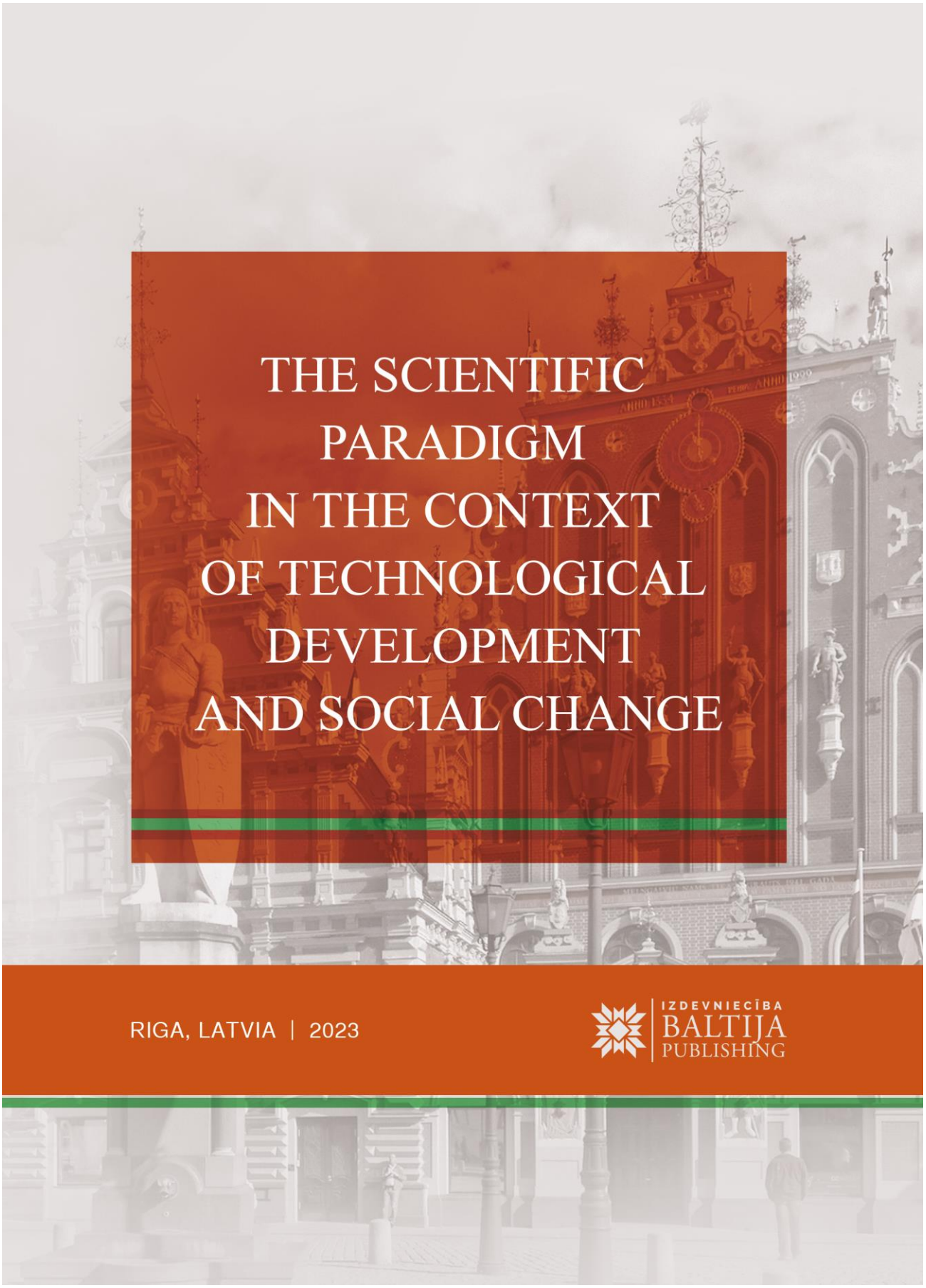

THE SCIENTIFIC PARADIGM IN THE CONTEXT OF TECHNOLOGICAL DEVELOPMENT AND SOCIAL CHANGE

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CHAPTER «ECONOMIC SCIENCES»

DEVELOPING AND IMPROVING ACCOUNTING AND ANALYTICAL SECUREMENT FOR ANTI-CRISIS MANAGEMENT OF ENTERPRISES

Tetiana Mulyk[1]

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Abstract. *The purpose of the paper* is developing and improving accounting and analytical securement for anti-crisis management of enterprises. *Methodology*. The methodological basis of this research was general scientific and special methods, such as idealization and generalization. Achievement of the defined goal and obtaining reasonable results were carried out through using a set of methods of scientific cognition, such as: analysis and synthesis of the review of certain concepts in scientific sources. Abstract-logical, inductive, and predictive methods were used to summarize the study and draw conclusions, etc. *Results*. The research considers issues of development of management accounting on the basis of a risk-oriented approach, characterizing the principles of a risk-oriented approach to management, analyzing the share of enterprises that purchase cloud computing services, considering the methodology of risk-oriented management in the management accounting system, and identifying the tools on the basis of which the risk significance is assessed. It is noted that the transformation of management accounting occurs automatically through the integration of technologies and automation of processes: the structure of the organization changes, financial workers and accountants are more flexible in making decisions regarding planning costs, revenues, and profits. Technologies and new management methods have become a solution to the problem of excessive workload of financial personnel with standardized tasks and processes. Thus, automation enabled the transition from a limited and chaotic management accounting system to a flexible, hybrid one. The use of cloud technologies in accounting to ensure anti-crisis management of enterprises is studied, where the most popular programs for automation of accounting at an enterprise are characterized, the essence, role, types and

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tasks of cloud technologies are assessed, modern cloud services offering comprehensive or partial automation of accounting tasks in Ukraine are characterized, the main advantages and disadvantages of using cloud technologies in solving accounting tasks are highlighted. Promising directions for improving approaches to analyzing the financial condition as an element of preventing enterprise bankruptcy are investigated. *Practical implications*. They are in the scientific validity and applied orientation of the provisions and approaches presented in this study, the use of which will ensure the improvement of accounting and analytical securement for crisis management of enterprises. *Value/originality.* It is proposed to improve the accounting and analytical securement for crisis management through the development of management accounting based on a risk-oriented approach, the use of cloud technologies in accounting, and the improvement of approaches to analyzing the financial condition as an element of preventing enterprise bankruptcy.

1. Introduction

Studies of the current economic situation in Ukraine show that crisis situations are becoming more frequent and their consequences are becoming more and more widespread, so the need to form an effective system as well as accounting and analytical securement for crisis management of an enterprise is becoming acute. The relevance of the chosen one is explained by the fact that it is the provision of anti-crisis activities on a permanent basis that makes it possible to purposefully form an effective subsystem of enterprise management in crisis situations.

Anti-crisis management of the country has become especially relevant in the context of war. Many businesses are currently in crisis, which is reflected in their unprofitable business operations, low financial strength, labor shortages, decreased demand, logistical problems, and many entities do not operate for security reasons, lack of demand, technical reasons, or damage from shelling. Often, some crisis at an enterprise is caused by a mismatch between financial and economic parameters and those of the environment, which in turn is associated with an incorrectly chosen strategy, inadequate business organization and, as a result, poor adaptation to market requirements.

A number of foreign scientists have studied the issues of crisis management of enterprises, among whom the authors should be noted:

E. Altman, W. Beaver, M. Golder, D. Keynes, J. Conan, R. Lees, D. Ricardo, R. Taffler, G. Tishaw and others. In this context, the works of domestic authors, such as: I. Blank, V. Vasylenko, I. Epifanova, L. Ligonenko, H. Ostrovska, N. Oranska, I. Povorozniuk, V. Samoilenko, L. Sytnyk, O. Steshenko, O. Tereshchenko, T. Charkina and others.

The literature review showed that the systematization of approaches to the development and improvement of crisis management and the issues of its accounting and analytical securement require further research.

The purpose of this research is to evaluate different approaches to the development and improvement of accounting and analytical securement for the crisis management system of enterprises.

According to the goal, the following tasks were set: 1) to investigate the directions of management accounting development based on a risk-oriented approach; 2) to determine the directions of using cloud technologies in accounting to ensure crisis management of enterprises; 3) to determine the directions of improving approaches to the analysis of financial condition as an element of preventing bankruptcy of an enterprise.

The methodological basis of this research was general scientific and special methods, such as idealization and generalization. Achievement of the defined objective and obtaining substantiated results were carried out due to using a set of methods of scientific cognition, such as: analysis and synthesis of the certain concepts review in scientific sources. Abstract-logical, inductive, and predictive methods were used to summarize the survey and draw conclusions, etc.

2. Development of management accounting based on a risk-oriented approach

One of the promising methods of anti-crisis management of an enterprise in conditions of uncertainty of the external environment is risk-oriented management, which is aimed at managing risks in economic activity with the aim of minimizing their impact on the results of operations (profit) and finding reserves for increasing the efficiency of operations [1].

The basis of a risk-oriented approach is the identification, analysis and assessment of risks, designed to ensure that every employee understands the vulnerability to risk of an economic object or business process. Establishing the context of risk management at the enterprise in order to ensure its

economic security involves the determination of external and internal parameters that must be taken into account in risk management, as well as the definition of the field of application and risk criteria when applying the risk management policy [2].

A risk-oriented approach to management is based on certain principles (Figure 1).

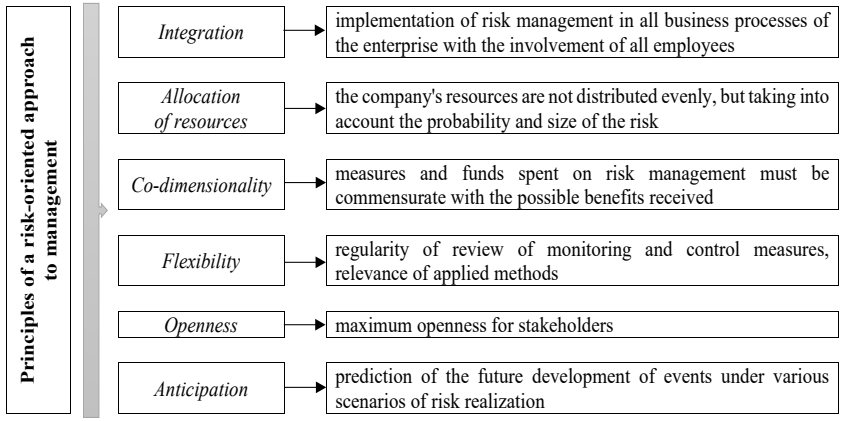

Figure 1. Principles of a risk-oriented approach to management

Source: created by the author based on [2]

In the risk-oriented approach of management accounting, the concept of risk acceptability is considered – a criterion for identifying the nature and degree of risk that can be used in relation to a specific goal. Such criteria are determined by choosing a methodology for determining the amount of risk or parameters related to it simultaneously with the establishment of acceptable values that are unacceptable for a specific risk. Depending on the consequences of the risk, different criteria can be selected, for example, operational risk criteria and personnel safety criteria [3].

Risk acceptability is assessed by:

1. Estimates of the risk-taking capacity (risk capacity), that is, the maximum possible risk that the organization is able to take, taking into account all its capabilities. Risk capacity can be expressed as the maximum capacity provided by the organization's assets, or as the largest financial

loss that the organization will incur without declaring bankruptcy. Ensuring an appropriate level of confidence, the estimated risk capacity must be implemented by stress testing. Management's readiness to use the available risk capacity reflects the enterprise's risk acceptability.

2. In order to optimize decision-making in order to reduce the risk related to safety, in some countries, legally established criteria are used, which regulate the permissible maximum low level of risk, as far as it is either reasonably possible (ALARP criterion) or practically acceptable (SFAIRP criterion).

3. Use of the "global equivalent" (GALE) approach, in which an increase in risks with undesirable consequences from one source is permissible if it is proven that risks from other sources have decreased by an equal or greater amount.

4. Use of cost effectiveness criteria, for example, return on investment [3].

Domestic enterprises carry out risk analysis in the management system in accordance with international regulatory documents, in particular: ISO 9001 – for quality management, ISO 45001 – for occupational health and safety management, ISO 14001 – for environmental management, ISO 22000 – for food safety management, which is a further stage after the identification of risks and requires special attention, because it allows to improve the understanding of the consequences of certain risks, their probability and content.

In Ukraine, the number of enterprises using financial or accounting applications accounted for 5.9% of all enterprises using cloud computing in 2019, increasing from 2,413 enterprises to 3,010 enterprises in 2019 (Table 1).

Among enterprises, the most used programs are large companies (from 250 employees and more) with a share of 5.3%, medium enterprises (from 50 to 249 employees) with a share of 3.4%, while the share of use by small enterprises is 2.1% (from 10 to 49 people) [4]. The software significantly simplifies the calculations of the probability of occurrence and the assessment of risks in monetary terms.

The implementation of the risk-oriented management methodology takes place in the management accounting system and ensures:

1. Promptness of decision-making under the conditions of sufficient amount of information about operating costs in accounting information systems, integration of information from all subsystems. As project structures are integrated, the team works on the basis of a cross-functional approach, where each project member has access to data.

Table 1

Share of the number of enterprises purchasing cloud computing services *(application software for accounting, finance)* **by types of economic activity in Ukraine**

Types of economic activity	2018	2019	2021[1]	Deviation, +/-	Growth rate, %
In total	5,3	5,9	5,5	0,2	3,8
Processing industry	5,2	5,8	5,3	0,1	1,9
Supply of electricity, gas, steam and air conditioning	4,9	6	3,9	-1	-20,4
Water supply; sewerage, waste management	4,2	5,4	4,6	0,4	9,5
Construction	5,4	5,8	3,7	-1,7	-31,5
Wholesale and retail trade; repair of motor vehicles and motorcycles	5,6	6,4	5,9	0,3	5,4
Transport, warehousing, postal and courier activities	3,9	4,8	3,4	-0,5	-12,8
Temporary accommodation and catering	5,2	5,6	5,9	0,7	13,5
Information and telecommunications	7,3	9,6	11,7	4,4	60,3
Real estate transactions	3,8	4	2,8	-1	-26,3
Professional, scientific and technical activity	6,2	7,2	6,2	0	0,0
Activities in the field of administrative and auxiliary services	5	5,1	3,3	-1,7	-34,0
Repair of computers and communication equipment	7,4	4,5	13,8	6,4	86,5

[1] The collection and calculation of data for 2020 was not carried out in accordance with the updated approved statistical methodology, which takes into account the requirements of Commission Regulation (EU) No. 2019/1910 of 07.11.2019 regarding the use of ICT and electronic commerce. According to the specified regulation, the collection, formation and publication of individual indicators regarding the use of ICT at enterprises must be carried out for the year in which the corresponding state statistical observation was carried out

Source: [4]

2. Data is aligned through automation and continuous collection, updating of information that provides added value and flexibility in decision-making. The work of a team of financiers, accountants, and managers on combining data provides additional flexibility. The facts are documented by the whole team, the IT infrastructure ensures that data is saved and updated. The main obstacle to automation is excessive internal and external bureaucracy [2]. This means that the possibilities of the concept of risk-based management accounting are limited by bureaucracy in the accounting subsystem.

3. Integration of technologies (cloud for data storage, quick access, ERP information management system, personnel) ensures centralized, but flexible team management.

4. Technologies provide resource management, quick response to consumer demand and behavior, management of production processes, cost planning, sales, etc.

5. The skills and competencies of the personnel are improved due to the emphasis on complex processes, automation of routine work. Financial managers are able to plan resources and costs instead of simply documenting operations, processes or searching for data. Thus, the accountant, financier is integrated into the team as a person responsible for financial planning, rather than documenting operations after their implementation. Operational business processes are complemented by strategic tasks [3].

Different results of the identified risks are determined when forming the scope of the risk assessment. At the same time, each individual risk may be associated with several other consequences. Companies also identify the indirect effects of risks taking into account changes over time. The action of several risk factors can lead to the emergence of new risks. When grouping such risks, the emergence of a synergistic effect is likely. It is also necessary to foresee the possibility of delayed effects. The complexity of analyzing the consequences of risks varies from vulnerability analysis and careful quantitative modeling to a simpler description of the results. Companies use statistical analysis based on statistical indicators to quantify risks. The value of the risk consequences can be represented by a point value, for example, the most expected value – the arithmetic mean or mode, the spread – the mean squared deviation or variance, part of the distribution – the quantile.

Regardless of the methodology for choosing a point value or the distribution of risk consequences, there are a number of assumptions and

uncertainties, namely: the chosen form of distribution; the most efficient way to represent the point value of this distribution; the value of the point value, taking into account the uncertainty of the data used [3].

The magnitude of the consequences can be expressed by a distribution, which is more relevant if the magnitude of the consequences is little known or not known at all, the consequences depend on the circumstances, or the consequences that exert an influence are characterized by parameters that have differences. Comprehensive information about the consequences of the risk provides an assessment and study of the full schedule of their distribution – a differential or integral function of the probability distribution. In addition, the probability can be expressed in terms of the expected frequency. In addition, the consequences of risks can be assessed through experiments, studies of past events, modeling to determine the development of consequences after the inclusion of some trigger (mathematical or engineering models and logical methods, for example, event tree analysis), methods of encouraging a creative approach, for example, scenario analysis [3].

The probability of an event, as well as of a specific type of consequences, is assessed by: extrapolation from historical data (while ensuring the necessary statistical reliability); synthesis from data of indicators of failure or success of system components – using such methods as event tree analysis, failure tree analysis or analysis of consequences; modeling to generate, for example, the probability of equipment failure [5].

The scientific literature considers possibilities and consequences based on historical background and, using a number of formal methods to identify expert judgments that make judgments explicit, consequences and their probability are combined to represent the level of risk. The obtained data can be used to assess the significance of the risk by comparing the level of risk with the acceptable level or to rank the risks. Methods of combining qualitative values of consequences and probability – index methods and matrices of consequences and probabilities of their occurrence. A single measure of risk can be estimated based on the probability distribution of consequences, for example, by the method "Value at Risk" (VaR) and "Conditional Value at Risk" (CVaR), as well as by the method of "S-curves" [3].

All of the above methods are quite difficult to implement, as they require specific knowledge and experience in statistical processing of results. External experts who have extensive experience in the development and

implementation of enterprise quality management systems will help carry out a risk analysis correctly with certain reliability. Received qualified consultations on all issues of risk assessment and analysis accelerate the process of establishing management systems.

Assessment of the significance of the risk is carried out on the basis of the following tools:

1. Construction of frequency-digital diagrams (F-N) – dependence of the frequency of accidents on their number. For this, historical data on the outcome of incidents related to company losses are used, or to display the results of risk analysis in comparison with predetermined acceptance criteria, while the quantitative analysis necessary for the development of the FN schedule provides a good understanding of the risk and its causes, consequences [3].

2. Construction of a Pareto diagram – a diagram on which the information of the analyzed data is displayed by a histogram from top to bottom according to its priority. It is also called a closed curve or A-B-C distribution. This allows us to know the order of importance of the variables involved in the study. The chart is based on the Pareto principle or law. This Italian engineer, economist, sociologist, and philosopher, who lived in Switzerland until his death, made a rule that seems to hold. He found that 80% of the actions taken are trivial and account for only 20% of the result and vice versa. Therefore, it is the last one that we should put more effort into. Knowing how to interpret a Pareto chart is important in many areas. For example, in marketing it seems true (even in the digital age) that roughly 20% of customers generate 80% of revenue. For this reason, we should focus 80% of our time on them and vice versa. A Pareto chart allows us to know which activities are prioritized according to this principle.

3. Reliability-based maintenance (RCM), which is based on risk analysis with subsequent use to determine the appropriate maintenance policies and tasks of the company's management system and its components in order to effectively ensure the necessary safety, availability and economic operation of all types of equipment. Covers all stages of the risk assessment process, including identification, analysis and measurement. RCM is used to ensure acceptable and effective maintenance. The method is usually applied at the stage of system design and development, and then implemented during operation and maintenance. The greatest benefit is achieved by focusing

the analysis on cases where failures have significant safety, environmental, economic, or operational consequences. It should be noted that an effective process usually takes a lot of time; the process is highly dependent on a trained and experienced coordinator; the team must have all the necessary experience and service experience [3].

4. Use of risk indices. Risk indices are a measure of risk that is established using scoring methods and ordinal scales. Factors likely to affect the amount of risk are identified, evaluated and combined using the relationship equation between them. In the simplest formulations, factors that increase the level of risk are multiplied and divided into factors that reduce the level of risk. The scale and the way they are combined should be based on evidence and data. Risk indices can be used for internal or external risks with both limited and extended scope. They are in some cases specific to a particular type of risk and are used to compare different situations when this risk occurs [3].

Information on the results of risk identification and analysis involves the systematic use of information used to identify hazards in relation to risk aspects or to describe a risk situation. Information should include historical data, theoretical analysis, conclusions based on information, as well as the interests of interested participants in the management process. It is used when forming conclusions about the expediency of risk acceptance, as well as for comparing the significance of the risk with the limits of the organization's performance, which allows decisions to be made about the acceptability of the risk or the need to influence it, as well as the priorities of such influence. Organizing the risk identification process requires solving a number of issues: what information should be collected; from which sources it can be obtained; how this information should be systematized and stored; how to analyze it. After assessing and deciding on the treatment of risks, the risk assessment process can be repeated to ensure that the proposed exposure technologies have not led to additional unwanted risks and that the risk is now within the company's acceptable risks.

The management accounting of domestic enterprises can be used as an effective tool in the system of crisis management, which is more flexible due to the implementation of a risk-oriented approach. The transformation of management accounting automatically occurs through the integration of technologies and the automation of processes: the structure of the

organization changes, financial employees and accountants are more flexible in making decisions on planning expenses, income, and profits. Technologies and new management methods have become a solution to the problem of excessive workload of financial personnel with standardized tasks and processes. Thus, automation enabled the transition from a limited and chaotic management accounting system to a flexible, hybrid one. The skills and competencies of accountants have been expanded, their roles are moving from routine to operational, tactical, strategic, and advanced analysis is being implemented in the accounting system.

3. Use of cloud technologies in accounting to ensure anti-crisis management of enterprises

The rapid development of information and network technologies, which turn from a means of communication into an effective tool for business, anti-crisis management, is the driving force behind the development of economic processes in society.

The use of modern information technologies today is a necessary condition for the successful functioning of business. Accounting software is used at enterprises of any size and organizational and legal forms of business. It is important that modern information technologies change the traditional theory of accounting, and not only the technique of registration, processing and transmission of information in the accounting system, lead to a revision of the basic principles of accounting organization at the enterprise [6].

The process of automation is one of the directions of scientific and technical progress, which is aimed at the application of self-regulated technical means, economic and mathematical methods and control systems, which free a person from participation in the processes of obtaining, transforming, transmitting and using energy, materials or information, significantly reducing the extent of this participation or the complexity of the performed operations. It is one of the few processes in society that has virtually no opponents. The issue of choosing automation tools, supporting automated information systems, evaluating the effectiveness of their functioning and security remains open.

It should be noted that the rapid development of network technologies, in particular, "cloud" computing technologies, creates new opportunities

for developers of accounting software. The possibilities of automating accounting procedures are diverse, their choice depends on a number of factors, in particular the size of the enterprise, the complexity of its structure, branch affiliation, software products available at the enterprise, financial capabilities, etc.

The basis for understanding the essence and comparing the capabilities of existing software products is their classification. By dividing the software into groups according to certain criteria, you can formulate the requirements for the programs and compare their functionality. Within the framework of this study, the classification of accounting software from the point of view of its implementation technology is important.

From the point of view of technical solutions, the entire market of computer accounting systems develops mainly in three directions [7]: traditional "box" accounting automation systems (system "1C: Enterprise", "Parus", "ISpro", etc.); systems for providing electronic reporting and exchange of electronic documents ("ME.Doc", "Art-Zvit Plus", etc.); software services for accounting based on "cloud" technologies ("Accounting SaaS", "iFin", "MASTER: ACCOUNTING", "cloud" solutions for "1C: Enterprise").

The most popular programs for accounting automation at the enterprise are listed in the Table 2.

Cloud computing is becoming an integral part of the work of modern companies. But in order to achieve successful use of this technology, it is necessary to clearly understand the main characteristics of the cloud, its types and which services can be used to optimize work in the cloud.

Cloud computing (cloud computing) is a work model by which a company gains access to shared computing resources such as servers, storage, networks, applications, and other cloud services. All resources can be used and managed by the user without additional help from a cloud service provider. The advantage of the technology is that the user has access to his own data, but does not have to care about the infrastructure, operating system and software with which he works.

The word "cloud" is a metaphor for a complex infrastructure that hides all the technical details behind it.

There are the following categories of cloud technologies:

– Public cloud – simultaneous access of many users to the IT infrastructure. But users do not have the ability to manage and maintain

this cloud, all responsibility rests with its owner. Any company or private individual can become a subscriber of the offered services.

Table 2

The most popular programs for accounting automation at the enterprise

№	Automation programs	Program content
1	"1C:Enterprise"	
1.1	"1C: Accounting 7.7"	It is a universal accounting program designed for synthetic and analytical accounting. Allows you to enter business transactions in several ways: manual entry of business transactions; use of standard operations; using the "Documents and calculations" mode.
1.2	"1C: Accounting 8.0"	It is a program where automated accounting procedures ensure the simultaneous registration of each record of an economic transaction, both on accounting accounts and in the necessary sections of analytical accounting, quantitative and currency accounting. Users can independently manage some methodological parameters of the accounting system as part of setting the accounting policy, create new sub-accounts in the context of analytical accounting
2	"Parus"	It is a system for entering operations according to the appropriate templates. The main capabilities of the system: accounting of fixed assets, materials and small and medium-sized enterprises; accounting of financial settlement transactions; calculation of wages; reports; a new mechanism has been introduced that allows the user to independently configure the forms of all documents regarding implementation, to add documents developed by the user to the system.
3	"M.E.Doc IS"	It is a system of electronic document management, which is a computer program that helps the employee of the accounting apparatus in working with all types of documents in electronic form: invoices, contracts, acts, tax invoices, reports and other accounting documents.
4	"Banking communication ERP"	It is a system that automates budget and production planning, management and accounting, and logistics operations. On the basis of entered economic transactions, the program creates accounting documents and reports based on synthetic accounting data

(End of Table 2)

№	Automation programs	Program content
5	"ABACUS Professional"	It is a system with a full set of accounting, transaction processing with detailed analytical information; accounting for production costs and calculation of production costs, including the formation of relevant entries in the General Ledger; elements of financial analysis; automatic calculation of interest and deduction of taxes; multi-currency operations, generator of reporting forms; hardware and software information protection system; convenient interface.
6	"SoNct Accounting"	It is a system that allows you to automate the following areas of accounting at the enterprise: wholesale and retail trade, warehouse, production, costing, construction. Program capabilities: obtaining information about any element of analytical accounting in real time, generating reports in an arbitrary form for various accounting objects and with different levels of detail, all documents are created and stored in the format Microsoft Excel.
7	"Info-accountan"	It is a system of manual entry of economic transactions and with the help of documents, and performs the following operations: formation of the balance sheet, turnover information, General ledger, analytical accounting information on accounts, order journals and information related to them, check balance, various information and references; analysis of financial activity with the possibility of constructing graphs and charts.
8	"Buchcom-plex"	There is a system where you can issue a document and a business transaction at the same time, and the probability of using a generator of analytical reports, in which you can independently determine the level of necessary analytics, and the program does not have a "Financial Analysis" module.

Source: built by the author based on [8]

– Private cloud – IT infrastructure that is controlled and operated by only one subscriber in his own interests. The infrastructure for managing a private cloud can be located either on the premises of the user, or at an external operator, or partially at the user and operator.

– Hybrid cloud is an IT infrastructure that combines the best qualities of public and private cloud. Such a composition has unique objects connected

to each other by standardized or proprietary technologies that allow data or programs to be transferred between components [9].

Technologies of "cloud" computing are aimed at solving the following tasks [6]: ensuring the possibility of working with files on several devices: editing them without transferring them from one device to another, without having to worry about software compatibility; ensuring the possibility of group work with files; solving the problem of the limited volume of the computer hard disk or flash card and the technical limitations of the devices for performing the corresponding calculations; issues of using licensed software.

That is, "cloud" technologies embody the concept of providing IT resources in the form of services.

At the moment, three giants rule the world – AWS, Azure, Google Cloud. These companies occupy the lion's share of the market around the world (except China, there is also Alibaba Cloud), are technological leaders and set trends in the development of cloud IaaS services. For example, AWS now has more than 100 services (IaaS, SaaS, PaaS) in its portfolio.

SaaS systems are endowed with some defining characteristics:

– Accessibility through a Web browser. SaaS software does not require any additional software to be installed on the user's computer. SaaS systems are accessed through a web browser using open standards or a universal browser plug-in. Cloud computing and proprietary software are not mutually exclusive.

– Availability on demand. With an account, you can access the software at any time and from any geographic location on the globe.

– Minimum IT infrastructure requirements. Configuring SaaS systems requires a minimum level of technical knowledge (for example, to manage DNS in Google Apps), which does not go beyond the scope typical of an ordinary user. A highly qualified IT administrator is not required for this [10].

Based on the results of the research, it was established that the SaaS concept is implemented in the accounting software market both by adapting traditional accounting application software products to "cloud" solutions and by creating new services that provide services only on the basis of "cloud" technologies.

It is necessary to note a significant increase in the offer of "cloud" services that offer complex or partial automation of accounting tasks in Ukraine by companies that have a technical infrastructure and are not developers of

accounting software by adapting the configurations for Ukraine of the "1C: Enterprise" system to work through a web interface (1C in the cloud).

A brief description of modern "cloud" services that offer complex or partial automation of accounting tasks in Ukraine is given in the Table 3.

Of course, the given list of software products is not exhaustive, there are other "cloud" products on the market.

So, taking into account the offer, we can say that "cloud" technologies, in particular, accounting solutions based on the SaaS (Software as a Service) model, are gradually gaining popularity in Ukraine.

Analysis of the advantages and disadvantages of the implementation of applied software products for solving accounting problems using "cloud" technologies according to the SaaS model will allow us to predict the prospects of their use in Ukraine.

Summarizing the works of domestic and foreign researchers makes it possible to highlight the main advantages of using "cloud" technologies when solving accounting problems. Yes, Lyubimov M.O. and Kulyk V.A. the following are noted [6]:

1. Economy. With the use of "cloud" technologies, there is no need for constant modernization of hardware and software for the functioning of information systems, since the company gets access to the computing power, software and necessary disk space of the "cloud" service provider. In addition, there are savings on the IT structure of the enterprise, since there is no need to maintain IT employees and maintain the network.

2. Operability. The use of "cloud" services provides prompt access to information located in the "cloud", regardless of the time of day and geographical location.

3. Flexibility. It is provided through constant updating and adaptation of the information system in the "cloud".

4. Convenience. Ability to work with the system at any time and from any device.

5. Safety. The operation of the system is usually ensured by a qualified team of IT specialists, in addition, "cloud" services allow a clear distribution of access rights.

6. Communication. The use of "cloud" services has a positive effect on improving the cooperation of the accounting service with other divisions and counterparties.

Table 3

A brief description of modern "cloud" services that offer complex or partial automation of accounting tasks in Ukraine

Service name	E-mail address	Brief description
1	2	3
Rent 1C: Accounting for Ukraine 2.0; 1C: Management of a small firm	https://bo.pb.ua https://uit.kiev.ua http://rentsoft.ua https://arenda-soft.com.ua etc.	It is intended for keeping financial, managerial and tax accounting at the enterprise and managing all aspects of its activity. The program has competitive functionality and advantages due to the presence of accounting and tax accounting modules in the system. Due to its almost monopoly position on the market, the "1C: Enterprise 8" program has high-quality technical and methodical support from partner companies, of which there are about 500 in Ukraine. The developers of the "1C: Enterprise 8" program monitor the quality of services provided by partner firms, conduct training and certification activities for the purpose of improving the quality of services and maximally meeting the needs of users. There is a large amount of methodological literature in Russian and Ukrainian languages, a large number of various training courses and video materials. Access to system demonstration databases is provided
jSolutions	https://jsolutions.ua	jSolutions – it is a "cloud" system for automating management and accounting tasks at the enterprise. jSolutions allows not only to fully automate business processes, but also to minimize the costs associated with using the system. A reduction in the total cost of software ownership is achieved due to the possibility of the system working on any operating system (Linux, Ubuntu, Windows, MacOS, Android), the use of conditionally free software (OpenOffice, LibreOffice) and due to the use of such DBMS for data processing, like Oracle or PostgreSQL. The system integrates with various hardware and can work on different devices

(Continuation of Table 3)

1	2	3
Accounting SaaS	https://ioblik.com/	The Accounting SaaS accounting system provides the ability to keep accounting and management records and register operational activities at the enterprise. Implemented configuration for small and medium-sized commercial enterprises. The Accounting SaaS system also implements branch solutions for Ukrainian enterprises: Milk cooperative; housing and utilities; association of co-owners of an apartment building
MASTER: ACCOUNTING	https://masterbuh.com	A software product for accounting and tax accounting at small and medium-sized enterprises. It meets the requirements of the current legislation of Ukraine and is fully adapted to the Ukrainian market. Available in cloud and on-premises solutions. It consists of functional modules covering all areas of accounting and tax accounting: BANKING AND CASH, SALES, PURCHASES, WAREHOUSE, PRODUCTION, H&M, TAX ACCOUNTING, PAYROLL, PERSONNEL, OPERATIONS, REPORTS and basic modules DIRECTORY and ADMINISTRATION
System "Debit Plus"	http://www.debet.kiev.ua/	A full-featured software complex that provides all the necessary functionality for accounting at small and medium-sized enterprises, and is also suitable for an entrepreneur. The basic configuration of "Debit Plus" is distributed free of charge and includes the following modules: Accounting for goods and services, Accounting for bank transactions, Accounting for cash transactions, Accounting for fixed assets, Accounting for salaries, Accounting for personnel, Reporting, Management accounting, CRM – customer relationship management,

(End of Table 3)

1	2	3
		Administration. The program can be used in various operating systems – Windows, Linux, Mac OS. Jasper Report and Open Office (MS Office) are used to create reports and print documents. The system has a modular structure, which allows you to complement the already ready working configuration by installing additional developed modules
Clerk	https://delovod.ua/uk	A program for accounting and submission of electronic reporting for individual entrepreneurs of Ukraine

Source: [6]

According to V. O. Osmyatchenko and V. S. Oliynyk, the advantages of using cloud technologies are:

1) instant access to information in the cloud regardless of time and location;

2) accounting in the cloud increases work efficiency by providing a clear understanding of cases and access to accounting data in real time;

3) acceleration of accounting data exchange;

4) reducing the costs of purchasing server equipment, hardware and software solutions;

5) accounting in the cloud raises business intelligence to a new level, as it provides opportunities for constant access to accounting data and their use for reconciliation and analysis, generation of reports;

6) cloud storage is safe provided data access is protected;

7) improving the organization of accountants' cooperation with other categories of personnel and counterparties [11].

Of course, the use of "cloud" technologies when solving accounting tasks has certain disadvantages and carries certain threats to the information security of the enterprise, the main of which are [6]:

1. The total dependence of service users on the quality of the Internet connection and the impossibility of accessing the system in case of its absence.

2. Various aspects of information security, including the possibility of damage or theft of data. The use of "cloud" services involves the threat

of leakage or theft of information from the network of the "cloud" service provider due to the intentional interception of information by attackers, loss of control over databases and applications, or due to the actions of an insider.

3. The instability of the economic situation in the country threatens to tie the service to a specific provider due to the possibility of its bankruptcy or takeover.

4. Insufficient regulation of the use of "cloud" services for solving accounting problems at the legislative level.

The market of "cloud" services in Ukraine is currently in its nascent stage. The demand for "cloud" services will only grow along with the development of the technological component of these services and the increasing transition of users to mobile platforms from desktop ones. This will also be facilitated by the improvement of regulatory support for the use of "cloud" technologies in business. The development of "cloud" technologies can significantly influence the development of software for solving accounting problems, which, in turn, can lead to a change in approaches to the organization of accounting at the enterprise, its provision of anti-crisis information management.

The main advantages of using "cloud" technologies when solving accounting problems are the reduction of material costs, labor costs, and time spent during the implementation of accounting procedures.

Therefore, the development of information technologies in accounting contributes to increasing the efficiency and quality of an accountant's work, improving control over the financial and economic activities of an enterprise. At the same time, it should be noted that there are problems with information security in information systems. As the volume and complexity of information flows increase, so do the risks of loss and information distortion, which may also be intentional, also increase. Therefore, computer security measures should be strengthened. Depending on the required level of information security, the cost of creating such systems can be identical to the cost of an accounting automation program. The creation and use of cloud-based accounting technologies can not only speed up the collection and processing of information, but also make its presentation more structured. The introduction of cloud technologies is almost inevitable for small and medium-sized businesses. Cloud computing is characterized as a new paradigm in the form of convergence between IT efficiency and

business agility. This will bring the effectiveness of anti-crisis measures into the management system.

4. Prospective directions for improving approaches to the analysis of the financial condition as an element of preventing the bankruptcy of an enterprise

It is obvious that the analysis of the financial state of the enterprise, its informativeness, correctness and objectivity affect the further development of the enterprise, management decision-making and avoiding bankruptcy in the future. Therefore, the methodology of analyzing the financial state and methods of preventing bankruptcy of the enterprise should be researched and prospective directions of their development should be sought in modern conditions.

One of the promising directions for the development of the methodology of the analysis of the financial state is the solution of its current problems, such as the problems of forming high-quality information support for the analysis, a significant number of alternative methodological approaches to such analysis, the problematic use of foreign methods for assessing the financial state of domestic enterprises, the lack of practice of regular analysis of the financial state of Ukrainian enterprises, problems of determining key indicators of financial state analysis, which leads to the formation of redundant or insufficient analytical information, which is provided to management personnel or management for decision-making in the field of ensuring the economic security of the enterprise [12].

Also, one of the directions for improving the methodology of financial state analysis can be the choice of the correct and rational method of calculating systems of analytical indicators, which are determined in order to achieve the goal and will characterize the state and trends of the financial and economic activity of the enterprise as a whole [12]. For even more effective operation of the enterprise, one should build a concept of strategic development taking into account economic, social and environmental priorities and adhere to it, outline a range of measures to increase the level of economic security, respond to internal and external threats, calculate and analyze a number of relative analytical indicators [12].

Therefore, the methodology of financial analysis should be formed in accordance with the modern conditions of existence of the enterprise, different methods should correspond to different tasks and goals of such analysis.

We will find out directions for strengthening the financial condition and ways to prevent bankruptcy of the enterprise.

Modern conditions on the market require modern ways to prevent bankruptcy for more efficient and safer operation of enterprises. The economic crisis due to the coronavirus pandemic, the war has put business in a difficult position and is forcing many businesses to file for bankruptcy. Therefore, in order to prevent such situations from occurring in the future, it is necessary to find ways to prevent bankruptcy that meet the current harsh conditions for business [13].

The development of ways to prevent bankruptcy should be based on the establishment of a cause-and-effect relationship between the causes of bankruptcy itself and the factors that influenced it. One of these methods should be a rational management approach to the development of such an activity and development strategy that would allow achieving maximum results at the enterprise with minimal risks.

The main thesis for managers should be that the anti-crisis strategy should cover the entire period of operation of enterprises, and not only implement it when a crisis situation has arisen. At the pre-crisis stage, risk management in the activities of enterprises should be carried out within the framework of anticipatory anti-crisis management, that is, that is aimed at identifying new opportunities, avoiding potential dangers, as well as transforming threats into opportunities for the enterprise. Preventive measures (precautionary, warning) must be carried out before the opening of the bankruptcy case.

A deep state of crisis requires radical measures to improve the company and prevent bankruptcy. At the post-crisis stage, after analyzing the causes of the crisis, it is possible to create conditions for radical changes, increase innovation and increase production efficiency [14].

The main task of the enterprise in the process of guaranteeing economic security is the accumulation of a sufficient amount and the most efficient use of all resources, which would allow to neutralize threats from the internal and external environment.

The security of the enterprise mainly depends on the personnel and management, the correctness and appropriateness of the decisions made. Even if the enterprise has fallen into a crisis situation, managers must find ways to get out of the crisis in time. It is easier to warn and prevent the

bankruptcy of an enterprise than to look for ways to overcome it later. Let's analyze the existing methods of preventing bankruptcy [15].

Having analyzed the literature devoted to this topic, we can single out several ways to improve insolvency and prevent bankruptcy of the enterprise.

First, it is an opportunity to realize a part of fixed assets that are not directly involved in the production process.

Secondly, refinancing of receivables (transfer to other, liquid forms of current assets) and acceleration of its turnover (by shortening the terms of granting commercial credit).

Thirdly, an increase in cash on the enterprise's current accounts, which will allow the absolute liquidity ratio to increase and the enterprise will be able to take long- and short-term loans from the bank to finance current activities (as is known, loans are issued only to solvent enterprises in which the absolute liquidity ratio meets the norm). An increase in the company's funds can be ensured by the sale of excess production and non-production funds and their rental [16].

In another way, you can single out the use of reverse leasing, that is, when only the owner of one or another leased equipment changes, and the user remains the same, while receiving additional funds to finance his activities. And what we can single out is the optimization of the structure of the allocation of working capital, that is, the search for such a ratio of the use of own and borrowed funds that ensures direct proportionality between the coefficient of financial profitability and the coefficient of financial stability of the enterprise, that is, its market value increases. From the very beginning of the activity of any enterprise, even at the stage of its creation, it is necessary to ensure economic security, implement a system of anti-crisis management and a system of controlling at the enterprise [17].

The enterprise should pay special attention to the application of effective management solutions in the field of clear monitoring of the receipt and expenditure of funds. Other ways to avoid bankruptcy at the enterprise can be "ensuring the balance of assets and liabilities, increasing sales volumes and reducing costs, coordinating production and sales plans, ensuring uninterrupted operation of the enterprise, attracting long-term loans to finance capital expenditures" [18].

No matter what methods of preventing bankruptcy the company uses, the main thing is to find the optimal ratio of equity and debt capital, which would ensure minimal financial risk with maximum return on equity [16].

So, summarizing all of the above, we can say that there are many ways to prevent bankruptcy, for their effective selection, it is necessary to find out what exactly caused it and what factors influenced it. The main thing for an enterprise is to find those ways that are suitable for implementation at this particular enterprise.

5. Conclusions

It is proved that management accounting of domestic enterprises can be used as an effective tool in the system of crisis management, which is more flexible due to the implementation of a risk-oriented approach. The transformation of management accounting automatically occurs through the integration of technologies and the automation of processes: the structure of the organization changes, financial employees and accountants are more flexible in making decisions on planning expenses, income, and profits. Technologies and new management methods have become a solution to the problem of excessive workload of financial personnel with standardized tasks and processes. Thus, automation enabled the transition from a limited and chaotic management accounting system to a flexible, hybrid one. The skills and competencies of accountants have been expanded, their roles are moving from routine to operational, tactical, strategic, and advanced analysis is being implemented in the accounting system.

It has been established that the development of information technologies in accounting contributes to increasing the efficiency and quality of an accountant's work, improving control over the financial and economic activities of an enterprise. At the same time, it should be noted that there are problems with information security in information systems. As the volume and complexity of information flows increase, so do the risks of loss and information distortion, which may also be intentional, also increase. Therefore, computer security measures should be strengthened. Depending on the required level of information security, the cost of creating such systems can be identical to the cost of an accounting automation program. The creation and use of cloud-based accounting technologies can not only speed up the collection and processing of information, but also make its

presentation more structured. The introduction of cloud technologies is almost inevitable for small and medium-sized businesses. Cloud computing is characterized as a new paradigm in the form of convergence between IT efficiency and business agility. This will bring the effectiveness of anti-crisis measures into the management system.

The study of promising areas for improving approaches to analyzing the financial condition as an element of preventing bankruptcy of an enterprise made it possible to determine that there are many ways to prevent bankruptcy, and for their effective selection it is necessary to identify what causes led to this and what factors contributed to it. The main thing for an enterprise is to find those ways that are suitable for implementation at this particular enterprise.

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