a transaction on the market [40].

So, the rules established by the standards are a system of interrelated norms, which is determined primarily by the structure of the norms' construction of each of the standards. Sections of the standards are drawn up in a certain sequence, starting with specifying the purpose of the standard and its scope, then defining terminology, followed by rules prescribing a specific sequence for conducting a valuation, and a methodology for determining a base cost. An independent section of each standard is devoted to the rules for compiling a valuation report. This structure is repeated for each of the four standards, as a whole makes the International Valuation Standards a single balanced and full-fledged act [130].

In formulating the general principles of valuation, standards developers inevitably had to find key criteria for evaluating any property assets. Such a criterion is «utility».

As noted in Section 7 of the introduction to the IVS, «the key criterion for evaluating any real or movable property is its usefulness. The overall goal of the procedures used in the valuation process is determination and quantification of the utility degree of the evaluated property» [123]. The «usefulness» of a property asset is an economic category, which is expressed in one form or another of value. The concept of market value is most often used.

Another criterion of a set of valuation rules in a single document is the recognition of their standards as «best», that is, those that best meet the needs of a professional valuation. Recognition of any rules as «best» is carried out in the process of the IVSC functioning by summarizing the national practice of evaluating the member states of the IVSC. In connection with the above, the International Valuation Standards are a set of identical (identical) practical rules for conducting a valuation, created by summarizing various national practices. But unlike the national standards for evaluating member states of the IVSC, the set of rules for conducting a valuation at an international level has a different quality level.

This refers to the following. If the national valuation standard is «better» national practice, then the international valuation standard is not only the best of national standards, but is formed by summarizing the national practice of evaluating different countries. More precisely, the international standard incorporates the rules contained in the various national valuation standards, which, according to the IVSC members, can maximally reflect the needs of professional property valuation at the international level. Thus, for example, paragraph 9.1 of entry into the International Valuation Standards

for evaluation reports states that «the purpose of the standards is establishing international rules designed to reduce or eliminate confusion in the use of valuation reports and to promote their better understanding» [123].

It should be noted that each member of the committee seeks to incorporate its national practice into the international standard, that is, a peculiar struggle takes place. For example, The Federal Union of Valuers of the Federal Republic of Germany (BVS) officially proclaimed the purpose of its work in the IVSC — to introduce national and pan-European methods and definitions so that they are internationally recognized. This is important because it creates additional confidence in the findings of German and European valuers, which will further allow to work on the methods known to them.

Since the International Valuation Standards contain a number of rules for conducting property valuation, they were considered above as a set of uniform rules for conducting property valuation, created by summarizing various national valuation practices.

Clause 1.1 of Standard 1 «Market Value as a Valuation Base» states that the purpose of this standard is providing a generally accepted definition of market value, to determine valuation criteria related to this process. These criteria are borrowed from various national valuation standards established by professional organizations of valuers or by the state [22]. At the national level, valuation rules contained in national valuation standards are also not customs or traditions in valuation practice, since they are established by professional organizations of valuers or the state, and do not develop spontaneously, independently, according to the will of participants in property valuation relationships.

Thus, at the heart of the International Valuation Standards, as a set of uniform rules for the property valuation, forms the codification of customs in valuation practice, and the analysis and synthesis of rules established by the national standards of property valuation of IVSC members.

2. American Valuation Standards (USPAP — «Unified Standards for Professional Appraisal Practice») developed and approved in 1989. Speaking of this standard, it should be noted that in 1986 nine leading professional appraisal organizations from the USA and Canada under the current economic crisis formed a special Committee on Uniform Standards of Professional Appraisal Practice, USPAP). In 1987, this Committee established the American Appraisal Foundation to implement the USPAP as generally accepted evaluation standards in the United States. In 1989, the US Congress passed the Law on Reform of Financial Institutions, according to which the Foundation was recognized at the state level.

At this time, USPAP are generally recognized ethical and practical standards for the appraisal profession in the United States. USPAP was first adopted by the US Congress in 1989. And as of the present, contain practical and methodological recommendations on all types of appraisal services. USPAP updates every two years [131].

Some equivalent of USPAP operating in Canada is Canadian Uniform Standards of Professional Appraisal Practice (CUSPAP).

These standards are intended for appraisers and users of appraisal services. Adherence to these standards is necessary for professional appraisers to increase the level of evaluation. Customers of appraisers should require work, exactly as described in these standards.

According to the congressional valuation law reform approved by the congress, all real estate valuations related to federal agreements should be made on the basis of USPAP. The Law on Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA), adopted by Congress in 1989, requires that valuation prepared by state certified and licensed appraisers be in accordance with USPAP. In 1992 The Office of Management and Budget (OMB) issued Bulletin 92-06, which also stipulates that when federal land acquisition and land loans are provided by credit organizations, valuation are made in accordance with USPAP requirements. USPAP presents:

- conditions that must be met when making a valuation, checking a valuation report or providing advisory services;
- the ways in which a valuation, audit or advisory service is carried out [131].

The process of evaluating and compiling a real estate appraisal report is governed by Standards 1 and 2. Standard 3 establishes norms for verifying valuation reports and drafting reports based on these norms. Standards 4 and 5 aimed at the development and synthesis of the advisory functions of an appraiser in real estate and real estate appraisal. Standard 6 establishes the necessary criteria for developing and communicating results with a mass valuation for the purpose of taxing real estate or any other types of property. Standards 7 and 8 set standards for the development and generalization of personal property valuations. Standards 9 and 10 set standards for the development and generalization of business valuations.

Standards contain valuation standards provisions developed by Valuation Standards Committee to explain, interpret, interpret or develop standards or standards rules. Explanatory comments are an integral part of uniform standards and should be considered as an interpretation of the provisions, definitions and rules of standards. Comments provide interpretations on certain provisions of the standards.

An important role in the activities of the appraiser is occupied by ethical obligations. Standards contain explanatory comments and begin with ethics provisions that include four sections: behavior, management, confidentiality, and reporting and impose integrity, objectivity, judgment independence, and ethical behavior requirements. Additionally, these standards include competency provisions that place a direct responsibility on the appraiser to make a decision. Definitions for these standards are also included. Standards contain both mandatory and specific requirements to which rejection clauses are applicable under certain limited conditions.

These specific conditions do not include departures from the preamble, ethical provisions, competency provisions and definitions.

Up to 10 standard USPAP rules also include standards documents that are specifically used to simplify, interpret, clarify, or improve USPAP. Documents along with the rules of standards are required. The Valuation Standards Board also publishes advisory opinions, which provide its advice on how to resolve controversial issues in the application of rules in appraisal activities [131].

Since the 1994 edition, the USPAP also contains a glossary of all valuation terms.

3. European valuation standards (the so-called «Blue Book») were adopted in the latest edition of 2000.

This document includes 9 standards and 13 guidelines. At the same time, standards 1–3 deal with issues related to the compliance of these standards with International Valuation Standards, as well as other issues related to the qualifications of the valuers and their professional ethics.

Standard 4 discusses the basic principles of valuation and the main approaches to the preparation of a valuation report. This standard also contains definitions of the main objectives of the valuation and valuation bases, as well as the definition of various types of value, such as market value, market value of lease rights, market value in accordance with EU legislation, fair value, value for current use, value for alternative use, value replacement for wear.

Standard 5 deals with valuation issues for financial reporting purposes. It provides a classification of assets and the choice of the valuation base based on it. The standard also includes a section in which basic definitions are given, issues of valuation methodology, features of the valuation of land, buildings, as well as features of the valuation of special objects are covered.

Standard 6 is devoted to the problems of real estate valuation as collateral, as well as other collateral for mortgage lending. This standard defines terms such as «collateral value», «special value of liabilities», and also defines special requirements for the valuer, such as his independence, responsibility and availability of special knowledge.

In addition, in the valuation process for mortgage lending, according to the standards, it is necessary to take into account such factors as coercion to sell, as well as such concepts as «alternative use of the valuation object» and «its estimated future value». This standard also addresses issues related to the valuation of property owned or owned by the owner, as well as valuation problems associated with involuntary sale.

Standard 7 is dedicated to valuation related to estimated value at a future date and predictable by valuations. This standard covers such concepts as «investment value» (value with current use), «valuation at a certain date in the future or the past», «prediction of future value».

Standard 8 is devoted to the consideration of investment issues in securities of investment and insurance companies and pension funds.

The standard deals with issues related to determining the market value in accordance with EU directives, as well as issues of valuation methodology and valuation qualifications.

Standard 9 addresses issues related to the presentation of valuation results and the form of a valuation certificate. This document consists of 13 methodological recommendations for valuation, in particular:

- 1) factors affecting the cost;
- 2) special objects;
- 3) machinery and equipment;
- 4) assets intended for investment;
- 5) agricultural facilities;
- 6) historical sites;
- 7) business;
- 8) intangible assets;
- 9) real estate indices;
- 10) international indicators;
- 11) joint ventures and limited liability companies;
- 12) value distribution between land and buildings;
- 13) the process of valuation features in different countries.

EVS provides applications where issues relating to the certification of valuers, reviewing valuation reports, and valuers' ethics are addressed.

It should be noted that valuation for the purposes of taxation and expropriation of property is not subject to European valuation standards. However, the general principles set forth in them may apply in cases where no other relevant document exists.

Any deviation from the recommendations in the EVS may result in commercial or legal penalties. Conversely, compliance with standards can be part of effective legal protection in a lawsuit review process [129].

In some cases, non-use or evasion of the application of standards is justified by special circumstances. Such deviations should be indicated in the formal contract for the valuation and in the valuation report.

4. British Valuation Standards RICS (The Royal Institution of Chartered Surveyors). RICS is the largest international organization of real estate professionals. First published in 1976 [132].

Let's note that the professional standards for valuation RICS, widely known as the Red Book, were first published in 1976, after which they were regularly reprinted and improved. The latest edition of 2014 has already been compiled in full compliance with the International Valuation Standards (IVS), which are the actual appendix to the printed and electronic versions of the Red Book. RICS not only adheres to these valuation principles, but also supports the adoption and application of universal valuation standards throughout the world. The RICS Red Book supplements the International Valuation Standards (IVS) and contains a detailed description and recommendations for their practical application.



The IVSC longstanding work in the development of standards has led to the realization that standardization itself at the international level differs significantly from the process of creating national standards.

In many countries, trade law and the corresponding set of regulatory procedures cause some direction, sometimes very specific, for the standardization of valuation activities [133].

5. European valuation standards. Developed by the The European Group of Valuers Associations (TEGoVA) in 1980. The European Group of Valuers of Fixed Assets (TEGOVOFA) was established as a non-profit association of national organizations of valuers of Western European countries in 1977. After the merger with a similar organization EUROVAL, the group at this time is called the The European Group of Valuers Associations – TEGoVA). One of the main goals of the new organization was the creation of common valuation standards that take into account the views of professional organizations in all countries of the European Union.

Now TEGoVA members are professional valuation organizations of the European Union with active and growing participation of partners from Central and Eastern Europe, including Ukraine, the Czech Republic, Hungary, Poland, Bulgaria, Romania and Albania. TEGoVA works closely with the International Valuation Standards Committee (IVSC).

At present, the EVS consists of 9 standards, 13 manuals, 9 applications.

Standards consider general principles and methods used in the valuation:

1. Standard 1. «Compliance with other documents and legislation».
2. Standard 2. «Qualified valuer».
3. Standard 3. «Task for the valuation.»
4. Standard 4. «Base valuation.»
5. Standard 5. «Valuation for financial statements».
6. Standard 6. «Valuation of banks' securities; valuation in connection with the redemption of a package of securities «.
7. Standard 7. «Forecasts made by the avaluator. Some types of valuation.
8. Standard 8. «Valuation for investment purposes».
9. Standard 9. «Valuation report» [129].

Guidance standards provide guidance on the interpretation and practical use of these principles and methods.

Programs provide additional information for the work of the valuer.

At this time in Ukraine, all International and European standards are made public. The full texts of the Standards of the American Society of Appraisers are known.

One of the main features of the European valuation standards is their focus on evaluations performed for the purpose of preparing financial statements in accordance with adopted European legislation.

It indicates the possibility of extending their actions to other types of valuations that are performed for socially significant purposes.

From the point of view of an ordinary valuer and a client-consumer of valuation services, these standards are a guideline, which establishes the minimum acceptable level of valuer quality and determines the valuer status and qualifications, the content of valuer performance contracts and valuer reports, and are also applied by methodological approaches to valuer in specific situations.

It should be noted that the European valuation standards are not binding for the organization's members, but are recommended for use because they represent the best practices developed for inclusion in the relevant European Union regulations and give impetus to the adoption of the relevant national standards of the EU countries.

This fact brings these standards closer to managerial accounting, which also can't require from the subjects of accounting necessarily certain algorithms, methods, deadlines. Thus, we must conclude that already now the evaluation standards are variable, quite flexible, which is quite consistent with the content of management accounting.

6. As for Ukraine, the standardized professional valuation has passed its path of development.

At the first stage — before the adoption of the Law of Ukraine «On property valuation, property rights and professional valuation activities» [83], valuers drew their knowledge mainly from lectures by Western valuers, and were also guided by the methods of the State Property Fund of Ukraine and constantly improved their valuation reports.

The second stage, which can be called the stage of the formation of a standardized professional valuation, began in 2001, began with the adoption of the Laws of Ukraine «On property valuation, property rights and professional valuation activities in Ukraine» and «On land valuation» [134], as well as the approval of resolutions of Cabinet of the Ministers of Ukraine for the Property Valuation No.1891 [135] and Four National Standards (NS) for valuation: NS 1 «General principles for the valuation of property and property rights» (2003) [99]; NS 2 «Real estate valuation» (2004) [129]; NS 3 «Integral property complexes valuation» (2006) [136]; NS 4 «Intellectual property rights valuation» (2007) [137].

In the future, the standardization valuation process has slowed down both in the direction of decomposing the methodology of independent valuation and improving the legislative framework for organizing the training of valuers, and in the direction of implementation of National Standards in the system of international valuation standards, which are regularly revised, modified and updated, although there are still changes in National Standards scores [127].

At the same time, the discussion around the National Valuation Standards continues in scientific circles and in these discussions traditionally it is about «originality» and the need to take into account «local specifics» when it comes to the use of international standards in Ukrainian practice.

Today, most experts agree that in these areas it is necessary to be guided primarily by economic logic and international experience, and not to look for specific differences.

Particularly acute in Ukraine is the issue of adaptation of internationally recognized standards in the field of valuation activities.

A distinctive feature of Ukraine is that the professional standards in the field of valuation are regulated by government regulations. This is not a unique situation, but it is more typical for post-Soviet countries, and there is nothing like this in any country of Western or Central Europe. On the contrary, for example, Romanian legislation directly sends professional valuers and users of valuation to the International Valuation Standards [138].

At the same time, this situation complicates the evaluation process itself in the management accounting system, since this form of accounting goes far beyond the limits outlined by any law.

According to management accounting, it can focus on international and national standards for evaluation, but not consider these standards as mandatory, creating its own flexible standardization system.

With «official» standards, management accounting can lend the terminology that is accepted among valuers to other most important points of valuation.

For example, our research shows that despite the existing differences in the development of standardization, some results obtained in this area can be used as the basis for creating a system of evaluation standards that can be used for management accounting in terms of standardization objects.

As a result of establishing the relationship between objects and aspects of standardization, seven groups of valuation standards are formed, adapted to the needs of management accounting. The code and name of groups of standards are given in Table 3.3.

**Table 3.3** Valuation standards adapted for management accounting needs.

*Source: compiled by the author*

Code	Name of valuation standards group
0	Organizational and methodological provisions
1	Real estate valuation
2	Valuation of machines, equipment and vehicles
3	Valuation of intangible assets
4	Valuation of enterprises (business)
5	Documentation valuation
6	Other standards

Standards of group 0 establish the general organizational and methodological provisions for the system of standards as a whole. In addition, it is advisable to include in this group: conditions for publishing the valuation

results; conditions for derogation from valuation standards; requirements for the valuer. Thus, the standards of this group establish common requirements for all types of valuation activity.

Standards of groups 1–4 establish special requirements for types of valuation activities defined by Ukrainian legislation, especially the valuation of objects related to these types. Specific requirements for the content of the initial information, typical methods of analysis and valuation are set.

Standards of group 5 establish common for all types of valuation activities documentation requirements (valuation agreement, assignment for valuer, valuation report, etc.), Used in carrying out valuation activities, as well as the requirements for issuing valuation results. In the same group it is advisable to determine the methods of analysis and examination of valuation reports.

Group 6 is a reserve; in this group each subject of management accounting can include those standards that it considers relevant for a given enterprise, for a given field of activity.

Considering that, in accordance with the Law of Ukraine «On Property Valuation, Property Rights and Professional Valuation Activities in Ukraine» (Art. 7), standards can be mandatory and recommendatory (for standards for valuating organizations), it is expedient to combine these groups of standards into valuation standards, represented by a multi-level hierarchical system, and called the Unified Valuation Standards System (UVSS). This system should be three levels.

Valuation standards, which are approved by the Cabinet of Ministers of Ukraine, represent the first level of standards containing mandatory requirements, but may not be applied as part of management accounting, although they provide a process for valuation of a certain orderliness in terms of terminology, methodology

Valuation standards that are created by scientific organizations, organizations of specialists in management accounting, which set out the practical aspects of evaluation, for example, on the basis of the organization's affiliation to a particular sector of the economy, in accordance with the sectoral specifics of management accounting. At the third level will be placed their own standards for evaluating organizations, based on the provisions of two groups of previous standards

A distinctive feature of the classification of standards by level is the approach to the construction of standards used in the practice of creating a system of standards of the US Department of Defense [131].

These standards will establish general valuation requirements for the management and methods for monitoring compliance with these requirements. This approach allows to create a flexible system of standards, adapted to the conditions of the valuation activity in Ukraine and the needs of management accounting in the field of enterprise asset valuation.

### **3.3 Methods for determining the quality of accounting information in the interests of business management and valuation of business infrastructure facilities**

To ensure the efficient operation of a modern enterprise, the system of interaction of its structural components is of great importance, which, in addition to the traditional basic aspects: administrative, financial and material (production-commodity), fully requires the addition of information (including a communication component) aspect. The sustainability of the organization's development in the conditions of market functioning is determined by the quality of management decisions made, the effectiveness of which is largely due to the availability of adequate and timely information for the decision support system as part of controlling. Modern enterprises can't do without production, service and other technologies intended for the production of products and services, but also without information, ensuring the flow of communication processes in the functional divisions of the organization. They provide an opportunity to rationally manage all types of enterprise resources, open up a number of business opportunities.

Understanding the importance of information, researchers justify the need to provide quality information that is subject to management accounting.

Researchers [121; 139; 140] substantiate the key role of information quality in the valuation process, the formulated capabilities of the management accounting system to provide such information, indicating that indicators of the value of assets affecting business decisions are always the expected value.

Since the cost of a business is the result of numerous interrelated factors, the information necessary for its valuation is a system of interconnected information blocks, among which are the financial results of the enterprise. Valuation information is classified according to various criteria (Fig. 3.3).

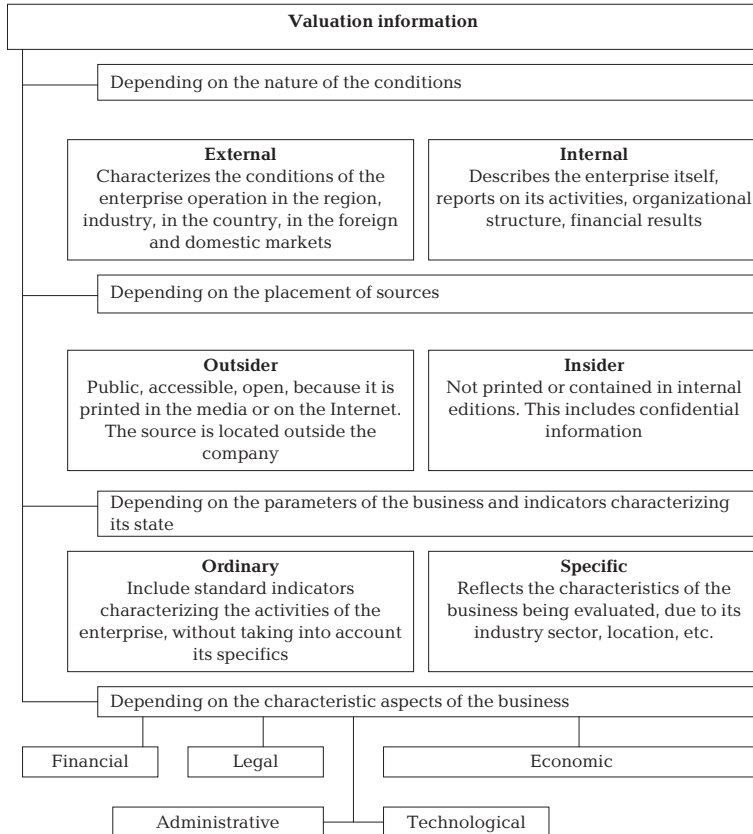
All information blocks should be interconnected in space and in time and meet the basic requirements for the valuation information:

- 1) authenticity;
- 2) accuracy;
- 3) complexity;
- 4) completeness, which is achieved by the formation of the enterprise appropriately effective management accounting system [36].

It is necessary to say that the quality of accounting information is of paramount importance for participants in the process of managing business and valuation of business infrastructure as part of management accounting, since this management system loses its significance if it is not able to solve the problem of the «quality» of information.

At the same time, scientists [141 – 143] note that at present the only systematic understanding of the theory and methodology for quality valuation of accounting information has not been formed, the principles for

constructing a system for regulating the quality and quality control of accounting information have not been formulated, and a system of indicators for the quality of accounting information has not been developed.



**Fig. 3.3** Classification of information required for the business valuation process.

*Source: compiled by the author*

A reflection of this problem is given in Table 3.4 the basis for the selection of certain criteria for the quality of accounting information contained in the works of foreign scientists.

The analysis of the approaches presented in the modern economic literature to the composition of the qualitative characteristics of the accounting data allows to identify the main directions of the importance of the quality of information for the management accounting system.

**Table 3.4** Justification of the choice of criteria for the quality of accounting information in the works of foreign scientists.

*Source: compiled by the author*

Source	Quality criteria for accounting information	Argument selection criteria
B. Needles, H. Anderson, D. Caldwell [144]	Quality criteria. Accounting information. Clarity, reliability, significance (relevance), usefulness	To ensure the accuracy of the interpretation of information
C. J. Gray, E. B. Needles [145]	Comprehensibility, relevance, reliability, comparability, materiality, limitations (timeliness, the ratio between benefits and costs)	To facilitate the interpretation of data by users and the description of standards for evaluating accounting information
E. S. Hendriksen, M. F. Van Breda [146]	Comparability, reliability, materiality, efficiency, representative reliability, priority of content over form, relevance, uniformity, objectivity, predictive value, integrity, feedback, utility, timeliness, clarity, neutrality, completeness, consistency	For clarity (perceptibility) of information by users
F. Wood [147]	Timeliness, objectivity, relevance, completeness, realism, reliability, brevity, comparability, accessibility, constancy	To determine useful property information
D. E. Kieso, J. J. Weygandt, T. D. Warfield [148]	Relevance, faithful	As fundamental characteristics (fundamental qualities) to determine the usefulness and reliability of information
	Predictive value, confirmatory value, completeness, neutrality, free from error	As components of fundamental characteristics (ingredients of fundamental qualities) for determining the usefulness and reliability of information
	Comparability, verifiability, timeliness, understandability	As specific characteristics of the quality of information (enhancing qualities) to determine its usefulness and reliability
G. A. Porter, C. L. Norton [149]	Understandability, relevance, reliability, comparability and consistency, materiality, conservatism	To identify qualities that make information useful.
E. McLaney, P. Atrill [150]	Neutrality, completeness, substance, prudence	To confirm the reliability of accounting information

Let's note that some scientists consider quality information useful for users, choosing a different set of characteristics, which is determined by information preferences.

Another group of authors argues that the qualitative characteristics provide information reliability, provide the correct interpretation of information and indicate the objective state of affairs in the organization. It should be noted that the majority of scientists and practitioners focus on such quality criteria as the essence, since this concept is of key importance in the preparation of financial statements.

The analysis of the world experience in using accounting information performed in the work shows that an increase in the quality of information in management accounting, when it comes to valuation, can be achieved:

- first, the development of certain principles for the formation of accounting information corresponding to a market economy, directly formulated in the standards of valuation activity, as discussed above;
- secondly, the improvement of the mechanism for regulating the quality of accounting information in terms of its collection, taking into account the chosen valuation methodology and management accounting capabilities, to provide this information;
- thirdly, the provision of an adequate system of indicators of the quality of accounting information necessary for an adequate valuation and methods of their calculation.

In the modern economy of Ukraine, there is also a need to develop a mechanism for integrated regulation, control and valuation of the quality of accounting information necessary for valuation and ensure this quality by the management accounting system.

As part of this problem, it will be necessary to solve a set of tasks related to the formation of the conceptual apparatus of the methodology for quality valuation of accounting information from the point of view of the theory and practice of valuation activity within the framework of a management accounting system, creating a system of quality indicators for accounting information, justifying methods for quality evaluation of used accounting information used.

Western researchers point out that with regard to the accounting system, it should be not just about «quality of information», but about «quality of accounting information», which is a set of reporting characteristics that is able to meet the established and perceived needs of potential professional users of financial statements in actual use of these statements for decision making. Reporting properties – objective certainty, expressed during the formation in the process of using by users, which is formed by the factors of the entire economic life of the subject

Let's draw attention to the fact that most Western scholars also, as the main criterion of information, single out utility. For example, R. Adams [151] stresses that the need for useful information influences the compilation



of an auditor's report. In this case, information with such qualitative characteristics as relevance, reliability and materiality is considered useful. The absence of such credential properties as comparability and clarity, according to the author, may limit the usefulness of accounting information.

F. L. Defliz, G. R. Dzhenik, V. M. O'Reilli, M. B. Khirsh [152] considers the usefulness of the evidence obtained during the audit, considering the reliability and timeliness of the main qualities of accounting information.

D. Zheng [153], F. Wood and A. Sangster [154] emphasizes that the usefulness of information lies in its essence.

Focusing on the interests of users, A. K. Basu and M. Saha [155] define reliability as the main criterion for information.

M. Ojo and J. V. Akkeren [156] provide great importance to comparability and the ability to verify reports.

S. Presniakov [157] considers the essence of information a key criterion that the auditor must confirm in the audit process to ensure the information security of users. Essential information, according to the author, is capable of creating an adequate image of an object in the mind of the recipient.

A. Arens and J. Loebbecke [158] argue that the opinion in the audit report relates exclusively to material information that will reliably inform users about the quality of financial indicators. The systematization of the views of domestic and foreign scientists on the problem of quality valuation of information by the auditor allows to conclude that in modern economic literature there is no clear method for determining the quality of information, since no single approach has been found to select a set of criteria.

At the same time, based on the study of the works of the above authors, it is possible to define the very concept of «quality of accounting information» as a set of essential properties quantified by a system of indicators that determine the degree to which the needs of users of accounting information are met under market conditions with optimal costs for generating this information. With regard to the methodology for quality valuation of accounting information, this allows to formulate a definition:

- «Quality system» as a set of principles, processes and resources necessary for the implementation of quality control of accounting information;
- «The system of indicators of the quality of accounting information» as a hierarchical model consisting of qualitative and quantitative indicators, reflecting a valuation of the quality of accounting information;
- «The system of regulation of the quality of accounting information» as a set of organizational structure, responsibility, procedures, processes and resources aimed at the formation of high-quality accounting information from external and internal participants of the business process.

The quality of accounting information is disclosed through a set of properties or characteristics reflecting the degree of suitability of such information for use by users.

According to the National Accounting Regulation (Standard) (NP(S)A) 1 «General requirements for financial statements», the information presented in the financial statements must be intelligible and understood by its users, provided that they have sufficient knowledge and are interested in perceiving this information [58, p. 15].

Financial statements should contain only relevant information that influences the decision-making by users, allows to evaluate past, present and future events in time, confirm and adjust their valuations made in the past. Financial statements must be accurate. The information given in the financial statements is accurate if it does not contain errors and distortions that can affect the decision of the users of the statements.

Financial reporting should allow users to compare:

- financial statements of the company for different periods;
- financial statements of various enterprises.

According to international standards, in order for accounting information and financial statements to be useful, they must meet the following qualitative characteristics: relevance (essence, timeliness, value) accuracy (truthfulness, prevalence of essence over form, prudence, neutrality, completeness) clarity; comparability [159].

In world practice, when it comes to the quality of accounting information, the regulatory method, statistical methods are used; expert method to get an idea of the quality indicators.

The regulatory method for quality valuation of accounting information is implemented by studying the compulsory legislative and regulatory documents used for generating accounting information, as well as the standards governing accounting and the procedure for generating accounting (financial) statements.

The application of the normative method stipulates the creation of documents of different status. For each document, regardless of its level, strict requirements are imposed on the quality of the content. Only in this case it is possible to use this method to evaluate the quality control of accounting information.

This method is used, as a rule, when it comes to such a sign of the quality of information as its «materiality» as mentioned above. Regulatory accounting documents associate this quality criterion with the economic decisions of users. However, the limits of materiality are set by the accountant on the basis of professional judgment.

When applying the normative method to documents of any level of hierarchy, the following requirements are imposed: concreteness, clarity, simplicity and accuracy of formulations; logical sequence in the presentation of information; validity.

Statistical methods are to evaluate the quality of accounting information based on statistical data. The main advantage of statistical methods is quantitative certainty.

In theoretical studies and practical methods, statistical methods are widely used to evaluate product quality. The beginning of the application of statistical methods for quality valuation put U. E. Shewhart. Shewhart classification involves grouping methods into three categories depending on the complexity of their implementation:

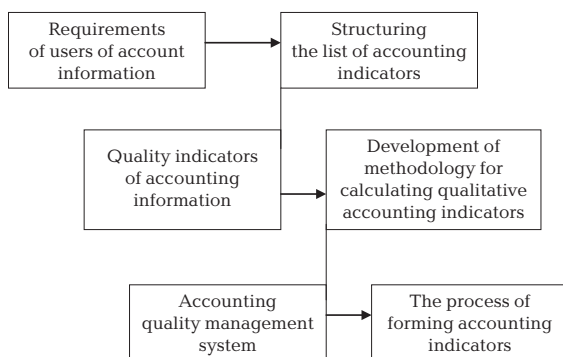
1. Elementary statistical methods: checklist; causal diagram; bar chart; scatter diagram; Pareto analysis; stratification; control card.

2. Intermediate statistical methods: theory of sampling studies; statistical sampling control; various methods of statistical valuation and determination of criteria; method of conducting sensory checks; experiment planning method.

3. Methods designed for specialists in the field of quality management: factor analysis; methods of research operations [160].

4. Expert method for quality valuation of accounting information.

Fig. 3.4 presents a diagram of the process of forming accounting indicators with specified quality criteria for users of accounting information.



**Fig. 3.4** Design diagram of the process of forming high-quality accounting information. *Source: compiled by the author*

Let's consider the order of formation of high-quality accounting information in the framework of the method of quality function structuring (QFS). It consists of the following steps.

The first step in structuring the quality function is establishment and clarification of the requirements of users of account information. In accordance with International Financial Reporting Standards, let's identify seven user groups: investors and administration, customers, suppliers, creditors, the state, employees of the organization, the public.

As noted above, each user group has its own interest in account information. In order to generate high-quality accounting information for each group of users, it is necessary to structure the requirements of each user.

The task of the first stage of QFS method is formulation of the necessary parameters for the quality of accounting information for each group of users.

Table 3.5 summarizes the information interests of the participants in the business process, that is, users of accounting information.

**Table 3.5** Requirements of users of account information.

*Source: compiled by the author*

Account Users	Requirements for accounting information
Investors	Financial condition of the organization
Creditors	Solvency, liquidity
Suppliers and contractors	Solvency
Buyers	Financial sustainability of the organization
State (state structures that need information, tax authorities, state statistics bodies)	Value of assets, capital and liabilities, compliance of the accounting system with standards, are determined (recommended) by the state
Employees of the organization	Financial condition of the organization
Public	The ability of the organization to fulfill its obligations to pay, according to social. guarantees

The second QFS stage is the ranking of consumer requirements. For ranking, it is necessary to evaluate the ratings of consumer requirements that were determined at the first stage. Ratings can be applied on a scale developed in the organization or in the accounting information quality control system. The affixing of ratings is largely subjective and largely depends on which user the accounting information is designed for.

The third QFS stage is the development of methodological support for the formation of accounting indicators. A team of specialists in the field of accounting methodology, tax accounting, management accounting, reporting preparation is preparing a package of regulatory and methodological documents.

At the QFS fourth stage, the dependencies of the requirements of users of accounting information and methodological characteristics are established.

At this stage, we must establish a relationship between the requirements of users of accounting information and the most accounting indicators. This relationship will ensure the formation of high-quality accounting information.

As a result of the above procedures, we obtain the source data for the technical specifications for the formation of the structure of accounting information that is qualitatively oriented for the user of this information.

In the process of studying the possibility of applying the expert method for quality valuation of accounting information, it can be concluded that

the expert method of quality functions structuring (QFS) can be used for this purpose.

This method was first applied by Mitsubishi in 1972. The essence of the QFS method is that customer requirements are «unfolded» in stages, starting with pre-investment studies and ending with pre-sale preparation. This method is a technology for designing products and processes that allows to turn the wishes of the consumer into technical requirements for products and process parameters. The QFS method has been used so far only to control product quality and production control processes [161; 162].

We have analyzed the possibility of applying this method to evaluate and control the quality of accounting information in the management accounting system.

Formation of accounting indicators is considered as a process, and the QFS method allows transforming the requirements of users of accounting information into technical requirements for indicators and parameters of the process of their formation. Let's consider the order of formation of high-quality accounting information in the framework of the QFS method.

The first step in structuring the quality function is establishment and clarification of the requirements of users of account information. The task of the first stage of the QFS method is formulation of the necessary parameters for the quality of accounting information for each group of users.

Formulated and structured requirements are written into the QFS matrix. The second QFS stage is the ranking of consumer requirements. The third stage is the development of methodological support for the formation of accounting indicators in the field of accounting methodology, tax accounting, management accounting, reporting.

At the fourth stage, the dependence is performed for requirements of users of accounting information and methodological characteristics.

For the formation of user-friendly accounting information, a matrix of user requirements and accounting indicators is compiled. As a result of performing the above procedures, the source data for the technical assignment on the formation of the structure of accounting information, which is qualitatively oriented for the user of this accounting information, are determined [116].

Western researchers recommend turning to the practice of information audit, it gives an opportunity to solve the problem of choosing evaluation criteria in a more systematic and consistent manner, using the management accounting system that has developed in the enterprise [154].

During the audit, it is advisable to evaluate the quality of information on such parameters as timeliness, reliability and reliability, and to take the essence of the data as a generalizing indicator [157; 152].

Having designated the main criteria for the quality of information, the auditor should constantly focus on their observance by the economic entity during all stages of the audit from planning to summarizing its work. To this

end, it is proposed to designate a series of actions of the auditor and fix them in the form of a specific algorithm.

For a more objective valuation of the quality of information, researchers have developed models to reasonably establish the characteristics of credentials [156].

Therefore, in the next step, it is proposed to determine each quality criterion by calculation.

For example, the absence of errors in reporting data characterizes a high degree of reliability of information. Therefore, the criterion of reliability of information can be defined as the average value of the size of the detected errors for all the studied articles of management accounting in their value, established in the verification process.

A generalizing quality criterion (entity) should take into account the weight (significance) of each specific information characteristic based on the auditor's professional judgment; it should be calculated according to the model [156]:

$$x = \sum_{t=1}^s v_t x_t,$$

where  $x$  — the generalizing criterion for the quality of management information, the fraction (takes its value from the interval  $[0, 1]$ );  $x_t$  — the value  $t$  of the quality criterion of management information, the share;  $v_t$  — significance (weight) of the criterion for the quality of management information, the proportion;  $s$  — the number of information quality criteria.

The presented method allows to objectively calculate the quality degree of management information for the user, since it is quite informative. The developed models for evaluating information quality criteria can be modified depending on the specific activity of the object surveyed by the auditor or the established cycles (directions) of the enterprise, valuation purposes.

The quality of business valuation requires large-scale storage and accumulation of information, its quick processing, transformation and analysis. This allows the use of various software tools on a personal computer. Knowledge of the business valuation methodology should be combined with practical experience and the ability to use computer analysis tools that are now being actively introduced into the management accounting system.

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## **Chapter 4**

# **5D paradigm of actuarial accounting in the system of the cost of business valuation**

### **4.1 Business valuation for the use of actuarial calculation in the management system**

Business valuation is an extremely important category in the current market economy. In foreign and domestic practice of valuation of the enterprise, there are many approaches to its implementation. Valuation of particular relevance is acquired in the conditions of selling a business as an integral property complex (IPC). An investor is always inclined to the opinion of an expert valuer when it makes a decision on acquiring a business as a property.

After all, the expert valuer provides a scientifically-based opinion on the value of the property being valued in monetary terms. That is, the cost of a business is a valuation of the amount of money that third-party buyers are willing to pay in order to acquire an enterprise as a CEC. The process of determining the value of an enterprise is itself its valuation [163].

In a modern business management system for a rather long period of time, there are several basic approaches to the valuation of an enterprise. In particular, among them: income, cost (or property) and market (or comparative). Methodical approaches to valuation of a business are widely discussed in the works of leading domestic and foreign scientists, in particular: A. Vorobiova, Y. Derevianko, M. Yefimova, I. Kriukova, A. Lukash, A. Matiushenko, A. Nikolaenko, S. Starchenko, I. Filipova, A. Kharitonov, V. Khaustova, V. Scherbakova, N. Scherbakova and others. Each scientist reveals the content of existing approaches and methods for valuation of a business, provides them with a comparative description and justifies the effectiveness and feasibility of using various methods in practice.

In particular, Yu. Derevianko, A. Lukash and L. Starchenko [164] raise topical issues of improving the existing approach to evaluation by introducing an approach that would take into account a greater number of influence factors and give more adequate information about the value of commercial activities, taking into account possible changes in the future.

In particular, scientists propose the use of an integrated measure of the value of a company, the calculation of which is based on the use of the principles of both income and cost approaches, which helps to account for a larger range of information. In turn, A. Nikolaeva, M. Efimova [165] emphasize the cost (property) approach to valuation of a business and incline priorities to the net assets method. However, a detailed and comprehensive description of existing approaches to valuation of a business based on the actuarial aspect and in the context of the functioning of International Financial Reporting Standards has not yet been considered, which necessitated further research in this direction. After all, none of the existing approaches to the valuation does not take into account the indicators of other time dimensions, that is, it is based on fairly static information, does not take into account the prospects for changes in the property potential of a business in the forecast time dynamics. The latter can be gleaned from the accounting and information content of the innovative 5D paradigm of actuarial accounting and reporting.

The aim of the study is improvement of the approaches to valuation of a company based on the use of actuarial calculation and actuarial financial statements. Such an approach will form the foundation for an objective prospective valuation of a business, taking into account the ever-increasing needs of real and potential investors in terms of selling a business as an IPC. In addition, actuarial financial statements fully take into account the recommendations of the Conceptual Framework for Financial Reporting and not inconsistent with the context of International Financial Reporting Standards (IFRS).

The updated Conceptual Framework for Financial Reporting-2018 contains a new section 6, Measurement. It reveals the essence of the valuation of the initial cost and valuation of the current cost, as well as the essence of the factors that should be considered when choosing datasets for valuation [14].

The main valuation approaches used in domestic and foreign valuation practice include: income; cost (property) and comparative. The income approach is based on such valuation methods as: the method of discounting cash flows; capitalization method. The basis of the cost (property) approach is based on such methods as: replacement method; salvage value calculation method; asset accumulation method; net assets method (adjusted book value of the enterprise). The comparative approach is based on such methods as: method of accumulation of assets; method of liquidation value, and is used in conditions where it is not possible to apply the income or cost approaches.

Each of these approaches contains a number of advantages and disadvantages. But it is quite obvious that the activities of a modern enterprise should be strategically focused on the future prospects of functioning in a dynamic economic and international arena. Quite well, such aspects, in our opinion, take into account the income approach to business valuation.

However, Yu. Derevianko, A. Lukash, L. Starchenko [164] note that one of the main problems that arises when using the income approach is the forecast of future income. To calculate the value of the cost within this



approach, it is important to obtain sufficiently accurate data on the future income of the enterprise, which causes certain difficulties in practical application. According to scientists, the use of the income approach allows to more fully take into account the target values, consistent with the indicators of the economic and social development of the country [164, p. 94].

*The income approach* is an approach to valuation of a business based on a prospective determination of the value of an enterprise in accordance with the «*future economic benefits*» of owning it [163]. It is based on a probabilistic approach to forecasting the future incomes of an enterprise and complex mathematical tools.

It is worth noting that in the new edition of the Conceptual Framework for Financial Reporting-2018, the approaches to the interpretation of key accounting items: assets, capital, liabilities, expenses and income will be radically changed.

In particular, the main change in the interpretation of the term «asset» refers to the fact that an asset should be regarded as an «economic resource» and not «*income from future economic benefits*» from owning it. Accountant-expert A. Homiuk [168] notes that the exclusion of «expected incomes» means that it is not necessary to be confident in receiving economic benefits; The low probability of obtaining economic benefits in turn may affect the decision to recognize and value the asset.

In our opinion, similarly, if an expert makes a valuation, then the parameters of an enterprise's value within the framework of the income approach concept should be interpreted as «future economic potential» instead of «future benefits from owning the enterprise». To a certain extent, the term «ownership of an enterprise» echoes a new category of the Conceptual framework for financial reporting, such as «*stewardship*». Since we are talking about the conditions for the sale of a business as an integral property complex, the term «responsible management» will play an extremely important role. In addition, for enterprises of the corporate form of organization of business processes, this category is extremely relevant. After all, large corporations quite often encounter a conflict of interests of the direct owners of the business (investors) and managers of the highest levels of business (the so-called top-managers). This situation gives rise to the emergence of an «agency conflict», that is, the prevalence of the interests of managers over the interests of the actual shareholders (owners) of the enterprise.

Because of this, business owners must bear a number of agency costs in order to encourage senior managers to act from the point of view of shareholders' property, and not just their own «selfish» interests in managing business processes at corporate enterprises. The main problem of moral hazard is that shareholders in practice do not have the ability to control all actions of managers. By virtue of such circumstances, in the category «agency expenses» include:

- the cost of monitoring the activities of managers (i. e., the costs of organizing and conducting audits);

- the cost of creating an organizational structure that limits the undesirable behavior of managers (in particular, the introduction of external investors into the Board of Directors of an enterprise);
- alternative agency costs, in circumstances where the conditions are determined by shareholders limit the actions of managers, which contradict the achievement of the main goal of the corporation – an increase of shareholders' wealth [167].

That is, only the «responsible management» of the company can overcome the «agency conflict». As for Ukraine, the term «stewardship» is quite new for domestic accountants, if literally, the online dictionary Merriam Webster interprets this concept as «careful and responsible management of what was entrusted». The expectations of investors and lenders to return investments (for example, dividends, interest payments, etc.) should be based on a valuation of «future cash flows» and a valuation of responsible management. In this case, both types of information are important for decision making. In other words, the decision of users of financial statements [166].

*The cost (property) approach* determines the value of the enterprise on the basis of the costs incurred for the formation of the enterprise [163]. In particular, A. Nikolaenko, M. Yefimova [165] emphasize that the cost approach, first of all, considers the enterprise as an integral property complex (IPC), which is used to carry out entrepreneurial activity. The content of this method lies in the fact that at first all the assets of the enterprise are sad. At the next stage, the present value of liabilities is deducted from the amount received. The resulting value reflects the cost of equity of the enterprise. Information base in the valuation implementation of the cost approach is the accounting filling financial statements of the company.

In turn, Yu. Derevianko, A. Lukash, L. Starchenko [164] note that with the cost method the cost is determined by reassessing the resources that were spent on the creation of this business, that is, evaluated from the position of the costs already incurred. To calculate this, they use the data of the Balance Sheet (Financial Status Report) at the valuation date. The most common methods of the cost approach are the method of net assets and the method of the liquidation value of the enterprise [164, p. 95].

Net assets are the value determined by deducting from the amount of the assets of the company, the amount of its liabilities. Calculation by the method of net assets is reduced to determining the difference between assets and liabilities. Net assets should not only be positive, but also exceed the registered share capital of the company. This indicates that in the course of its activities the enterprise not only did not squander the funds contributed by the owners, but also ensures their growth. The valuer is tasked with adjusting the balance of the enterprise. To do this, a preliminary valuation of the reasonable market value of each asset is carried out separately, then the current value of liabilities is determined and, finally, the current value of all its liabilities is deducted from the reasonable market amount of the company's

assets. The result reflects the equity value of the enterprise. The method of net assets allows to evaluate the cost of own capital of an enterprise from the position of the owner, which fully controls the entire business [165, p. 1527].

That is, there appears again such a rather important category for each company as «responsible management», which focuses on the updated version of the Conceptual Framework for Financial Reporting-2018.

In contrast to the considered approaches to valuation, Yu. Derevianko, A. Lukash, L. Starchenko [164] propose to use an integrated measure of value, based on the use of the principles of both income and cost approaches, allows to take into account a larger range of information. To calculate the integrated indicator of business value, the following is taken: the value of the financial result (net profit) in the reporting period; growth rate of the financial result; book value is calculated using the cost approach and the coefficient of expectation. The expectation ratio characterizes the growth of the financial result in dynamics [164].

However, in the epoch of the 21st century there is very little effective approach to evaluation. In our opinion, it should be supplemented with an innovative platform for the 5D paradigm of actuarial accounting. It is from the actuarial accounting system that the actuarial financial statements derive their information. After all, actuarial reporting provides an opportunity to evaluate the growth of the economic potential of an enterprise in value terms through the structure of actuarial reporting forms. Also, actuarial reporting to a greater extent takes into account aspects of the Conceptual Framework for Financial Reporting-2018 that the content of the reporting forms in the context of the functioning of International Financial Reporting Standards. After all, the reporting information should comprehensively take into account the growing needs of investors and other suppliers of capital in its information content as a whole.

Actuarial financial statements correspond to paragraph M4; M7, Section 1 «Purpose of general purpose financial statements» Conceptual basis of financial statements. In particular: the general-purpose actuarial financial statements are not intended to show the value of the enterprise that it reports; but it provides information to help current and potential investors, lenders and other lenders to evaluate the enterprise [14].

The new edition of the Conceptual Framework for Financial Reporting, like its previous version, does not have priority over IFRS. But it is possible to rely on it, if IFRS do not give an answer to accounting questions [166].

Better in our opinion, «*valuation of future cash flows*» can be made on the basis of introducing actuarial accounting into the practice of corporations. Actuarial accounting is based on the innovative 5D accounting paradigm, which makes it possible to see the prospects for changes in the property potential of a business in a 5-dimensional space, that is, through the prism of a 5-dimensional format. According to  $5D = 4D + \text{actuarial financial statements}$ , where  $4D = 3D + t$  (time).

Actuarial accounting is a system based on descriptive, triple and simple entry methods, and provides information on changes in market potential and future cash flows of an enterprise in 5 (5D) dimensional space.

The trajectories of changes in the domestic economic system, more and more direct the development of accounting in the direction of its complete reorientation from stating facts and business operations of past events to the long-term perspective of changes. After all, it is the forward-looking data on the property potential of a business that serves as the foundation for evaluating the growth of economic value and creates the prerequisites for generating future cash flows. Such information content of accounting forms, in the case of positive trends, the investment attractiveness of the enterprise's activities for attracting the necessary capital investments from real and potential investors and other capital providers. Since the investor immediately sees the possibility of obtaining additional benefits from investing in the development of this enterprise that is a priority in increasing wealth. In conditions when the overwhelming majority of sectors of the economy are taking the path of European integration processes, the traditional accounting paradigm needs to be significantly improved. After all, the domestic economic system needs to attract investment to overcome the negative effects of crisis trends.

Therefore, an important task before modern accounting science is a complete theoretical substantiation and real practical implementation of the methodological foundations of actuarial accounting in Ukraine, which should be preceded by a sharp regulation and legislative level of its effective construction, contribute to the development of business structures, even in crisis conditions, by attracting from outside the required amount investment investments.

The disclosure of the theoretical foundations of actuarial accounting and the declaration of its substantive content is found in the works of such domestic scientists as F. Butynets [168], L. Goretska [168], K. Gulpenko [168], M. Kuzhelnyi [170], S. Kuznetsova [171], S. Levytska [170], Ya. Lebedzevich [172], O. Osadcha [172], T. Slozko [173], Z. Tuiakova [57], I. Yaremko [174] and others. According to foreign theoretical and practical experience in the implementation of actuarial accounting, then the work of V. Ivashkevich [74], M. Kuter [175], S. Penman [176], J. Richard [177], A. I. Shyhaev [178], since the authors disclose in detail the semantic content of the modern type of accounting – actuarial – as a new crossbar of accounting development, and also describe in detail the methodology of its construction and the main aspects of practical approbation. According to Russian scientists, in Ukraine, aspects of the theoretical substantiation of this problem are only being initiated in scientific research, deep insights are present in the works of A. Lagovska [179]. However, due to European integration changes, there is a need to continue research in this direction to create high-quality accounting and analytical support for management, to encourage the attraction of the necessary amount of investment resources to stabilize the economy of Ukraine with its characteristic sector structure.

Professor M. Kuter [175] distinguishes three revolutionary transformations in the evolution of accounting theory and its corresponding practice: from 1850 until the beginning of the twentieth century – static accounting; Twentieth century – dynamic accounting; XXI century – actuarial accounting. In addition, the scientist refers to the fundamentals of the theory of balance diversity J. P. Savary (1673), according to which: «...interests define goals, goals determine the composition of property and methods of its valuation...» [175, p. 115].

In turn, Ya.Sokolov, V. Sokolov, when disclosing the distribution of a double accountant in Europe (in the era of the XV century – the first half of the XIX century), noted that it was to this French scientist that the national accounting idea was due to the introduction of the classification of accounts according to the volume of recorded data, which led to their division into synthetic and analytical there is a foreign scientist, so to speak, became the founder of a two-step data recording system, which led to the formation of relevant postulates [5, p. 61].

According to M. Kuter as a consequence of the postulates of E. Pisani is the following statement: «...a positive financial result (profit) is possible only if incomes exceed expenditures, and own capital must not only be saved, but also be multiplied» [175].

Under such circumstances, in our opinion, the real prerogative of the reorientation of modern accounting concepts can be informational content of actuarial accounting, which is aimed at meeting the ever-increasing needs of owners, lenders and other capital providers. So, M. Kuter interprets the accounting policies of the organization as a concentrated expression of the financial policies of its owners.

This approach contributes to further substantiation of the chain of interests:

- the interests of the owners – to make a profit;
- the tasks of the owners – to invest;
- the interests and objectives of the organization – to preserve and increase the capital [175, p. 116].

K. Gulpenko exploring the main aspects of the development of accounting concepts for the purposes of management in modern conditions, draws attention to the fact that the information of static accounting is presented in a summarizing form helps to determine the prospects for the development of the country's economy. According to a foreign researcher, the relationship between types of accounting can be applied in various aspects. Thus, during periods of bankruptcy of an enterprise, when the analytical capabilities of accounting, tax, and management accounting make it possible to correctly make management decisions to get out of the current situation and assess the prospects for the company's work in a prospective period. At the same time, strategic accounting can be applied, built in an organization in accordance with the method developed by him [169, p. 18].

The scientist is of the opinion of S. Krylov that in modern conditions for management purposes information is needed on the strategic, long-term prospects for business development, promotes the use of accounting valuations in forecasting and analytical work [180, p. 8].

In this regard, considerable attention is paid in our time to strategic management accounting, which has arisen relatively recently, but has emerged as a fairly broad area of scientific and practical activity [180, p. 17].

V. Smernytska considering the systematization of types of accounting in a unified accounting system in a new interpretation among its types such as: financial, tax, social, environmentally oriented, forecast, also highlights its kind as actuarial. Which the scientist treats as branches of accounting [181, p. 242].

According to the research approach, which objects, tasks or features would not have one or another kind, they all act not in isolation, but complementing each other, which creates information integrity, which is and remains the core of accounting [181, p. 243].

S. Levytska, Ya. Lebedzevych, O. Osadcha [172], when considering the methodological and organizational basis for the functioning of the enterprise's accounting system as an information source for preparing reports, disclose in detail such types of accounting as: dynamic, actuarial, social, creative, and strategic (forecast).

In turn, M. Kuzhelnyi, S. Levytska during the study of the fundamentals of the organization of accounting, note that currently economic accounting in Ukraine combines: accounting, management (internal), tax, dynamic, actuarial, social, creative, strategic (forecast). In addition, according to scientists, statistical accounting functions in a parallel projection [170].

F. Efimova, L. Goretska [168, p. 30] describing in detail other types of accounting, allocating: actuarial accounting, dynamic accounting, office accounting, creative accounting, macrooblique, micro viewing, human resources accounting, operational accounting, patrimonial accounting, social accounting, statistical accounting, static accounting, strategic accounting. (Among these species, actuarial is also distinguished).

V. Maximova [182, p. 107] among other types of accounting highlights: creative, actuarial, strategic, social, budget, dynamic. Noticeably, according to Table 4.1, that a scientist, when interpreting the content of a key research concept, applies identically meaningful content, like the overwhelming majority of Russian scientists on this subject.

O. Zorina [183] in the course of disclosing organizational aspects of an integrated accounting and reporting system as an information basis for management and evaluation of recent research and publications on existing scientific concepts of accounting systems at the current stage of development of the Ukrainian economy, highlighted the most common of them: strategic (forecast) accounting, integrated accounting, electronic accounting, social (environmental) accounting, creative accounting, actuarial accounting and dynamic accounting. According to the scientist, the purpose

of financial accounting is providing information to external users with direct financial interest, in particular, owners, creditors, potential investors and foreign counterparties, including foreign owners, in order to make strategic financial decisions and plan and forecast future cash flows based on analysis financial condition of the company.

That is, this goal, in our opinion, is fully consistent with the purpose of accounting actuarial accounting, the full focus of which concerns real and potential investors, lenders and other capital providers.

A detailed description of the approaches of domestic and foreign scientists regarding the characteristics of the content of actuarial accounting is given in Table 4.1.

According to Table 4.1, it can be seen that the overwhelming majority of domestic and foreign scientists interpret actuarial accounting as a system that uses the double-entry method and provides information on changes in the market value of an enterprise, that is, the opinion of scientists is identical.

**Table 4.1** Interpretation of the term «Actuarial Accounting» and «Actuarial Concept of Accounting» in foreign and domestic literary sources.

*Source: compiled by the author*

No.	Author [Source]	Interpretation of the term
1	2	3
1	F. Butynets, L. Goretzka [168, p. 30]	Actuarial accounting is a system that uses the double entry method and provides information on changes in the market value of an enterprise. In practice, in most cases, accountants do not keep these records and provide it to «practice» or specialists in the valuation of enterprises. But the study of the principles of such accounting allows a better understanding of the appointment of other types of accounting
2	K. Gulpenko [169, p. 18]	Actuarial accounting — used in valuation of the created economic value and future cash flows
3	V. Ivashkevych [74, p. 25]	Actuarial accounting is accounting, the main purpose of which is considered to be the valuation of the economic value created and future cash flows
4	M. Kuzhelnyi, S. Levytska [170]	Actuarial accounting is a system using the double entry method and provides information on changes in the market value of an enterprise. Included in the economic accounting in Ukraine
5	S. Kuznetsova [171, p. 79]	The actuarial accounting system is a system that uses the double-entry method and provides information on changes in the market value of an enterprise. The specified information of the actuarial accounting is needed for external users who can receive it in the accounting system, provided it is reformed in the aspect of informatization of the economy

Continuation of Table 4.1

1	2	3
6	A. Lagovska [179, p. 57]	Actuarial accounting concept is focused on the formation of information about the dynamics of the internally generated value of the enterprise as an object of investment, while this concept is not modified using a static concept for evaluating individual objects of the account display. That is, this concept is focused on providing the accounting system with information on how the enterprise's market value changes over time, taking into account the interests of both current and potential investors when disclosing information in financial statements
7	S. Levytska, Ya. Lebedzevich, O. Osadcha [172, p. 8]	Actuarial accounting is a system using the double entry method and provides information on changes in the market value of an enterprise
8	V. Maximova [182, p. 107]	Actuarial accounting is a system that uses the double entry method and provides information on changes in the market value of an enterprise
9	J. Richard [177, p. 90]	Actuarial accounting is a system that applies the double-entry method and provides information on changes in the market value of an enterprise. Actuarial accounting is accounting, which is based on future discounted cash flows
10	T. Slozko [173, p. 178]	Actuarial accounting is a system that uses the double entry method and provides information on changes in the market value of an enterprise. Its data is necessary for those external users, it can also be received in accounting, that part of it, which is called financial accounting, where the value of objects is also formed, is owned by the company at the reporting date. For these reasons, this type of accounting is also only declared by theorists
11	Z. Tuiakova [57, p. 316]	Actuarial accounting is a system using the double entry method and provides information on changes in the market value of an enterprise
12	A. Shyhaev [178, p. 30]	Actuarial accounting is accounting that is aimed at generating the information necessary for real and potential investors, lenders and other capital providers to evaluate the economic value generated and future cash flows in the decision-making process about investing, lending and other investments of resources in the enterprise
13	I. Yaremko [174, p. 249]	Actuarial accounting is a system using the double entry method and provides information on changes in the market value of enterprises

However, a more detailed study of the theoretical and methodological basis of actuarial accounting suggests that using this double entry method



is not limited to this type of accounting. Accounting for advanced foreign experience shows that this system is based not only on the double-entry method, but also applies a descriptive record, the content of which is descriptive and predictive in nature, besides the actuarial concept often uses simple and triple-entry at the same time. The penultimate of which requires detailed justification, since it arose at the initial stage of the development of accounting, the triple dimension of accounting records primarily concerns the future development of accounting science in the 21st century and built on the basis of accounting for force accounts, first found theoretical evidence in the works of the American scientist I. Idzhiri [184], and in the era of modernity were developed in detail in the scientific works of the D. Dobii [185].

Returning to the semantic content of the term «actuarial accounting», it is worth noting that K. Gulpenko emphasizes that this type of accounting is primarily used in valuation of the economic value of a business, and in the course of a real manifestation of the ability to generate cash flows in the long term [169, p. 18].

S. Kuznetsova [171] draws attention to such an aspect as the «informatization» of the domestic economy, and prefers external users of actuarial accounting; however, according to the scientist, the modern accounting concept needs to be significantly reformed for further development in line with such trends at the national level of government.

F. Efimova and L. Goretska [168], notes the circumstance under which the maintenance of actuarial accounting is provided not to practitioners of practice, but to corresponding specialists in the valuation of the enterprise. Fully agree with this approach, since in order to maintain this type of accounting it is necessary to have a thorough knowledge of financial mathematics that underlies the actuarial analysis. In addition, in the initial stages of development of actuarial calculations, their direct implementation was accumulated within the framework of the profession of an actuary, from which actuarial accounting derives its etymological origin.

Accordingly, according to T. Slozko [173] actuarial accounting data is needed for users from the external environment of the company. In addition, the researcher draws attention to the fact that this type of accounting at this stage of development of human society as a whole and in Ukraine in particular is still purely theoretical in nature and direction. In our opinion, the existing regulatory space at the legislative level requires substantial improvement. Due to this, the range of draft laws on the prospects for actuarial activities in Ukraine and an objective valuation of business value in the context of dynamic changes should be significantly expanded.

According to the approach of A. Lagovska, the concept of actuarial accounting should be viewed as the basis for maximizing the financial power of domestic enterprises and their importance in the global economic space due to the improved management of key drivers of their value by solving the problems of information management system, focused on attracting

financial resources, ensuring the increase of economic value added to capital providers in the context of building a new economy of Ukraine [179, p. 58].

I. Kyrianov, in detail in his scientific writings, reveals the methodology for the implementation of auxiliary valuation, notes that the basis of actuarial calculations is the principle of equivalence of obligations of the parties that are directly involved in the relationship that has developed, formulated in 1671 by Jan de Vit and «...all parties should have equal financial obligations to each other» [186, p. 133].

According to S. Kuznetsova, in the course of researching the prospects for accounting, in such perspectives as: strategic, electronic commerce and social orientation, information of actuarial accounting is needed for external users who can get it in the accounting system, provided it is reformed in the aspect of informatization of the economy [171, p. 79].

In addition, according to the approach of the scientist, the accounting system in the process of synergistic development should receive such characteristic features as integration, strategicity (predictability), dynamism, electronic form, creativity, actuariness, social (environmental) orientation. According to the scientist, it is the consistency of all the proposed features that makes it possible to form an accounting system, based on the use of modern computer technology, it will be able to meet the information needs of users with the ability to integrate both at the local accounting level and at the level of the overall management system of companies [171, p. 73].

Z. Tuiakova [57] in interpreting the content of actuarial accounting fully supports the opinion of French scientist J. Richard [20], who draws attention to the fact that it should be used to determine the market value of an enterprise as a property complex as a whole, the main purpose of auxiliary accounting is determining the present value of the enterprise at a certain point in time as the amount of capital that the net cash flows generated by the enterprise could recover in the future.

J. Richard suggests using the percentage of normal profitability for a given period and a given type of enterprise as a discount rate [177, p. 91].

However, according to Z. Tuiakova [57], with all the theoretical attractiveness of actuarial accounting, the organization of such accounting and practice, especially in conditions, requires substantial costs. One of the factors that hinder the development of such accounting, in the opinion of a foreign scientist, is the lack of a currently scientifically based and proven method for determining normal market profitability for different types of enterprises. In addition, the problem of determining the market value is of particular relevance in the liquidation of an enterprise, and not in the conditions of its continuous activity [57, p. 316–317].

But the studies of Z. Tuiakova [57] in this direction related to the era of the twentieth century, however, in the XXI century, deep insights on this issue appeared in the works of A. Shyhaev and V. Ivashkevich [168], who theoretically proved and practically substantiated the methodological

aspects of determining the increase in the value added of an enterprise in market conditions and investment activity.

M. Kuzhelnny and S. Levytska [170] note that it is this type of accounting that becomes an important component of business accounting in Ukraine. At the same time, scientists adhere to a common opinion when interpreting its essence and meaningful content as a whole.

According to the research results of the theoretical foundations of the content of actuarial accounting, it can be concluded that this is a complex dynamic system based on the methods of descriptive, simple, double and triple entries and provides detailed information about the market value of an enterprise in three-dimensional space based on the use of triple accounting system. The need for its use is due to the euro integration processes in the domestic economy, the need to attract investment in the development of its sectors, which requires its effective theoretical and methodological substantiation both at the general scientific and national levels in order to practical implementation of the practice of economic entities in Ukraine.

Also, actuarial accounting allows to resolve the agency conflict between the actual business owners and senior management managers through the content of the actuarial financial statements. In addition, the structure of the actuarial statement of financial position clearly reflects the potential change in the economic value of the business. After all, the Actuarial Report on the financial condition is built on the dichotomy of the operating and financial activities of the enterprise. In the asset are accumulated operating assets and liabilities, and in liabilities are financial assets, liabilities and capital. That is, such actuarial reporting form fully combines all the necessary components for valuation of a business using the net asset method. As a supplement to valuation of a business using an integrated indicator, the second form of actuarial reporting is the actuarial profit and loss statement. The last reporting form allows to take into account the conceptual framework of the income approach in valuation of the enterprise.

An important place in the system of actuarial accounting belongs to the «actuarial calculation». It is thanks to it that conditions are created for analyzing and disclosing the reasons for economic, financial and organizational success or deficiencies in the activity of an enterprise. Also, «actuarial calculation» is often interpreted, as a total calculation, the result of an actuary's work, which is generally summarized in a tabular format, characterizing the likelihood of trends in the economic potential of a business [187]. It is based on a rather complex mathematical apparatus of probability theory and financial statistics.

Actuarial calculation is carried out with close consideration of the characteristics of actuarial accounting, namely: the economic potential of the evaluated enterprise, or, its growth or reduction, are probabilistic in nature, highlighting the risk group of the occurrence of negative trends in the change of the economic potential. The latter is carried out on the basis

of calculating the mathematical probability of the occurrence of the corresponding changes in the prospective time lase [188].

Other sources state that «actuarial calculation» should be understood as the cumulative amount of the costs of conducting an actuarial evaluation of the enterprise. The main tasks of actuarial calculations include a particular: a detailed and comprehensive study of risks within the framework of an actuarial valuation of an enterprise (this concerns compliance with the requirement of a scientifically based classification characteristic of the level of risks for the formation of a «homogeneous population»).

The term «homogeneous system» (from the Greek. «ὁμός» – equal, identical, «γένω» – to give birth) is commonly understood as a homogeneous system, the properties of which is the same in all parts or change continuously [189].

In addition, the range of tasks in the implementation of actuarial calculations also includes:

- calculation of the mathematical probability of growth/reduction of the economic value of a business, determining the frequency and severity of the consequences of damage, both in individual risk groups and in the insurance population as a whole;
- mathematical substantiation of the necessary expenses for conducting an actuarial valuation of a business and forecasting trends for its change over the future [190].

In the implementation of actuarial calculation and with its direct preparation, certain features should be taken into account, among which the most important are:

- events are subject to valuation, have a probabilistic nature. This is reflected in the size of the prospective valuation of the business;
- in some years, the general pattern of the phenomenon is manifested through the mass of isolated random events, the presence of which implies significant fluctuations in the total amount of changes in the value of the net assets of an enterprise [191].

According to the research results of existing approaches to the valuation of the company, taking into account the actuarial aspect through the prism of actuarial calculation, it should be concluded that the existing system of business valuation should be built on the information foundation of actuarial financial reporting, which derives its content from the actuarial accounting system based on actuarial calculation. In addition, the actuarial financial statements are fully consistent with the basic criteria of the updated Conceptual Framework for the Financial Statements – 2018. In particular, the general-purpose actuarial financial statements are not intended to show the value of the enterprise that it reports; and it provides information to help current and potential investors, lenders, and other lenders value the enterprise in a prospective temporary business. This contributes to the simplification of the valuation algorithm, since the structure of

actuarial reporting forms, in particular, the actuarial statement of financial position, contains indicators that are the information basis for valuation of a business using the net assets method. Such aspects facilitate the further valuation and determination of the growth of the economic potential of the enterprise. In addition, the entire totality of actuarial reporting forms serves as a favorable information tool for valuation of a business based on the use of an integrated value indicator, taking into account the principles of both income and cost approaches, and serves as a prospect for further research in this direction of research to improve management efficiency now.

## **4.2 Argument of the development of NP(S)A «Actuarial financial reporting» in the context of property potential valuation**

Complex and comprehensive support of entrepreneurship from the state and improving the management of the activities of business entities of any legal form of ownership and the economic sector are among the most important and complex tasks in the context of deepening globalization transformations.

To ensure the necessary level of development of the economy of Ukraine, it is necessary to actively and effectively apply innovative approaches to the management of enterprises in all types of economic activity — from the agricultural sector to the aviation industry. However, any innovative implementations require an adequate level of funding, in conditions of the manifestation of crisis trends in the domestic economy becomes an extremely difficult dilemma. Due to such circumstances, attracting direct investments in the development of the national economy, both external and internal, is a strategic exclusive right of domestic business entities.

Favorable ground for improving the investment attractiveness of domestic enterprises can be achieved by improving the accounting and information content of reporting from the actuarial accounting system. It is actuarial financial statements that are able to provide information to real and potential investors about the additional economic benefits of attracting investment in business development and the prospect of changes in future cash flows. Therefore, there is an urgent need for regulation at the legislative level and the active implementation in Ukraine of a foreign actuarial 3D model of accounting and financial reporting.

In modern economic conditions, the main tasks of enterprises that are in an unstable or crisis financial situation, and seek to attract investment in their development from external or internal investors, there is the formation of such accounting support, which would reflect the relevant information about the prospects for changes in future cash flows of the object investment, changes in its net operating assets and net financial liabilities that

can't provide general purpose reports. Traditional public financial statements are not able by their nature to create such an information foundation for investors, lenders and other capital providers, as it is oriented to state the facts of past events and a reflection of the actual financial position of the enterprise. Due to such circumstances, the financial statements (including those prepared under IFRS) require transformation into actuarial financial statements that can reflect the prospect of changes in the economic potential of a business. Therefore, the accounting of foreign experience and the development in Ukraine at the legislative level of a new National regulation (standard) of accounting 3 «Actuarial financial reporting» is one of the priorities at the national level of government that requires urgent solutions.

On the issues of building an effective enterprise management system based on the actuarial concept of accounting and reporting, they are described in detail and comprehensively in the works of such foreign and domestic scientists as V. Ivashkevych, V. Kogdenko, M. Kuter, A. Lagovska, J. Martin, S. G. Penman, J. Pettia, J. Richard, Ya. Sokolov, B. Stewart, A. Shyhaev and others. In particular, V. Ivashkevych, A. Shyhaev [178] refer to the methodology of maintaining actuarial accounting and the use of its data in the management system. Disclose the concept of actuarial accounting and the formation of actuarial financial statements based on the transformation of financial accounting and IFRS statements. In numerous works by J. Richard [177], special attention is also paid to actuarial accounting (or accounting for valuation of property that is sold as an integral property complex (IPC). According to the scientist's approach, a new type of accounting is intended not only to create a favorable information ground for attracting investments, but also acts as an effective lever of influence in terms of the sale of a business as an integral property complex. However, the question of the need to introduce a foreign actuarial 3D concept of accounting and its corresponding regulation at the legislative level, require further research in order to create a favorable investment climate and attract the necessary investment in the economy.

At the same time, there are no scientific works in which the argumentation of the development and implementation of the national provision (standard) of accounting 3 «Actuarial financial reporting» by domestic enterprises would be covered. The study requires a foreign approach to the composition and forms of actuarial reporting, as well as its differences from the financial statements.

The main objective of the study is argumentation for the development of a new National Accounting Standard 3 «Actuarial financial reporting», comparing it with NP(S)A 1 «General requirements for financial reporting» and highlighting key differences.

The level of direct foreign investment from the countries of the world in Ukraine plays an important role in maintaining and ensuring the necessary level of development of the domestic economy.

The latter requires an adequate level of financing, which is extremely difficult to ensure in the conditions of crisis tendencies in the domestic economy. Therefore, an increase in the level of foreign direct investment in the agricultural sector is becoming a strategic prerogative of the state as a whole. A kind of panacea, under such circumstances, may be the transition to a new actuarial stage of development of accounting and reporting. That is, in the conditions of a new economy, the priority of business owners should be to form such an accounting basis that, through the prism of financial statements, could provide real and potential investors with necessary information about the potential change in the economic value of an enterprise and the prospect of a change in cash flows. It is this content that can be obtained in the actuarial accounting system, as a new crossbar of the development of modern accounting teaching in the 21st century, which provides the necessary level of activity management.

The present epoch is extremely dynamic, constant innovations at the legislative level, and numerous innovations in various spheres of public life require active movement in rhythm with time. Keeping your hand on the pulse of change contributes to the effective adoption of rational management decisions and the basis of objective, timely, accurate and relevant information about the economic activities of the market entity. That is why, the expression of the founder of the banking dynasty Nathan Rothschild remains relevant for years: «Who owns the information — owns the world». To make effective decisions in the course of business management and its effective content, to ensure such a rational process, detailed information comes out of the management and actuarial accounting system, quite often acquires the forms of management and actuarial reporting of an economic entity that are not regulated at the legislative level.

However, due to the trends of the 21st century, an innovative actuarial concept of accounting appears in the enterprise management system to help the management accounting system, in contrast, the management concept has a specific subject and objects, and also operates with innovative methodological tools. Due to such changes and transformations in the modern accounting system, there is an urgent need to explore the characteristics and specific features of actuarial accounting, in a parallel projection with a comparison of the content with the rather traditional and customary accounting practice — management accounting, which determines the relevance of the study.

«Management Accounting» and «Actuarial Accounting» are fundamentally different from each other, among the common features it is necessary to single out: the lack of clear regulation at the legislative level regarding the main aspects of their practical use by domestic business entities; and the level of accuracy of accounting information, because, in both management and actuarial accounting, there are a number of forward-looking and prospective valuations. Identified number of criteria for comparing the

studied types of accounting testifies to the characteristic features of each, including among them: the obligation to maintain; main users of account information; purpose of accounting; the fundamental basis of the accounting concept; the basic rules of an organization in an enterprise; informational time lag of submission of generalized accounting information; level of accuracy of accounting information; content type; frequency of preparation and the main types of forms of management and actuarial financial statements; ways of grouping information; level of openness of information. However, despite the fundamental difference between «managerial» and «actuarial» accounting, each of these types of accounting is designed to provide the necessary information for a long-term business management system, including strategic planning, valuation of economic value growth, because a modern accounting model must be based on a holistic and an integrated system of traditional and innovative accounting concepts. This will fully contribute to the effective construction of a business management system and its accounting interpretation in the 5D space, even in conditions of financial instability. The latter determines the prospects for further within the framework of selected issues, namely, the disclosure of the main aspects of the accounting procedures, taking into account the features of the innovative 5D-model of actuarial accounting and the use of its data to manage the activities of a corporate type entity.

However, in our opinion, actuarial accounting, in today's conditions, must acquire 5D format, that is, provide accounting information in three-dimensional space that would fully satisfy the growing needs of investors and other capital providers. After all, actuarial accounting, in addition to traditional accounting methodological tools, operates with specific methodological techniques of descriptive, triple recording and actuarial calculations. Therefore, we propose to actively implement the 5D model of actuarial accounting in domestic enterprises, the meaning of which is that both in the accounting system and in the light of the information displayed in the actuarial financial statements, special accounting information is generated about the level of economic potential of the business that is being created and also about the prospect of changing it.

In Ukraine, the general principles for the preparation and presentation of financial statements are defined by NP(S)A 1 «General requirements for financial reporting» [58]. On the order of preparation of the consolidated financial statements, it is governed by the NP(S)A 2 «Consolidated financial statements» [192].

However, in accordance with M.2, Section I, Conceptual Basis of Financial Reporting [14], the purpose of financial reporting is providing useful, relevant financial information about the company for current and potential investors, borrowers and lenders in their investment decisions in the development of this business entity. M.3 of the same section of the Conceptual Framework [14] determines that the hopes of investors and



borrowers on the aggregate amount of return on invested capital are determined by evaluating the amount, time and prospects for the inflows of net future cash flows.

Such content can be obtained in the actuarial financial statements, but in foreign accounting practice there is no standard, or at least a regulatory document, which would regulate the methodology for the preparation and presentation of actuarial financial statements. It should be noted that a significant increase in the usefulness of reporting information was achieved in 2011 within the framework of adoption by the IASB and the Accounting Standards Board of IFRS (Presentation of Financial Statements) [56, IFRS 1], because the standard defined the conceptual structure of financial statements for business entities. However, according to the foreign scientist A. I. Shyhaev [178] reporting prepared under the requirements of IFRS requires a transformation in actuarial financial statements based on the dichotomy of operational and financial activities.

Following the structure of the NP(S)A 1 «General requirements for financial reporting» [55], and based on the application of the approach to the composition and structure of the actuarial forms of financial reporting of foreign scientist A. Shyhaev [178], we have developed a draft NP(S)A 3 «Actuarial financial reporting», the contents of the proposed standard are given in Appendix D.

The proposed project of NP(S)A 3 «Actuarial financial reporting» has the same structure as NP(S)A 1 «General requirements for financial reporting» [58], but the main differences between these standards are the basic terms and definitions, the composition and structure of the elements of reporting and disclosure of information in the reporting. In the system of actuarial accounting appear such specific objects as: operating assets and liabilities; financial assets and liabilities; net operating assets and net financial assets (liabilities).

According to NP(S)A 1 [58], the financial statements include the following reporting forms as: Balance sheet (Report on financial position), Report on financial results (Report on comprehensive income), Report on equity, Report on cash flow and notes to financial statements. In accordance with the proposed NP(S)A 3 «Actuarial financial statements», it includes reporting forms such as: Actuarial balance, Actuarial statement of comprehensive income, Actuarial report on cash flow (Actuarial balance of cash flow), Actuarial report about changes in equity. The principles of preparing financial and actuarial statements differ among themselves.

In particular, the principles of preparation of financial statements, according to NP(S)A 1 [58], belong to the following principles: enterprise autonomy, business continuity, periodicity, historical (actual) cost, accrual and matching income and expenses, full coverage, consistency, diligence, prevalence essence over the form and a single monetary measure. The basic principles of the requirements for the preparation of actuarial financial

statements, as can be seen from the Table 5.5, are: fundamental (relevance, truthful lighting) and amplifying (comparison, timeliness and clarity) [178].

In the conditions of an active capital market, an actuarial report on changes in equity is extremely important in the system of actuarial reporting, therefore, we will build this form on the example of the agricultural enterprise InterAgrocom (Chernivtsi region), which main activity is the cultivation of grain and pome fruits. It should be noted that foreign direct investment from Germany («Redcast Holding Limited») has been attracted to the activities of this agricultural enterprise. The structure of the actuarial report on changes in equity for the agro-enterprise «InterAgrocom» is presented in Table 4.2.

**Table 4.2** Actuarial statement of changes in equity of PJSC «InterAgrokom» on 01.01.2017, thousand UAH. *Source: compiled by the author according to the financial statements of the studied agricultural subject and on the basis of [178]*

Item	Line code	Reporting period	Previous period
<b>Equity at the beginning of the year</b>	<b>7010</b>	<b>20000</b>	<b>18786</b>
<b>Operations with shareholders – holders of ordinary shares</b>			
Issuing own shares			
Sale of repurchased own shares	7020	9	347
Dividends	7030	(741)	(458)
<b>Net result for shareholder transactions</b>	<b>7040</b>	<b>(732)</b>	<b>(111)</b>
<b>Cumulative financial result</b>			
Net income (loss)	7050	(897)	679
Disposals of subsidiaries	7060	—	—
Dividends on preferred shares	7070	10	10
<b>Total cumulative financial result</b>	<b>7080</b>	<b>(907)</b>	<b>(887)</b>
<b>Equity at the end of the year</b>	<b>7090</b>	<b>18361</b>	<b>19562</b>

As noted in Table 5.6, in clause 4.1, section IV, of the project of NP(S)A 3 «Actuarial financial reporting», in the actuarial statement of comprehensive income, information on the calculation of equity at the beginning and end of the reporting period is given separately. We proposed to implement coding of lines in the forms of actuarial financial statements within the continuation of the coding system in public financial statements, regulated by NP(S)A 1 «General requirements for financial reporting» [58].

The introduction of actuarial accounting and financial reporting in Ukraine will contribute to the formation of a new basis for accounting and analytical support for managing the activities of domestic enterprises. The development and implementation at the legislative level of a new NP(S)A 3 «Actuarial financial reporting» will help create a favorable

information ground for attracting foreign direct investment in the development of the national economy, since a potential investor will immediately see prospects for changes in future cash flows and additional economic benefits from invested capital. In this way, there will be a revival of potential opportunities for all types of economic activity, in particular for the agricultural sector of Ukraine as one of the backbone in the domestic economy.

### **4.3 5D paradigm of actuarial accounting and preparation of new generation accountants to evaluate changes in the economic potential of a business entity**

In the conditions of innovative transformations in the world and domestic capital markets, the traditional accounting system requires rethinking. Since accounting is the language of business, the latter, due to dynamic tendencies in the global and national economy, also requires fundamental changes in the direction of development. It is not known exactly how and in what way it is better to direct the management system of a domestic enterprise to the necessary direction, but one thing is for sure, significant changes hidden only behind innovations in the context of all spheres of public life. In order to facilitate the exit of the economy and business from the crisis and negative economic results, in our opinion, the approach to training employees of the enterprise's accounting office should be improved. It is about providing the labor market with accountants of the «new generation» (from the English «New generation»), who in addition to owning the foundation of the «language of business» were able to assess the prospect of changes in its economic potential (from the English «Key Performance Indicator»), cash flows, to determine the forecast level of the main «drivers» of improving the financial position of the enterprise on the market in the future period and would have mastered the methodology of actuarial calculations. That is, experts can overcome the problem of inefficient management of domestic enterprises in crisis conditions, and complete financial uncertainty, except for knowledge of accounting, have the skills of actuarial calculations and thoroughly know the methods of actuarial accounting. That is, the «accountant of the future» is not only an accounting specialist at an enterprise who works in accordance with the requirements of current legislation, it is also to a certain extent an «actuary», that is, an expert in actuarial mathematics who possesses not only the methodology of actuarial calculations but also actuarial accounting.

The studies of theoretical and methodological aspects of actuarial accounting are devoted to the works of such scientists as V. Ivashkevych, V. Kogdenko, M. Kuter, A. Lagovska, J. Martin, S. G. Penman, J. Petty, J. Richard, Ja. Sokolov, B. Stewart, A. Shyhaev. However, none of the scientists focused on the multidimensionality of both actuarial and traditional accounting space, as well as the potential and urgent need to develop a priority

of the 5D paradigm of actuarial accounting. The most groundwork for the 3D-format of financial statements are presented in the works of foreign science by L. Golden (2016) [68], which discloses a non-trivial approach to the study of accounting science, by its semantic content allows to establish the cause-effect relationships of the impact of business operations on the financial statements, and also provides for the construction of thinking at the level of the postings and the financial result of the company. This approach is based on the preparation of 3D-reporting bypassing the writing of accounting entries. However, it is worth noting that we began to explore the 3D dimension of the actuarial system much earlier, but in something completely different format. Indeed, in society it has already become a fairly common phenomenon to apply the approach of n-dimensional space (3D, 4D, 5D...7D, etc.) to various objects and systems, including us, you will not be surprised by 3D (4D, 5D...8D) — cinemas, 3D printers, 3D glasses, 3D, ..., 5D modeling, etc., however, the approach to presenting an innovative actuarial accounting system in 5-dimensional space (5D) is generally still not considered, which caused the need for research in this particular direction.

The study of the need to develop a new 5D paradigm of actuarial accounting, training of employees of the accounting apparatus of the new generation (accountant + actuary) and making appropriate changes in educational programs and curricula in institutions of higher education, which prepare specialists in the specialty 071 «Accounting and taxation».

In the Top 7 most popular economic professions in 2017, according to the official PRO-prof web site [193], the accountant profession is in 2nd place, after the auditor, and the following professions are also at the next steps after the accountant: financier, economist, merchandiser and sales manager. In turn, much earlier in 2010, the American financial and economic magazine Forbes [194], which is one of the most authoritative global economic publications, published the Top 10 most prestigious professions, in which the first place was headed by the profession — the actuary.

In world practice, the actuary (from the Latin. Actuaries) is primarily an expert in insurance mathematics, who is fluent in the theory of actuarial calculations. As noted by prof. G. Falin [195] an actuary is a professional with special mathematical training, thorough knowledge of statistics, finance, economics, who carries out modeling of various situations that are directly related to the uncertainty in the volume and time of future cash flows and the like.

On the official website of the Community of Actuaries of Kazakhstan, the following definition of an actuary is presented — it is a person who has the appropriate qualifications for assessing risks and probabilities of occurrence of events. The actuary applies its knowledge to the problems of business and finance. Actuaries are multilateral analysts with theoretical background and applied skills from such sciences as mathematics, statistics, economics, demography, probability theory and finance. On the basis of the accumulated statistical information and with the help of special

software, actuaries make financial forecasts and short-term and long-term perspectives, and also use risk management methods quite widely. Actuaries provide managers with the highest levels of management with analytical rationales for the prospects for the adequacy of making certain management decisions. In the case of project failures, it is the actuaries who provide the practical solution to the difficult situation with the least losses [196].

However, if to plunge into a historical excursion and more deeply refer to the etymological origin of the term «actuaries», it is possible to find that another interpretation is the «counter,» that is, the accountant. In addition, during the times of the Roman Empire, actuaries were called officers, directly keeping records of material values in the army [197].

Accounting functions were accumulated in actuaries of the Fair Life Insurance and Survival Community (which was founded in London in 1762), and determined a more different perception of the actuary's profession in the world, because such specialists also had to operate with complex mathematical tools and analytical models in insurance companies. A certain period of time (from 1819 to 1825), the professions of «actuary» and «accountant» in the insurance business were generally identified. However, in 1827, at the parliamentary hearings in England, differences in the specifics of the work of the actuary and the accountant were substantiated [198]. Despite this, many Western researchers still emphasize that the functions of these two professions are comparable with each other.

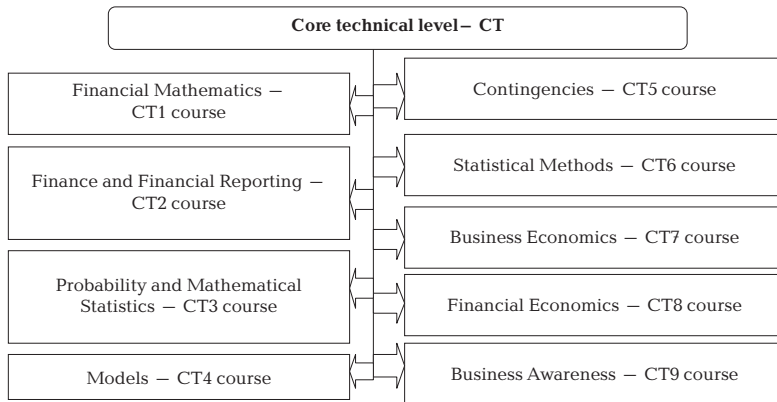
In 1895, the International Actuarial Association (IAA) was founded with its headquarters in Brussels. The main objectives of which are coordination activities and cooperation with national associations of actuaries of several countries [197]. The founders of the IAA are such countries as the United Kingdom, the United States of America, France, Germany and Belgium.

In the United States of America and the United Kingdom, only members of certain professional associations have the right to call themselves «actuaries»: the Society of Actuaries (USA), the Institute and the Faculty of Actuaries (Great Britain). The general structure of the program for the training and certification of actuaries includes 4 groups of courses (stages): Core technical (CT), Core applications (CA), Specialist Technical (ST), Specialist Applications (SA) [195; 199].

Fig. 4.1 presents a list of disciplines for the development of which provides for obtaining a core technical level (CT).

According to the decision of the International Actuarial Association (IAA) [71], the qualification programs of national actuarial organizations should cover the «silibus» (from the Latin. Syllabus – list) of the IAA, which includes the following disciplines: financial mathematics, probability theory and mathematical statistics, economics (macro- and micro-), *accounting* (ability to interpret accounts and financial statements), modeling, statistical methods, actuarial mathematics, investment and asset management, fundamentals of actuarial management, professionalism [195]. As for

Ukraine, as a sovereign state, the Society of Actuaries of Ukraine (SAU) [200] also functions effectively here, which is one of the non-profitable organizations and comprehensively ensures the development of actuarial business in the country. To qualify as an actuary, it is necessary to go through a series of professional exams. The center for passing the qualification examinations of the British Institute of Actuaries was established in Ukraine on the basis of SAU and the T. Shevchenko National University. There is also an opportunity for exams in the actuarial-information center, which is open at the Lviv Polytechnic National University [200].



**Fig. 4.1** List of disciplines for mastering core technical level.

*Source: compiled by the author*

In accordance with the current legislation, the activities of actuaries are subject to licensing by the National Commission, which exercises state regulation in the sphere of financial services markets (National Financial Services).

To obtain a Diploma in Actuarial Techniques, it is necessary to pass 9 qualification examinations of the key technical stage (CT1–CT9). To obtain the Certificate in Finance and Investment, it is necessary to pass 6 exams at the key technical level (ST1, ST2, ST 4, ST 7, ST8, ST9) and the exam on the discipline Actuarial Risk Management – Course CAI) of Key application phase. To obtain a Certificate in Financial Mathematics: the exam «Financial Mathematics» (course CT1) [201].

According to the Qualification Requirements for persons who should be engaged in actuarial calculations in Ukraine, which is approved by Regulation (National Financial Services) No. 3519 dated February 08, 2005 (with changes from September 19, 2017 No. 3782) [201], and in order to directly receive the Certificate in accordance with clause 2.1 of the specified

qualification requirements, the following should have: a university degree; experience in performing actuarial calculations (at least 3 years); Qualification certificate; Master's degree in specialty and/or specialization in actuarial and financial mathematics or documents on the successful passing of professional exams envisaged by the American (in codes of SOA Course 1/P – SOA Course 6, or SOA Exam P – SOA Exam C, or CAS Course 1 – CAS Course 6, or CAS Exam 1 – CAS Exam 6) and/or British (codes 101 – 109 or CT1 – CT8) examination systems.

The main qualification requirements for persons who can engage in actuarial calculations in Ukraine are summarized in Table 4.3.

**Table 4.3** Basic Qualification Requirements for persons who may engage in actuarial calculations in Ukraine. *Source: compiled by the author on the basis of [201]*

No.	System	Brief description	(1) In parentheses are the specified authentic exam numbers.
1	British Examination System	The system of actuarial examinations (exams) established by the professional actuarial organization of the United Kingdom (Faculty and Institute of Actuaries) and complies with the requirements of the International Actuarial Association (IAA)	(101) (1) Statistical Modeling. (102) Financial Mathematics. (103) Stochastic Modeling. (104) Survival Models. (105) Actuarial Mathematics 1. (106) Actuarial Mathematics 2. (107) Economics. (108) Finance and Financial Reporting. (109) Financial Economics
2	US Examination Systems (Society of Actuaries, Casualty Actuarial Society) and meets the requirements of the International Actuarial Association (IAA)		The system of actuarial exams (examinations), which is established by professional actuarial organizations of the USA (Actuarial Society, Property Insurance Actuaries) (SOA Course 3/M) Actuarial Models. (SOA Course 4/C) Actuarial Modeling. (SOA Course 5)
2.1	Examination System 1 of Society of Actuaries		Application of Basic Actuarial Principles. (SOA Course 6) Finance and Investments
2.2	Examination System 2 of Society of Actuaries		(SOA Exam P) Probability. (SOA Exam FM) Financial Mathematics. (SOA Exam M/MLC) Life Contingencies. (SOA Exam M/MFE) Financial Economics. (SOA Exam C) Construction and Evaluation of Actuarial Models

In world practice, there are actuarial titles of the following statuses: Corresponding Member (a person who has passed all 9 core technical subjects (ST1 – ST9), all three core applications (CA1 – CA3), have practical

actuarial skills (at least 1 year of practical experience in this area); Full member (face is a corresponding member who additionally passed another 2 exams for technical courses for specialists (CT) and an examination for specialists (CA), and also has actuarial skills (3 years of practical work in this field)). Diplomats this is a Chartered Enterprise Risk Actuary (CERA), Corresponding Member or Full Member, who has also passed the ST9 exam [196].

To obtain a certificate of compliance with the qualification requirements of persons who may be entitled to engage in actuarial calculations, in addition to having practical work experience, you must have a diploma in the Master's degree in the field of knowledge 11 «Mathematics and Statistics» in the specialty 111 «Mathematics».

Returning to the profession of «accountant» (*Buchhalter*, *Buch*, *Halter* — holder), it should be noted that this is primarily an accounting specialist who works in the accounting system in accordance with the requirements of the current legislative space. In our opinion, in the 21st century, the «inverted approach» should be applied to the profession of the modern accountant (eng. «*flipped approach*»). The point is that, among the main accounting functions, a modern accountant should be able to perform certain duties of an actuary, who also relate to the accounting process, but in one of the accounting subsystems — actuarial accounting.

In order for such professional accountancy training to become a reality, first of all, changes should be made to educational programs and current curricula in higher education institutions that are trained by specialists in the field of knowledge 07 Management and Administration and specialty 071 Accounting and Taxation. In particular, the first year of training specialists in educational degrees «bachelor» in the specialty 071 «Accounting and Taxation» should include such disciplines as: «Actuarial Mathematics 1» and «Actuarial Mathematics 2» (in the I and II semesters, respectively), on the second «Actuarial calculations»; on the third «Actuarial accounting», and on the fourth «Actuarial financial reporting». Upon receipt of the educational degree «master» should include the discipline «Actuarial analysis», «Construction and evaluation of actuarial models».

Such professional training will provide the domestic labor market by accountants of the future generation. Indeed, to a certain extent, a «modern accountant» must possess mathematical tools and have an analytical mind. The accountant must see in advance, that is, to provide for the consequences of a particular event. It must make rational and effective management decisions on the distribution and use of financial resources of the enterprise. By virtue of such circumstances, to some extent, an accountant must have the knowledge and abilities of an actuary, but in such an important accounting subsystem as actuarial accounting.

In our previous studies, we have already paid attention to the disclosure of the essence of actuarial accounting, in particular, determined that this is a system that uses the 3D recording method and displays information

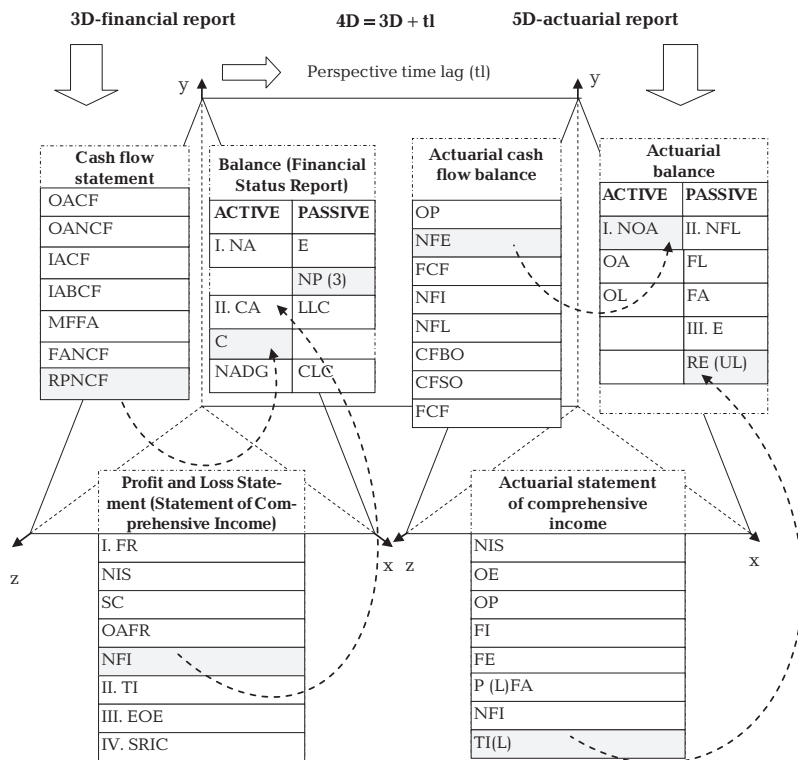


about the prospects for changing the economic value of an enterprise and its cash flows in 4D space (3D+time) on the use of 3D force accounts in 5D actuarial financial statements. That is, actuarial accounting, as one of the important subsystems of traditional accounting, allows you to build a 5D accounting model.

For the first time, it was possible to interpret traditional financial statements in 3D format in 2016 by L. Golden [198]. A foreign researcher generalized the Western methods of teaching accounting and suggested a non-trivial approach to studying accounting teaching as soon as possible, calling it «Financial Reporting in 3D». This approach contributes to a comprehensive and comprehensive establishment of cause-effect relationships of the impact of business operations on the financial statements. It also allows you to think at the level of accounting entries and financial results of the enterprise in the market. In particular, the science officer proposed a non-traditional methodology for drawing up financial statements based on the most popular business transactions, while bypassing (at the initial stage) the writing of accounting entries. Subsequently, the technique reveals the secrets of making entries, thereby contributing to a comprehensive understanding of the fundamental principles of accounting [198].

In our opinion, 4D measurement in the accounting system is formed when the economic activity of the enterprise, summarized in the financial statements in 3D format is considered not only in space, but also in «time», that is,  $4D = 3D + \text{«time»}$  in this case, it is not about the two actual adjacent periods, or the actual report date, but the prospective (forecast) time lag (tl). In order for accounting information to acquire 5D format, it should be interpreted through the prism of actuarial accounting (in particular, actuarial 3D force accounts (F)) and summarized in actuarial financial statements in 5D, starting from a foreign non-trivial approach to financial statements in 3D. Let's try to illustrate such an approach by constructing two regular tetrahedra (that is, triangular pyramids in which all faces are an equilateral triangle), with the corresponding reporting forms on each face (Fig. 4.2).

In the first tetrahedron let's place the financial statements in 3D, and reflect the connection between the three reporting forms. Fig. 4.2 shows a close relationship between the balance sheet (Statement of financial position), statement of cash flows and statement of financial performance (statement of comprehensive income), as well as between the relevant forms of actuarial financial statements: actuarial balance, actuarial statement of cash flows and actuarial statement of comprehensive income. We propose to transform financial statements in 3D, according to L. Golden's approach [198] to actuarial financial statements; A. Shyhaev [178] to the 5D format (5D paradigm) proposed by us for the actuarial accounting system (based on taking into account the peculiarities of the formation of the spatial interpretation of socio-economic phenomena and processes in 4D space (3D + perspective time lag (tl)) forecast periods).



OACF – cash flow from operating activities; OANCF – net cash flow from operating activities; IACF – cash flow from investment activities; IABCF – net cash flow from investment activities; MFFA – the movement of funds from financial activities; FANCF – net cash flow from financial activities; RPNCF – net cash flow for the reporting period; FR – financial results; NIS – net income from sales; SC – cost of sales; OAFR – financial result from operating activities; NFI – net financial result; TI – total income; EOE – elements of operating expenses; SRIC – calculation of indicators of stock returns; OP – operating profit; NOA – net operating assets; NFE – net financial expense; NFL – net financial liabilities; CFBO – cash flow for operations with borrowers; CFSO – cash flow for operations with shareholders; FCF – free cash flow; OE – operating expenses; FI – financial income; FE – financial expenses; P(L)FA – profit (loss) from financial activities; NFI – net financial income; TI(L) – total income (loss); NA – non-current assets; CA – current assets; OA – operating assets; C – cash; NADG – non-current assets and disposal groups; OL – operational liabilities; NFL – net financial liabilities; FL – financial liabilities; FA – financial assets; LLC – long-term liabilities and collateral; CLC – current liabilities and collateral; E – equity; RE(UL) – retained earnings (uncovered loss)

**Fig. 4.2** 5D format of actuarial financial statements.

*Source: compiled by the author on the basis of [178; 198]*

5D is the paradigm of actuarial accounting, in our opinion, can be created by opening a separate 10th class «Actuarial 3D accounts» in the current Chart of Accounts for assets, capital, liabilities and business operations of enterprises

and organizations, approved by Order of the Ministry of Finance of Ukraine No. 291 of November 30, 1999 (with changes of February 8, 2014. No. 48) [202].

The specifics of the structure of T-accounts of force (F) were discussed in our previous studies, in particular on the use of 3D-recording and complex methodological tools of actuarial calculations, which will contribute to the formation of their predictive accounting information for prospective time periods (tl). In particular, we noted that the actuarial 3D account is two T-accounts in a 3D projection, the answer, besides its traditional two sides: the left, which is called debit and the right, which carries the name of the credit, a third dimension of the account appears – Expectation, that is, a promising 4D format is formed (3D + forecast time lag).

Directly fragmentary proposals for detailing on the basis of taking into account foreign experience [198] and the specifics of the domestic legislative space are summarized in Table 4.4.

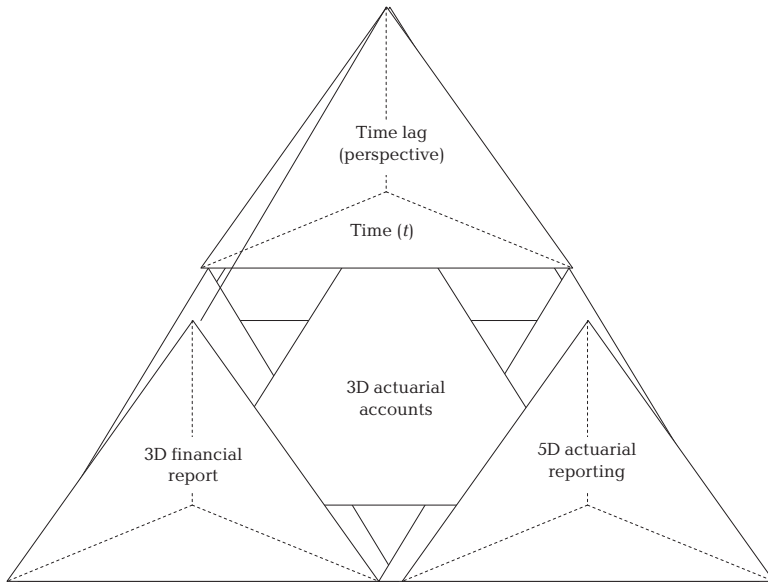
**Table 4.4** Fragment of the proposed class 10 «Actuarial 3D accounts» for the current Chart of Accounts [202] based on the accounting of foreign experience.

*Source: compiled by the author on the basis of [178; 198]*

Synthetic accounts		Sub-accounts	Scope of use
Code	Name		
Class 10. Actuarial 3D accounts			
Section 101. Operating Activities			
Group 1010. Net operating assets (liabilities)			
10101	Operating assets	101011 Transaction cash. 101012 Calculations for different debtors. 101013 Inventories. 101014 Fixed assets. 101015 Intangible assets	Operating activities
10102	Operating liabilities	101021 Payments to suppliers and contractors. 101022 Calculations for taxes and payments. 101023 Calculations for employee benefits. 101024 Calculations for participants. 101025 Calculations for other operations	Operating activities
Section 102. Financial Activities			
Group 1020. Net financial liabilities (assets)			
10201	Financial assets	102011 Financial investments in cash. 102012 Short-term financial investments. 102013 Long-term financial investments.	Financial activities
10202	Financial liabilities	102021 Short-term loans. 102022 Current debt on long-term liabilities. 102023 Liabilities on lease agreements	
Group 1021. Equity			
10211	Equity	102111 Registered Capital. 102112 Capital in revaluation surplus. 102113 Additional capital. 102114 Retained profit (uncovered losses)	Financial activities

Proposal, which is presented in Table 4.4 to improve the current chart of accounts [202] when introducing 5D paradigm of actuarial accounting into the domestic accounting practice, is reflected only fragmentary. In addition to actuarial 3D accounts summarized by us in a tabular format, it is worthwhile to open the corresponding actuarial accounts for accumulating accounting information from the invoice accounting system about the cumulative financial result, free cash flow and economic value of the business.

Based on the generalization of the results obtained in the course of the study conducted in this article, the 5D paradigm of actuarial accounting that we proposed schematically is presented in Fig. 4.3.



**Fig. 4.3** Spatial interpretation of 5D actuarial paradigm.

*Source: compiled by the author*

In the course of generalization of accounting information from the actuarial accounting system in 5D-format of the actuarial reporting, it is necessary to take into account the specifics of filling out the reporting forms that are characteristic of traditional financial statements, namely: the actuarial balance is drawn up at a certain point in time (forecast date), and the actuarial statement of movement cash and actuarial statement of comprehensive income – for the corresponding forecast period.

In general, according to the results of the study of the 5D paradigm of actuarial accounting and training of new generation accountants, it should be noted that the modern actuarial development of accounting doctrine

requires new innovative approaches to its 5-dimensional spatial interpretation in domestic enterprises. Because of this, there is an urgent need for the preparation of national accountants of such accountants who, in addition to deep knowledge of accounting, would have a toolkit of actuarial calculations and methods of actuarial accounting. Therefore, we proposed to make changes in educational programs and existing curricula for training specialists in the field of knowledge 07 Management and Administration, specialty 071 Accounting and Taxation by introducing a number of actuarial disciplines: Actuarial Mathematics 1 and 2, Actuarial Calculations; Actuarial accounting, Actuarial financial reporting, Actuarial analysis, Construction and evaluation of actuarial models. The practical implementation of such proposals will help the modern accountant in the 21st century to be not only the accountant, but also to some extent an actuary who is able not only to operate with information in the accounting system, but to see prospects for changes in the economic value of a business, its future financial flows in the 5-dimensional space (5D) of the innovation system of the actuarial accounting paradigm. That in complex terms contributes to the growth of prestige of the accountant profession in the labor market and increase the investment attractiveness of domestic enterprises.

The proposed 5D paradigm of actuarial accounting takes into account foreign non-trivial approaches to the formation of financial statements in 3D, and provides for its transformation taking into account the time factor ( $3D + \text{time} = 4D$ ) in the actuarial financial statements in 5D, which is achieved through the use of accounting information that is accumulated on actuarial 3D accounts. The latter are proposed to be reflected in a separate 10th class of accounts with the same name, which it is advisable to open in the current chart of accounts [202]. Such innovations in the domestic accounting field contribute to shaping the image of the investment attractiveness of domestic business entities, even when selling a business as an integral property complex (IPC) and will ensure that the national economy is out of crisis conditions by attracting the necessary investment in the development of its relevant sector. The latter determines the prospects for further within the framework of selected issues, namely, the disclosure of the main aspects of the practical implementation of the 5D paradigm of actuarial accounting in domestic enterprises and the use of its data to improve management efficiency as a whole.

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## **Chapter 5**

# **Implementation of program-targeted and value-based approach to enterprise value management**

### **5.1 Mechanism of value-based enterprise value management**

The study of value as an economic result of managing the capital of a trade enterprise predetermines the need to shift the focus of management from the process of assigning a resource to its creation in the form of intellectual and social capital. This makes significant differences in relations with data carriers of capital forms, acquiring the status of a strategic factor in the formation of the value of a trade enterprise, taking into account the interests of groups of value influence. In this context, certain transformations are acquired by the mechanism of value-based management, it is proposed to investigate on the basis of a business model.

Since the mechanism of value-based management, as a complex managerial category, includes management objectives, a quantitative analogue of goals, management criteria, management factors (controls and their relationships that are influenced to achieve goals), methods of influencing these management factors and management resources (material and financial resources, social potential, with the help of which, and with the use of an appropriate management method, the achievement of specified target), the development of business models and trading enterprises should take into account all these elements. The business model, as a simplified reflection of the image of an organization of a certain economic activity aimed at creating a value proposition for the consumer and making profit, performs a number of important functions, such as specifying a strategy, defining clear prospects for the enterprise, ensuring its uniqueness in the market, organizing an effective business system -processes and the like.

The development trends of trade in Ukraine, as well as the specifics of the industry (interaction with end users and the sale of goods/services of other enterprises) necessitate the construction of a business model that allows for stable partnerships with groups of value influence.

The specifics of the trade industry are described by the following characteristics: trade enterprises, as a rule, sell goods manufactured by others and as a result cannot receive benefits from the exclusivity of their product range; trade enterprises directly interact with end users.

These characteristics define the accents when building a business model. Firstly, trade enterprises should focus not on what to sell, but how to do it. Secondly, the focus of managers of trading enterprises should be shifted from the usual sales transactions to the formation of the so-called «consumer experience», which provides the buyer with pleasure and benefit from the process of making purchases.

The business model of a trade enterprise should reflect the interrelationships between the main elements that determine the logic of value creation for them. These components are: type of shopping facility, operations and coordination of the process of creating consumer experience [203, p. 5].

The type of a commercial object is a set of parameters (range, prices, number of personnel, principles of placement of goods, the choice of advertising media, etc.), which determine the affiliation of a commercial enterprise to one of the most common types in world practice. The most common types of shopping facilities in Ukraine today are: hypermarket, cash and carry, supermarket, discounter, grocery store, supermarket, kiosk, pavilion, market. The development of Internet technologies has led to the emergence of a new format of enterprises serving consumers in both real and virtual stores (an interactive offline business model [204]). The business model should reflect how the activities of trade enterprises are combined with the format to provide a high-quality consumer experience.

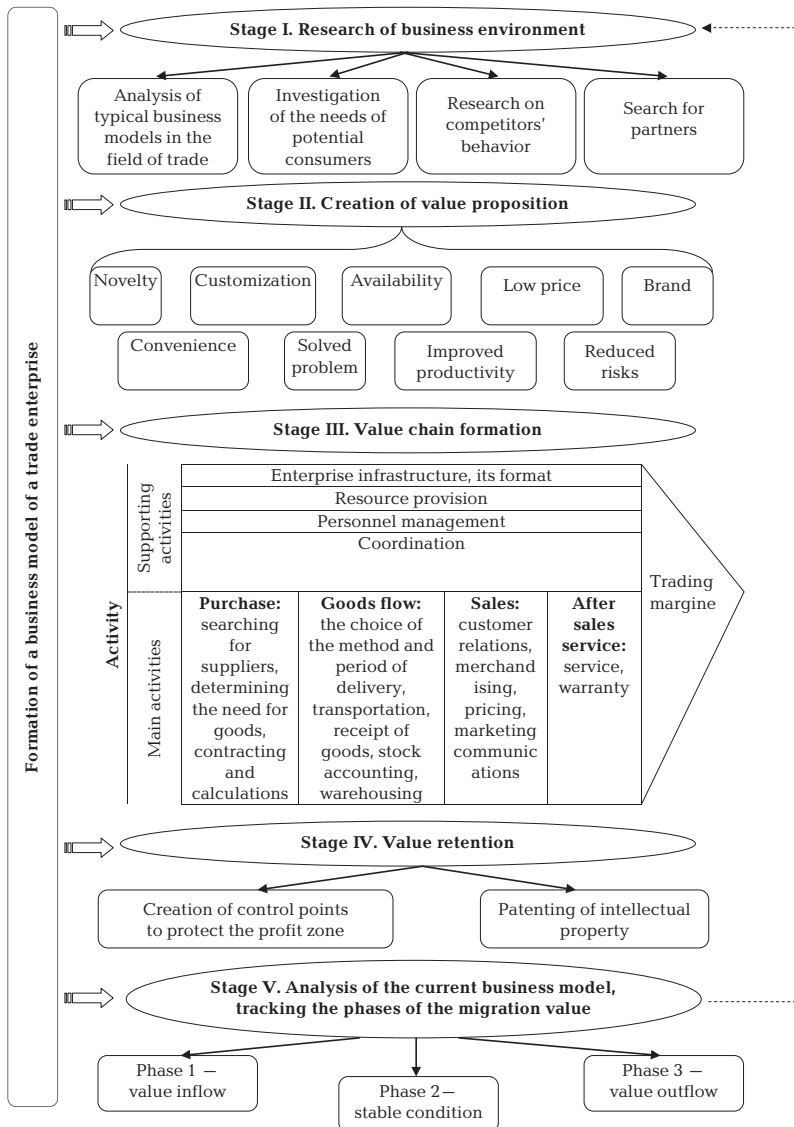
Operations performed by modern trade enterprises include not only the acquisition, warehousing, demonstration and exchange of goods and services. According to scientists, the formation of consumer experience includes the expansion of this list of such important activities as creating a favorable shopping environment [205], offering a wide range of different types of goods [206], creating a brand [207], public relations [208], using new technologies [209], optimization of the supply chain [210] and others. The choice of operations, their sequence and features are largely determined by the type of shopping facility.

Coordination, as an element of the business model of a trade enterprise, is a mechanism for coordinating actions and motivating all participants involved in the process of creating consumer experience. It is worth noting that such participants are not only employees of the enterprise, but all other partners in the value network. In trade, coordination tools such as ECR (effective response to consumer demands) [211] and category management [212] are most often used.

Mutual compatibility between the components of the business model of a trade enterprise is crucial for achieving a synergy effect capable of creating maximum value for both owners and other key stakeholders.

Generalization and systematization [203; 212; 213; 2014; 2015; 2016; 217; 218; 219], as well as taking into account the peculiarities of the trade

sector, allows to determine the main stages in the formation of the business model of a trade enterprise (Fig. 5.1).



**Fig. 5.1** The sequence of formation of the business model of a trade enterprise.

*Source: compiled by the author*



The model constructed according to the following algorithm will allow the trade enterprise to form a successful mechanism of value-based management. The basic principles of functioning of the mechanism of value-based management of a trading enterprise are controllability, planning, adequacy, continuity of development, intersystem and internal system compatibility, compliance of the control mechanism with the system for which it was created, cost-effectiveness, feedback [220]. The condition for the functioning of the mechanism of value-based enterprise management trade is the presence of the four components of its effective work. These include clearly defined goals for the work of the mechanism; established criteria for its work; tools to ensure the operation of the whole mechanism of enterprise value management; resources that allow you to realize your goals (Fig. 5.2).

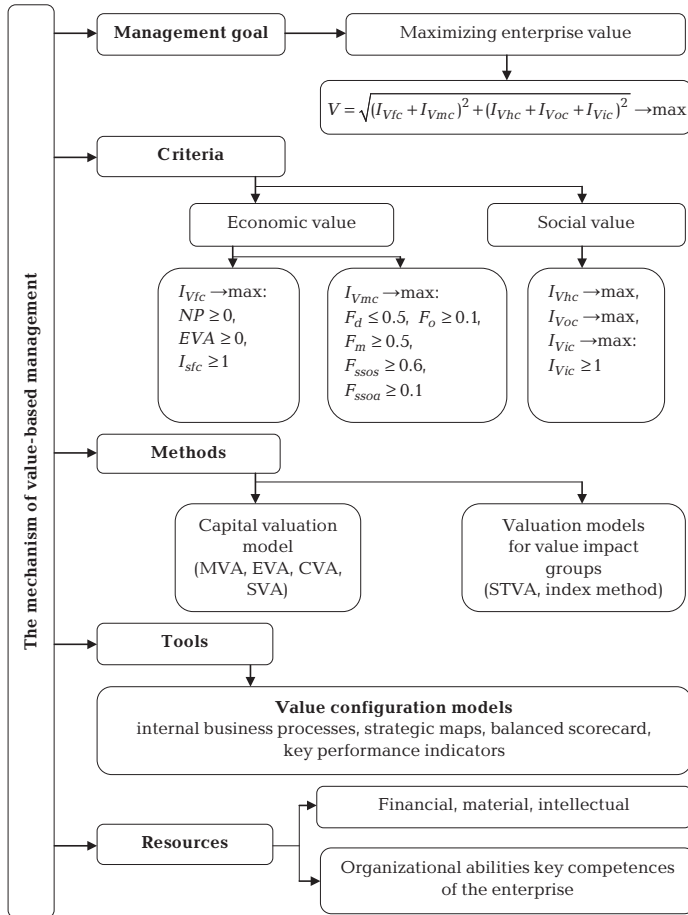
The target orientation of the business model of a trade enterprise is maximization of its total value. The basis for highlighting the criteria of value-based management is the economic and social value created by the enterprise. Evaluation of the effectiveness of value-based management is based on a system of indicators. We believe that the choice of indicators should take into account the sectoral specifics of trade enterprises. To evaluate the effectiveness of value-based management based on the criterion of economic value created, we suggest using valuation models (MVA, EVA, CVA, SVA), as well as value indices of the company's financial and material capital. Assess the results of value-based management by the criterion of the created social value will allow the model to measure the value for groups of value influence (STVA, index method), as well as the value indices of human, organizational and interface capital of the enterprise.

As for the resource support of value-based management, we consider it necessary to note that the resources themselves (financial, material and intellectual) are not productive. Only the organizational capabilities of the enterprise (the ability to coordinate and integrate resources into goods and services) and key competences to perform certain business processes and use resources in them become the basis of competitiveness.

As can be seen from Fig. 5.1, the formation of the business model of a trade enterprise occurs in 5 stages:

- first, it is necessary to determine how the business model will meet the priorities of consumers and the type of market in which the enterprise will operate;
- the second important stage is creation of a value proposition for consumers, which is formed from a unique set of elements that can satisfy their needs;
- the third stage, it is necessary to form a value chain — reflect all the activities carried out in the process of creating a value proposition;
- the fourth stage is necessary to protect the business model of competitors and provides for the adoption of such measures as identifying strategic points of protection and patenting of intellectual property;

- the fifth stage is continuously monitor the effectiveness of the business model and monitor the phases of value migration;
- as soon as the business model enters phase 3 (outflow of value), it needs to be reviewed and again all the considered stages should be carried out.

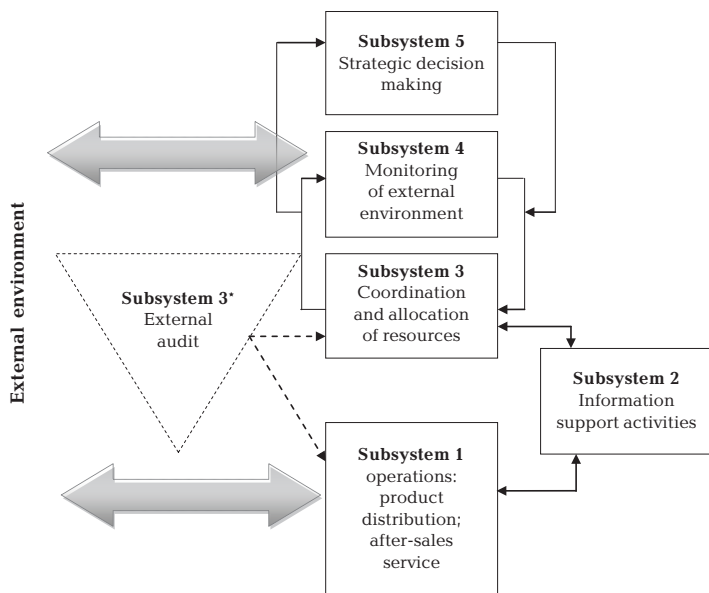


$I_{Vfc}$  – an integral index of the value of financial capital;  $NP$  – net profit;  $I_{sfc}$  – index of stability of the financial condition of the enterprise;  $I_{Vmc}$  – integral index of the value of material capital;  $F_d$  – depreciation factor of fixed assets;  $F_o$  – fixed asset renewal factor;  $F_m$  – maneuverability factor;  $F_{ssos}$  – factor of stock supply by own sources;  $F_{ssoq}$  – security factor by own assets;  $I_{Vhc}$  – integral value index of human capital;  $I_{Voc}$  – integral value index of organizational capital;  $I_{Vic}$  – integral value index of intellectual capital of an enterprise

**Fig. 5.2** The mechanism of value-based cost management.

*Source: compiled by the author*

At the same time, it is necessary to ensure the viability of the business model, a skillful combination of internal factors and adaptation to changing environmental conditions. The solution of this task is possible under the condition of applying cybernetic laws in the management of an organization, providing for the organization's ability to «learn» on the basis of experience and the ability to adapt to the economic, social, political, environmental and other environments. Developed on the basis of a cybernetic system viability model (Viable Systems Model, VSM) [221], the trade enterprise business model should consist of five interacting subsystems that can be reflected as aspects of the organizational structure (Fig. 5.3).



**Fig. 5.3** Viability components of a trade enterprise business model.

*Source: compiled by the author on the basis of [221, p. 317; 223, p. 223]*

Depicted in Fig. 5.3, subsystems 1, 2, 3 relate to the operational activities of a trade enterprise, subsystem 4 is associated with a strategic response to the impact of external environmental challenges, and subsystem 5 is responsible for equilibrium and the formation of policy guidelines. It is also necessary to emphasize the importance of orientation of the business model to the consumer, which determines its viability. This is due to the fact that the buyer is completely free in their economic behavior and has the unlimited right to choose the seller of necessary goods. It is the buyer who determines the presence of a competitive advantage

of one commercial enterprise over another and «votes» for it with their money [222, p. 34].

Constant changes have become an integral feature of modern business conditions. Trade enterprises seeking to be competitive are forced to respond in a timely manner to the actions of competitors, the constantly growing demands of consumers and new opportunities that arise as a result of intensive development of technology. Those enterprises that spend most of their time and resources on maintaining stability can't thrive in such conditions. Successful are only those commercial enterprises that are dynamic and respond flexibly to market demands. It is worth noting that changes in the trade market are slow and almost imperceptible, so it is not always possible to assess their impact on time. In this regard, tracking fluctuations in the behavior of consumers and competitors, market conditions and innovative technologies should be an integral part of the process of managing a trading enterprise.

The most important feature characterizing the degree of compliance of an enterprise with environmental conditions is its adaptability, which provides flexibility, mobility and maneuverability of actions. Summarizing the views of scientists [224 – 227], we can state the predominance of the approach to the definition of the concept of enterprise adaptability in terms of its adaptation to changes. We believe such an understanding of adaptability is incomplete. In this regard, we propose to consider adaptability as an effective interaction of the enterprise with the environment, which is harmonize the market requirements and the proposals of the enterprise, as well as the application of measures that will change the business environment and shape new consumer needs.

In the context of adaptability of the business model to the changing environment, it should be noted that the needs and requirements of consumers about the activities of a trade enterprise form priority objectives, the key of which in modern conditions are: minimizing production costs; product quality and reliability (goods/services); shorter lead times; delivery reliability; ability to respond to changes in demand; flexibility and ability to develop new products; innovation activity [228, p. 43 – 45].

Management of the business model adaptability of a trade enterprise should be carried out on the basis of the following basic principles [229, p. 29]:

- flexibility – management with a dynamic, diverse and complex environment, allows you to quickly change;
- openness – the need to interact with the environment;
- feedback – timely understanding and response and market requirements;
- necessary diversity – increasing the variability degree of the product offered by the enterprise;
- reflexivity – formation of reactions to periodic environmental risks.

The proposed system of principles is the basis for the formation of a mechanism for managing the adaptability of a trade enterprise, which is a combination of methods for ensuring effective interaction with the environment.

The methodological basis for managing the adaptability of a business model is a set of methods for identifying factors affecting the activities of a trading enterprise and ways to manage them.

In order to thoroughly examine in-depth the factors influencing a trading enterprise and identify cause-effect relationships causing changes in the indicators of economic activity, it is advisable to apply a factor analysis. This method allows to solve a number of important tasks, such as: selection of factors for analysis, their systematization and classification; modeling of relationships between performance and factor indicators; the calculation of the influence of factors and the assessment of the role of each of them [230]. It should be noted that such an analysis should not only be aimed at identifying the causes of changes in the results of economic activity of the trade enterprise, but also explore the behavior of the performance indicators for the future.

A tool for determining the priority directions of development of a trade enterprise, forecasting and classifying areas of interaction with the environment, choosing a strategy for behavior and market segmentation is the method of cluster analysis. In the context of ensuring the adaptability of the business model, this method allows to investigate the type of nature of the state of the interaction processes with the environment, to solve the multi-dimensionality problem by identifying the main indicators and crediting others to the field of expert assessments [231, p. 243]. The clustering of trade enterprises also makes it possible to simplify the procedure for diagnosing their strategic confrontation and more effectively develop management solutions for adapting enterprises to a changing external environment in order to ensure their survival in a competitive market environment [232, p. 118].

To assess the interaction of the constituent processes of adaptation, it is possible to apply canonical correlation analysis, which allows to explore the relationship between two sets of variables, as opposed to factor analysis, which is used to establish links within one set of variables [233, p. 63].

The study of the influence of environmental factors on the economic development quality of the business model of a trade enterprise allows the use of the index method. Such an approach creates a basis for substantiating the directions of adaptive development based on the choice of alternative courses of action. It is most effective to determine the adaptability degree of the development of an enterprise, possibly calculating indices of economic and market adaptability, as well as a generalized index of adaptability [227, p. 98].

The economic adaptability index  $I_{ea}$  (5.1) describes the ability of a trade enterprise to implement an adaptability strategy in practice and not lose profit from the sale of products:

$$I_{ea} = \sum \Pi_{ij} - R - \frac{\Delta R}{\sum \Pi_{ij}}, \quad (5.1)$$

where  $\sum \Pi_{ij}$  – the total profit received from the implementation of the  $i$ -th product in the  $j$ -th segment;  $R, \Delta R$  – total and additional investment (directed from net profit), necessary for the implementation of adaptability, respectively.

The index of market adaptability of the enterprise  $I_{ma}$  (5.2) is an indicator reflecting the compliance of the range of consumer demand.

$$I_{ma} = \frac{k_{ms}}{k_{ma}}, \quad (5.2)$$

where  $k_{ms}$  – the sales volumes in the market (in the segment) for the development and implementation of adaptation measures,  $k_{ma}$  – the sales volumes in the market (in the segment) after the development and implementation of adaptation measures.

The generalized index of adaptability (5.3) can be represented by the ratio of economic and market adaptability indices:

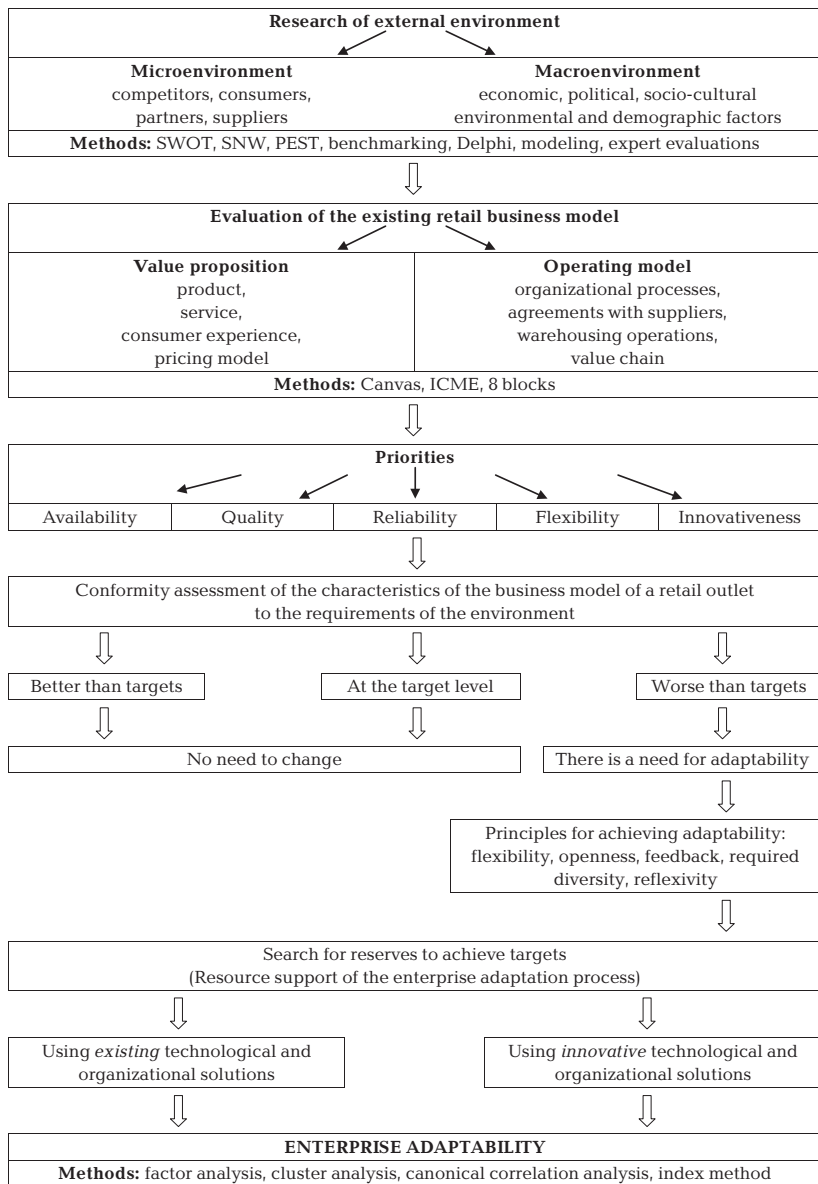
$$I_a = \frac{I_{ea}}{I_{ma}}, \quad (5.3)$$

Formation of a deep understanding of the external environment of the trade enterprise, its state, trends and development is possible subject to the use of such analysis methods as: SWOT analysis, SNW approach, PEST, benchmarking. To predict possible trends and predict future events, it is advisable to use extrapolation methods, scenario development, Delphi, modeling, expert assessments [234; 235]. It is possible to evaluate the effects of the expected changes in the external environment using the methods of direct and cross impact analysis, deductive and inductive analysis, the balance of interested forces, etc. [236]. None of these methods is comprehensive. The expediency of their application is determined by the dynamism of changes in the external environment and the specifics of the factors which influence is being studied.

The process of managing the adaptability of the business model of a trade enterprise provides the resources (own and attracted), natural, labor, financial, informational, technological, and other resources spent on it. To return the internal environment of the trade enterprise to an equilibrium state, restoring the orderliness of the interaction of the components, overcoming the internal resistance to change, additional resources are necessary, the amount of which can be given formalized in the form (5.4):

$$P_{e.a.} = P_{i.o.} + P_{i.r.} + P_{res.}, \quad (5.4)$$

The generalization of the considered prerequisites, principles and methods of regulating the interaction of the enterprise with the external environment allows to define actions, the consistent implementation of which will allow the business model of the trading enterprise to adapt to changing conditions (Fig. 5.4).



**Fig. 5.4** Mechanism for managing the adaptability of the business model of a trade enterprise.

*Source: compiled by the author*

Thus, as can be seen from Fig. 5.4, the main stages of managing the adaptability of the business model of a trade enterprise are as follows: 1 — the study of the micro and macro environment in which the enterprise operates; 2 — assessment of the existing business model and verification of its compliance with the value expectations of customers; 3 — prioritization based on the interests of key stakeholders; 4 — comparison of the characteristics of the enterprise, its value proposition and market requirements; 5 — deciding on the need for adaptability; 6 — development of principles for managing the adaptation process; 7 — search for reserves necessary for the practical implementation of certain tasks; 8 — implementation of a set of measures to ensure the adaptability of the enterprise.

Thus, the formation of the mechanism of value-based management of a trade enterprise contributes to obtaining a synergistic effect as a whole for the whole enterprise, since it ensures interconnection and interaction between its departments and various areas of their activities.

## **5.2 Development of a project management standard in the enterprise value management process**

The desire for effective project management is gradually transformed in many enterprises in an attempt to build a unified project management system that integrates all levels of enterprise development management from strategic to operational.

Projects are the main organizational form of implementation of changes in the enterprise. But effective management only at the level of individual projects does not always ensure the achievement of the goals of the enterprise in an optimal way. A common situation is when goals at the level of individual projects are achieved, and goals at the enterprise level as a whole with the implementation of a common development program are not. The reason for this may be the inconsistency of the goals of individual projects within the framework of the implementation of the enterprise development program, inconsistency and even contradiction of the goals of various development projects.

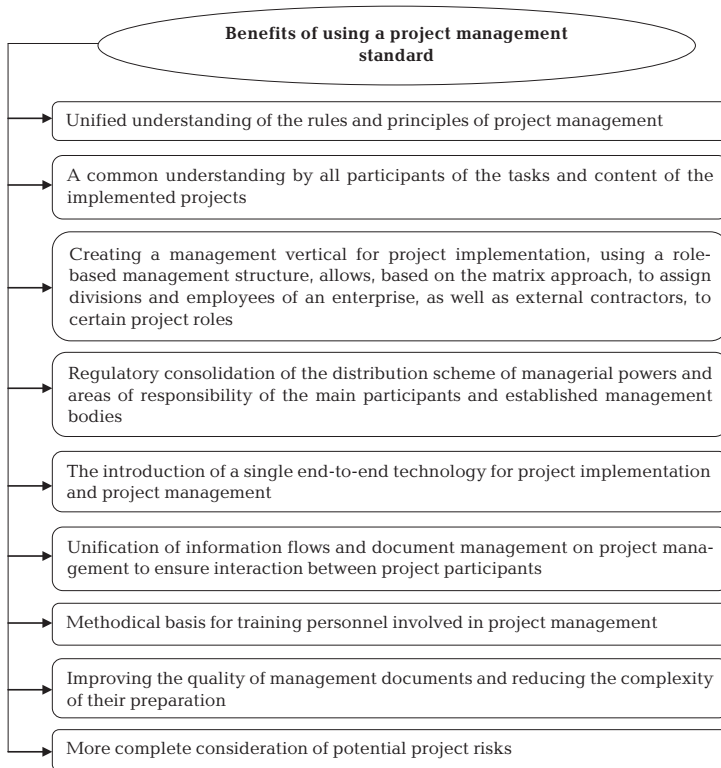
To achieve the maximum effect of project management at the enterprise will allow the integrated application of project management approaches at all levels of management and decision-making at the enterprise. In this regard, a project management standard has been developed as a set of professional project management methods and procedures aimed at supporting and increasing the efficiency of project management processes in trade enterprises. The developed provision can be implemented as a regulatory organizational document and its application is mandatory for all project participants in the process of managing a trading enterprise.



The goal of the project management standard is ensuring the efficient use of time, human and financial resources allocated to enterprise projects through competent planning, organization and control of project implementation (Fig. 5.5).

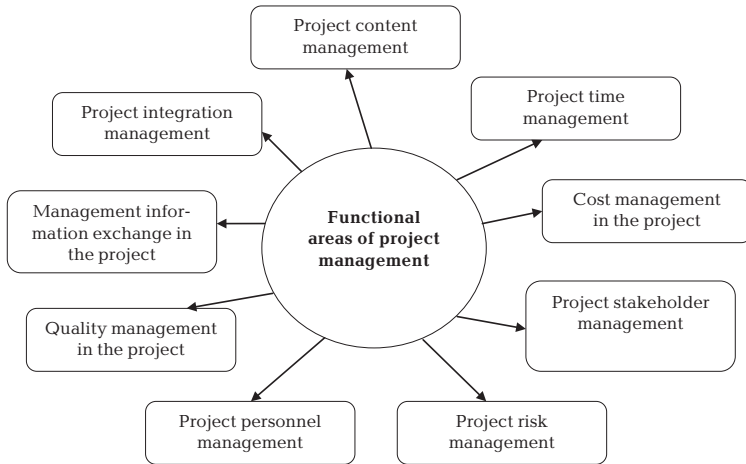
Project management includes a set of processes of initiation, planning, organization of implementation, monitoring and completion of the project. As part of the project management processes, actions are taken that relate to the functional areas of project management (Fig. 5.6).

The sequence of project management processes is determined by the relevant projects (Fig. 5.7), while: the project must begin with the project initiation process; the project must end with the project completion process; execution of processes for organizing the execution and control of a project begins no earlier than the planning processes.

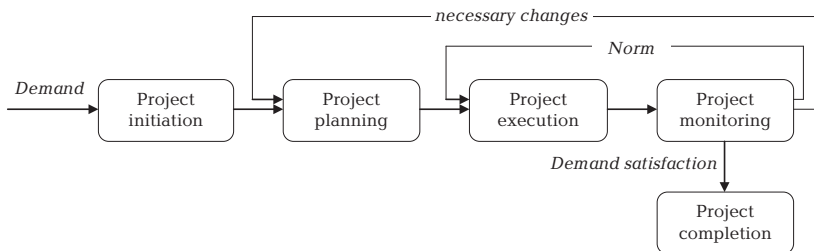


**Fig. 5.5** Advantages of using the project management standard in trade enterprises in the enterprise value management process.

*Source: compiled by the author*



**Fig. 5.6** Functional areas of project management in trade enterprises.  
*Source: compiled by the author*



**Fig. 5.7** The sequence of project management  
 in the enterprise value management process. *Source: compiled by the author*

Having considered the sequence of project management processes, it is advisable to carry out the distribution of responsibility between the parties concerned at each stage of the project implementation at the trading enterprise (Table 5.1).

The next stage is the classification of projects in the framework of enterprise value management, used to determine the class of the project during its initialization.

In this standard, we propose to classify projects by scope and complexity. By scope, projects are classified as construction, investment, engineering, marketing, organizational, information technology, procurement, and the like. The choice of key specialists and the appointment of one or more project coordinators (responsible for the scope of the project) depend on the scope.

**Table 5.1** Matrix of responsibility for each element of the development project in the process of managing the value of the enterprise

	Project initiator	Project manager	Direction manager	Pricing and budget monitoring manager	Deputy Director General for the Direction/Director General	HR Manager	Purchasing Manager	Quality manager	Lawyer
1	2	3	4	5	6	7	8	9	10
<b>Stage 1. Project initiation</b>									
1.1 Application for project initiation	E				D				
1.2 Description of the project	E								
1.3 Economic justification of the project	E	M			D				
1.4 Development of the project charter	M	E							
1.5 Approval of the project charter	M	M	M		D				
1.6 Identifying project stakeholders		E	C	C					
1.7 Definition and appointment of a project manager	M	M	M		D				
<b>Stage 2. Project planning</b>									
2.1 Developing a Project Management Plan	C	D	M	M		M	M		
2.2 Requirements collection	C	D	M	M		M	M		
2.3 Content definition	C	E	M						
2.4 Creating a hierarchical work structure		D	M						
2.5 Definition of operations	C	D	E						
2.6 Sequence definition	C	D	E						
2.7 Resource assessment operations		D	E	M					
2.8 Estimation of the duration of operations		D	E						
2.9 Schedule development		D	M						
2.10 Cost valuation		D	M	E					
2.11 Budget		D	M	E					
2.12 Quality planning		D	M					E	
2.13 Developing a human resource management plan		D	M			E			
2.14 Communication planning	D	E	M						
2.15 Risk management planning		D	M	M					M
2.16 Risk identification	M	M	M	M		M	M	M	M
2.17 Qualitative risk analysis		E	M						
2.18 Quantitative risk analysis		E	M						
2.19 Risk response planning		D	M				E		
2.20 Procurement planning		D	C				E		

Continuation of Table 5.1

1	2	3	4	5	6	7	8	9	10
<b>Stage 3. Project execution</b>									
3.1 Project execution management		D	E						C
3.2 Quality assurance			M						E
<b>Stage 3. Project execution</b>									
3.3 Team recruitment		D				E			
3.4 Project team development		E				M			
3.5 Project team management		E							
3.6 Managing the expectations of project stakeholders		D	B						
3.7 Procurement		D	M				E		C
<b>Stage 4. Project monitoring and management</b>									
4.1 Monitoring and project management		E	C					M	
4.2 Implementing general change management		E	C	C				M	
4.3 Content confirmation	M	D	E						
4.4 Content management		E	M						
4.5 Schedule management		D	C						
4.6 Cost management		D	C	B					
4.7 Preparation of performance reports		D	C						
4.8 Monitoring and Risk Management		D	M						
4.9 Procurement Management		D	C				E		C
<b>Stage 5. Project completion</b>									
5.1 Completion of the project or phase	M	E	M						
5.2 Closing purchases		D	M	M			E		C

From the class of complexity of the project depends on the conditions of detail in the planning and monitoring of projects. In Table 5.2 lists the criteria for the classification of projects are given. The project class affects its complexity, which, in turn, requires advanced project management.

Simple projects (class 1) are characterized by a low complexity degree and a low uncertainty degree. In class 2 projects are characterized by a high complexity degree. Complex projects (class 3) are characterized by a high complexity degree and a high uncertainty degree. Complex projects include several complex and/or simple projects. For each of the criteria, an appropriate weighting factor is put in the project classification columns. Then weights are summed for each of the columns (simple, complicated, complex). In which of the columns the sum of the weighting factors is greater, that is the project. The classification of projects «Simple», «Complicated» or «Complex» influences further the processes of planning and monitoring projects.

**Table 5.2** Criteria for the classification of projects in the enterprise value management process

Criterion	Weight coefficient, %	Project classification		
		Class 1	Class 2	Class 3
		Simple	Complicated	Complex
Specialization	8	The company has specialists	The company can attract specialists	The company needs to train specialists
Product uniqueness	11	The company is created	Created other domestic enterprises	Any domestic company created
Technology	11	The company has technology	An enterprise can acquire technology	The company needs to create technology
Organization*	13	≤ 10 people	≤ 100 people	> 100 people
Implementation period	19	≤ 3 month	≤ 1 year	> 1 year
Remoteness	18	Kyiv	Ukraine	World
Cost	20	≤ 100 thousand USD	≤ 1 million USD	> 1 million USD

\* Organization of all human resources, including the project team

The next stage is advisable to consider in more detail the stages of project management.

At **stage 1 «Project initiation»**, the procedure for defining and approving new projects at a trade enterprise is established.

**The purpose of this stage** is detailing the processes that are being performed to define a new project or a new phase of an existing project by obtaining permission to start a project or phase; decision-making by the customer and the contractor on the commencement of work, obtaining permission from the customer and the contractor to use resources in the project

**The objectives of the first stage are:** the definition of the initial goals and content of the project; determination of the initial financial resources of the project; identification of internal and external project stakeholders who will interact and influence the overall project outcome; the appointment of a project manager; development and signing of the project charter.

**Stage 2 «Project planning»**, the development of a project management plan and project documents should take place with the involvement of all project stakeholders.

**The purpose of this stage** is determination of the requirements of the project and the content of the project work.

**The objectives of the second stage are:** definition of project results; development and publication of a statement of project content; coordination of the project budget; definition of design operations and calculations; schedule development; identification of specific professional skills and resources necessary to perform project tasks.

The results of this stage are:

a) requirements for the project by the customer, other interested parties of the project, as well as legislation and regulations; identified, analyzed as far as possible their implementation, agreed with the customer of the project and documented;

b) defined, agreed with the customer and documented key data on the product of the project, namely: 1) the purpose, properties and characteristics of the product; 2) criteria and methods for accepting the product of the project and its components; 3) assumptions and exceptions related to the project product;

c) the work of the project, as well as the assumptions and exceptions relating to the work of the project, are defined, agreed with the customer and documented.

This stage is obligatory for application by all employees of the enterprise who participate in planning of projects.

The development of a project management plan includes a preliminary assessment and description of the following stages: determining the hierarchical structure of the project work (HSW); defining project points; calendar schedule of the project; project cost plan; project quality plan; project resource plan; project team management plan (Fig. 5.8).

**Stage 3 «Project execution»** is mandatory for use by all employees of the company who participate in the project implementation.

The purpose of this stage are: the implementation of works defined in the project management plan to fulfill the project requirements; determine which processes are needed for a particular project; coordination of people and resources, as well as the integration and implementation of project operations in accordance with the project management plan.

The tasks of the 3rd stage are: creation and completion of the project team; management of the project team; obtaining other project resources; holding status monitoring meetings; project development management; quality assurance.

During project execution, it may be necessary to make changes to the plan and adopt a new baseline. These may include changes in the duration of an operation, changes in performance and availability of resources, and unforeseen risks. Such changes may affect the project management plan or project documents, and may also require detailed analysis and development of an appropriate management response. The results of the analysis may lead to change requests, which, if approved, may cause a change in the project management plan or other project documents and may require the creation of new baselines. A large part of the project budget is spent on the implementation of project execution processes.

*The recruitment of a project team* provides confirmation of the availability of human resources and the recruitment of a team necessary to complete the project tasks.

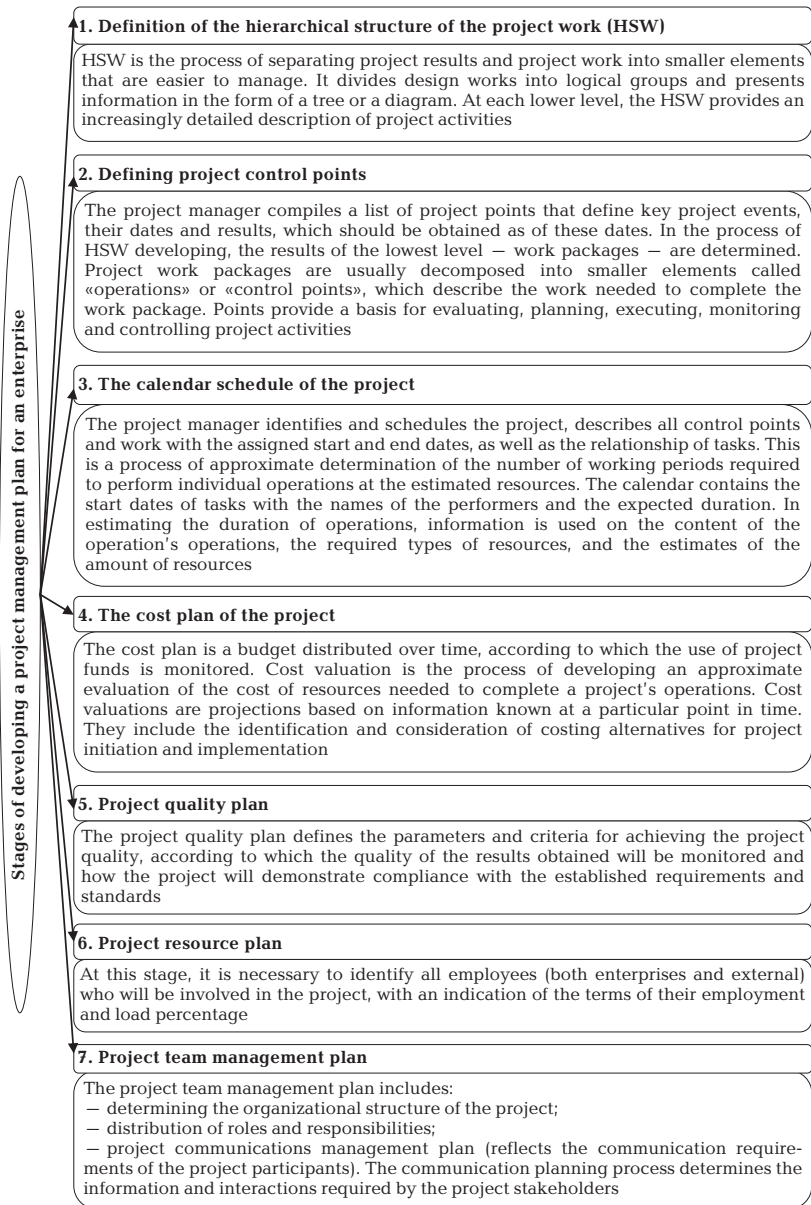
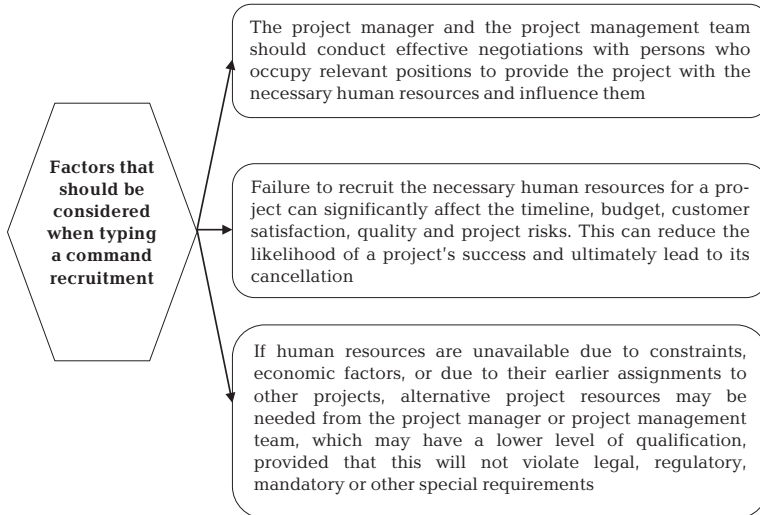


Fig. 5.8 Stages of developing a project management plan for a trade enterprise.

*Source: compiled by the author*

The project management team may or may not have direct control over the selection of project team members, since this is influenced by collective labor contracts, use of subcontractor personnel, the matrix project environment, internal or external accountability relationships, or other reasons (Fig. 5.9).



**Fig. 5.9** Factors that should be considered when recruiting a project team in the enterprise value management process. *Source: compiled by the author*

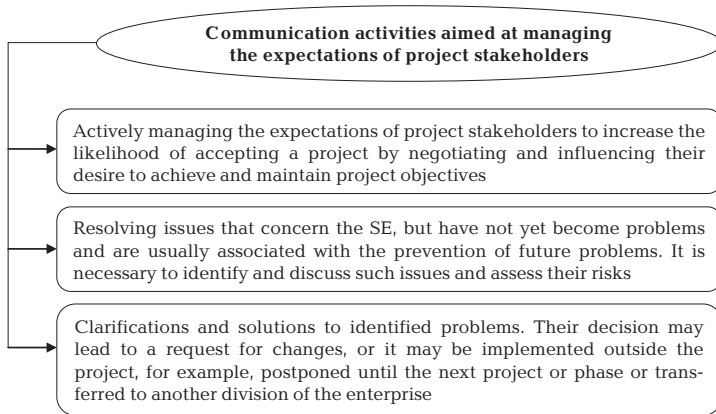
*Managing project stakeholder expectations* (SE) involves communicating and working with project stakeholders to meet their needs and solve problems that arise. Managing the expectations of project stakeholders provides for communication actions aimed at influencing the expectations of project stakeholders and solving issues and problems that concern them (Fig. 5.10).

Stage 4 «Monitoring and project management» is mandatory for use by all employees of the company who are involved in monitoring and managing the project.

**The purpose of this stage** is tracking, analysis and regulation of the progress and effectiveness of the project, identify those areas where changes to the plan are required, and initiate the corresponding changes.

**The objectives of the 4th stage are:** measurement of implementation in accordance with the plan; performing corrective operations in case of exceeding the limit of indicators; evaluation of the effectiveness of corrective operations; ensuring that the project is progressing as planned; assessment and implementation of changes.





**Fig. 5.10** Communication activities aimed at managing the expectations of project stakeholders in the enterprise value management process.

*Source: compiled by the author*

Project execution is monitored and measured regularly and thoroughly in order to identify deviations from the project management plan. The project monitoring and management procedure includes:

- management of changes and development of recommendations for the implementation of measures of action regarding possible problems;
- monitoring the compliance of the current work of the project with the project management plan and the basic project execution plan.

Changes to the project are accompanied by two important documents:

- *change request*. This document describes the nature of the change, the projected impact on the project, the category of change; it must also clearly confirm the legitimacy of the request, and it is precisely the consistency of the change to the basic conditions of the project, legislation, etc. The document is in circulation before making a decision on whether or not to make the change;

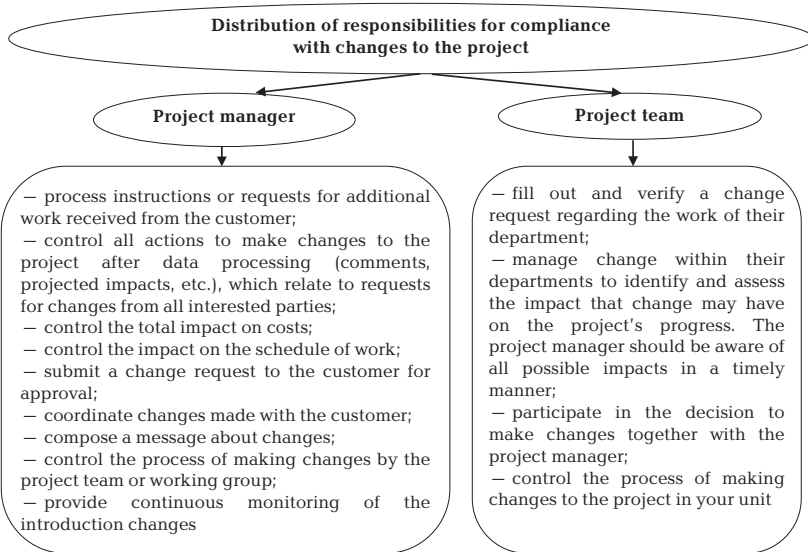
- *change message*. This official document is prepared by the project manager or administrator at the instruction of the project manager; it contains a description of the decision and actions to be taken in case of changes to the project.

If the change procedure is followed, the project manager and the project team are responsible (Fig. 5.11).

There are four main stages involved in a change procedure: initial, evaluation, approval, and implementation.

**The initial stage** (the formation of a request for a shift) can be initiated either by the customer or by the project team or subcontractors. Changes initiated by the customer. As soon as the project manager receives

instructions or requests for additional work from the customer, it makes a request for changes and sends it to the budgeting officer, who, in turn, registers and distributes it among interested employees.



**Fig. 5.11** The distribution of responsibilities for compliance with the changes between the manager and the project team at the trade enterprise.

*Source: compiled by the author*

*Changes initiated by the project team or subcontractors.* Any team member who deems it necessary to make changes to the project must submit a request for changes. Depending on the situation, this request is sent to the project engineering manager, project coordinating engineer, who must approve the request and forward it to the project manager. The project manager evaluates the request, determines its category and decides whether to initiate or not initiate a change. If the project manager decides not to make changes, it must return the request for changes to the employee who initiated it, with a detailed explanation of his decision. In the case of a positive decision, the project manager fills out a request for a change, registers it and sends it to everyone, this applies.

**Evaluation stage** (evaluation of the impact on the shift). All technical comments, cost impact evaluation and schedule prepared by the project engineering manager, project coordinating engineer and construction manager are sent to the project manager.

**Stage of decision/approval** (approval of the change). The project manager conducts the final processing of the information received and decides

whether to make an additional assessment of the possible impact of the change or about accepting the assessment received.

Category 1 is changed as follows: as soon as the project manager accepts the valuation, it forwards the request for a change to the customer. The customer decides whether to approve or partially approve or fully approve the request and reports its decision to the project manager. That, in turn, completes the design of the request, based on the instructions received from the customer.

When category 2 changes, the project manager fills in only one part of the request, namely, the «decision made after the valuation».

**Implementation stage** (implementation of the change) provides for making decisions on such reactions to changes: changes, rejected by the customer; changes, partially agreed by the customer; changes agreed with the customer.

*When a change is rejected by the customer*, the project manager analyzes the motivation of the customer's refusal and can take one of the following decisions: start the negotiation process with the customer; provide the customer with another option for assessing the impact of the change; transfer the shift from category 1 to category 2.

Provided that *the changes are partially agreed by the customer*, the project manager should act as described above for the rejected part. For the approved part, the project manager should act as described below.

When changes are agreed with the customer, the project manager prepares a message about the change and distributes it to the project team members. This message should contain all the necessary information about making changes to the project.

If the project manager does not accept the results of the conducted valuation of the impact of the change on the project, then it can:

- 1) cancel this change;
- 2) conduct negotiations with the parties involved, and, in the case of the impossibility of reaching a consensus, to ask for the resolution of the dispute to the heads of departments of the enterprise.

The input resources and data for general change management are: a project management plan; information on the performance of work; change requests; environmental factors of the enterprise; organization process assets.

The results of general change management are: updating the status of change requests; update project management plan; updating project documents, including a change request log and any documents that are subject to a formal change management process.

*Confirmation of the project content* provides a formalized acceptance of completed project results.

Confirmation of the content includes checking the results together with the customer and the initiator to ensure that they are satisfactory and formally accepted by the customer.

Source resources and data to confirm the content of the project: a basic plan for the content; requirements documents; requirements tracking matrix; confirmed results.

The results of the confirmation of the project content: accepted results; change requests; updating project documents – project documents that can be updated as a result of the content validation process include any documents identifying the product or reporting on the status of completion of the product.

*Project content management* ensures that all requested changes and recommended corrective and preventive actions are handled as part of the overall change management process. Project content management is also used to manage actual changes as they occur; it is integrated into other management processes. Unmanaged changes are often referred to as «project content shifting». Changes are inevitable in any case, and therefore a change management process is necessary.

Input resources and data for managing project content: a basic content plan; content management plan; change management plan; configuration management plan; requirements management plan; information on the performance of work; requirements documents; requirements tracking matrix; organization process assets.

The results of the project content management are: the results of measuring the performance of work; update assets of the organization; change requests; update base plan; updating documents on requirements; requirements tracking matrix updated.

*Schedule management* provides for monitoring the status of the project to assess its implementation and manage changes to the baseline schedule. Schedule management is associated with:

- a) determining the current state of the project schedule;
- b) impact on factors causing schedule changes;
- c) determining the facts of the project schedule change;
- d) management of actual changes in the extent of their occurrence.

Schedule management is an element of the overall change management process.

Input resources and data for managing the project schedule: schedule management plan; basic schedule; project schedule; information on the performance of work; organization process assets.

The results of the project schedule management are: the results of measuring the performance of work; update assets of the organization; change requests; update base schedule; update schedule management plan; cost base renewal; update schedule data; update project schedule.

*Cost management* involves monitoring project status to adjust the project budget and make changes to the base plan at a cost.

Budget adjustments are related to recording actual expenses on a specific date. Any increase in the authorized budget can only be approved

through the overall change management process. Monitoring expenditures without taking into account the amount of work performed in connection with these costs is of little value to the project, unless it allows the project team to stay within the approved budget. Thus, most of the cost management activities are related to the analysis of the relationship between the expenditure of project funds and physical work that is performed in connection with these costs. A key element of effective cost management is the management of an approved baseline cost implementation plan and changes to this baseline plan.

The initial resources and data for managing the cost of a project are: a basic cost execution plan; cost management plan; project financing requirements; information on the performance of work; organization process assets.

The results of the project cost management are: the results of measuring the performance of work; budget forecasts; update assets of the organization; change requests; update of the base plan for cost execution; updated cost management plan; update cost valuations; update basis for ratings.

*The preparation of project performance reports* includes the collection and dissemination of information on implementation, including status reports, performance measurement results and forecasts.

The process of preparing performance reports includes the periodic collection of actual data and their comparison with the baseline to evaluate the progress of the project and its implementation, transfer this information, and forecast the project results. Performance reports should provide information at the appropriate level for each audience. Their format can vary from a simple current status report to more detailed reports.

A simple report on the current status may contain such information on implementation as a percentage of completion or data on the current status of each area (i. e., by content, time, cost and quality).

Input resources and data for the preparation of project execution reports: basic implementation plan; information on the performance of work; measurement results of work performance; budget forecasts; organization process assets.

The results of the preparation of project performance reports: performance reports; update assets of the organization; requests for changes.

*Monitoring and risk management* involves applying risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating the risk management process throughout the project.

The planned risk response actions that are included in the project management plan are executed during the project life cycle; it is also advisable to conduct ongoing monitoring of the project's works in order to identify new risks, altered risks and risks that have lost their relevance.

Input resources and data for monitoring and managing project risks: risk register; risk management plan; information on the performance of work; performance reports.

The results of monitoring and managing project risks are: updating the risk register; update assets of the organization; change requests; update project management plan; update project documents.

*Management of the project procurement activities* involves managing relationships with vendors, monitoring the implementation of contracts and, if necessary, making changes and adjustments.

The procurement management process ensures that the seller fulfills the procurement requirements and the buyer of its obligations under the contract. In large projects involving collaboration with several suppliers, a key aspect of contract administration is managing the interaction between different suppliers.

Input resources and data for project procurement management: procurement documentation; procurement management plan; contract; performance reports; approved change requests; information on the performance of work.

The results of the project procurement management are: procurement documentation; update assets of the organization; change requests; update procurement plan; update base schedule.

**Stage 5 «Project completion»** is mandatory for use by all employees of the company who are involved in the completion of projects.

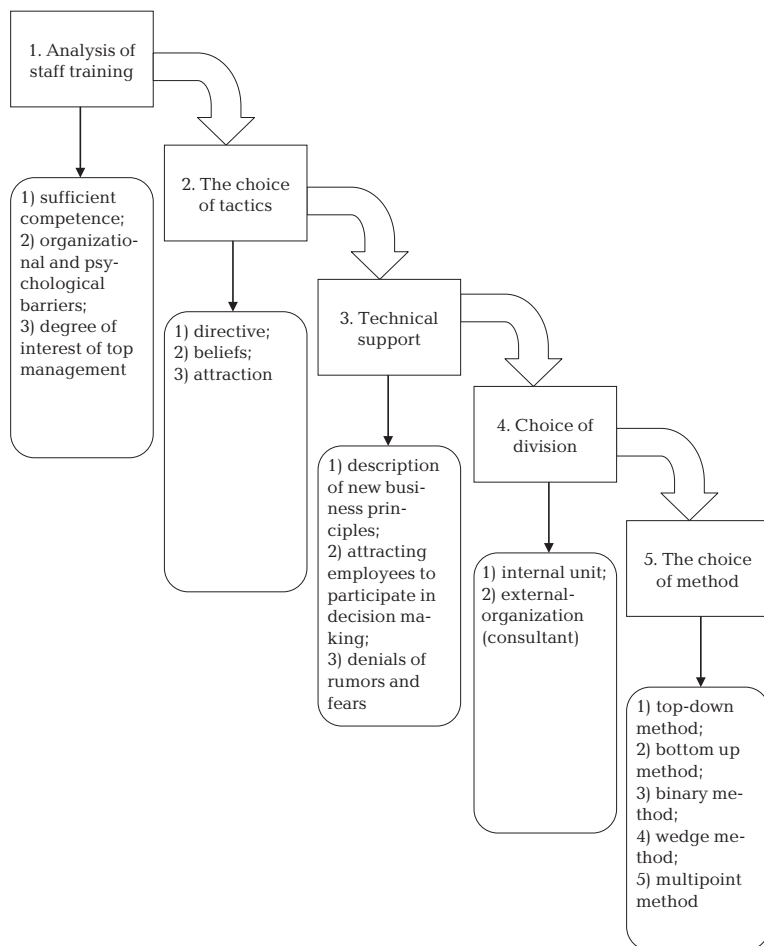
**The purpose of this stage** is to: confirm that the processes identified during all phases, as required to complete the project or project phase, formally establish that the project or project phase has been completed.

**The objectives of the 5th stage are:** receiving results by the customer or initiator; analysis after the end of the project or phase; archiving of reporting documents; making necessary changes to the assets of the organization's processes; closing procurement, release of project resources.

### **5.3 Organizational and economic support of the value-based management implementation process in a trade enterprise**

The introduction of value-based enterprise value management is quite complex management tasks, involves the formation of a set of organizational and economic preconditions that contribute to gradual positive changes in its activities. A prerequisite for effective management is the establishment of clear objectives and the orientation of all participants in the process towards certain results.

The implementation of the principles of value-based management in a trade enterprise will be effective, provided it is carried out systematically in all the main areas of the enterprise's life. The implementation process of the principles of value-based management at a commercial enterprise covers a range of activities, shown in Fig. 5.12.

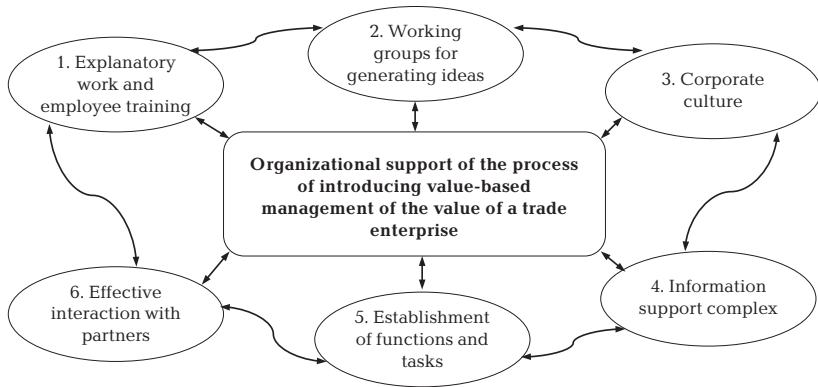


**Fig. 5.12** The process of introducing value-based value management of a trade enterprise. *Source: compiled by the author*

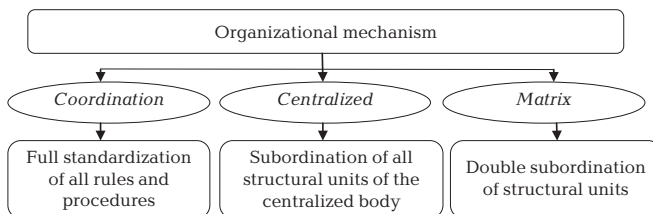
The purpose of the organizational support of the process of introducing value-based management of the value of a trading enterprise is creating, first of all, an organizational structure that will meet the objectives of the enterprise. The effectiveness of value-based management essentially depends on both «hard» and «flexible» elements of the organizational structure. The «hard» elements include a hierarchy of distribution of decision-making authority, staffing and coordination mechanism. The «flexible» methods include beliefs, values, leadership style.

The process of introducing a value-based approach in an enterprise involves attracting all departments of the enterprise, because value-based management is aimed at forming a new business paradigm, and the associated transformations are progressive and systemic. One of the key points is the formation of a vision and awareness of the benefits of such changes among the personnel and partners of the enterprise. Organizational support of the process of introducing value-based management of the value of a trade enterprise provides for the implementation of a number of activities (Fig. 5.13).

The key issue of forming the mechanism of value-based management of a trade enterprise is the development of its organizational structure. There are three types of organizational mechanisms: coordination, centralized and matrix, each of which has its own characteristics (Fig. 5.14).



**Fig. 5.13** Organizational support of the process of introducing value-based management of the value of a trade enterprise.  
*Source: compiled by the author according to [17]*



**Fig. 5.14** Types of organizational mechanism. *Source: compiled by the author*

In practice, a particular type of organizational mechanism is quite rare. It is more expedient to integrate various types of organizational mechanisms depending on the goals of its functioning. Therefore, being guided by the



goals of the mechanism of value-based management of a trading enterprise, it is proposed to create a coordinating body of a matrix type that ensures the integral functional links between departments of an enterprise to ensure its functioning.

The activities of the coordinating body should be supported by relevant regulations and organizational and administrative documents defining the rules for diagnostics, monitoring and analysis of value for this unit, the procedure for providing management of the enterprise with measures to maximize value. The main characteristics of the structure of the mechanism of value-based management should be as follows:

- the whole mechanism is distributed to manage the processes of value creation for various groups of value influence. To do this, it is necessary to appoint a person from among the most experienced employees of the system responsible for the development of a certain direction – the responsible executive;
- the responsible executive in the field of work to ensure the maximization of value for a specific group of value influence is subject to all employees whose duty is to implement these functions;
- general management of the mechanism of value-based management of a trade enterprise is carried out by top managers of the enterprise. The company management creates a coordinating council, which includes the heads of departments and executives. For each responsible executor, responsibilities are fixed for organizing an analysis of the quality of implementation of the functions of the control elements by the value creation process. The results of the analysis and its results are discussed and approved by the coordination council.

The proposed structure of the mechanism of value-based enterprise management of trade is well combined with the very structure of the system, provides management flexibility, aims to achieve high quality management. Each responsible executive with such a structure organizes the implementation of all necessary work to manage the development of individual functions of the management mechanism.

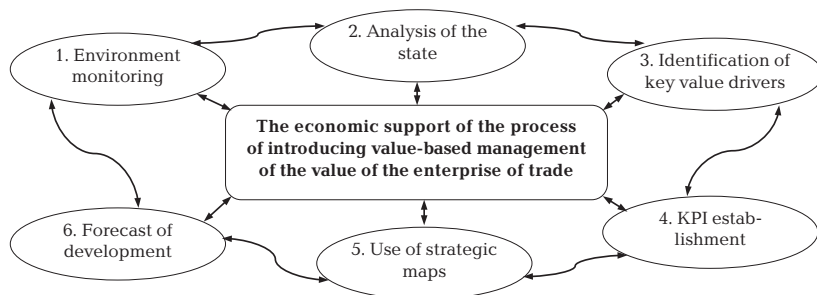
The goal of economic support of the process of introducing value-based management at a trade enterprise can be defined as the formation of economic incentives to ensure the conditions for the implementation of the planned changes. The constituent elements of economic support for the implementation of value-based management are presented in Fig. 5.15.

The interpenetration and interaction of economic and organizational elements form the organizational and economic support of the process of introducing value-based management of the value of a trade enterprise, which is an important condition for improving the efficiency of management as a whole.

On the basis of the considered prerequisites for the introduction of value-based value management of a trading enterprise, it is expedient to

develop practical measures. To this end, we will develop strategic maps for the implementation of the principles of value-based enterprise value management, combining enterprises into 3 groups:

- Group A – «companies with a sufficient level of value»;
- Group B – «companies with a satisfactory level of value»;
- Group C – «enterprises with an unsatisfactory level of value».



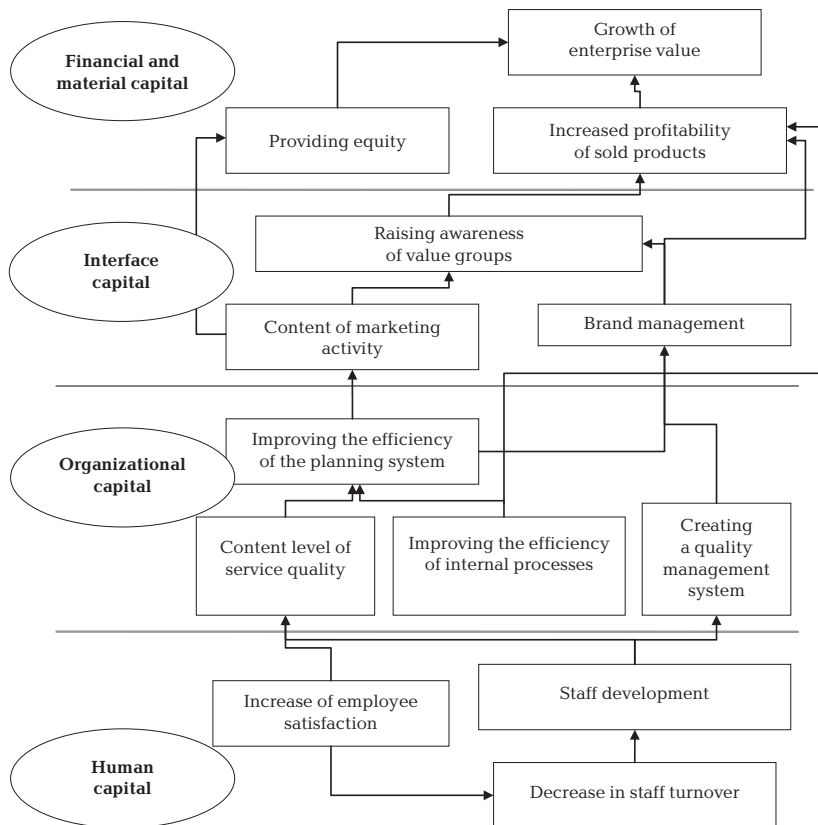
**Fig. 5.15** The economic support of the process of introducing value-based management of the value of the trade enterprise.

*Source: compiled by the author on the basis of [320, 321]*

Group A enterprises are characterized by a fairly high level of financial status, sufficient employee potential and quality management. In this regard, the performance of these enterprises does not require significant changes. Fig. 5.16 shows the proposed strategic map for the implementation of value-based value management in enterprises of Group A, and Appendix E provides a system of indicators of value drivers. For the enterprises of group B, a satisfactory level of management and financial condition is inherent. The proposed strategic map (Fig. 5.17) contains changes in each driver, which are reflected in their respective indicators (Appendix F). Group C enterprises are in a rather difficult economic situation, they are characterized by a low level of employees' potential and a range of goods/services is uncompetitive. In this regard, the strategic map for these enterprises (Fig. 5.18) contains a number of tasks to improve the basic processes of value creation, which is reflected in the indicators proposed in Appendix G.

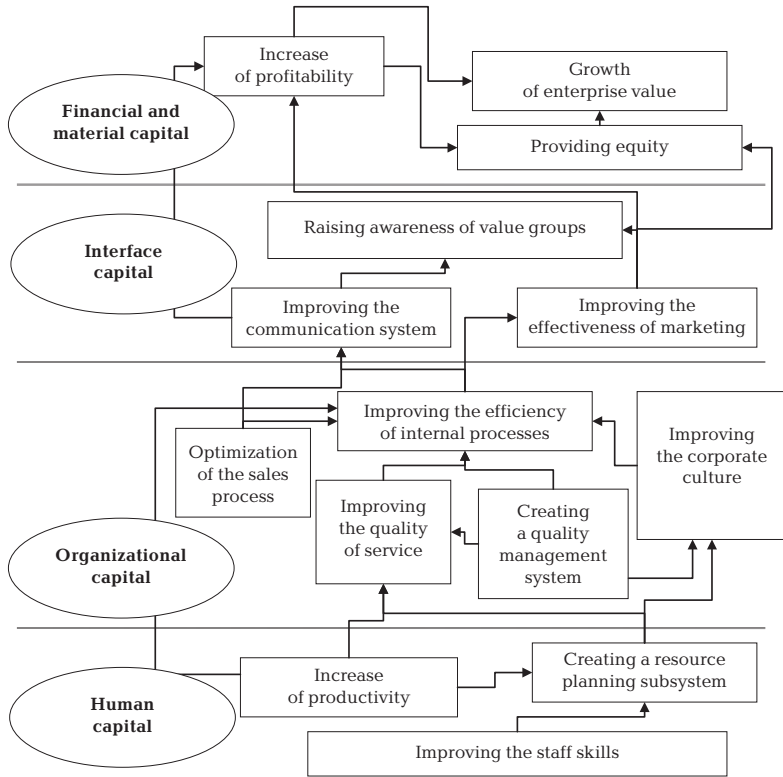
The success of the implementation of the concept of value-based cost management depends on the clear definition of key performance indicators (KPI). The basis for the KPI development is an enterprise strategy and business model. At the same time, the interrelation of financial indicators of value creation with operational ones and balance of the system of indicators should be ensured. The process of implementing and supporting the vital functions of a KPI system is determined in the following stages:

1st – formulating a strategy; 2nd – identification of the most important success factors; 3rd – decomposition (cascading) and evaluation of balanced key indicators; 4th – KPI implementation, analysis and monitoring; 5th – preventive assessment and signaling of possible KPI non-compliance; 6th – initiatives and actions that may affect the achievement of planned indicators.



**Fig. 5.16** Strategic map of value-based value management for enterprises of group A.  
*Source: compiled by the author*

The work of planning, monitoring, analyzing and controlling a KPI system can be a large part of the workload of the controlling department. Other managers participating in the monthly KPI implementation meetings may receive information on the actual values of the indicators.



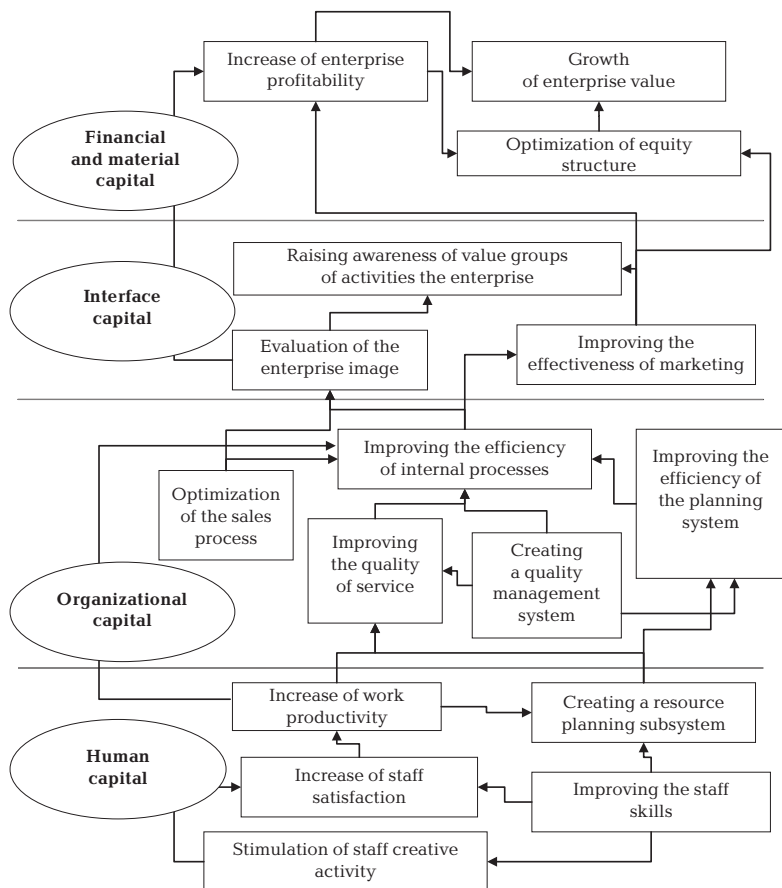
**Fig. 5.17** Strategic map of value-based value management for enterprises of group B.  
 Source: compiled by the author

We propose to measure the economic effect from the introduction of the mechanism of value-based management of trade enterprises using formula (5.5):

$$Ei = Ccf - Ccs - Cm - Rs - Oc, \quad (5.5)$$

where  $Ei$  – the effect of the introduction;  $Ccf$  – cost of implementation exclusively by a consulting firm;  $Ccs$  – cost of consulting support for self-implementation;  $Cm$  – material costs of implementation;  $Rs$  – remuneration of staff working for implementation;  $Oc$  – other costs directly related to the project for the implementation of value-based management.

Thus, the result of the introduction of a value-based approach at a trading enterprise should contribute to gradual positive changes in its activities, continuous improvement and improvement of the efficiency of the enterprise.



**Fig. 5.18** Strategic map of value-based value management for enterprises of group C.

*Source: compiled by the author*

## 5.4 Methods of assessing the impact of the project portfolio on the value of the enterprise

The program-target approach can be applied in the formulation of development programs for trade enterprises, in which a complex of inter-related development projects is formed, limited by resources, terms and performers, and united by a single feature of the object. Thus, the program-based management of the enterprise should be directed to the development of a development program, within which a portfolio of development

projects should be formed. The implementation of a target program (or a portfolio of development projects) implies the achievement of specified results in solving the development tasks set by the enterprise.

In order to understand what a trade enterprise seeks to achieve in the development process, first of all, it is necessary to determine development priorities, taking into account the state of the system (that is, in our case, trade enterprises) and establish criteria by which development should be assessed (and as a result on the value of the trade enterprise).

One of the main criteria for efficiency and value for an enterprise project portfolio is how it affects the value of a business. This valuation most often consists in analyzing changes in the key parameter, which is adopted as a criterion of value for the business. Portfolio analysis of the intrinsic value of the enterprise contributes to the implementation of management aimed at maximizing the value of the business.

We propose to consider the creation of a portfolio of trade enterprise projects (grouped by a certain attribute) as one of the possible ways to reduce the risk.

The role of the portfolio approach to managing a set of enterprise projects is that it allows you to mutually extinguish the risks associated with one or another form of enterprise projects. In order to solve this problem when forming a portfolio of projects, it is advisable to choose such directions, business activity in which is revived in different periods. It is advisable to create a portfolio of projects, the demand for which changes in opposite directions, that is, with an increase in demand for one type, the demand for another type decreases and vice versa.

Other things being equal, the more diverse the lines of activity that make up the «portfolio», the lower the risk. We also note that with the help of the formation of a portfolio of projects in the process of managing the value of an enterprise, it is impossible to neutralize the risk completely. This is due to the fact that the efficiency of the functioning of the enterprise is influenced by the processes occurring in the country and the economy as a whole, for example, expectations of a rise or crisis, movement of interest rates, tough government measures, etc. Risks caused by these processes can't be transformed through the formation of portfolio.

The fight against risk prompts to periodically change the composition of the enterprise's project portfolio. It is necessary to make this enterprise in the event that the difference between the incomes received and the expected incomes received as a result of the decision made or due to changes in market conditions becomes negative. The formal formulation of the problem is as follows. Let's suppose that there are  $n$  possible objects of investment – projects. Denote by  $E_j$  the expected income received from the  $j$ -th project, and by  $X_i$  – the share of funds invested in the  $i$ -th project. Then the expected income for the project portfolio option, which is considered, is equal to the weighted average expected income

from each of the projects, and the weights are the investment shares in the project:

$$I = \sum_{i=1}^I R_{Ei} \cdot I_i, \quad (5.6)$$

where  $I$  — the expected income of the project portfolio of the enterprise;  $i$  — the number of projects included in the portfolio;  $I_i$  — the expected income received during the implementation of the  $i$ -th project;  $R_E$  — the share of resources spent by the enterprise on the implementation of the  $i$ -th project (the volume of received resources, reserves for forthcoming expenses and other).

According to this concept, if there are two options for the distribution of portfolio items, the one that is characterized by less fluctuation in income is considered less risky. Thus, if the risk is determined by the variability of the expected amount of income, then a quantitative evaluation of the riskiness of investing funds in a direction is considered to be the dispersion of the possible amount of income from investing funds in this object. If  $C_{ij}$  means the variation of income received from the  $i$ -th and  $j$ -th investment direction, then the risk for the investment structure, which the investee has, can be expressed as a sum:

$$\sum_{j=1}^n \sum_{i=1}^n C_{ij} R_{Ei} = \sum \sigma_i^2 R_{Ei} + \sum_{j=1}^n \sum_{i=1, j=1}^n C_{ij} R_{Ei} R_{Ej}, \quad (5.7)$$

where  $C_{ij}$  — the variation of income received as a result of the implementation of the  $i$ -th and  $j$ -th projects;  $\sigma_i$  — the variance of the possible amount of income from the project;  $R_{Ej}$  — the share of resources spent by the enterprise on the implementation of the  $j$ -th project (the volume of received resources, reserves for forthcoming expenses and other).

The risks of non-receipt of the planned income from low market satisfaction, provided by this formula, depend on three factors: the risk of income from services to each project; income covariances; number of projects.

Risks are significantly reduced when, with an increase in the number of projects, the assets of an enterprise are distributed between different projects and project portfolios. However, the gain from the increase in the number of projects becomes less significant if it exceeds the threshold value. Risks are reduced in the case when the revenues from projects are pairwise independent (i. e.,  $C_{ij}$  is 0, if  $i$  is not 1), which is very typical for enterprises engaged in several activities. Analysis of the risk situation gives the company the opportunity to make a decision on the distribution of its resources among projects. In the economic literature it is often concluded that the decision on the distribution of resources is made, as a rule, under the influence of two factors:

the ratio between risk and income; an idea of the future of a particular business line.

Speaking of the first factor (the ratio of risk and income), it is advisable to note that diversification allows to balance the ratio of «risk-income» in various areas of the enterprise. In general terms, the risk-to-income ratio is directly dependent: the higher the income, the higher the risk. The task of management is correction of this ratio. The most successful option is the one that provides the vertical position of direct risk-income. In this case, the risk of non-receipt of income is fixed at a certain stable level.

It is important that in practice diversification has limits on the positive impact on the risk level. It can not only reduce it, but sometimes even increase it. This happens if the company invests in the activity in which its knowledge and management capabilities are limited. Therefore, it is necessary to resist the temptation to support an unsuccessful business at the expense of income received in other areas of activity. This practice can lead to the fact that all income will be spent on unprofitable activities.

The main features of project management of enterprises with several activities as a system of activities are: expansion of the list of projects of enterprises; geographical expansion of enterprises; the creation of a group of subsidiaries that implement projects in the financial, insurance, and production sectors. The combination of these actions creates opportunities for the company to reduce the risk of the project portfolio, increase sources of income, improve efficiency, reliability and competitiveness. It is necessary to highlight the main competitive advantages that are formed in the process of managing a portfolio of projects of enterprises. These include the following:

- implementation of sufficient to maintain competitive advantages in already existing market segments of projects and the formation of new projects;
- desire to strengthen its position in a competitive environment by obtaining additional benefits from the joint activities of existing and new divisions;
- reduction of risks due to their distribution between the various activities;
- possibility of obtaining greater profits than with the usual increase in the number of projects.

After coordinating all types of plans into a single document and optimizing the program in order to maximize the effect of its implementation on conducting financial and economic activities, the management is provided with a draft program with a detailed calculation of performance indicators.

It is worth noting that one of the main criteria for the effectiveness and value of the program for an enterprise is how it affects the value of the business as a whole or a specific unit. This valuation most often consists in analyzing changes in a key parameter, an accepted criterion of value for a business. In this regard, a method has been proposed that allows evaluating the contribution of a portfolio of projects to the value of a trade enterprise



through research on the effects of joint project implementation, and synergies and cannibalizations arise. Portfolio analysis of the intrinsic value of an enterprise contributes to the implementation of management aimed at maximizing the value of a business as one of the financial goals of an enterprise.

Let's propose to denote by  $Im$  (from the English impact – contribution, influence) estimated in value terms, the contribution of the  $m$ -th portfolio to the value. Each portfolio that is considered, include projects of trade objects, which are planned to be implemented. These projects affect the value through the direct creation of value, as well as the existing objects of trade. Valuation of the impact of the project on the value of the enterprise or unit can be represented as follows:

$$Im = \sum_{i=1}^K NPV_i + \sum_{j=1}^M VS_j + \sum_{j=1}^L V_k_j, \quad (5.8)$$

$$VS_j = mult \cdot \sum_{j=1}^M (EBITDA_{1j}^s - EBITDA_{0j}), \quad (5.9)$$

$$V_k_j = mult \cdot \sum_{j=1}^L (EBITDA_{1j}^k - EBITDA_{0j}), \quad (5.10)$$

$$mult = \frac{EV}{EBITDA} = \frac{MarketCap + Debt}{EBITDA}, \quad (5.11)$$

where  $i$  – the number of the project that is included in the portfolio;  $i = 1, 2, \dots(K)$ ;  $j$  – the number of the existing facility of the enterprise;  $NPV_i$  – the net present value of the  $i$ -th project;  $VS_j$  – contribution to the value of the enterprise from the synergy effect of the  $j$ -th operating facility of the enterprise;  $V_k_j$  – contribution to the value of the enterprise from the effect of cannibalization of the  $j$ -th operating facility of the enterprise;  $mult$  – enterprise value multiplier;  $EBITDA_{0j}$  – profit of the enterprise before deducting expenses for the payment of interest payments, taxes and amortization (EBITDA) of the  $j$ -th object in the period of time 0, when the synergy/cannibalization effect is not taken into account;  $EBITDA_{1j}^s$  – the value of EBITDA of the  $j$ -th object in time period 1, when the synergy effect is taken into account;  $EBITDA_{1j}^k$  – the value of EBITDA of the  $j$ -th object in time period 1, when the cannibalization effect is taken into account;  $EBITDA$  – the value of EBITDA in the whole enterprise;  $EV$  – an indicator characterizing the concept of value;  $MarketCap$  – the market value of the equity of the enterprise;  $Debt$  – the market value of an enterprise's debt.

In order to simplify the calculations, other components of the cost of capital included in the *Enterprise Value* (for example, the value of preferred shares) are not taken into account.

Thus, the contribution to the value of the enterprise can be represented as the sum of the net present value for all projects in the portfolio and the value expression of the effects of synergy and cannibalization for the existing facilities of the enterprise. For portfolio projects, all effects, including joint implementation, are included in the valuation of net present value. Since the NPV is additive, the sum of the values of the indicator for the portfolio is the cumulative contribution of the project portfolio to the value of the enterprise.

The implementation of a portfolio of projects affects some of the operating objects of trade. The effect of the portfolio implementation is in change the operating efficiency of the existing object is displayed on its profitability. A multiplier is used to evaluate the value expression of a synergy effect or cannibalization to the value of a change in EBITDA, which reflects value creation.

Let's offer an example to consider the application of the method of assessing the impact of a portfolio of projects on the value of the enterprise.

Let's assume that the trade enterprise has two portfolios of development projects: for branch A (projects X1, X2, X3, X4, X5) and branch B (projects Y1, Y2, Y3, Y4, Y5, Y6) that are planned to be implemented. The task of the enterprise is choosing a portfolio that forms a higher value for the enterprise. When implementing these portfolios, synergy and cannibalization effects occur. The synergistic effect is associated with savings in logistics costs, which is achieved when opening facilities in certain regions. The effect of cannibalization is due to a reduction in the turnover of some existing facilities as a result of placing a new facility in the zone of influence of the current one.

Let's present the calculation of the multiplier based on the public data of the company (conditional figures): *Market Cap* – 4843.24 million UAH; *Debt* – 3540.6 million UAH; *EV* – UAH 8383.84 million UAH; *EBITDA* – 1124 million UAH.

In this case, the *mult* value can be determined by the formula:

$$\begin{aligned} mult_k &= EV/EBITDA = \\ &= 8383.84 \text{ million UAH} / 1124 \text{ million UAH} = 7.45. \end{aligned}$$

The NPV values of the projects are given in Table 5.3.

The implementation of the project portfolio is accompanied by the emergence of synergy and cannibalization effects on the existing facilities of the enterprise. Since the effects of synergy and cannibalization are formed on the basis of the existing facilities of the enterprise, to the additional effect, which is expressed in increasing (decreasing) the value of EBITDA for certain objects of trade due to synergy/cannibalization, a multiplier is used to characterize the value creation of the business.

**Table 5.3** NPV value by trade enterprise development portfolio

Portfolio	Project NPV, UAH
Branch A (branch total cost)	432 152 406
X1	68 645 401
X2	74 267 841
X3	78 859 992
X4	110 830 840
X5	99 548 331
Branch B (branch total cost)	501 595 851
Y1	163 001 911
Y2	98 785 740
Y3	64 191 522
Y4	16 274 731
Y5	68 928 991
Y6	90 412 957

Thus, the assessment of the impact of the project portfolio on the value of the business allows to get a «net» effect from its implementation. In our case, the realization of the Branch *B* portfolio will have a greater effect.

To analyze the contribution to the value of the enterprise on the basis of the proposed method, appropriate calculations were made for existing projects for which there is either a synergy effect, or a cannibalization effect, or both effects (Table 5.4). Projects implemented in branch *A* are designated as  $A_1, A_2$ , etc.; projects that are implemented in branch *B*, designated as  $B_1, B_2$ , etc.

Table 5.5 shows the calculations showing the impact of the portfolio on the value of the enterprise. The greatest contribution of the portfolio «Branch *A*» is due to the high synergistic effect.

From Table 5.5 it can be seen that the NPV value without taking into account the cost of the synergy effect and cannibalization does not allow to unequivocally answer the question which portfolio of projects should be adopted for implementation. The cost of synergy and cannibalization effects plays a key role in choosing a portfolio of projects, since a change in EBITDA due to the availability of these effects does not fully reflect the cost contribution, since it can't be added to the value of the NPV indicator that is traditionally used to analyze projects in trade.

Thus, comparing the  $Im$  values for different portfolios of projects allows to choose the most effective in terms of increasing the value of the business. The more  $Im$ , the higher the value that this portfolio creates. Based on the method, it is possible to analyze the portfolios of development projects aimed at ensuring the effective management of value not only by the specific object of trade, but also the entire trade infrastructure.

**Table 5.4** The calculation of the magnitude and value of the effects of synergy and cannibalization of project portfolios in the process of managing the value of the trading enterprise

Active objects	<i>EBITDA</i> excluding portfolio sales, UAH	<i>EBITDA</i> including the synergy effect, UAH	<i>EBITDA</i> including cannibalization effect, UAH	Effect on <i>EBITDA</i> from synergy, UAH	Effect on <i>EBITDA</i> from cannibalization, UAH
Branch A					
$A_1$	50 400 000	61 200 000		10 800 000	
$A_2$	84 000 000	102 000 000		18 000 000	
$A_3$	42 000 000	51 000 000		9 000 000	
$A_4$	58 800 000	71 400 000		12 600 000	
$A_5$	67 200 000	81 600 000		14 400 000	
$A_6$	75 600 000	91 800 000	51 840 000	16 200 000	-23 760 000
$A_7$	71 400 000		58 140 000		-13 260 000
The magnitude of the effects, total				81 000 000	-37 020 000
The cost of the effect on the enterprise, taking into account the multiplier				603 450 000	-275 799 000
Branch B					
$B_1$	78 120 000	89 280 000		11 160 000	
$B_2$	57 120 000	65 280 000		8 160 000	
$B_3$	62 160 000	71 040 000	54 834 000	8 880 000	-7 326 000
$B_4$	88 200 000	100 800 000		12 600 000	
The magnitude of the effects, total				40 800 000	-7 326 000
The cost of the effect on the enterprise, taking into account the multiplier				303 960 000	-54 578 700

**Table 5.5** Calculation of the magnitude of the impact of the project portfolio on the value of the trade enterprise

Project portfolio	<i>NPV</i> of project portfolio, UAH	Efficiency effect on <i>EBITDA</i> from synergy, UAH	Efficiency effect on <i>EBITDA</i> from cannibalization, UAH	<i>Im</i> impact of the portfolio on the cost, UAH
Branch A	432 152 406	603 450 000	-275 799 000	759 803 406
Branch B	501 595 851	303 960 000	-54 578 700	750 977 151

We believe that the proposed method for assessing the impact of a project portfolio in the process of managing the value of an enterprise is a convenient tool that will allow you to properly organize and implement the cost management process in any enterprise, including trade. Consistent application of the described valuation methodology will allow making more informed investment decisions, better understanding the structure of business value and the factors affecting it.

The process of introducing the values of a value-based approach at an enterprise implies the involvement of all departments of the enterprise, because value-based management is aimed at forming a new business paradigm, and the associated transformations are progressive and systemic. The interpenetration and interaction of economic and organizational elements form the organizational and economic support for the process of introducing value-based value management in the enterprise, is an important prerequisite for improving the efficiency of management as a whole. On the basis of certain theoretical provisions of the organizational and economic prerequisites for the implementation of value-based management of the value of a trading enterprise, its practical function has been determined in the work. We will develop strategic maps for the implementation of the principles of value-based enterprise value management, combining enterprises into 3 groups: Group *A* — «enterprises with a sufficient level of value»; Group *B* — «enterprises with a satisfactory level of value»; Group *C* — «enterprises with an unsatisfactory level of value».

In order to understand what the trade enterprise seeks to achieve in the development process, criteria were defined by which development should be evaluated (and, as a consequence, the impact of the project portfolio on the value of the enterprise). One of the main criteria of efficiency and value for an enterprise's development project portfolio is how it affects the value of a business, namely: analysis of changes in a key parameter, which is adopted as a criterion of value for a business through the study of the effects of joint project implementation, synergies and cannibalizations arise.

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## Appendices

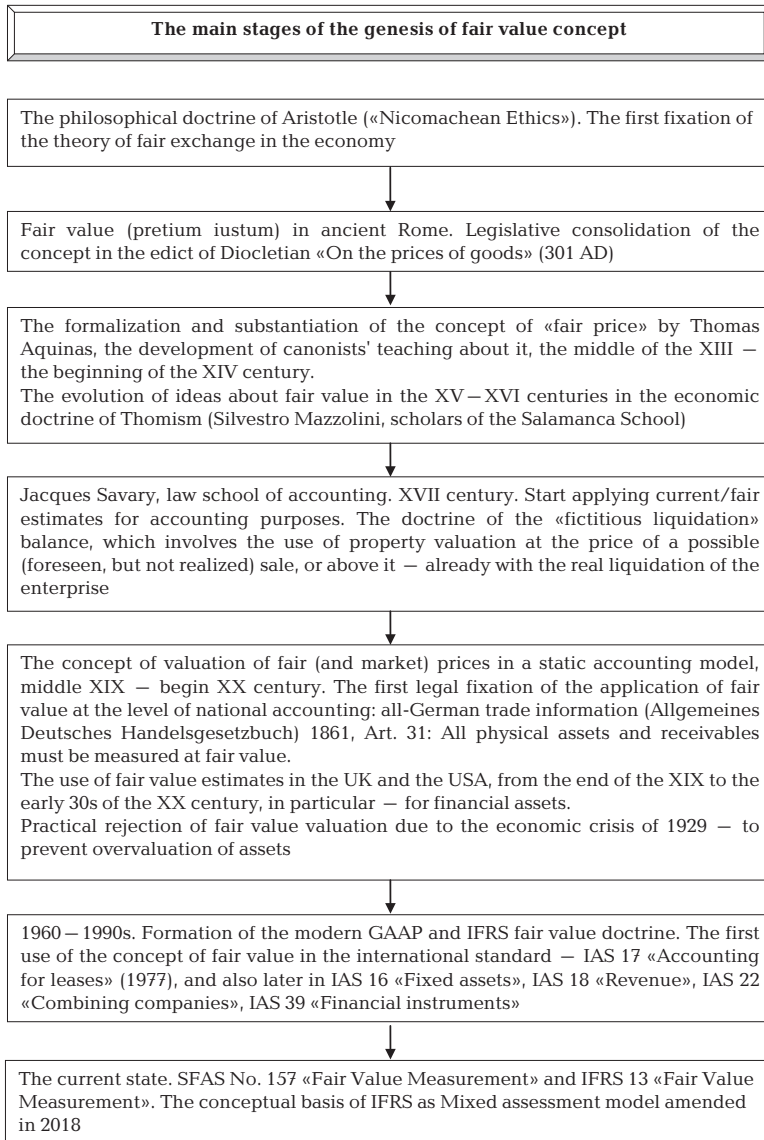
## Appendix A

**Table A1** The treatment of the valuation entity in accounting.

*Source: compiled by the author*

Authors	Definition of the concept of valuation in accounting
The principle of determining the valuation as a process of forming economic information for accounting purposes	
	Rating — assigning a numeric value to a measure or property of an object
P. Nimchinov	Monetary valuation is not a component of the accounting method, as is the method in other economic disciplines (political economy, statistics, finance, sectoral economics, etc.) where it is used. Monetary valuation is a condition in which there can be accounting. At the same time, it performs the function not of a method, but of a common meter of means adopted in the national economy
T. Marenich	Valuation in accounting is the process of expressing economic information in monetary terms, which is reflected in accounting and financial reporting in order to meet the needs of users of accounting data
Z. Tuiakova	Valuation is a focused, orderly process of calculating the value of an object of accounting observation in monetary terms, or expressing an opinion about the value of an object, is carried out by an economic entity or a professional valuer ... the results of which are reflected in the financial statements with regard to the requirements for the qualitative characteristics of financial information
N. Maliuga	Valuation is the process of realizing the positive or negative significance of any economic phenomena, the results of labor, the forms of production and labor activity, material actions, business achievements to satisfy human needs, interests, and goals of the subject
O. Fomina	Valuation is a process of systematic study and generalization of professional opinions about the likelihood of adverse conditions or events
The principle of determining the valuation as a methodical method of accounting	
Ya. Sokolov, V. Sokolov L. Lovinska	Assessment of a way to transfer accounting objects from a natural meter to a cash one; assigning monetary value object The essence of the valuation is measuring the value of objects of accounting. Valuation acts as a prerequisite for accounting and as its goal, result. As a prerequisite for accounting, valuation provides an opportunity to generalize diverse objects when they are reflected in synthetic accounting and financial reporting. As the purpose or result of accounting, the valuation is used in calculating the cost of the produced products, performed work, rendered services. Valuation is a component of the accounting method, with the help of which the measurement of the cost of accounting objects, the creation of high-quality characteristics of accounting and economic information and information support for the analysis of the financial condition of the enterprise and the effectiveness of its management are carried out
V. Shvets	Valuation is a method of valuation of economic assets, their sources of education
V. Sopko	The valuation of economic facts — phenomena and processes — is a prerequisite for their entry in the system of accounting evidence — documents, registers (bills) and reporting. The valuation in accounting is an in-house meter that allows to summarize all the business facts: phenomena and processes as a set. The valuation is also a composite method of accounting and its principle, without which there is no double-system accounting

## Appendix B



**Fig. B1** The main stages of the evolution of fair value concept.

*Source: compiled by the author*

## Appendix C

**Table C1** Advantages and disadvantages of methods for assessing the disposal of inventories by certain scientists. *Source: compiled by the author*

Method	Essence	Source
<b>Weighted average cost</b>		
Advantages	The simplicity and accessibility of this method make it possible to widely apply it in practice. However, it should be borne in mind that the use of the method in the conditions of daily receipt and use of inventories in large quantities (for example, in large industrial enterprises) may be inefficient and rather time-consuming	[47]
<b>Identified cost method</b>		
Advantages	The method of the identified cost is indispensable if the company uses high-value stocks or those that can't be interchanged	[47]
	A positive characteristic of the method of identified cost is the fact that this is the only way in which physical and cost turns of inventories are combined, that is, when using this method, the movement of the value of stocks coincides with their physical movement	[46]
Disadvantages	This method is not advisable to use if there is a large amount of stocks at the enterprise and a considerable variety of their nomenclature	[47]
	Firstly, the possibility of using this method is limited for reasons and a varied range and a large number of identical stocks. Another undesirable feature of this method is the ability to manipulate the amount of profit, making subjective choice of what stock to use in a certain period of time. For most enterprises, this method is unacceptable because of the complexity and impracticality of tracking the acquisition and use (sale) of specific units of each inventory item	[46]
<b>FIFO method</b>		
Advantages	This method provides an almost complete coincidence of the movement of value with the physical movement of stocks; the use of the FIFO method maximally approximates the value of stocks to the current market value; method consistent and objective; method prevents chances of manipulating the amount of profit	[47]
Disadvantages	The disadvantage of using the FIFO method is that in the period of inflation it ensures the presence of an unreasonably excessive amount of profit. This is explained by the fact that with the growth of prices for stocks, an enterprise increases the realizable value of products, not taking into account that it was made from materials that were purchased before the price increase	[46]



## Appendix D

**Table D1** Proposed project of National provision (standard) of accounting 3 «Actuarial financial statements» (NP(S)A 3). *Source: compiled on the basis of applying the approach of A. Shyhaev 2011 [51] and in accordance with the accounting of the Conceptual Basis of Financial Reporting [57]*

No.	Project of NP(S)A 3 «Actuarial financial statements»
1	2
<b>I. General provisions</b>	
1.1	This National Provisions (standard) defines the purpose, composition and principles of preparing actuarial financial statements and the requirements for recognizing and disclosing its elements
1.2	The norms of this National Provisions (standard) apply to the actuarial financial statements of legal entities (hereinafter referred to as enterprises) of all forms of ownership (except banks and budget institutions), which, if necessary, can transform financial statements and financial statements prepared under IFRS in actuarial financial statements
1.3	The terms used in the national accounting provisions (standards) have the following meanings: <ul style="list-style-type: none"> <li>– <i>operational assets</i> – assets that are used in the course of the company's operations;</li> <li>– <i>operational liabilities</i> – liabilities arising in the course of operating activities.</li> <li>– <i>financial assets</i> – assets that are used during the direct implementation of financial operations by the enterprise;</li> <li>– <i>financial obligations</i> – are obliged to provide funding for the operating activities of the enterprise;</li> <li>– <i>net operating assets</i> – reflect the value of resources attracted by the company from investors, borrowers and other capital providers in the framework of financial activities and investments in operating activities. Net operating assets are calculated as the difference between operating assets and operating liabilities;</li> <li>– <i>net financial assets (liabilities)</i> – reflect the amount of the company's net debt and are calculated as the difference between financial assets and financial liabilities;</li> <li>– <i>actuarial financial statements</i> – accounting statements were transformed, containing information on changes in economic value and future cash flows of the company over the period</li> </ul>
1.4	The purpose of preparing actuarial financial statements is providing real and potential investors in making decisions about investing capital in an investee with complete, truthful and unbiased information about changes in the economic value of a business and future cash flows of the investee
1.5	The procedure for the presentation of actuarial financial statements to investors is determined by the management of the company
<b>II. Composition and elements of actuarial financial statements</b>	
2.1	Actuarial financial statements consist of: actuarial balance (actuarial statement of financial position) (hereinafter referred to as actuarial balance sheet), actuarial statement of comprehensive income (actuarial statement of comprehensive income) (hereinafter referred to as actuarial statement of comprehensive income), actuarial statement of cash flows (actuarial balance of cash flow), actuarial report on changes in equity

Continuation of Table D1

1	2
2.2	The actuarial balance sheet of an enterprise is compiled from the balance sheet data (financial state report) or consolidated balance sheet (financial state report) of the enterprise for the reporting period
2.3	The form and composition of the articles of the actuarial financial statements are determined by this National Provisions (standard) and are given in Appendix A
2.4	The actuarial financial statements include indicators of the activities of branches, representative offices, branches and other separate divisions of the enterprise
2.5	The actuarial balance sheet reflects operating and financial assets, operational and financial liabilities and equity of the enterprise. For the distinction between operating and financial activities, net operating assets are calculated as the difference between operating assets and operational liabilities and net financial assets or liabilities as the difference between financial assets and financial liabilities
2.6	The actuarial statement of comprehensive income discloses information about the cumulative financial result, which consists of the cumulative financial result from operating activities (operating profit) and the cumulative financial result from financial activities (net financial income or net financial expenses)
2.7	The actuarial cash flow statement (actuarial cash flow balance) provides data on cash flow from operating, financial and investment activities, with cash flow from investing activities being distributed to cash flow from investments in operating assets and cash flow from investments in financial assets. In drawing up the actuarial balance of cash flow, a dynamic accounting concept is used, which implies the need to reflect data on the operating and financial activities of an enterprise not only on the basis of moment indicators, but also on the basis of interval indicators (turnover on accounts)
2.8	The actuarial statement of changes in equity discloses information about changes in the equity of an enterprise, including: transactions with shareholders (holders of ordinary shares), net result of shareholders and the aggregate financial result of these transactions. In the columns of the actuarial report on changes in equity, intended for targeting the components of equity capital, the indicators given in section I «Equity capital» of the balance are indicated
2.9	Companies that, according to the law, use international financial reporting standards, can also (if necessary) transform financial statements prepared under IFRS in the actuarial financial statements

### III. Qualitative characteristics of actuarial financial statements and principles of its preparation

3.1	The information provided in the actuarial financial statements should be useful for current and potential investors, lenders and other lenders in making decisions about providing resources to this business entity. Such decisions include the acquisition, sale or maintenance of equity and debt instruments, as well as the provision or repayment of loans and other forms of loans [M4. The conceptual framework of financial reporting [57]]
3.2	Actuarial financial statements should contain useful, that is relevant and reliable information about the resources of the enterprise, the requirements for the business entity, and how effective and efficient the management staff and the governing board fulfilled their duties in order to use the resources of the business entities. investors, lenders and other lenders could evaluate the prospects for future net cash inflows of the enterprise [M4. Conceptual basis of financial accounting [57]]

**Continuation of Table D1**

1	2
3.3	General-purpose actuarial financial statements are not intended to show the value of the enterprise that it reports; but it provides information to help current and potential investors, lenders and other lenders assess the value of the enterprise [M7. The conceptual framework of financial reporting [57]]
3.4	<p>Actuarial financial statements of an enterprise are formed in compliance with the fundamental and intensifying principles of requirements:</p> <ul style="list-style-type: none"> <li>– fundamental principles – allow you to separate useful information from Useless;</li> <li>– reinforcing principles – allow you to analyze the degree of usefulness of accounting information and to distinguish between more useful and less useful information.</li> </ul> <p>Fundamental principles include: principles-requirements of relevance (relevance) and truthful representation:</p> <ul style="list-style-type: none"> <li>– relevance (relevance) provides that in order to be useful for making decisions about investing, lending and other similar decisions about investing resources in an enterprise, the information must be relevant (relevant), the future value and confirming value are components of the relevance principle;</li> <li>– true representation suggests that in order to be useful for making decisions about investing, lending and other similar decisions about investing resources in an enterprise, the information must create a true representation of economic phenomena, the content of which it must present, that is, be complete, neutral and error free</li> </ul> <p>The reinforcing principles include: principle-the requirement of comparison, timeliness and clarity:</p> <ul style="list-style-type: none"> <li>– comparison, provides that in order to enhance the usefulness when investors make decisions about investing resources, relevant information truthfully reflects economic phenomena, should allow users to identify similarities and differences between the two sets of economic phenomena;</li> <li>– timeliness characterizes the need to ensure the availability of information disclosed to interested persons until the time when this information loses the ability to influence their decision making about investing resources in an enterprise;</li> <li>– clarity provides that information may not be useful for making decisions about investing and lending, if it is not submitted in a way that is understandable to those interested in it</li> </ul>

**IV. Information disclosure in actuarial financial statements**

4.1	In the actuarial statement of comprehensive income, information on the calculation of equity at the beginning and end of the reporting period is presented separately
4.2	<p>The preparation of the actuarial statement of comprehensive income is carried out in two stages:</p> <ol style="list-style-type: none"> <li>1) the actuarial statement of comprehensive income includes financial results directly attributable to equity accounts and are reflected in the statement of changes in equity;</li> <li>2) all items of income and expenses are regrouped by operating and financial activities and the net financial result is determined for each of these two types of activities, as well as the total income for the whole enterprise</li> </ol>

## Appendix E

**Table E1** Value drivers of group A enterprises

Tasks	Indicator
<b>Financial and material capital</b>	
Growth of enterprise value	Market value added, thousand UAH. Economic value added, thousand UAH
Increased profitability	Turnover profitability, %. Return on assets, %.
Equity provision	Return on investment, % Ratio of own working capital. Ratio of non-current assets of equity
<b>Interface capital</b>	
Raising awareness of value groups	Loyalty level of value influence groups. Enterprise share in the market for a specific product
Maintaining marketing activity	Ratio of the cost of finding suppliers. Discount rate
Brand management	Index of the existence of the enterprise brand on the market
<b>Organizational capital</b>	
Improving the efficiency of the planning system	Enterprise security stocks. Expenses for the provision of services
Content quality level	Share of investment in quality improvement. The result of the introduction of technical innovations
Creating a quality management system	Quality of services provided. Supplier performance index
<b>Human capital</b>	
Staff development	Profitability of training expenses
Increase in staff satisfaction	Level of support for initiatives
Decrease in staff turnover	Staff turnover rate

## Appendix F

**Table F1** Value drivers of group *B* enterprises

Tasks	Indicator
<b>Financial and material capital</b>	
Growth of enterprise value	Market Value Added. Economic Value Added
Increased profitability	Net profitability of sold products. Return on investments
Equity provision	Financial autonomy ratio. Return on equity
<b>Interface capital</b>	
Raising awareness of value groups	Loyalty level of value influence groups. Enterprise market share
Improving the communication system	Share of expenses on the communication system. Client index (comparison of the cost of a new client and the content of a permanent)
Improving the effectiveness of marketing activities	Ratio of income from the new product and the number of consumers
<b>Organizational capital</b>	
Improving the quality of service	Share of investment in quality improvement. Result of the technical innovations implementation
Creating a quality management system	Quality management system efficiency ratio
<b>Human capital</b>	
Improving staff skills	Profitability of training expenses. Profitability of staff, thousand UAH
Increase in productivity	Labor productivity, thousand UAH. Average daily output per worker
Creating a resource planning subsystem	The ratio of the enterprise workforce

## Appendix G

**Table G1** Value drivers of group *C* enterprises

Tasks	Indicator
<b>Financial and material capital</b>	
Growth of enterprise value	Market Value Added. Economic Value Added
Increased profitability	Net profitability of sold products. Return on investments
Equity provision	Financial independence ratio. Return on equity
<b>Interface capital</b>	
Raising awareness of value groups	Loyalty level of value influence groups. Index of the duration of interaction with value influence groups
Evaluation of the enterprise image	Integral indicator of assessing the image of the enterprise
Improving the effectiveness of marketing activities	The ratio of income from the new product and the number of consumers
<b>Organizational capital</b>	
Improving the efficiency of the planning system	Enterprise security stocks
Improving the quality of service	Share of investment in quality improvement. Innovation result
Creating a quality management system	Quality management system efficiency ratio
<b>Human capital</b>	
Improving staff skills	Profitability of training expenses. Profitability of staff, thousand UAH
Increase productivity	Labor productivity, thousand UAH. Average daily output per worker, thousand
Stimulation of creative activity of workers	Coefficient of creative activity
Creating a resource planning sub-system	Ratio of the enterprise workforce