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INVESTIGATION OF METHODS OF COUNTERACTING CORPORATE FRAUDULENCE: ACCOUNTING-LEGAL APPROACHES TO THE IDENTIFICATION OF ABUSONMENT

Запропоновано створення власного агентства з фінансових розслідувань на підприємстві, його організаційну структуру, функції, етапи виявлення фактів зловживань та таблиця індикаторів зловживань. Визначено місце фальсифікації фінансової звітності у фінансовому шахрайстві. Обґрунтовано необхідність оцінки ризику фальсифікації фінансової звітності та наведено найбільш суттєві ризики шахрайства з фінансовою звітністю.

Ключові слова: корпоративне шахрайство, фальсифікація фінансової звітності, оцінка ризиків шахрайства, Агентство фінансових розслідувань.

1. Introduction

The business environment in which businesses operate is characterized, on the one hand, by growing globalization, increased control over compliance with legislation and responsibility to society, and on the other – economic risks, one of which is corporate fraud and whose trend is worldwide, including in Ukraine, is sustainable and reduce to:

1) theft of assets (typical schemes of Ukrainian companies are theft of money, assets, other illegal actions with assets);

2) corruption (manifested in obtaining undue benefits as a result of abuses with receivables and payables, fraudulent discounts, overwhelming payment of bills in favor of counterparties);

3) manipulations with reporting and accounting data (for Ukraine are not so common, as a rule, manipulations occur because of the desire to appear better in the eyes of the investor, bank or shareholder).

The ACFE study conducted in 2016 showed that in 23.2 % of cases, fraud losses in enterprises were \$ 1 million. And more, the longer the period of fraud lasts, the more serious the financial damage from and the losses grow proportionally to an increase in this, so the schemes that lasted more than 5 years led to losses of \$ 850000, it is also indicated that 2/3 of the cases, which became known, related to the closed (average loss of \$ 180.000) or open joint-stock companies (average losses – \$ 178000) [1]. As for Ukraine, according to the audit firm PwC (PricewaterhouseCoopers), in 2014 more than 60 % of all Ukrainian companies suffered from fraudulent activities, whereas in 2011 – 36 %, while about 18 % of cases the amount of theft is from \$ 100 thousand to \$ 1 million [2]. According to KPMG in 2016, more than 90 % of fraudulent actions by company employees are due to, or complete lack of internal control (71 %), or its shortcomings (10 %) [3]. Therefore, it is vital to study the issues related to the organization of an effective system of countering fraud.

2. The object of research and its technological audit

The updated framework for organization, implementation and operation of internal control systems and evaluation of their effectiveness (published in 2013 by the Committee of Sponsoring Organizations of the Treadway Commission – COSO), which in force since December 2014, explicitly state that «in assessing risks that can hinder to achieve the set goals, the organization takes into account the likelihood of fraudulent activities» [4]. That is, one of the key components of an effective anti-fraud program is the assessment of fraud risk. At the same time, it is necessary to take into account that the risks of fraud are always growing in an environment of ineffectively controlled environment, and it is not enough to use standard audit methods to detect fraud and risks of fraud, since fraud in most cases is accompanied by well thought out schemes, even in existing «risk libraries» (KPMG, PwC, Ernst & Young, Deloitte), it is not always possible to find adequate, sufficiently detailed solutions for identification and ways of identifying risks. According to KPMG research in 2016, most corporate crimes are provided by the Corporate (Financial) Security Service of the enterprise, and only 6 % of abuses are by the Internal Audit Service [3]. In this connection, let's note that recently foreign experts on financial investigation, audit and accounting considering the problems of interaction between the corporate security service and internal audit (control) are increasingly using the term as a criminal audit, forensic audit, financial investigations, Forensic and draw attention to the appropriateness of using forensic methods in internal audit [5–9], and also focus on the legal understanding of the signs of crime in the system of decision making and key business processes by which it is possible to determine the available facts of fraud in the accounting system and point to such fraud as falsification of financial statements, which, as compared to other types of corporate fraud, usually causes more financial

losses and has a more negative impact on shareholders and investors [10, 11].

3. The aim and objectives of research

The aim of research is justification of the feasibility of creating its own agency for financial investigations of corporate fraud in order to improve monitoring and prevention of fraud risks and identification of the risks of falsification of financial statements in order to develop mechanisms to reduce the risk of falsification of financial statements due to conflicts of professional judgment.

To achieve this aim, the following tasks are defined:

1. To substantiate the feasibility of creating its own Financial Investigation Agency at the enterprise and develop its organizational structure and functions.
2. To propose the stages of revealing the facts of abuse.
3. To identify the falsification of financial reporting in financial fraud and justify the monitoring of fraud risks with financial reporting for the entity, risk ranking and quantitative and qualitative forms of control.

4. Research of existing solutions of the problem

Many foreign theoreticians and practitioners, as well as audit companies (Deloitte, PwC, Ernst & Young, KPMG) and public organizations on accounting and audit are engaged in the problem of corporate fraud, including falsification of corporate financial reporting. For example, some authors [12] point out that in the financial investigation of fraud, it is necessary first of all to investigate the psychology and factors that contribute to the risk of fraud in the enterprise, and they indicate the potential mistakes that management and auditors may have in suspecting employees of wrongful actions. Other specialists [13, 14] describe the schemes of misrepresentation of accounting data and reporting, stressing that knowledge of such schemes in the process of analyzing financial statements in the conduct of financial investigations are necessary to identify fraud. Some researchers [15] give examples of the formation of a plan for financial investigations, methods of collecting and protecting information, and also note the main features of forged documents. Some authors point to the problems of interaction between internal audit and financial investigation [5], and also reveal the facts of fraud with incomes and accounts receivable [16]. In work [6] the author dwells in detail on the inspection of the expenses of the enterprise with the purpose of revealing fraud, and also notes that it is impossible to carry out financial investigations of fraud at the enterprise without the means of criminalistics. It should be noted and the growing interest in this issue in the consulting and legal practice, as well as in domestic scientific literature. In work [17] the modern state of manipulation of indicators of financial reporting at domestic enterprises is investigated and methods of identification of manipulation of accounting records are defined. The author of the article [18] discloses the essence of the internal audit of fraud through the process of identifying the signs of fraud in order to timely prevent fraudulent actions and manipulation of credentials that could lead to bankruptcy of the joint-stock company or its absorption by other enterprises as a result of inefficient managerial decisions. The article [19]

analyzes the role of internal auditors in the prevention and detection of fraud, emphasizes the psychological component of the activity of the internal auditor and proves the existence of a correlation between the level of responsibility and skepticism and the quality of fraud risk assessment by the internal auditor.

5. Methods of research

To solve the problems, the following methods are used: analysis and synthesis, logical generalization, comparative comparison.

6. Research results

As the study showed, the actual issue for each enterprise today is the problem of identifying and combating abuses. This is due to the fact that despite the constant development of internal control and audit systems, business losses from fraud at enterprises grow annually (Table 1).

Table 1

The ACFE investigation on fraud in enterprises in 2016
(collectively based on [1])

No	Indicator	Unit	Value
1	Loss of revenue of the average enterprise from fraud in the year	%	minimum 5
2	Total amount of financial losses from fraud in the enterprise	billion \$	more than 6.3
3	Average amount of fraud loss in the enterprise	\$	150000
4	The average loss rate for one fraud in the enterprise	million \$	2.7
5	Average damage to the state from fraud events in enterprises that occurred at the national level	\$	194000
6	Average damage to the state from fraud events in enterprises that occurred at the regional level	\$	100000
7	Average damage to the state from fraud events that occurred at local enterprises	\$	8000

In this context, let's note that: *first*, there is a legal [20] and economic (accounting) [21] approaches to the definition of «fraud» concept. A legal study of this concept makes it clear:

- 1) *the subject of fraud*: property (money, valuables, etc.) and the right to property (the right to property is usually fixed by a certain document, in the following it allows the intruder to get the property in his property);
- 2) *the ways of fraudulent*: fraud and abuse of trust;
- 3) *signs of fraud* – these are qualifying signs for determining the composition of fraud as a type of crime [20, 22].

In accounting practice, fraud is considered, on the one hand, when it comes to errors or falsification of accounting and reporting data (this is established by the auditors), and on the other hand – characterized by the cumulative actual signs of the crime in the decision-making system and key business processes by which it is possible to identify the available facts of fraud by one or more persons from management personnel in the corporate governance system (legal understanding) [21–24]. It is believed that the most effective method of preventing corporate fraud

is the financial security services (financial investigations, internal audit, internal control and forensic departments) in enterprises interact with external experts. Thus, European companies spend 0.5 to 1 % of financial turnover on business security, Ukrainian companies spend less than 0.1 % [2]. Taking into account the existing achievements of Ukrainian and foreign researchers, as well as the world experience in counteracting this negative phenomenon [2, 6, 7, 10, 13], it is proposed to form a system of internal security of business and counteracting fraud by creating at the enterprise the Financial Investigation Agency itself (to formalize it, as a separate legal entity), headed, for example, by the Deputy Financial Director for controlling and, which for all strategic and operational matters reports to the top management of the enterprise (for example, with regard to decisions on suspected persons, on transferring cases to law enforcement bodies, etc.), and on organizational matters to the financial director (for example, organization and methods of work, etc.), the Agency also interacts with the risk service (fraud risk assessment) and the legal department (evaluation of contracts). Agency staff is certified specialists in finance, audit, accounting and management accounting, psychologists and programmers. The agency includes the following services: information and analytical control, internal audit, financial investigations and psychological prevention of violations. The organizational structure and functions of each service are shown in Fig. 1.

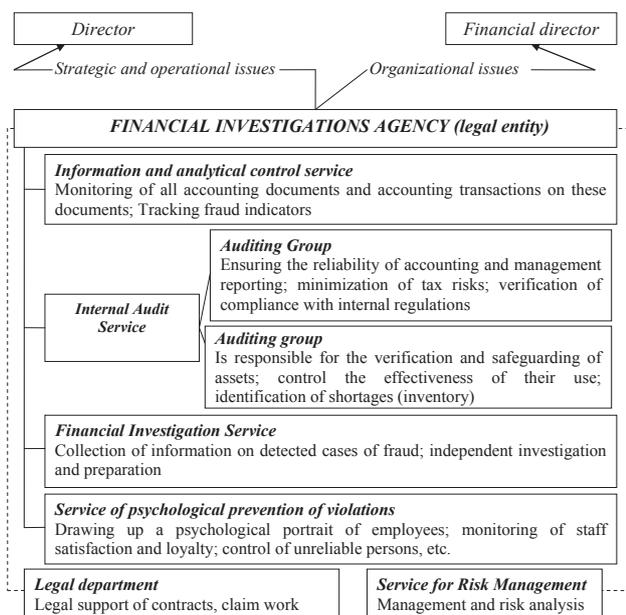


Fig. 1. System of internal security of business and counteracting fraud (developed by the author on the basis of [4, 6, 15, 22])

The identification of the facts of abuse and their analysis is suggested for the following stages:

Stage 1. Drawing up a table of abuse indicators (Table 2) and a library of typical schemes of fraud and abuse (Table 3), which is replenished as needed monthly and sources of new data which may be: internal audit reports, audits, security service activities, management information and experts (for example, an expert on the audit of quality management systems or information security). At this stage, it is necessary to identify business processes where there is more risk of fraud, create a list of fraud scenarios in

the context of these business processes and develop certain indicators of abuse, create a condensed format for the reporting system.

Table 2

Abuse indicators (fragment) (developed by the author on the basis of [4, 9, 11, 16])

No	Indicator	Explanation
1 Business process – implementation		
1.1	Special discounts for buyers	The maximum size and types of discounts are approved in the marketing policy of the enterprise, in practice sales managers, provided that the client is particularly important for the enterprise and the agreement with it will bring income, can provide higher discounts, in this case it is necessary to check the gross profit margin for the transaction and if it is negative, require explanations from the manager
1.2	Increase in overdue accounts receivable	A decrease in the turnover of receivables may indirectly indicate that the company's balance sheet has a large number of fictitious debtors. In the event of overdue accounts receivable, it is necessary to verify the correctness of the shipment in the accounting, and then, together with the sales managers, work out a plan for repaying the debt
2 Business process – purchase		
2.1	Deviation of purchasing prices from average market prices	If there are suspiciously high purchase prices for a contract that has not yet been signed (the difference between contractual and average market prices exceeds 20 %), while the purchasing manager insists that the cost of supply is optimal
3 Business process – production		
3.1	Deviation of the actual cost price from the planned	Costing is carried out by mistake, or extra costs are written off at cost
3.2	Increase in the receipt of raw materials in production leads to an increase in the volume of finished products and production waste	If this does not happen – it is possible that the cause is theft
4 Contradictions in financial indicators		
4.1	The rate of decline in the share of marginal revenue in revenue. Revenue growth rate	If the sales revenue grows (the rate of revenue growth is greater than one), and the share of marginal income in revenue decreases (the rate of decrease in marginal income is greater than one), then there are signs of fraud in the financial statements
4.2	The growth rate of asset quality	If the growth rate of asset quality exceeds one, then, most likely, the enterprise increases the share of non-current assets in the total volume of assets. If the growth of non-current assets is not related to an increase in the number of fixed assets, this may indicate an unjustified capitalization of expenses
4.3	The growth rate of receivables turnover	When the turnover of receivables sharply increases, then it is likely that manipulations with proceeds from sales are being made; When the turnover of receivables is sharply reduced, it can't be excluded that the receivables are artificially overstated
4.4	The growth rate of the share of expenses in sales revenue	If there is a significant deviation from the unit, then manipulation or cost, or with revenue
4.5	The growth rate of the financial leverage	If the growth rate of the financial leverage fluctuates significantly, it is possible that accounts payable are included in profits, that is, an artificial understating of the level of financial leverage leads to an increase in the market value
4.6	The growth rate of the share of depreciation charges	The growth rate of the share of depreciation is approximately equal to unity, if there are sharp changes in this indicator, one can assert about possible fraud in the financial statements

Table 3

Structure of the library of typical schemes of fraud and abuse (fragment on theft) (systematized by the author on the basis of [13, 14, 25, 26])

Indicator	Feature
Signs of abuse	Absence of documents confirming the work/tender; conclusion of an agreement on the performance of work with an enterprise that is not known in the profile market; insufficient details of the terms of the contract (the contract does not contain a list of services, there are no measurable units, etc.); overstated compared to the average market value of the services of the contractor; lack of justification for the need to involve the contractor in the work with own resources; affiliation of the contracting enterprise with the responsible persons of the enterprise-customer; the absence of a contractor at the registration address and so on
Factors of abuse	Conditions that can lead to abuse, they can be divided into three groups: opportunity, motivation and self-justification
Evidence of abuse	The coincidence of data in the acts of the contractor and reports on the work performed by own personnel (work orders); the absence of the result of the works accepted under the act and paid to the contractor; violation of the approved procedure for concluding a contract (no tender was conducted, the agreement was not coordinated with the parent organization), etc.
Probable patterns of abuse	The most likely ways of committing wrongful acts with the available signs and factors of abuse. For example, an enterprise enters into a contract for the performance of work with a contractor, who actually does not have the resources to perform these works. The work is done on its own, but the reports on their implementation are transferred to the contractor and copied to the acts of performed work. Based on the acts, the contractor's services are paid
Possible stakeholders	For each scheme of abuse, a list of persons who may be involved in the crime is listed: initiator; offender
Methods of gathering evidence and conducting investigations	Depending on the alleged scheme of abuse, the investigation methodology is also developed, including methods for clarifying the circumstances of the crime, identifying the persons involved and assessing the caused damage; the possible sources of information and evidence are listed: a list of documents that need to be analyzed (and, if necessary, included in the evidence base), the subject of analysis, from the staff for interviewing. For example, internal correspondence is analyzed to attract and select a contractor; this allows to identify the initiator of the transfer of work to the party and the one which proposed the nominee of the contractor; analysis of documentation on the contract of work helps identify people who have agreed the terms of the contract; verification of acts of completed work – signatures on fictitious documents; The amount of damage (the cost of duplicated works) is estimated based on the reconciliation of the contractor's activities and work reports on the enterprise, and the like

All employees of the internal control and audit service have free access to the Library of Fraud and Abuse Schemes, and employees of other services can receive it only after a special agreement.

Stage 2. Implementation of the control system. The developed tables of indicators of abuse are reported to departments, divisions, branches, etc., which are filled out by employees and the results are analyzed, and it should be borne in mind that violations can be detected only when analyzing related indicators and comparing the results of previous periods with current and extrapolating it to the future.

Stage 3. Systematic identification of abuses and shortcomings – continuous monitoring of the enterprise's organizational environment in terms of risk tracking, provides for implementation at all levels of management of individual responsibility for identifying possible threats and their assessment.

Stage 4. Development of motivation system. The system of evaluation of effectiveness and motivation is developed according to plan-fact analysis data and the rules for awarding and fining are determined in advance and are available for study to all employees.

Secondly, based on the studies (Table 4) conducted by KPMG in 2016 for the CIS countries, it is possible to note that one of the departments most susceptible to fraud is the Finance and Accounting Department (20 %) and one of the types of fraud, namely financial fraud falsification of financial statements (11 %) and this, first of all, harms users of reporting, misleading them, as a result of which wrong decisions are made. It is from this type of financial fraud that the losses for the enterprise are

the most significant, since it is extremely difficult to identify and prevent the distortion of accounting data and falsification of financial statements, because in addition to deliberate distortions, there are also cognitive distortions in conditions of ambiguity, that is, distortions that are the result of conflicts of professional judgments on the application of regulations and accounting regulations (assessment and methodology for the reflection of assets, liabilities, income and expenses in accounting are based on subjective judgments, assumptions). Therefore, it is important to identify, rank and evaluate potential risks of falsification of financial statements, as well as to develop mechanisms to reduce the risk of falsification of financial statements due to conflicts of professional judgment. In this regard, let's propose a table of risks that can arise from fraudulent financial reporting (Table 5), as well as control over the risks of falsification of financial statements and misrepresentation of accounting data with a fundamental qualitative characteristic «essence», the essence of it is the focus of inspections and evaluation both the meaning and nature of the distortions, that is simultaneously carried out, both quantitative and qualitative control.

In the process of quantitative control, foreign companies apply the Trail Balance Review, which involves identifying deviations in the most significant articles of reporting compared to the previous reporting period, with attention paid only to those deviations that, based on practical studies by foreign experts, exceed 10 % level. The technique of qualitative control can be formed on the basis of recommendations developed by SOX (Sarbanes-Oxley Low) [19].

Table 4

The KPMG survey in 2016 on corporate fraud in the CIS countries (generalized by the author on the basis of [3])

No.	Indicator	Value, %
1	Factors contributing to fraud	
1.1	There is no (or ineffective) internal control system	71
1.2	Bad faith of employees	16
1.3	Deficiencies in the internal control system	10
1.4	Other	3
2	Departments and bodies are most susceptible to fraudulent actions	
2.1	Executive agency	24
2.2	Purchasing department	22
2.3	Department of Finance and Accounting	20
2.4	Sales department	14
2.5	Operating department	8
2.6	Governing body	4
2.7	Administrative department	2
2.8	IT department	2
2.9	Human Resources Department	2
2.10	Marketing department	2
3	Types of Intra-corporate fraud	
3.1	Misappropriation of assets	24
3.2	Illegal receipt of income or acquisition of assets	22
3.3	Falsification of financial statements	11
3.4	Corruption	11
3.5	Manipulation of expenses or liabilities	9
3.6	Other wrongful acts	6
3.7	Theft of business	6
3.8	Violation of regulatory bodies	4
3.9	Other	3
3.10	Illegal seizure of information	2
3.11	Commercial sabotage	2
4	Methods of falsifying financial reporting	
4.1	Improper recognition of revenue	31
4.2	Other	24
4.3	Incorrect reflection of expenses	16
4.4	Overvaluation of assets	14
4.5	Distorted capitalization	5
4.6	Understatement of expenses	5
4.7	Understatement of obligations	5

Table 5

Risks of fraud with financial reporting (systematized by the author on the basis of [25–28])

No.	Risks of Level 2	Factors/signs of risk			
1	1-level: The risk of manipulating legislation				
1.1	Risk of tax offenses	Violation of accounting rules for NP (S) A and IASB	The failure of the tax agent to fulfill obligations for the assessment, withholding and transfer of taxes	The concealment of the company's funds at the expense of which the tax arrears must be recovered	Misinterpretation of legislation
1.2	Risk of violation of accounting rules and presentation of financial statements		Incorrect interpretation of NP (S) A and IASB principles	Incorrect accounting policy formation	Not compliance with accounting technology in accordance with accounting policies
2	Level 1: The risk of account manipulation				
2.1	The risk of deliberately false accounting entries in relation to primary documents and accounting rules	Unreasonable accounts, entries in accounting registers do not correspond to the contents of primary documents	Accounting records on accounts of accounting are not confirmed by the corresponding primary documents	Availability of duplicate documents, which reflect the transfer of identical amounts to the same counterparty	Pass-through or local knowingly false accounts, incorrect correspondence of accounts
2.2	Risk of misstatement of accounts	A large number of corrective entries in the accounting registers	Incorrect correspondence of accounts	Discrepancy between data on interrelated forms of financial reporting	Reversed balances on active-passive accounts
3	1-level: Risk of falsification of documents				
3.1	Risk of falsification of primary documents and accounting registers	Intentional distortion of the contents, requisites of the document (this may be a forgery of the entire document or part thereof)	The balance and turnover on synthetic and analytical accounts do not coincide	The reporting items reflect information on the balance sheet accounts or vice versa	Not all information in accordance with NP (C) BU NP (S) A and IASB is disclosed in the financial statements
4	1-level: The risk of imaginary transactions				
4.1	Risk of transactions with one-day firms	Signing fictitious contracts	Transfer of funds to the contractor for work performed on their own	Transfer of funds in the absence of acceptance papers	Absence of the company at the registration address

7. SWOT analysis of research results

Strengths. The strength of research is the rationale for the creation of its own agency for the financial investigation of corporate fraud at the enterprise. Based on the analysis of the experience of the operation of such units in foreign companies, the organizational structure, agency functions and stages of revealing abuses in the enterprise are proposed. A table of indicators has been developed and fragment of the structure of the library of typical schemes of fraud and abuse, which can be used not only to detect fraud, but also to identify, rank and evaluate potential risks, their factors, response measures to abuse, and the establishment of a risk management and control system. The risks of fraud with financial statements and their factors/signs are considered.

Weaknesses. Weakness is that, under the conditions of the development of computer technologies and changing legislation, new fraudulent schemes appear, including falsification of financial statements, so it is necessary to take into account not only the experience of foreign experts and leading audit companies to investigate financial abuses at enterprises but also domestic experience. Financial investigation requires detailed analysis, but unfortunately Ukrainian audit companies do not provide such information.

Opportunities. Opportunities for further research is the study of the risks of cognitive distortion in the context of ambiguity in the interpretation of accounting regulations.

Threats. Threats to the results of conducted research is that the Ukrainian legislative system has significant shortcomings in identifying obstacles to the implementation of falsification of financial statements, both at a regulatory level and in establishing accountability for fraud in accounting.

8. Conclusions

1. The expediency of creating its own Financial Investigation Agency at the enterprise is substantiated and its organizational structure is developed, which includes the following services: information and analytical control, internal audit, financial investigations and psychological prevention of violations. The functions of these services are defined.

2. The stages of revealing the facts of abuse are suggested. In this regard, a table of abuse indicators and a library structure of typical fraud schemes and abuses against embezzlement is developed.

3. The place of falsification of financial reporting in financial fraud and justifiable control of fraud risks with financial reporting for the entity, risk ranking and quantitative and qualitative forms of control is determined. A table of risks that can arise when fraudulent financial reporting is proposed.

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ИССЛЕДОВАНИЕ ПРОТИВОДЕЙСТВИЯ КОРПОРАТИВНОМУ МОШЕННИЧЕСТВУ: БУХГАЛТЕРСКО-ЮРИДИЧЕСКИЕ ПОДХОДЫ К ВЫЯВЛЕНИЮ ЗЛУПОТРЕБЛЕНИЙ

Предложено создание собственного агентства по финансовым расследованиям на предприятии, его организационная структура, функции, этапы выявления фактов злоупотреблений и таблица индикаторов злоупотреблений. Определено место фальсификации финансовой отчетности в финансовом мошенничестве. Обоснована необходимость оценки риска фальсификации финансовой отчетности и приведены наиболее существенные риски мошенничества с финансовой отчетностью.

Ключевые слова: корпоративное мошенничество, фальсификация финансовой отчетности, оценка рисков мошенничества, Агентство финансовых расследований.

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INTEGRATION ON EFFECTIVE MANAGEMENT OF INDUSTRIAL ENTERPRISES ON LEAN PRINCIPLES

Встановлено за частотою згадувань фахівцями сукупність найбільш визнаних методів ощадливого виробництва. Розкрито доречність їх окремого запровадження через досягнення результату практичного використання. Обґрунтовано поєднання методів в різних комбінаціях для ефективного управління виробничими потужностями, матеріальним потоком та документооборотом і внутрішніми регламентами промислового підприємства. Обґрунтовано види синергії як результат підсилення дії окремих методів в різному поєднанні.

Ключові слова: *ощадливе виробництво, метод ощадливого виробництва, інтеграція методів, ефект синергії, промислове підприємство.*

1. Introduction

The priority direction of increasing the efficiency of domestic industrial enterprises in order to ensure sustainable economic development for the long term is the introduction of innovative management methods and tools with a focus on overcoming crisis and atypical situations in conditions of instability, risk and uncertainty. There is a need to revise, actively search for and introduce acceptable methods of effective management of an industrial enterprise with a focus on timely and quality performance of orders from buyers to ensure the proper and expected value. In this connection, there arises the problem of choosing rational methods of enterprise management taking into account the maximum use of the inherent advantages and simultaneous leveling of restrictions with a focus on the priority of achieving the desired results, subject to the consumption of limited resources, the specifics of the operation and the uniqueness of the production technology. In modern conditions, in all spheres of activity, combining methods and their integrated use, in particular on the basis of frugality, is becoming increasingly important, which contributes to integrated management and assessment of the functioning

of not only the industrial enterprise, but also the relationships with its partners, in particular suppliers and buyers.

2. The object of research and its technological audit

The object of research is methods of managing an industrial enterprise in their interaction, taking into account the focus of the result within the introduction of the concept of lean production.

It should be noted that the operation of each method is aimed at eliminating losses and reducing the cost of operations [1], but taking into account the dual nature of losses [2], the result can vary significantly in each industrial enterprise depending on the sector of the economy and the uniqueness of the technology. In case of separate use, there is a chance of providing a short positive result – a reduction in unproductive losses [1, 3]. For long-term success, it is advisable to consider using the integration of methods, which will allow to get the best result on the basis of synergy through the strengthening of the action of each without restriction or contradiction between them. The interaction of the methods of the lean production concept