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6 CONTINUOUS CVP-ANALYSIS AS A KEY TOOL OF ANTI-CRISIS MANAGEMENT OF AN ENTERPRISE IN THE CONDITIONS OF SUSTAINABLE DEVELOPMENT IN THE VUCA-WORLD

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ABSTRACT

As mentioned in Section 5, an enterprise is the foundation of each sector of the economy of each country without exception. Therefore, the methods of managing the latter to ensure its smooth and competitive activities do not lose their relevance at all times. It should be noted, that the management of an enterprise, in all its manifestations, is a complex process that requires managers to have the necessary knowledge and skills relevant to the time, in which such management is carried out. It is the provision of modern approaches to management that will enable it to survive in the harsh realities of today. One such approach is continuous CVP analysis.

In the section based on the study, the main features of the modern business environment have been identified, in accordance with which it has been proposed to use CVP-analysis on a continuous basis as a key tool for crisis management. To implement the latter, the article deepens the theoretical and improves methodological foundations of CVP-analysis by ensuring their compliance with the principles of sustainable development of an enterprise, organization and implementation of VUCA-solutions that act ahead. The essence of continuous CVP-analysis has been specified and the periodicity of its carrying out has been substantiated.The method of statistical analysis of accounting has been improved, taking into account the dynamic nature of the enterprise environment. Approbation of the latter allowed to classify the costs of fixed and variable by item, which will allow you to perform without much effort operational analysis of not only actual but also future activities. The proposed research results can be used by employees who are interested in effective management of the enterprise in modern business conditions.

KEYWORDS

VUCA-world, sustainable development, CVP-analysis, crisis management, cost classification.

6.1 PREREQUISITES FOR IMPROVING THE METHODOLOGICAL FOUNDATIONS OF PRACTICAL APPLICATION OF ENTERPRISE MANAGEMENT TOOLS

The global challenge of 2020 was the COVID-19 pandemic, which the United Nations called a global crisis, affecting the sustainable development of all countries [1]. COVID-19 has caused an unexpected shock to economies around the world and sharply increased uncertainty in business [2], as a result of which the world economy is experiencing the largest downturn in 50 years [3]. The collapse of the world economy has revealed colossal local problems. Measures, aimed at supporting the functioning

of countries, unfortunately, did not prevent the decline in income, bankruptcy and the largest decline in GDP in the last decade [3], it did not bypass Ukraine [3, 4]. In turn, the Federation of Employers of Ukraine in the period from 10 to 27 April 2020 conducted a survey «Business and COVID-19: you can not die to survive», among the owners/managers of 121 companies from all regions of Ukraine (companies were founded before 2018), 83 % of which were private enterprises. The main results include:

– 53 % of respondents did not have a plan to ensure their continuous work for the period before the end of restrictive measures;

– 80 % of respondents could be viable in quarantine only up to six months (10 % – less than a week; 19 % – from 1 to 8 weeks; 31 % – from 2 to 3 months and 20 % – from 3 to 6 months) and only for 6 % of respondents COVID-19 did not affect the work of the enterprise;

– 81 % of respondents were forced to change operations to protect companies from the effects of the pandemic;

– decisions on business support, made by the Ukrainian authorities after the announcement of the COVID-19 pandemic, fully met the needs of only 2 % of respondents (did not meet the needs of the company – 58 %; partially met – 40 %);

– about 90 % of respondents indicated a decrease in income due to the negative impact of COVID-19, of which 53 % – income decreased by more than 50 %, and 38 % – a decrease of 20 to 50 %. At the same time, none of the respondents noted the positive impact of the pandemic on the conditions of doing business and only 2 % of respondents indicated that «the pandemic did not affect the level of income/sales»;

– for 42 % of respondents it will take from one month to three months to fully resume business, and for 28 % – it will take more than three months [5].

These results indicate the inconsistency of the applied enterprise management tools with modern conditions of the business environment and the need to make an informed choice or improvement of enterprise management tools, according to these features. For Ukrainian enterprises, the problem of independent organization of effective work in the pandemic without hoping for significant support from the state is urgent. This requires management decisions, aimed at the timely prediction of adverse situations and preventive orientation of enterprises on their prevention and achievement of positive outcomes that allow not to lose or to strengthen the position of enterprises in the business environment. Thus, there is a need to identify the features of the modern business environment, substantiate the tool of enterprise management that would meet these conditions, and if necessary, improve the methodological basis for the practical application of this tool in an enterprise.

6.2 METHODICAL SUPPORT OF CVP-ANALYSIS AS A KEY TOOL OF CRISIS MANAGEMENT OF AN ENTERPRISE IN THE CONDITIONS OF SUSTAINABLE DEVELOPMENT

Modern humanity is at a turning point in its evolution on the planet, which requires a reorientation to a paradigm of development that will support human life and the environment, and it is the

concept of sustainable development that provides such a chance [6]. Therefore, it is considered as a paradigm of social development [7, 8].

In turn, globalization is the main tool for overcoming uneven development and environmental problems in achieving the global Sustainable Development Goals [9]. In accordance with the global challenges that constantly arise in the context of globalization, the concept of sustainable development is constantly evolving [7–10]. Today, this concept envisages the implementation by all countries of the world of seventeen global Sustainable Development Goals (SDGs), which cover three aspects of sustainable development: social, economic and environmental, as well as aspects, related to peace, justice and effective institutions [7]. Ukraine has all the prerequisites for the implementation of sustainable development [11] and is taking certain actions in this direction [11–18]. They create conditions for using the opportunities of globalization and overcoming the existing global threats and challenges to the sustainable development of the country and the integration of Ukraine into the world space in accordance with the objective trends of globalization [10].

It is believed, that everyone today, in principle, lives in the VUCA world [12–15]. That is, the modern business environment is determined by four key characteristics (VUCA-challenges): Volatility (instability, variability, instability), Uncertainty (indeterminacy), Complexity (confusion) and Ambiguity (dualism). But K. Roberts formulated VUCA-response (-solution, -Prime) to VUCA-calls, namely: «Vision» (idea), «Understanding» (comprehension), «Creativity/Clarity» (innovation), «Agility» (flexibility, self-determination, efficiency) [13–15]. The essence of each challenge and decision is presented in **Table 6.1**.

As noted earlier, globalization is seen as a key tool for overcoming uneven development in achieving the global Sustainable Development Goals. According to the author, the global challenge of 2020 pandemic COVID-19 can be considered a challenge to the environment Volatility (instability, variability, instability). Thus, based on this the modern business environment can be characterized by two main features:

– first, it is the sustainable development of all countries of the world by fulfilling the seventeen Sustainable Development Goals (SDGs);

– secondly, this is the VUCA world.

In conditions of sustainable development, the activities of organizations and enterprises should ensure the implementation or compliance with the SDGs, which can be achieved using the effective approach to management [16].

According to the established essence of each challenge and decision, it can be stated, that in the VUCA-world an enterprise, an organization will succeed if carries out conscious (vision), flexible (efficiency) and continuous (understanding) transparent (clarity) management of the results field, adequate to present and future state of both external and internal environment of the enterprise, ie the effective approach to management. Its prerequisite for implementation is the introduction of controlling. Controlling is a subsystem of enterprise management that coordinates the subsystems of information support, accounting and control, analytical, planning and motivation for the comprehensive implementation of specific functions: commenting and development, which

provide management of both operational and strategic goals and focus on future development through continuous systemic improvement of an enterprise, which is a prerequisite for preventing the crisis and long-term existence in the market.

Table 6.1 The concept of VUCA-world (challenges and solutions, acting in advance)*

Abbreviation	Essence	
	Challenge	**Solution, acting in advance**
V	Means unstable situations and unpredictable changes – by their nature, speed, volume, dynamics. The duration of this state of affairs is unclear. What was relevant yesterday is no longer relevant today. Brutal increase of four dimensions of change: type, speed, volume and scale	A clear vision and understanding of the long-term direction of movement. Definition of vision. The use of intuitive thinking, which allows you to flexibly and quickly respond to complex uncertainties in a particular area of all involved strategy developers. Clarity of the set goal; faith, supported by facts and evidence; consistency and focus on finding the relationships, trends and patterns of influence of factors
U	Means a lack of information to predict the consequences and plan the necessary actions. Managers can no longer base their decisions on past experience and as a result it is impossible to plan anything in the long run	Continuous monitoring of expectations of service recipients; research of new ideas and their reflection in actions; ability to cooperate; ability to respond to constructive criticism; mastering of new IT technologies; understanding of the behavior of people in situations of great stress and strain; understanding of what governs a person
C	A very large number of factors significantly complicates the decision-making and planning process. Complexity «without a clear link between cause and effect affects all organizations»	Ability to simplify and clarify. Application of system thinking based on a global vision of the result, understanding the interaction and interdependence of system elements. Use of intuition; application of interdisciplinary knowledge; critical perception of events. Flexibility to implement changes, innovations and readiness to realize them
A	Means ambiguity in the interpretation of certain events – in cases where they can be interpreted in two ways. It is difficult to answer the question «who, what, when and why». This is a lack of accuracy and the existence of multiple values in the conditions around us	Speed and flexibility of processes helps to increase business efficiency. Confidence in the need to find new original ways to solve all problems, improve processes. Determination in decision making; innovation, formation of network connections; constant improvement

** Source: generated by the authors based on data from [13–15]*

One of the components of operational controlling tools is the analysis of the relationship «cost-volume-profit» or CVP-analysis («Cost-Volume-Profit Analysis», operational analysis, break-even analysis, margin analysis, analysis of «cost-output-profit») activities of an enterprise. It is understood as a tool of management accounting, which helps to make management decisions by studying the relationship between changes in costs, production and sales [17]. It is used to prevent unprofitable enterprises in conditions of increased competition, instability and increased corporate

social responsibility, so it is advisable to use it as one of the tools of crisis management in today's business environment. Today, its application for the proposed purpose requires the development of theoretical and methodological foundations of CVP-analysis, taking into account the identified features of the modern business environment.

The existing theoretical and methodological bases of CVP-analysis do not take into account the peculiarities of sustainable development of an enterprise, an organization in the VUCA-world.

6.3 DEVELOPMENT OF CONTINUOUS CVP-ANALYSIS AS A KEY TOOL OF CRISIS MANAGEMENT OF AN ENTERPRISE IN THE CONDITIONS OF SUSTAINABLE DEVELOPMENT IN THE VUCA-WORLD

According to the current Decree of the President of Ukraine «On the goals of sustainable development of Ukraine for the period up to 2030», it is necessary to ensure compliance with the following goals: overcoming poverty; overcoming hunger, development of agriculture; good health and well-being; quality education; gender equality; clean water and proper sanitation; available and clean energy; decent work and economic growth; industry, innovation and infrastructure; reduction of inequality; sustainable development of cities and communities; responsible consumption and production; climate change mitigation; conservation of marine resources; protection and restoration of terrestrial ecosystems; peace, justice and strong institutions; partnership for sustainable development [11]. In accordance with the goals of sustainable development, the principles of sustainable development of an enterprise have been formed (**Table 6.2**).

CVP-analysis is an integral part of operational controlling tools. The latter is a subsystem of enterprise management that coordinates the functions of information support, accounting and control, analytics, planning and motivation for the integrated implementation of specific functions: commenting and development, which provide management of the operational goals of an enterprise and focus on future development through continuous system improvement of the enterprise operation, which is a prerequisite for preventing the crisis and long-term existence in the market. Based on this, the authors of the article join the opinion of scientists S. Kondratova and M. Umrykhina [19] that operational analysis is a management tool. The authors believe that CVP-analysis can be considered as one of the components that provide management of the process of achieving operational goals of an enterprise through continuous systematic improvement of the enterprise, which is a prerequisite for crisis prevention and long-term existence in the market. CVP analysis should be performed on the continuous basis. This will ensure compliance with two VUCA responses – «Understanding», «Creativity/Clarity». Thus, continuous CVP analysis is a tool to manage the process of achieving operational goals of an enterprise by continuous systematic improvement of the enterprise on the basis of systematic tracking and study of the relationship between changes in volume, total sales, costs and profits. I. Narchemashvili believes that it is advisable to determine the value of break-even weekly [20], so continuity means the implementation of CVP-analysis on the weekly basis.

Table 6.2 The principles of sustainable development of an enterprise*

No.	Sustainable development principles	Essence
1	Systematicity	consideration of an enterprise as a system that provides, on the one hand, the presence of links between the structures of the elements, their interdependence, and, on the other hand, allows to distinguish between external and internal environment effects
2	Integrity	as the basis of self-preservation of the system
3	Adaptivity	as the ability to change under the influence of environments
4	Economic rationality	the main goal of a company is to make a profit in the short and long term, respectively, any sustainable development measures should be considered from the standpoint of this goal
5	Purposefulness	compliance of the mechanism and management process with the sustainable development of an enterprise to ensure its continuity
6	Innovation	as a source of self-development, extensive methods at the present stage can not meet the main purpose of an enterprise in the long run
7	Cautions	as a condition for the preservation of human civilization, this principle should be extended to both environmental and social spheres and act as a kind of filter – measures to achieve the main goal of an enterprise should be tested for their possible impact on the environment and society
8	Economization of environmental and social impact	transformation of external environmental and social factors, formed under the influence of an enterprise, into internal production costs and their integration into the market pricing process, which in the long run will help increase the competitiveness of those enterprises that are responsible for their activities
9	Complexity	the comprehensive involvement of all elements of an enterprise, links between them and the environment of the enterprise in the management mechanism of its development
10	Relationships and interdependencies	the functioning of a single element causes the peculiarities of the action of another, and the mutual influence and purposefulness of the whole set of elements ensures the effectiveness of the process of sustainable development management
11	Flexibility	rapid adaptation to changes in operating conditions
12	Compatibility	harmonious interaction of sustainable development management elements
13	Epimorphism	The desire to ensure the sustainable development of the elements of the system, ensuring the reliability and rhythm of their operation

** Source: generated by the authors based on data from [7, 8, 11, 18]*

To perform CVP-analysis it is necessary to have separate data on fixed and variable costs of an enterprise, but the organization of accounting in Ukraine does not provide such a classification,

so it is necessary to determine which method is best to determine the value of fixed and variable costs. The experience of successful enterprises in market conditions [21–24] and the essence of VUCA-answers indicate the feasibility of planning total costs with their division into fixed and variable by item. Given that operational analysis is considered as one of the most effective methods of planning and forecasting an enterprise, the authors consider it necessary to choose a method that would allow for itemized classification of costs, which would be the basis for planning. This will provide an opportunity to determine fixed and variable costs in the future without the use of methods for classifying costs into fixed and variable.

Many methods are used to classify costs according to the criterion of their response to changes in the volume of activity: direct calculation, graphical, statistical, technical analysis and others. The analysis of the technology of cost classification for each method, identified advantages and disadvantages of existing methods, which are presented in **Table 6.3**, will allow to rank methods in order of increasing accuracy and objectivity of results of classification of expenses by them.

Their analysis must be carried out by identifying their compliance with the six requirements:

1. Correspondence of the method of economic essence of the concepts «Variable costs» and «Fixed costs».

2. The presence of a statistical sample of data, when receiving the results of the study, which ensures their objectivity.

3. The possibility of itemized classification of costs.

4. The level of simplicity of calculations.

5. The level of reliability of classification results.

6. Low cost of implementation. Based on the comparison of the level of compliance of the methods, presented in **Table 6.3**, and the formulated requirements, shown in **Table 6.4**, the method to be used for CVP analysis is selected.

Thus, the analysis of the technology of cost classification by each method, the identified advantages and disadvantages of existing methods allowed to rank the methods in order of increasing accuracy and objectivity of the results of their cost classification. Based on the comparison of the level of compliance of the methods with the developed criteria, a list of methods was selected (methods No. 3–9), from which it is necessary to choose the most appropriate for the classification of fixed and variable costs for implementation in further operational analysis in modern business conditions. To do this, each of the methods should be tested and the probability of the results should be evaluated. Approbation of the selected methods will be carried out according to the work of a road management organization.

The obtained cost functions for each method and evaluation of their reliability are presented in **Table 6.5**.

According to the results of the research (**Table 6.5**) it can be seen, that the largest coefficient of determination is inherent to the statistical method, the standard error of the coefficient is the smallest.

● **Table 6.3** The analysis of methods for classifying costs into fixed and variable*

No.	Method name	Other names	Method essence	Advantages	Disadvantages
1	2	3	4	5	6
1	Linear, logarithmic and polynomial approximation	–	Construction of the trend function of costs, the argument of which is not the value of the volume of activity, and time, or rather the reporting data of observations that have ordinals	1. Possibility to perform with Microsoft Excel	1. Contradictions between the concepts of «variable costs» and «fixed costs»
2	Analysis of the linear relationship between revenue and expenses	–	Determination of the linear dependence of total costs on the share of variable costs per unit of output in the price of the latter	1. Average simplicity of the calculation	1. Lack of statistical data sampling. 2. Lack of itemized classification of costs. 3. The complexity of the solution at a wide range
3	Analysis of accounting	Analysis of accounting data; method based on entries in the accounting registers	Determination by an accountant-analyst of the function of costs by their article-by-article division into fixed and variable, based on their own experience (Cost function is a mathematical description of the relationship between total costs and volume of activity)	1. Article-by-article costs classification	1. Lack of statistical data sampling. 2. Average labor intensity. 3. Subjectivity of the research results (experience and intuition of an accountant-analyst)
4	Direct calculation	Higher and lower points; maximum and minimum points; interpolation; minimax	Determination of the cost function based on the condition that variable costs per unit of output are the ratio of the differences between costs and volumes of activity at the highest and lowest levels of enterprise activity	1. Simplicity of the calculations. 2. Slight time. 3. Availability of statistical data sampling	1. The research objectivity depends on the minimum and maximum points with other data of statistical sampling. 2. Lack of itemized classification of costs
5	Graphical	Visual inspection; adaptation; estimates of the coefficient of proportionality «at a glance»; visual	The graphical approach to determining the cost function, in which an analyst visually draws a straight line that takes into account all cost points	1. Simplicity of the calculations. 2. Slight time. 3. Availability of statistical data sampling	1. A certain degree of subjectivity of the research results (significant dependence on eye and hand steadiness of an analyst). 2. Lack of itemized classification of costs

● **Continuation of Table 6.3**

1	2	3	4	5	6
6	Simplified statistical analysis	Simplified statistical analysis by Chumachenko	Provides for the division of data on costs and volume of activity into two groups based on the growth of the value of the volume of activity and the calculation of fixed costs based on the average values of the volume of activity and total costs	1. Average reliability of the results. 2. Average simplicity of the calculations. 3. Availability of statistical data sampling	1. Lack of itemized classification of costs. 2. At significant deviations from the average values, you can get a negative value of fixed costs
7	Constructive-analytical	The Improved regression method	Based on calculations of the corresponding linear regression equation. In this case, the basic zero level of the argument is the minimum level of activity, at which it is possible to continue the activity	1. Average reliability of the results. 2. Eliminates the lack of No. 3 regression analysis	1. Labor intensity and complexity. 2. The algorithm for implementing this method is not specified. 3. It is unclear how to determine the minimum level of activity, at which it is possible to continue 4. Lack of itemized classification of costs
8	Statistical	Least squares; linear regression analysis; regression analysis	Finding the cost function that describes the behavior of the line, in which the sum of the squares of the vertical deviations of all cost points from the obtained line will be minimal	1. High reliability of the results. 2. Availability of statistical data sampling	1. Labor intensity and complexity. 2. Lack of itemized classification of costs. 3. You can get a negative value of fixed costs with significant deviations from the average values
9	Statistical analysis of accounting	–	Cost classification is carried out by determining the correlation between each cost item and the volume of activity	1. High reliability of the results. 2. Availability of statistical data sampling. 3. Article-by-item classification of costs. 4. Disposability	1. Labor intensity and complexity. 2. Insufficiently substantiated approach to calculating the value of fixed costs
10	Technical analysis	Engineering; based on technological schemes	For each item of expenditure based on technological necessity, standards are set for the consumption of resources in kind, costs are planned by multiplying these standards by prices	1. High reliability of the results. 2. Focus on the future. 3. Article-by-item classification of costs	1. Labor intensity and complexity. 2. High cost. 3. The difficulty of determining some types of standards. 4. Use only for new activities

** Source: generated by the authors based on data from [25]*

Table 6.4 Compliance with the established requirements of the methods of costs classification according to the criterion of response to changes in the volume of activity

No.	Method name	Method correspondence to the requirement No.						Correspondence level	
		1	2	3	4	5	6	un	%
1	Linear, logarithmic and polynomial approximation	–	+	–	–	+	+	3	50
2	Analysis of the linear relationship between revenue and expenses	+	–	–	–	+	+	3	50
3	Analysis of accounting	+	–	+	+	–	+	4	67
4	Direct calculation	+	+	–	+	–	+	4	67
5	Graphical	+	+	–	+	–	+	4	67
6	Simplified statistical analysis	+	+	–	–	+	+	4	67
7	Constructive-analytical	+	+	–	–	+	+	4	67
8	Statistical	+	+	–	–	+	+	4	67
9	Statistical analysis of accounting	+	+	+	–	+	+	5	83
10	Technical analysis	+	–	+	–	+	–	3	50

Table 6.5 The functions of costs and evaluation of their reliability

Method name	Costs function	Realiability evaluation	
		Determination coefficient, %	Standard error of the coefficient
Analysis of accounting	$y=215.89x+24054.17$	53	26.56
Direct calculation	$y=251.61x+25438.55$	62	22.4
Graphical	$y=255.37x+34525.32$	71	21.31
Simplified statistical analysis	$y=261.25x+27839.56$	75	19.11
Constructive-analytical	$y=235.98x+31378.25$	77	22.52
Statistical	$y=225.96x+41303.25$	86	14.91
Statistical analysis of accounting	$y=229.65x+32535$	85	18.15

Under these conditions, it can be considered the most accurate method, but it makes it possible to determine the variable and fixed costs only in quantitative terms and does not allow the breakdown of costs by article. The method of statistical analysis of accounting has a similar coefficient of determination and slightly higher values of the standard error of the coefficient, but it allows to distribute costs article by article, which is important in modern conditions. Therefore, as a tool for CVP-analysis, it is advisable to use the method of statistical analysis of accounting. It allows not only to obtain a cost function with a high degree of reliability, but also allows you to classify

costs by item. The latter is important for planning the activities of modern enterprises and flexible response to inflationary changes in the country. However, in modern conditions it is necessary to clarify the approach to determining the value of fixed costs, which proposes to calculate the value of fixed costs as the average for the year (I approach), since fixed costs can be calculated in two more ways: as a determination of fixed costs in the month, in which the volume of activity was maximum (II approach), or as a weighted average of fixed costs (III approach).The third approach takes into account seasonal fluctuations in the volume of activity of road management enterprises.

To substantiate the most appropriate methodological approach to determining fixed costs, the authors of the article classified costs and determined the cost function for each of the three approaches. The criterion for choosing the approach was the level of reliability of the obtained cost functions. To determine the degree of reliability for each cost function, the coefficient of determination and the standard error of the coefficient were calculated (**Table 6.6**).

● **Table 6.6** Estimation of reliability of cost functions by the three approaches

Parameter name	Value		
	I approach	II approach	III approach
Cost function	$y=229.65x+32535$	$y=211.93x+31350$	$y=231.25x+32945$
Standard error of the coefficient	18.15	20.21	18.12
Determination coefficient	0.85	0.81	0.87

All the obtained coefficients of determination exceed 30 %, ie the cost functions are quite reliable. The largest coefficient of determination is inherent to the cost function, calculated by the third approach (0.87), with the smallest standard error of the coefficient. Therefore, the third approach should be used in determining the value of variable and fixed costs when applying the method of statistical analysis of accounting. The high labor and complexity of the calculations can be eliminated by using MS Excell, and this calculation must be performed only once. The algorithm of realization of the improved method of the statistical analysis of accounting according to this approach is presented in **Fig. 6.1**.

As a result of the implementation of the proposed methodological approach to the classification of costs according to the criterion of response to changes in the volume of activity, the costs of the road industry were classified as follows:

– variable costs: costs of basic materials and raw materials, labor costs of road workers and drivers with charges, the cost of operation of machinery and equipment, depreciation of road machinery, payment for the traveling nature of the work;

– fixed costs: labor costs of managers with accruals, labor costs of ETW on accruals of labor costs of management staff with accruals, depreciation of other fixed assets, maintenance costs of buildings and premises, costs of materials and low-value perishable items, bank services, taxes and fees and other expenses.

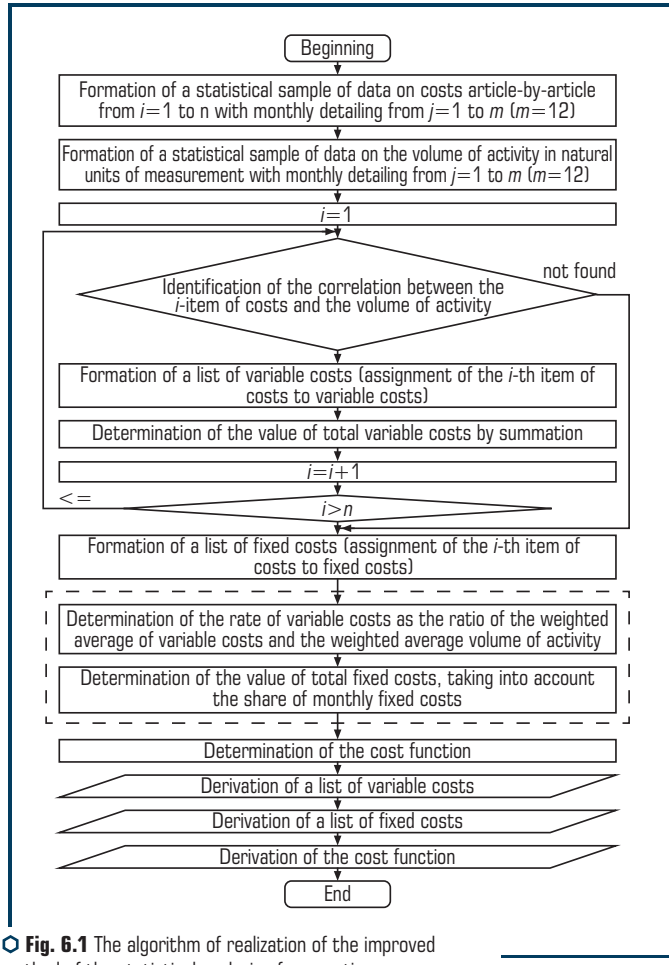

Fig. 6.1 The algorithm of realization of the improved method of the statistical analysis of accounting

Sharing Narchemashvili's view on the need to form a reserve fund [20], the funds of which will allow organizations to function during, for example, the COVID-19 pandemic, it is proposed to add contributions to the reserve fund, which will range from 5–10 % of proceeds from the sale of the organization.

Cost planning in this form will allow you to easily perform operational analysis of not only past but also future activities, which will significantly facilitate the process of enterprise management in terms of sustainable development in the VUCA-world.

Thus, the theoretical and methodological bases of CVP-analysis were deepened by ensuring their compliance with the principles of sustainable development of an enterprise, organization and feasibility of VUCA-solutions that work in advance. Namely:

– the essence of continuous CVP-analysis has been specified by the comprehensive consideration of its destination, purpose, tasks and features of functioning of enterprises in the conditions of sustainable development in the VUCA-world;

– the frequency of CVP-analysis has been determined;

– the expediency of using the method of statistical analysis of accounting as a tool of modern CVP-analysis has been substantiated. It allows you to classify costs by the criterion of responding to changes in the volume of activity, taking into account the dynamic nature of the enterprise environment. Using MS Excell eliminates the high labor and complexity of calculations. In this case, the calculations need to be made only once, because the planning and control of costs by item allows you to determine at any time the variable costs per unit of activity and fixed costs without using the method of cost classification. In addition, the chosen method has been improved by using a different approach to determining the values of variable and fixed costs, which allows to take into account the dynamic nature of the enterprise environment and seasonal fluctuations in the volume of enterprise activity during the year.

In the future it is planned to offer a mechanism of crisis management of an enterprise in the modern business environment based on the principles of sustainable development of an enterprise and the essence of VUCA-solutions, which will be discussed in the next section of this study.

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