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ISSUES OF DEVELOPING A RISK MATRIX FOR COST AUDITS IN LIGHT INDUSTRY ENTERPRISES

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Abstract

This article discusses the need to organize cost audits in light industry enterprises based on a risk-based approach. The study examines the identification of audit risks related to the cost of raw materials and materials, direct labor costs, production overhead, work in progress, cost of finished goods, scrap and waste, and their assessment in terms of probability and impact.

Keywords: Cost audit, risk matrix, audit risk, internal control, cost calculation, material consumption, audit evidence, analytical procedures.

Cost audit in light industry enterprises is important for ensuring reliable formation of product costs, rational use of production resources and fair reflection of financial results. The production process in this industry is closely related to the movement of raw materials, basic materials, semi-finished products, labor costs, production overheads, waste and defective products. Therefore, if cost audits are conducted at the level of simple document verification, hidden errors in product costs, excess costs, incorrectly distributed overheads and discrepancies in the assessment of work in progress may not be sufficiently identified. This situation



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increases the need to organize cost audits in light industry enterprises in a risk-oriented manner.

Scientific sources on textile production specifically note the priority of material consumption in the cost structure: “In textile enterprises, material costs occupy a large share in the cost of production; therefore, management control over the use of raw materials and materials is of primary importance” [1, Sativaldieva D.A., p. 1]. This idea suggests that when developing a risk matrix for cost audits in light industry enterprises, it is necessary to first of all separate control over the movement of materials, raw materials supplied to production, technological losses, returnable and non-returnable waste, and semi-finished products as a separate risk block. In particular, if the movement of fabrics, yarns, leather, fittings, paints, packaging materials, and other resources in the production process is not compared with documents, warehouse residues, laboratory or technological standards, and actual costs, significant deviations in the cost structure may occur. In the process of cost auditing, it is not always practical to examine all areas to the same extent. Because some cost objects in the production process pose a higher risk of error, distortion or wasteful spending than others. The risk-based audit approach is important precisely in this regard: “Risk-based planning should focus the auditor’s attention on the areas that pose the highest risk to the organization’s objectives” [2, PEMPAL IACOP, p. 8]. This approach allows, when drawing up a cost audit program in light industrial enterprises, to identify the main risk areas of the audit: materials consumption, direct labor costs, overhead costs, work in progress, cost of finished goods, scrap and waste. As a result, the audit time, labor resources and evidence collection activities are concentrated on the most important, most influential and most impactful areas of the financial statements.



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The risk matrix is used in cost audits as a systematic assessment tool, not as a random list of risks. It shows the likelihood of each risk occurring, its financial impact, the level of existing internal control, the source of audit evidence, and mitigation measures in a linked manner. International audit approaches also emphasize the need to take into account the level of probability and impact when assessing risk: “The auditor should analyze the identified risks of error by assessing their likelihood and quantitative impact” [3, IAASB — “ISA 315 (Revised 2019), p. 248]. This requirement justifies the need to divide each risk into “low”, “medium” and “high” levels when developing a risk matrix for cost audits in light industrial enterprises, determine the scope of the audit based on the results of this assessment, and link audit actions to the quality of evidence.

The relevance of developing a risk matrix in light industry enterprises is that this industry has many production stages, a wide range of products, rapid movement of raw materials and materials, and constantly changing work-in-progress. In such conditions, if the connection between cost accounting and audit is not sufficiently established, incorrect cost formation, underestimation of real costs in the production units, and erroneous management decisions on product profitability may occur. Therefore, the development of a special risk matrix for cost audits is not only a tool for planning an audit, but also a mechanism for strengthening internal control, improving management accounting, and optimizing production costs on an economic basis.

The main purpose of this article is to substantiate the theoretical, methodological and practical aspects of developing a risk matrix that can be used in the cost audit process at light industrial enterprises. To achieve this goal, the main risks encountered in cost audits are grouped, criteria for assessing them by probability and impact are determined, sources of audit evidence are determined, and control and analytical procedures aimed at reducing risks are systematized. As a result,



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cost audits at light industrial enterprises can be conducted not on separate sections such as checking raw material consumption, distributing overhead costs, assessing the cost of work in progress and finished products, but on the basis of a single risk-oriented audit mechanism.

The issue of developing a risk matrix for cost audits in light industry enterprises is covered in the scientific literature through three main areas: the first is production costs and cost calculation, the second is management accounting and internal control, and the third is a risk-based audit approach. A joint analysis of these areas allows us to systematize the risks in cost audits not only by assessing them as general audit risks, but also by material consumption, overhead costs, work in progress, cost of finished goods, waste and scrap.

In studies conducted on textile production, a significant role of material costs in the cost of production is highlighted. D.A. Sativaldieva expresses the following opinion in this regard: “In textile enterprises, material costs occupy a large share in the cost of production; the movement of raw materials and materials is the main direction of management control” [4, Sativaldieva D.A. — p. 325]. This approach justifies the need to separate the movement of materials as a separate risk block when compiling a risk matrix for cost audits at light industry enterprises. Because the input, transfer to production, processing and storage of fabric, yarn, leather, accessories, paint, packaging materials and other production resources directly affect the true formation of the cost. Therefore, in the risk matrix, raw material consumption standards, actual costs, technological losses, warehouse residues and inventory results should be evaluated as interrelated indicators.

In the domestic literature, the issue of management accounting and cost classification is analyzed using the example of light industry enterprises. In the study of I.B. Jumaniyazov, the need to distinguish between financial and management accounting is stated as follows: “In financial accounting, costs are



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classified by economic elements, and in management accounting, by calculation items; transit accounts are used” [5, Jumaniyazov I.B. — p. 2]. This idea shows that in cost audits, the risk matrix should be formed not only on the basis of accounting records, but also by calculation items, product types, workshops, orders and production stages. While financial accounting data in light industry enterprises represent the total cost, management accounting serves to determine the level of material capacity, labor capacity, the share of overhead costs, scrap and waste. The risk matrix connects these two information flows and determines specific areas of inspection for the auditor.

The Russian-language methodological literature on risk-based auditing promotes the idea of concentrating audit resources on the most important areas. The PEMPAL IACOP methodological manual explains this issue as follows: “The main problem of internal auditors is the effective allocation of limited resources, the selection of audit areas; for this, it is necessary to assess the risks across the entire audit area” [6, PEMPAL IACOP — p. 7]. This approach is of practical importance in developing a risk matrix for cost audits. In a light industrial enterprise, not all cost items require the same level of audit attention; sections such as material consumption, distribution of overhead costs, work in progress and cost of finished goods have a strong impact on the financial result. Therefore, the risk matrix serves to determine audit priorities when forming an audit plan, determine the scope of evidence collection, and identify weak points in internal control.

International auditing standards emphasize that risk assessment is carried out by determining the probability and impact level. The following requirement is made in the ISA 315 standard: “The auditor determines the inherent risk of identified material misstatements by assessing the probability of error and the quantitative impact” [7, IAASB — p. 248]. This requirement forms the methodological basis



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of the risk matrix. In light industry, overspending on materials may have a high probability and high impact; an error in the allocation of overhead costs has a medium probability and high financial impact; discrepancies in some low-value auxiliary materials are assessed as a low-impact risk. In this way, the risk matrix serves as a methodological tool that is more accurate, has a stronger economic content, and links the results of the audit with management decisions than conducting audit activities in the form of a general list.

Literature analysis shows that for the effective organization of cost audits at light industrial enterprises, it is necessary to assess the composition of production costs, management accounting information, the state of internal control and audit risks in a single system. Local literature covers the organizational and methodological aspects of cost accounting and management accounting in more detail; Russian-language methodological sources describe in detail the issue of distributing audit resources according to the level of risk; international audit standards, on the other hand, direct the assessment of risks based on the criteria of probability and impact. The combination of these three areas justifies the need to develop a special risk matrix for light industrial enterprises.

This study addresses the issue of developing a risk matrix for cost audits at light industry enterprises by examining the interrelationship of the structure of production costs, the state of internal control, the adequacy of audit evidence, and risk factors affecting costs. The methodological basis of the study was formed based on the procedure for identifying, assessing, grouping, and linking risks to audit activities. The main focus was on the systematic assessment of risks arising from the consumption of raw materials and materials, direct labor costs, production overhead costs, work in progress, cost of finished goods, scrap, and waste.



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When developing a risk matrix, the objects of the cost audit are initially determined. These include the movement of raw materials and basic materials, resources allocated to production, costs by department, calculation items, overhead cost allocation bases, work in progress, cost of finished goods, scrap and technological waste. The risk assessment process is based on a consistent procedure used in international risk management approaches: “The risk management process includes identifying, analyzing, assessing and, if necessary, taking measures” [8, ISO/UNIDO — p. 7]. This approach, in accordance with the topic of the article, allows you to isolate risks in a cost audit as separate events, analyze their causes and consequences, and then determine audit actions.

The study combined qualitative and quantitative approaches to risk assessment. In qualitative assessment, the content of each risk, the cause of its occurrence, the level of coverage by internal control, and the impact on costs are studied. In quantitative assessment, the probability of occurrence of the risk and its financial impact are assessed based on scores from 1 to 5. The risk level is determined in the following manner: $\text{risk level} = \text{probability} \times \text{impact level}$. As a result, 1–5 points are defined as a low risk zone, 6–12 points as medium risk, and 13–25 points as a high risk zone. In light industry, for example, deviations from material consumption standards may have a high probability and high impact; small deviations in some auxiliary materials are included in the low risk group.

When compiling a risk matrix, the assessment of the state of internal control is distinguished as a separate methodological stage. Internal control ensures the consistency of resource movements, document circulation, inventory results, division of responsibilities in production departments, and accounting records. The COSO concept explains this as follows: “Internal control is a process that provides reasonable assurance regarding the achievement of operational, reporting, and compliance objectives” [9, COSO — p. 3]. This idea justifies the need for light industrial enterprises to not only link the risk matrix to the audit plan, but also to integrate it with internal control processes. In particular, the flow of documents between the raw material warehouse, production workshops,



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finished product warehouse, and accounting department serves as an important criterion for determining the level of risk.

The study also covers the issue of selecting and evaluating audit evidence in relation to the risk matrix. In high-risk areas, the auditor, along with checking documents, uses such operations as recalculation, comparison of inventory results, analytical comparison, comparison of material consumption standards and actual costs, and revision of the distribution of overhead costs. The following opinion is given in the local textbook on audit evidence: “Sufficiency is a quantitative measure of audit evidence; the amount of evidence required depends on the assessed risks and the quality of the evidence” [10, Khodjaeva MX — p. 31]. This approach shows that in the cost audit methodology, as the level of risk increases, the requirements for the volume, quality, and reliability of audit evidence increase.

The development of a risk matrix is carried out based on the following steps:

Stage	Methodological content	Field of application in light industry	Expected result
Stage 1	Identify cost objects	Raw materials, labor, overhead, WIP, finished goods, waste and scrap	Audit area is marked.
Stage 2	Grouping risk factors	Excessive material consumption, incorrect calculation, discrepancy in WIP estimation	A list of risks is being compiled.
Stage 3	Probability and impact assessment	Each risk is rated on a scale of 1–5.	Risk level is determined
Stage 4	Assessing the state of internal control	Document flow, warehouse control, inventory, responsible persons	Control weaknesses are identified
Stage 5	Selecting audit procedures	Recalculation, analytical comparison, testing, verification of inventory evidence	The audit program is being clarified.
Stage 6	Documenting the results of the risk matrix	Final assessment of low, medium and high risk zones	Management and audit conclusions are formed



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In this methodology, the risk matrix performs three main tasks for cost audits in light industry enterprises. First, it identifies the most important risk zones in cost accounting. Second, it adjusts the volume and procedure for collecting audit evidence to the level of risk. Third, it links internal control and management decisions with cost formation. On this basis, the risk matrix is used as a methodological tool in the audit of production costs, determining specific areas of inspection for material consumption, labor costs, overhead costs, work in progress, finished goods, scrap and waste.

The results of the study indicate the need to distinguish three main areas of support in developing a risk matrix for cost audits at light industry enterprises: the first is to conduct cost and cost calculations by product type, workshop, order, and production stage; the second is to assess audit risks by probability and impact; the third is to systematize audit activities, sources of evidence, and control measures for identified risks. This approach allows light industry enterprises to consider material consumption, labor costs, overhead costs, work-in-progress, finished goods, waste, and scrap in a single audit area.

In the literature on local management accounting, costs and cost calculation are directly related to management decisions. B.A. Khasanov, Z.U. Ganiev and D.A. Mukhammedova explain the function of management accounting as follows: “Management accounting provides the necessary information for making tactical and strategic management decisions, covers cost accounting and cost calculation” [11, Khasanov B.A, Ganiev Z.U, Mukhammedova D.A – p. 267]. Based on this idea, the risk matrix in light industry enterprises is not only compiled in the form of an audit checklist; it should become a practical tool for cost accounting serving management decisions. For example, if a high risk is identified for raw material consumption, the auditor not only checks the accuracy of the documents, but also



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compares the actual costs, technological standards, warehouse balances and data from production departments.

According to the results of the analysis, the following main risk groups were identified for cost audits at light industry enterprises: excessive consumption of raw materials and basic materials; allocation of direct labor costs to incorrect product types; inclusion of production overhead costs in the calculation using unsubstantiated bases; inaccurate assessment of work-in-progress; inconsistency of the cost of finished products with production documents; poor accounting of technological waste and scrap products. These risks directly affect the reliability of costing, financial results, and the economic validity of management decisions. The relevance of cost information plays an important role in the development of a risk matrix for cost audits. The IFAC Methodological Guide states this as follows: “Cost information used for strategic and operational decisions, performance management, or reporting should be appropriate to the purpose, context, and legal requirements” [12, IFAC – p. 9]. This approach justifies the need to assess each cost object separately when developing a risk matrix in light industrial enterprises. Since one general cost indicator does not provide sufficient information for the auditor; information by product type, order, shop, technological stage, and responsibility center helps to more accurately assess risk. In the risk matrix model developed in the article, risks are assessed in three levels of “likelihood” and “impact”: low, medium, and high. Low-probability and low-impact risks are monitored through monitoring; medium-probability risks are assessed through random checks, recalculations, and analytical comparisons; high-probability and high-impact risks are assessed through extended audit procedures, inventory, full traceability of the document chain, and analysis of deviations across production departments. This approach helps to focus audit resources on the most important cost areas.



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Risk matrix model for cost auditing in light industry enterprises

Risk Probability / Financial Impact	Low impact	Medium impact	High impact
Low probability	Monitoring and periodic control	Selective inspection	Analytical comparison
Medium probability	Recalculation	Advanced selective inspection	Priority inclusion in the audit program
High probability	Strengthening control measures	Inventory and chain of custody verification	Complete audit procedures and management action

This diagram serves as a practical roadmap for cost audits in light industry enterprises. For example, if actual costs for basic raw materials consistently exceed technological standards, this risk is placed in the high probability and high impact area. In this case, the auditor checks the relationship between warehouse receipts, production release certificates, technological cards, inventory results and finished product output. If the discrepancies for some auxiliary materials are small in number and infrequent, they are left in the monitoring area.

In internal control approaches, the risk assessment process is interpreted as a continuous and iterative process. In the COSO concept, this idea is expressed as follows: “Risk assessment is a dynamic and iterative process of identifying and evaluating risks to the achievement of objectives” [13, COSO – p. 4]. Based on this approach, the risk matrix for cost audits in light industry enterprises should not be used as a one-time table; it should be updated quarterly, depending on changes in production volumes, raw material prices, order portfolio, product range and technological processes.

The discussion shows that the risk matrix at light industry enterprises combines three stages of cost auditing. At the first stage, cost objects are identified: raw materials, materials, labor, overhead, work in progress, finished goods, waste and



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scrap. At the second stage, the probability, impact, level of control and audit evidence are assessed for each object. At the third stage, audit procedures are selected: document verification, recalculation, inventory, analytical comparison, deviation analysis, comparison by workshops and product types. As a result, the audit process is organized on the basis of clear criteria, priorities and evidence.

According to the results of the study, the following indicators are key in the cost audit risk matrix for light industry enterprises: percentage of deviation from the material consumption standard; share of production overhead costs in the cost; change in work in progress by period; difference between the cost of finished goods and the selling price; share of defective products; level of waste; warehouse residues and inventory discrepancies; profitability by product type. These indicators serve to harmonize quantitative and qualitative criteria in the risk matrix.

The results show that the effectiveness of cost audits in light industry enterprises directly depends on the correct grouping of risks, the selection of audit procedures appropriate to the level of risk, and their connection with internal control measures. The risk matrix helps to identify the most important sources of errors in material consumption, cost calculation, overhead costs, work in progress and finished goods accounting. At the same time, it transforms the audit results into practical recommendations for improving production efficiency, regulating resource use, and managing costs on an economic basis.

The development of a risk matrix for cost audits in light industry enterprises is an important methodological tool for ensuring the correct formation of product costs, the effective use of production resources and the reliability of financial results. During the study, it was established that the main risk areas in cost audits are raw materials and materials consumption, direct labor costs, production overhead costs, work in progress, finished product costs, technological waste and scrap.



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The assessment of these risks by probability, impact level, internal control status and sources of audit evidence will direct the audit in a clear direction, reduce the amount of unnecessary checks and increase attention to the most important cost objects.

The use of a risk matrix turns cost auditing at light industrial enterprises from a document review into a broader analytical and control mechanism. In this case, material consumption standards and actual indicators are compared, the basis for the allocation of overhead costs is assessed, work-in-progress and finished product residues are checked, and deviations in waste and defective products are identified. As a result, the risk matrix serves to strengthen internal control, reduce errors in cost calculations, manage production costs, and make economically sound decisions. In this regard, the development of a special risk matrix for cost auditing at light industrial enterprises is one of the important directions for improving the quality of practical audits and optimizing enterprise costs.

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