ECONOSCITECH INTEGRATION

ISSUE 5

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

TASHKENT STATE UNIVERSITY OF ECONOMICS

American University of Technology
Powered by Arizona State University®

ISSN: 3060-5075

Acceptance of articles

PUBLISHED EVERY MONTHLY

ARTICLE CONTRIBUTORS

PROFESSORS-TEACHERS, SPECIALISTS AND SCIENTIFIC RESEARCHERS.

Google Scholar · Academic Resource Index ResearchBib · BASE · OpenAIRE · doi Digital Object Identifier · OPEN ACCESS

CONTACT: +998 94 3540880 https://econoscitech-integration-journal.uz 2026

THE SCIENTIFIC-POPULAR ELECTRONIC JOURNAL **"ECONOSCITECH-INTEGRATION"** HAS BEEN REGISTERED UNDER THE NUMBER C-5669651 BY THE AGENCY FOR INFORMATION AND MASS COMMUNICATIONS (AOKA) OF THE REPUBLIC OF UZBEKISTAN, EFFECTIVE FROM OCTOBER 9, 2024.

In accordance with Resolution No. 384/6 dated April 10, 2026, issued by the Presidium of the Supreme Attestation Commission under the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan, this journal is included in the list of recommended international scientific publications for publishing the primary research findings of doctoral dissertations in the field of Economic Sciences.

Partners: Tashkent State University of Economics / American University of Technology in Tashkent (AUT)

Electronic publication, Issue 5. 374 pages.
Approved for publication on May, 2026.

Editorial Board Members:

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

INDICATOR-BASED IMPROVED METHODOLOGY FOR DETERMINING INTERNAL AUDIT SIGNIFICANCE LIMITS IN THE PUBLIC SECTOR

Ismatillayev Baypolat Khushvaqtovich
Researcher, Tashkent State University of Economics

Abstract. The article presents an improved indicator-based methodology for determining the materiality threshold for internal audit in the public sector. The research problem lies in the absence of a unified and scientifically grounded procedure for calculating the materiality threshold in national practice. Based on a systematic approach, comparative analysis, mathematical modelling, and a case study, a five-stage methodology is developed, and the calculation of the materiality threshold using the formula M = B × C × S × A is substantiated. The methodology is tested using the example of a higher education institution, and differentiated materiality thresholds are calculated for various public sector organizations. The results provide a practical methodological basis for internal audit services.

Keywords: materiality threshold, internal audit, public sector, base indicator, sector coefficient, materiality memorandum, ISSAI 1320, audit effectiveness.

Аннотация. В статье представлена усовершенствованная индикаторная методология определения уровня существенности внутреннего аудита в государственном секторе. Актуальность исследования обусловлена отсутствием в национальной практике единого научно обоснованного подхода к расчёту уровня существенности. На основе системного подхода, сравнительного анализа, математического моделирования и метода кейс-стади разработана пятиэтапная методология и обоснован расчёт уровня существенности по формуле M = B × C × S × A. Предложенная методология апробирована на примере высшего образовательного учреждения, а также рассчитаны дифференцированные уровни существенности для различных организаций государственного сектора. Полученные результаты формируют практическую методическую основу для деятельности служб внутреннего аудита.

Ключевые слова: уровень существенности, внутренний аудит, государственный сектор, базовый показатель, отраслевой коэффициент, меморандум существенности, ISSAI 1320, эффективность аудита.

INTRODUCTION

The Development Strategy of New Uzbekistan for 2022–2026 identifies increasing the efficiency of public fund utilization and improving the state financial control system as priority tasks. In the implementation of these tasks, the institution of internal audit in the public sector plays an important role.

At the same time, the analysis shows that national practice still faces a significant methodological gap: there is no unified, scientifically grounded, and properly documented methodology for calculating the materiality threshold in public sector internal audit services. As a result, the materiality threshold is often determined based on the auditor's professional judgment; different auditors may apply different thresholds to the same audit object; and the comparability and reliability of audit results may decrease. This situation forms the research problem and determines the need to develop an improved indicator-based methodology for determining the materiality threshold.

LITERATURE REVIEW

Errors and omissions that may lead to unnecessary financial costs, losses, or damages, as well as mislead users when making decisions based on financial reports, are considered significant or material (Tulahodjaeva, 2011).

In most cases, the overall level of materiality is determined not immediately, but gradually, through a general assessment of the totality of audit evidence collected during the audit of individual segments (Mamatov, 2002).

The concept of reasonable assurance requires auditors to plan and perform an audit in such a way as to obtain reasonable, but not absolute, assurance that material misstatements will be detected. This concept recognizes that material misstatements may exist in financial statements even if they are not identified by auditors (Coate, 2002).

Materiality is a threshold characteristic in accounting that influences the application of other qualitative characteristics of financial information. Financial information is considered material if it is capable of affecting the decision-making process. The omission or alteration of material information may change the judgments and decisions of rational users regarding the activities of an economic entity (Farajzadeh and Azizzadeh, 2012).

Although materiality is directly related to audit performance and the auditor's subsequent opinion, insufficient disclosure of information about materiality has caused users, including investors, and regulators to be cautious in assessing auditors' application of materiality (Tuttle et al., 2002).

RESEARCH METHODOLOGY

The research is based on a pragmatic philosophy and follows a deductive approach: a clear calculation algorithm for national practice is derived from the requirements of international standards. The research design has a methodological and practical character and consists of two components. The first involves developing the theoretical framework of the methodology, while the second focuses on testing it through a practical example within a case study strategy.

The following methods were used in the research: comparative analysis to compare international ranges of materiality thresholds and select stricter standards for the public sector; a systematic approach to designing the five stages of the methodology as an integrated process; mathematical modelling to express the materiality threshold through a multiplicative formula; a case study to test the methodology using data from a model higher education institution; tabular and graphical methods to systematize and visually present the results; and forecasting to assess the expected effectiveness of the proposed methodology.

ANALYSIS AND RESULTS

The starting point for developing the methodology is the generalization of baselines and percentage ranges used in international practice to determine the materiality threshold. In the private sector, materiality is usually determined as 5–10% of profit, 0.5–1% of operating income, 0.5–2% of assets, or 1–2% of shareholders' equity (AICPA, 2006; Arens et al., 2018).

In the public sector, however, the composition of baselines differs due to the absence of a profit indicator. The study identified three main baselines for public sector organizations and recommended stricter percentage standards for their application, as presented in Table 1.

Table 1
Basic indicators for determining the threshold of importance in the public sector[1]

No.	Basic indicator	International range	Recommended strict standard
1	Budget expenses	0.5–5%	5% (upper limit)
2	Total value of assets	0.5–2%	2% (mid-range)
3	Annual income (for independently funded organizations)	1–2%	0.5% (lower limit)

The strict standards presented in the table comply with the requirements of international standards ISA 320 and ISSAI 1320 and contribute to improving audit quality. Budget expenditures define the upper threshold as the most important indicator for the public sector; assets define the medium threshold, reflecting the volume of property under management; and income defines the lower threshold for independently financed organizations.

However, the percentage standard itself does not constitute a complete methodology. The materiality threshold should be calculated through consecutive stages and properly documented. For this purpose, the study developed an improved methodology consisting of five successive stages, as presented in Figure 1.

1 Developed by the author

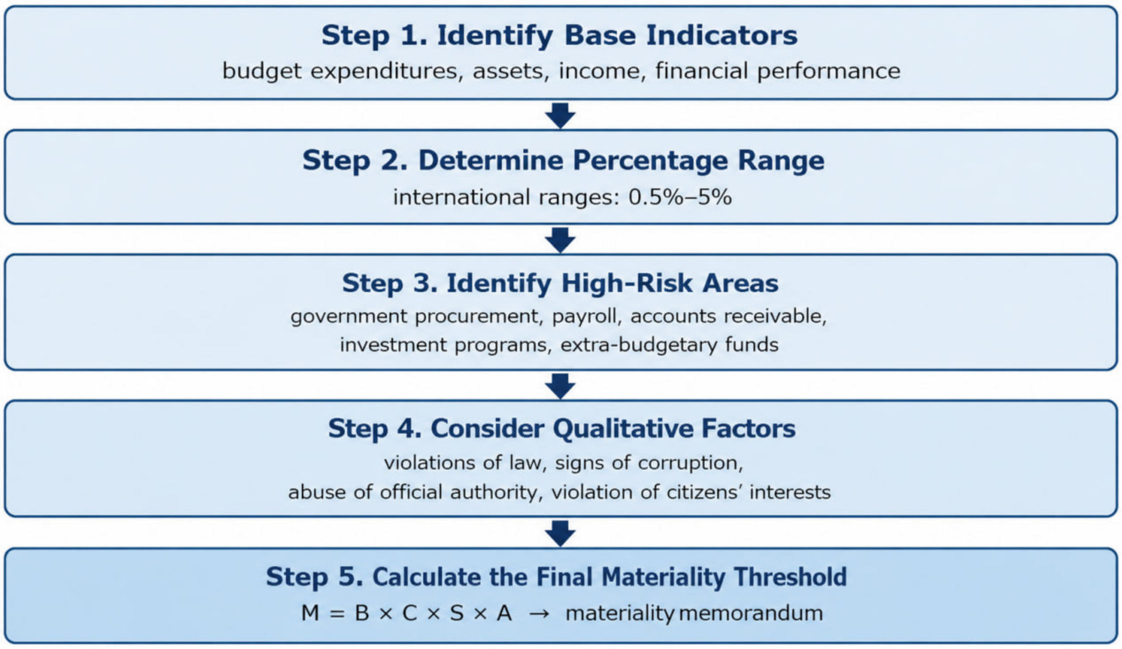

Figure 1. Conceptual structure of the five-step methodology for determining the threshold of significance[2]

The figure shows that the stages of the methodology are arranged in a logical sequence. First, complete information about the audit object is collected, and the main financial indicators are identified. Then, a percentage threshold is selected in accordance with international practice. At the third stage, high-risk areas are identified, including public procurement, payroll, accounts receivable, investment programs, and extra-budgetary funds, for which the materiality threshold may be set lower than usual.

At the fourth stage, qualitative factors are taken into account, including violations of legislation, signs of corruption, abuse of official authority, and infringement of citizens' interests. In the public sector, such cases are considered significant regardless of their monetary value (INTOSAI, 1977). At the fifth stage, the final materiality threshold is calculated using the proposed formula. The content of each stage and the corresponding final document are standardized in Table 2.

Table 2
The contents and resulting documents of the stages of the improved methodology[3]

No.	Step	Things to do	Result document
1	Selection of basic indicators	Collection and analysis of financial data	Table of data
2	Interest limit setting	Choosing an interest rate according to international standards	Interest Limit Statement
3	Identification of hazardous areas	Identify and assess high risk areas	List of hazardous areas
4	Taking into account qualitative factors	Assessment of the risks of illegality and corruption	Qualitative factor analysis
5	Calculation of final importance	Calculation according to the formula M = B × K × S × A	Memorandum of Importance

2 Developed by the author
3 Developed by the author

The core of the methodology is a new calculation formula used in the fifth stage:

$$\mathbf{M = B \times K \times C \times A,}$$

here

M — significance limit;

B — basic indicator;

K is the interest rate;

S — sector coefficient;

A is the adaptation coefficient.

The content and value ranges of the formula components are presented in Table 3.

Table 3

Description of the components of the formula M = B × K × S × A[4]

Component	Contents	Value range
B-base indicator	Budget expenditures, asset value, or annual income	Absolute value
K-percentage factor	Default case significance percentage	0.5–5%
S-sector coefficient	Adjusted coefficient according to the type of organization	0.7–1.3
A-adaptation coefficient	Taking into account the specific characteristics of the organization	0.8–1.2

A distinctive feature of the proposed formula is the sector coefficient (C), which makes it possible to account for the sector-specific characteristics of public sector organizations. For high-risk sectors, the coefficient is assigned a value greater than one—for example, 1.3 for public procurement and 1.2 for construction and investment activities. For sectors with relatively lower risk, the coefficient is set below one, including 0.9 for the education sector and 0.8 for government administrative agencies. A neutral value of 1.0 is applied to healthcare institutions. These coefficients were established on the basis of experimental analysis.

The adaptation coefficient (A) reflects the specific circumstances of an individual organization, including the results of previous audits, the quality of management, and the effectiveness of the internal control system. It is determined within the range of 0.8–1.2 based on the auditor's professional judgment. Consequently, the proposed formula combines quantitative standardization with professional judgment, which is fully consistent with the principles and requirements of ISA 320 (IFAC, 2018).

To demonstrate the practical application of the proposed methodology, data from a model higher education institution—the Tashkent Financial Institute (TFI)—were selected for the case study. The institute's key financial indicators are as follows: budget expenditures of UZS 75.5 billion, total assets of UZS 180.3 billion, and annual income of UZS 92.8 billion (Table 4).

Table 4

Steps to calculate the significance threshold for sample OTM[5]

No.	Step	Value and explanation
1	Choosing a baseline	Budget expenditures — 75.5 billion soums (the most important indicator for the public sector)
2	Determining the interest rate	K = 5% → basic importance 3.775 billion soums
3	Applying the sector coefficient	S = 0.9 (education sector)
4	Applying the adaptation factor	A = 1.0 (default case)
5	The final significance threshold	M = 75.5 × 0.05 × 0.9 × 1.0 = 3.398 billion soums (4.5% of the budget)

4 Developed by the author

5 Developed by the author

The results of the case study confirm two important features of the proposed methodology. First, the final threshold, amounting to 4.5% of budget expenditures, is close to the international benchmark of 5%, but slightly lower due to its adaptation to the education sector. This confirms the systematic and scientifically grounded nature of the calculation.

Second, all stages are carried out in a transparent and properly documented manner. The materiality memorandum, prepared at the end of the calculation process, consists of eight main sections and includes all calculations, supporting evidence, and auditor decisions. It also complies with the requirements of ISSAI 1320 (INTOSAI, 2019). This helps reduce inconsistencies between auditors and creates a reliable basis for assessing the quality of audit work.

To assess the differentiation capacity of the methodology, materiality thresholds were calculated for various public sector organizations, as presented in Table 5.

Table 5
Materiality threshold for various public sector organizations (sample calculation)[6]

No.	Organization type	Budget, billion soums	Sector coefficient (S)	**Significance limit, billion soums**
1	Large ATM	150.0	0.9	6.75
2	Secondary school	75.0	0.9	3.38
3	Small ATM	25.0	0.9	1.13
4	District administration	85.0	0.8	3.40
5	Healthcare facility	120.0	1.0	6.00
6	Governing body	200.0	0.8	8.00
7	Construction organization	300.0	1.2	18.0

The analysis of the table shows that the materiality threshold varies depending on both the budget size and the sector coefficient. The calculated thresholds range from UZS 1.13 billion for a small higher education institution to UZS 18.0 billion for a construction organization. It is noteworthy that even in organizations with comparable budget sizes, the thresholds may differ significantly due to sector-specific characteristics. For example, for a healthcare institution with a budget of UZS 120 billion, the threshold is UZS 6.0 billion, while for a construction organization with a budget only 2.5 times larger, the threshold is three times higher, amounting to UZS 18.0 billion. This clearly confirms the ability of the methodology to reflect sector-specific risks.

The methodology also establishes recommended values for different levels of materiality: overall materiality — 4.5–5.0% with an average of 4.75%; performance materiality — 3.0–3.75% with an average of 3.4%; specific materiality — 0.5–2.0% with an average of 1.25%. Qualitative materiality is assessed depending on the specific circumstances. These levels are consistent with indicators used in the practice of the U.S. Government Accountability Office (GAO, 2018).

The advantages of the methodology are reflected in six key areas: scientific validity, ensured through compliance with international ISSAI and ISA standards and an expected 25% increase in audit quality; systematicity, achieved through a five-stage sequential process and a projected 40% reduction in errors; standardization, enabling all auditors to apply a unified approach and ensuring stable results; adaptability, provided through the sector coefficient and improving accuracy by reflecting sector-specific characteristics; documentation, ensured by preparing the required documents at each stage and strengthening control; and automation, which enables the use of software tools and may reduce calculation time by 60%.

According to forecasts developed on the basis of experimental work, the introduction of the methodology is expected to significantly increase the audit efficiency index, as shown in Figure 2.

6 Prepared by the author

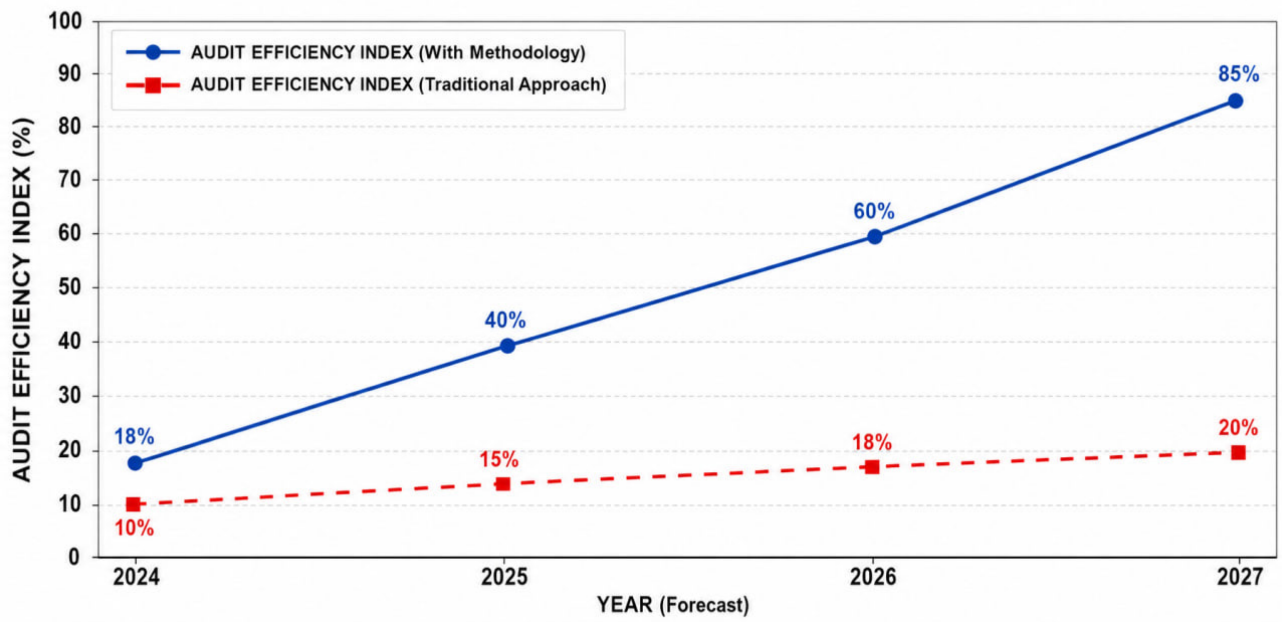

Figure 2. Forecast of the impact of the improved methodology on the audit effectiveness index (2024–2027)[7]

The figure shows that, with the introduction of the improved methodology, the audit efficiency index is expected to increase from 65% in 2024 to 88% by 2027, while under the existing traditional methodology it is not expected to exceed 70%. This also confirms the practical significance of the proposed methodology: the efficiency of the audit service may increase by approximately 1.3–1.4 times.

From a discussion perspective, it should be noted that the obtained results are consistent with the conclusions of the literature review. Quantitative standardization does not eliminate professional judgment; rather, it places it within a transparent and verifiable framework (Arens et al., 2018; Pickett, 2020). In the public sector, the direct inclusion of qualitative factors in the process of determining and calculating materiality is consistent with the principles of the Lima Declaration (INTOSAI, 1977).

At the same time, for the methodology to become fully operational, it should be integrated with the risk assessment system. This follows from the inverse relationship between materiality and audit risk and represents an important direction for further research.

CONCLUSIONS AND RECOMMENDATIONS

The conducted research shows that the goals and objectives of the study were fully achieved, leading to the following main conclusions.

First, based on the analysis of international practice, three basic indicators for the public sector were identified: budget expenditures, assets, and annual income. Corresponding fixed percentage standards were established at 5%, 2%, and 0.5%, respectively.

Second, a five-stage methodology for determining the materiality threshold was developed. Each stage has clear content and a specific output document, which ensures full standardization and documentation of the process.

Third, the formula for calculating the materiality threshold, $M = B \times K \times S \times A$, was proposed. The sector coefficient K within the range of 0.7–1.3 reflects sector-specific characteristics, while the adaptation coefficient A within the range of 0.8–1.2 takes into account the specific organizational situation.

Fourth, the methodology was tested using the example of a model higher education institution. The calculated materiality threshold amounted to UZS 3.398 billion, or 4.5% of the budget, and differentiated thresholds were calculated for various types of organizations.

Fifth, it was substantiated that the introduction of the proposed methodology may increase the audit efficiency index to 88% by 2027 and improve economic efficiency by approximately 1.3–1.4 times.

7 Prepared by the author

REFERENCES

1. AICPA. (2006). *Statement on Auditing Standards No. 107: Audit Risk and Materiality in Conducting an Audit*. New York: American Institute of Certified Public Accountants.

2. IFAC. (2009). *ISA 320: Materiality in Planning and Performing an Audit*. International Federation of Accountants.

3. Tulakhodjaeva, M., Ilhamov, Sh.I., Akhmadjonov, K.B., Faiziev, Sh., Khodjaeva, M.Kh., & Tulaev, M.S. (2011). *Audit: Textbook*. Tashkent. 227 p.

4. Mamatov, Z.T. (2002). Conditions of Materiality in Audit Activities. *Economic Bulletin of Uzbekistan*.

5. Coate, C.J., Florence, R.E., & Kral, K.L. (2002). Financial Statement Audits: A Game of Chicken? *Journal of Business Ethics*, 41.

6. Farajzadeh, A., & Azizzadeh, T. (2012). Comparing Active Auditors' Viewpoints in the Public and Private Sectors over Determining Basic Materiality Levels in Auditing. *Journal of Global Economy*, 1.

7. Tuttle, B., Coller, M., & Plumlee, D. The Effect of Misstatements of Varying Magnitude on the Decisions of Financial Statement Users: An Experimental Investigation of Materiality Thresholds.

Proofreader: Xondamir Ismoilov

Layout and Designer: Oloviddin Sobir ugli

2026. № 5

To publish articles in this journal, you may submit articles, advertisements, stories, and other creative materials through the following links. Materials and advertisements are published on a paid basis.

You may subscribe to the journal at any time using the following details. Once subscribed, please send a screenshot or photo of your payment confirmation to our Telegram page @iqtisodiyot_77. Based on this, we will send the latest issue of the journal to your address each month.

Our address: Tashkent city, Yunusobod district, 19th block, House 17.