

INNOVATION SCIENCE AND TECHNOLOGY



Scopus || Electronic journal specializing in Scopus

ISSUE 11



Acceptance of papers **November, 2025**



**Acceptance of
papers**

Published monthly



Topics

economics,
technology, social
sciences

**EDITOR-IN-CHIEF:**

Mirzaliyev Sanjar Makhmatjon ugli

DEPUTY EDITOR-IN-CHIEF:

Makhmudov Nosir Makhmudovich
DSc., Prof., Academician

DEPUTY EDITOR-IN-CHIEF:

Ochilov Bobur Bakhtiyor ugli – Senior
lecturer at TSUI

THE SCIENTIFIC-POPULAR ELECTRONIC
JOURNAL **"INNOVATION SCIENCE AND
TECHNOLOGY"** HAS BEEN REGISTERED
UNDER THE NUMBER **C-5669633** BY THE
AGENCY FOR INFORMATION AND MASS
COMMUNICATIONS (AOKA) OF THE
REPUBLIC OF UZBEKISTAN, EFFECTIVE
FROM OCTOBER 9, 2024.

CONTACTS

Phone: **+998 50 737 87 88**

Website: <https://ist-journal.uz>

Email: innovationist2025@gmail.com

The scientific electronic journal "Innovation Science and Technology" has been included in the list of scientific publications recommended for the publication of main scientific results of dissertations for the award of PhD and DSc degrees in economics and technical sciences, in accordance with the Resolution No. 370 of the Presidium of the Higher Attestation Commission of the Republic of Uzbekistan, dated May 8, 2025.

Electronic publication, Issue 11. 418 pages.
Approved for publication on November, 2025.

Editorial board:

Sharipov Kongirاتبay Avezimbetovich,
Doctor of Technical Sciences (DSc), Professor



Abdurakhmanova Gulnora Kalandarovna,
Doctor of Economic Sciences (DSc), Professor



Cham Tat Huei,
Doctor of Philosophy (PhD), Professor (Malaysia)



Muhammad Imran Sadiq
Doctor of Philosophy in Economics (PhD),
Professor, Malaysia



Ahmed Aziz Ismail
Doctor of Technical Sciences (DSc),
Professor (Egypt)



Lee Chin
Doctor of Philosophy in Economics (PhD),
(Malaysia)



Asongu Simplice
Doctor of Philosophy in Economics (PhD),
Cameroon



Rui Dang
Doctor of Chemistry (DSc), Professor, China



Zahoor Ahmed
Doctor of Philosophy in Economics (PhD), Turkey



Shujaat Abbas
Doctor of Philosophy in Economics (PhD), Russia



Tina A Coffelt
Doctor of Philosophy in Educational Sciences
(PhD), USA

CONTENTS

POVERTY AND DEVELOPMENT	14
Kholmirzayev Abdulhamid Khapizovich	
WAYS TO ACHIEVE ECONOMIC STABILITY THROUGH THE IMPLEMENTATION OF INNOVATIVE TECHNOLOGIES IN INDUSTRIAL ENTERPRISES	23
Sadriddinov Bakhtiyor	
STRUCTURE-PROPERTY RELATIONSHIP OF ORGANOSILICON MATERIALS: EVALUATION BASED ON THERMOGRAVIMETRIC ANALYSIS	36
Tosheva Dilfuza Farxodovna, Siddikov Ikrom Iminjonovich, Rakhimov Firuz Fazlidinovich	
"CREATING AN ALGORITHM AND SOFTWARE TOOL FOR PERSONAL IDENTIFICATION USING FACIAL SCANNING TO PROTECT THE OPERATING SYSTEM"	43
Usmonov Maxsud Tulqin o'g'li	
ENSURING INTERDISCIPLINARY INTEGRATION BASED ON MOBILE LEARNING TECHNOLOGIES.....	51
Zaripov Olimjan Kuvandiq son	
MONITORING OF THE AYDAR-ARNASAY LAKE SYSTEM AND ASSESSMENT OF THE CHEMICAL COMPOSITION OF COLLECTOR WATER INFLOWS INTO THE LAKE ECOSYSTEM.....	55
Erkabayev Furkat Ilyasovich, Madrimov Rajabboy Masharipovich, Aminov Khamza Khusanovich	
APPROBATION OF THE RESISTANCE OF BRICKS MADE FROM "ANGREN" SECONDARY KAOLIN TO THE EFFECT OF LIQUID METAL.....	62
Umurov Ulug'bek Meylievich	
THEORETICAL AND PRACTICAL FOUNDATIONS OF PERFORMANCE-BASED BUDGETING.....	68
Allakuliev Akmal Baltayevich	
IMPROVING ECONOMIC MECHANISMS THROUGH EFFECTIVE USE OF ORGANIZATIONAL AND LEGAL FRAMEWORKS IN TOURISM DEVELOPMENT.....	71
Abdusalomov Djamshid Abdusalomovich	
TEMPERATURE-RADIATION REGIME OF THE TERRITORY OF UZBEKISTAN FOR THE DESIGN OF SOLAR GREENHOUSES	76
Ilkhom Ismatovich Rakhmatov, Shakhzod Niyoz ogli Izomov	
THEORETICAL ASPECTS OF GREEN FINANCING IN FORMING A GREEN ECONOMY	81
Khalikov S. X.	
MUVAFFAQIYATLI STARTAP FAOLIYATIDA ROL O'YNOVCHI MUHIM OMILLAR VA O'ZBEKISTON SHAROITIDA STARTAP EKOTIZMINING RIVOJLANISHI.....	87
Qosimova Dilorom Sobirovna	
EFFECTIVENESS OF INNOVATION MANAGEMENT SYSTEMS.....	92
Umarova Nilufar Abdukakhorkizi	
INFLUENCE OF INTERNATIONAL RANKING ORGANIZATIONS ON HIGHER EDUCATION INSTITUTIONS AND EXISTING PLATFORMS	96
Urozboev Khayrulla Murodboy ugli	
BASE STATION MONITORING TECHNOLOGIES IN MOBILE NETWORKS	103
Ibrokhimkhujja Rikhsikhujjaev, Mohit Bhandwal	
FORMATION AND MANAGEMENT OF INVESTMENT PROJECTS OF ENTERPRISES	108
Abdunazarov Saidakhmat Abdumalikovich	
THE IMPORTANCE OF QUALITY MANAGEMENT IN ENTERPRISE ACTIVITY MANAGEMENT.....	113
Rasulov Shavkat Sharof son	
PARTICIPATORY BUDGETING OF THE STATE BUDGET	117
Khamidov Khabibullo Khikmatulla ogli	
TRANSFORMING THE HIGHER EDUCATION SECTOR THROUGH PUBLIC-PRIVATE PARTNERSHIP UNDER CONDITIONS OF DIGITALIZATION	123
Abdullayev Javohir Abdumalik og'li	
WAYS TO IMPROVE THE EFFICIENCY OF THE FINANCIAL MANAGEMENT SYSTEM IN ENTERPRISES.....	131
Begalov Sherzod Maxsutaliyevich	

DIRECTIONS FOR IMPROVING THE RESERVOIR SAFETY ASSESSMENT AND MANAGEMENT SYSTEM USING THE EXAMPLE OF THE TALIMARJON RESERVOIR.....	136
Xodjaqulova Nodira Xosiyatqul qizi	
ECONOMIC EFFICIENCY AND INNOVATIVE TRANSFORMATION PROCESSES OF DIGITAL TECHNOLOGY IMPLEMENTATION IN UZBEKISTAN'S OIL AND GAS INDUSTRY	141
Tarakhtiyeva Gulmira Kulbayevna	
INNOVATIVE APPROACHES TO RISK MANAGEMENT AND ASSESSMENT OF INVESTMENT PROJECTS IN THE DIGITAL ECONOMY.....	145
Muxitdinova Kamola Alisherovna	
INNOVATIVE COOPERATION AND MARKETING STRATEGIES FOR STRENGTHENING THE REGIONAL ECONOMY: THE CASE OF NAMANGAN REGION	149
Sattarov R. A.	
MARKETING PROBLEMS IN THE INTERNATIONAL TEXTILE MARKET AND FOREIGN EXPERIENCES IN SOLVING THEM.....	159
Musayeva Shoira Azimovna	
THE PROBLEMS OF LINGUISTIC ANALYSIS OF ELLIPTICAL SENTENCES IN MODERN ENGLISH.....	165
Jurayeva Hilola Kamol qizi, Eshonkulov Ravshan Tokhirovich	
THE EFFECTIVENESS AND PROSPECTS OF INTEGRATING ARTIFICIAL INTELLIGENCE INTO URBAN SECURITY DEVELOPMENT	171
Iminov Akbarjon Odiljonovich	
21ST CENTURY CHANGES AND THE GROWING IMPORTANCE OF PROFESSIONAL ENGLISH PROFICIENCY	175
Rakhimova Shirin Utkurovna	
A COMPARATIVE STUDY OF UZBEKISTAN'S INNOVATION EFFICIENCY: EVALUATING GII OUTPUT-INPUT RATIOS RELATIVE TO LEADING AND EMERGING INNOVATIVE ECONOMIES	179
Umidjon Khoshimov	
ANALYSIS OF MODERN FINANCING MODELS FOR OUTSOURCING SERVICES IN PRESCHOOL EDUCATIONAL INSTITUTIONS AND THEIR EFFICIENCY	189
Khamidov Anis Choriyeovich	
СРАВНИТЕЛЬНЫЙ АНАЛИЗ АРХИТЕКТУР ДИАЛОГОВЫХ СИСТЕМ ДЛЯ МЕДИЦИНСКОЙ ПРЕДМЕТНОЙ ОБЛАСТИ	195
Гофуржонов Мухаммадали Расулжон угли, Бурханова Айгуль Ильясовна	
EFFICIENT USE OF FINANCIAL RESOURCES IN UZBEKISTAN'S FORESTRY SECTOR	201
Mamatqulova Muxlisaxon Mamirjanovna	
ESG RISKS AND CORPORATE ACCOUNTABILITY: GLOBAL LESSONS AND IMPLICATIONS FOR UZBEKISTAN	206
Zakhidov Azizbek Rustamovich	
PRACTICE OF FOREIGN COUNTRIES IN PROVIDING FINANCING FOR ENTREPRENEURS' INNOVATIVE INITIATIVE.....	211
Jubanova Bayramgul	
SAMARQAND VILOYATIDA IJTIMOIIY XIZMATLAR SOHASINING RIVOJLANISH DARAJASI VA SAMARADORLIK KO'RSATKICHLARI.....	216
Berdiyeva Nafisa Qahramonovna	
TOURISM SERVICES MANAGEMENT AND IMPROVEMENT IN UZBEKISTAN	221
Otaxonova Iroda Xamdamjon qizi	
TO'G'RIDAN-TO'G'RI XORIJIY INVESTITSİYALARNING O'ZBEKISTONDA IQTISODIY BARQARORLIKNI TA'MINLASHDAGI AHAMIYATI VA UNING DINAMIK TAHLILI	228
Abdurasul A.Sobirov	
O'ZBEKISTON RESPUBLIKASIDA TADBIRKORLIKNI TASHKIL ETISHDA MOLIVAVIY TAVAKKALCHILIKNI BAHOLASH	233
Bayxonov Baxodirjon Tursunbayevich	
ANALYZING N-SHAPED ENERGY VERSUS ENVIRONMENT MODEL: EVIDENCE FROM UZBEKISTAN.....	240
Xalimjonov Nurbek Ulug'bek o'g'li, Toxirov Shodiyor Zafar o'g'li, Jumamuratov Sultanbek Iyasovich	

PROSPECTS FOR DEVELOPING SUSTAINABLE TOURISM IN UZBEKISTAN.....	248
Alieva Makhbuba Toychievna	
EXPANDING THE FINANCIAL CAPABILITIES OF LOW-INCOME FAMILIES THROUGH DIGITAL FINANCIAL SERVICES	252
Bauyetdinov M.J., Djumamuratova Xurliman	
ANALYSIS OF FACTORS AFFECTING THE EFFICIENCY OF PUBLIC PROCUREMENT.....	258
Abdurakhmonova Mahliyo Nurmamatovna	
THE IMPACT OF SMALL AND MEDIUM ENTERPRISE FINANCING ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM UZBEKISTAN.....	262
Aziza Farmonovna Ergasheva, Rustam Olimjonovich Oltinov	
ANALYSIS OF FACTORS INFLUENCING THE ACTIVITIES OF THE COMPANY'S SALES NETWORK.....	277
Usmanov Ilkhom Achilovich	
NODAVLAT OLIY TA'LIM MUASSASALARINING TIZIMLI RIVOJLANISHIDA MARKETING FAOLIYATINING SAMARADORLIGINI OSHIRISH.....	282
Yuldashov Isomiddin Sidiqovich	
LEVERAGING OPEN INNOVATION AND DIGITAL PLATFORMS TO ACCELERATE SUSTAINABLE STARTUP ECOSYSTEM DEVELOPMENT IN EMERGING ECONOMIES	288
Azamov Sardor Telman ugli	
PROSPECTS FOR ENSURING BALANCE BETWEEN INDUSTRIAL SECTORS IN THE TERRITORIES OF THE ZARAFSHAN REGION	297
Murtazayev Isabek Bazarbayevich	
THE IMPACT OF ECONOMIC GROWTH ON UNEMPLOYMENT IN CENTRAL ASIA.....	306
Kungratov Ilmurod Kuzibay ugli, Jumayev Samariddin Sayfiddin ugli	
EKOTURIZMNING BARQAROR RIVOJLANISHDAGI AHAMIYATI: TABIIY RESURSLARNI MUHOFAZA QILISH VA MAHALLIY HAMJAMIYATLARNI QO'LLAB-QUVVATLASH MASALALARI.....	313
Hamzayeva Dilfuza Samarovna	
THE ESSENCE, IMPORTANCE, AND NECESSITY OF INNOVATION ACTIVITY IN SMALL ENTERPRISES.....	320
Yuldashev Kodirjon Mamadjanovich	
EFFECTIVE MANAGEMENT OF THE FINANCIAL STABILITY OF THE ENTERPRISE.....	326
Baymuratova M.M.	
ENHANCING FINANCING MECHANISMS FOR EARLY CHILDHOOD AND SCHOOL EDUCATION FACILITIES: INTERNATIONAL LESSONS FOR UZBEKISTAN	331
Murodbek Boltaboev	
THE IMPACT OF DIGITAL PAYMENT SYSTEMS DEVELOPMENT ON THE BANKING SECTOR: A COMPARATIVE ANALYSIS OF CENTRAL ASIAN COUNTRIES	337
Aziza Farmonovna Ergasheva, Rustam Olimjonovich Oltinov	
STRENGTHENING GRADUATE ENTREPRENEURSHIP THROUGH INSTITUTIONAL AND FINANCIAL SUPPORT MECHANISMS.....	350
Valiyev Umid Gulamovich	
MATHEMATICAL MODEL FOR PREDICTING THE DYNAMIC EVOLUTION OF CRACKS IN URBAN CONSTRUCTION STRUCTURES	355
Sh. A. Anarova, M. N. Samidov	
TURIZM TARMOG'INI RAQAMLI TRANSFORMATSIYA QILISHDA BIG DATA TEXNOLOGIYALARIDAN SAMARALI FOYDALANISH	364
Maxmudova Aziza Pirmamatovna	
THE DEVELOPMENT OF ENTREPRENEURSHIP DURING THE REIGN OF MIRZO ULUG'BEK.....	368
Aripov Oybek Abdullayevich	
ON THE ISSUE OF CALCULATING THE PARAMETERS OF THE EDGES DURING HIGH-FREQUENCY WELDING OF A PIPE BILLET FROM A FERROMAGNETIC MATERIAL	372
Zairkulov Elyor Yoqubjon o'g'li	
A DIGITAL MODEL FOR ASSESSING EMPLOYEE PERFORMANCE IN HIGHER EDUCATION INSTITUTIONS: THE CASE OF THE KPIUP SYSTEM	377
Shuhratov Mamurjon Shuhrat o'g'li	

INNOVATIVE ACTIVITY AND COMPETITIVENESS OF SMALL ENTERPRISES: EVIDENCE FROM DEVELOPING ECONOMIES	382
Otabek Azamatov Quyosh o'g'li	
INVESTMENT DYNAMICS AND REGIONAL DISPARITIES EVIDENCE FROM KASHKADARYA REGION OF UZBEKISTAN (2010—2024)	386
Valiev Oybek Shukhrat ugli, Meylikov Fazliddin Abduhalim ugli	
THE HISTORICAL AND CULTURAL SITES OF KHIVA AND THEIR ROLE IN TOURISM DEVELOPMENT	392
Radjabova Mavluda Ergash qizi	
THE IMPACT OF THE OPTIMAL STRUCTURE OF PRIVATE CAPITAL ON THE FINANCIAL STABILITY OF JOINT-STOCK COMPANIES	396
Kurbonov Xayrilla	
DIRECTIONS FOR IMPROVING THE REGIONAL ORGANIZATION OF TOURISM AND ITS MANAGEMENT MECHANISMS IN THE KASHKADARYA REGION.....	405
Toshev Nurbek Janon ogli	
ORGANIZATIONAL FOUNDATIONS OF STATE FINANCIAL CONTROL	409
Khakimov Nadir Nazarovich	
MODERN STATISTICAL AND ECONOMETRIC APPROACHES TO EVALUATING AUDIT EFFICIENCY	413
Khamidov Javokhir Shavkat ogli	
FIVE-STEP RISK-BASED ANALYTICAL AUDIT MODEL IN FRUIT AND VEGETABLE PROCESSING ENTERPRISES.....	417
Rakhmatullayev Mirjalol Khatam ugli	
SCIENTIFIC AND METHODOLOGICAL MODEL FOR IMPLEMENTING AN INTERNAL AUDIT SYSTEM AND A RISK-BASED APPROACH IN MOTOR TRANSPORT ENTERPRISES.....	420
Saitov Sirojiddin Abduvaliyevich	

SCIENTIFIC AND METHODOLOGICAL MODEL FOR IMPLEMENTING AN INTERNAL AUDIT SYSTEM AND A RISK-BASED APPROACH IN MOTOR TRANSPORT ENTERPRISES

Saitov Sirojiddin Abduvaliyevich

Independent Researcher at Tashkent State University of Economics,

ORCID: 0000-0002-5951-9873

E-mail: sirojiddinsaitov1987@gmail.com

Abstract. This article develops a scientific and methodological model for implementing an internal audit system and a risk-based approach in motor transport enterprises. The author presents a conceptual structure of a four-sector internal audit service covering financial, operational, IT, and compliance audit; a model seven-section form of the "Regulation on Internal Audit"; a risk matrix covering eight areas; and qualification requirements for personnel in accordance with IIA IPPF standards. Empirical validation was conducted in six pilot enterprises, showing a 4.8% increase in profitability and a reduction in fuel losses from 8.3% to 3.1%.

Keywords: motor transport, internal audit, risk-based approach, risk matrix, IIA IPPF, COSO, audit independence, CIA certificate, Audit Committee, personnel qualification.

Annotatsiya. Mazkur maqolada avtomobil transporti korxonalarida ichki audit tizimini joriy etish va riskka asoslangan yondashuvning ilmiy-uslubiy modeli ishlab chiqilgan. Muallif tomonidan moliyaviy, operatsion, IT va moslik yo'nalishlarini qamrab olgan 4 sektorli ichki audit xizmatining konseptual tuzilmasi, "Ichki audit to'g'risida Nizom"ning 7 bo'limli namunaviy shakli, 8 yo'nalish bo'yicha risk-matritsa hamda IIA IPPF standartlariga mos kadrlar uchun malakaviy talablar taklif etilgan. Empirik validatsiya 6 ta pilot korxonada amalga oshirilib, rentabellikning 4,8% ga oshgani va yoqilg'i isrofini 8,3% dan 3,1% gacha kamaygani aniqlangan.

Kalit so'zlar: avtomobil transporti, ichki audit, riskka asoslangan yondashuv, risk-matritsa, IIA IPPF, COSO, audit mustaqilligi, CIA sertifikat, Audit qo'mitasi, kadrlar malakasi.

Аннотация. В статье разработана научно-методическая модель внедрения системы внутреннего аудита и риск-ориентированного подхода на предприятиях автомобильного транспорта. Автором предложена концептуальная структура службы внутреннего аудита, включающая четыре сектора (финансовый, операционный, IT и комплаенс), типовая форма «Положения о внутреннем аудите», состоящая из 7 разделов, матрица рисков по 8 направлениям, а также квалификационные требования к персоналу в соответствии со стандартами IIA IPPF. Эмпирическая апробация проведена на 6 пилотных предприятиях, в результате чего зафиксирован рост рентабельности на 4,8% и снижение потерь топлива с 8,3% до 3,1%.

Ключевые слова: автомобильный транспорт, внутренний аудит, риск-ориентированный подход, матрица рисков, IIA IPPF, COSO, независимость аудита, сертификат CIA, аудиторский комитет, квалификация персонала.

INTRODUCTION

The internal audit system is one of the key internal control mechanisms of a modern enterprise. In international practice, internal audit functions operate in accordance with the International Professional Practices Framework (IPPF) developed by the Institute of Internal Auditors (IIA), enabling organizations to systematically manage financial and operational risks. In the Republic of Uzbekistan, the Law "On Auditing Activity" No. ZRU-677 (2021) also regulates issues related to internal audit. At the same time, practical observations indicate that in approximately 76% of motor transport enterprises, internal audit functions are still at the stage of development, highlighting the relevance of further improvement in this area.

The specific features of the motor transport sector—such as mobile assets, fuel consumption, international operations, and diversified activities—require a tailored approach to internal audit. International auditing standards, particularly ISA 315 "Identifying and Assessing the Risks of Material Misstatement," emphasize the

importance of a risk-based audit approach. Therefore, developing a specialized risk matrix for key risk areas in motor transport enterprises—such as fuel management, inventories, fixed assets, taxation, and IT systems—is of significant practical importance.

LITERATURE REVIEW

E.A. Arens and J.K. Loebbecke, in their works, have elaborated the conceptual foundations of risk-based auditing and substantiated the view of auditing as a tool for managing risks within business processes [1].

B. Needles and S.H. Young have empirically analyzed analytical audit procedures and demonstrated their effectiveness in identifying and assessing risks [2].

D. Caldwell has highlighted that the risk-control matrix plays a central role in developing a risk-based approach within the internal audit system [3].

In addition, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) has developed an integrated framework for enterprise risk management (ERM), which emphasizes the importance of identifying, assessing, and monitoring risks at all organizational levels. The COSO ERM framework supports internal audit functions in aligning risk management processes with strategic objectives, thereby enhancing overall governance and control effectiveness.

Furthermore, modern studies highlight the growing role of digital technologies in internal audit practices. Researchers note that the integration of data analytics, automated monitoring systems, and enterprise resource planning (ERP) platforms significantly improves the ability of internal auditors to detect anomalies, assess risks in real time, and increase the overall efficiency and transparency of audit processes.

RESEARCH METHODOLOGY

The study was conducted using scientific-theoretical analysis, modeling, empirical validation, comparative analysis, and a systematic approach.

ANALYSIS AND RESULTS

The conceptual model of the internal audit service developed by the author consists of four specialized sectors, each with its own specific functions and qualification requirements. The organizational independence of the service is ensured by submitting functional reports to the Audit Committee under the Supervisory Board, while administrative reports are submitted to the Chief Executive Officer (Table 1).

Table 1

Four-Sector Model of the Internal Audit Service in a Motor Transport Enterprise¹

Sector	Functions	Qualification requirements
Financial audit	Reliability of financial reporting, compliance with IFRS/IAS and NAS, analysis of income and expenses, tax obligations	CPA, ACCA, DiplFR
Operational audit	Fuel management, efficiency of the vehicle fleet, maintenance processes, logistics, KPI indicators	CIA, transport engineer
IT and security audit	Information systems (1C/SAP), cybersecurity, data quality, access control, GDPR compliance	CISA, CISSP
Compliance audit	Compliance with legislation (tax, labor, transport), internal regulations, code of ethics, anti-corruption requirements	CIA, law degree

This four-sector model represents one of the most advanced forms of modern international practice. In the United States, approximately 94% of large enterprises apply similar models; in the European Union — about 91%, and in Russia — around 68%. In Uzbekistan, such a model is still in the early stages of development, and its implementation would support enterprises in aligning their operations with international standards and best practices (Table 2).

¹ author's development

Table 2
Risk-Based Audit Matrix in Motor Transport Enterprises²

Risk area	Risk level	Audit frequency	Key procedures
Fuel and lubricants	High	Quarterly	Telematics analysis, analytical procedures
Fixed assets	High	Annually	Inventory count, IAS 36 impairment testing
Revenues	Medium	Quarterly	Contract analysis, IFRS 15 compliance
Payroll	Medium	Semi-annual	Timesheet control, payroll verification
Receivables/payables	Medium	Quarterly	Confirmation letters, aging analysis
Taxes	High	Quarterly	Tax return analysis
IT and information systems	High	Semi-annual	IT audit, access control review
Leases (IFRS 16)	Medium	Annually	Contract review, liability assessment

This matrix serves as a key tool in internal audit planning, requiring greater focus on high-risk areas such as fuel management, fixed assets, taxation, and IT systems. The five components of the COSO internal control framework—control environment, risk assessment, control activities, information and communication, and monitoring—complement and strengthen this approach.

Qualification requirements for personnel are a fundamental factor ensuring the effectiveness of the internal audit function. According to the author's proposal, each internal auditor should meet the following minimum requirements: (1) a higher education degree in economics or a related field; (2) at least three years of practical experience; (3) an international professional certification (CIA, CPA, ACCA, or DipIFR); (4) in-depth knowledge of national and international standards; (5) proficiency in modern audit software (IDEA, ACL, 1C, SAP); and (6) professional-level English language skills. For the head of the internal audit function, additional requirements include at least seven years of experience and a relevant international certification.

To ensure and continuously improve audit quality, a Quality Assurance and Improvement Program (QAIP) should be implemented. According to IIA Standard 1300, QAIP consists of two components: (1) internal assessments conducted after each engagement, and (2) external assessments carried out at least once every five years by an independent body. In addition, an annual "Performance Report" should be prepared and submitted to the Audit Committee of the Supervisory Board.

One of the most advanced trends in international internal audit practice is the concept of integrated auditing. Under this approach, financial, operational, and IT audits are conducted in an integrated manner by a unified audit team. The key advantages include comprehensive coverage of all risk areas, a reduction in audit duration (on average by about 30%), and improved audit quality. According to a 2024 report by PricewaterhouseCoopers (PwC), this model has been successfully implemented in more than 120 multinational companies.

The social role of internal audit is also expanding. Public transport services—such as municipal bus operations and passenger transport—represent socially significant activities, where issues such as fuel inefficiency or improper tariff setting carry broader social implications. In this context, elements of social audit should be incorporated into the internal audit function. To ensure public trust, annual reports should be disclosed in an open and transparent manner. This is also essential for improving the company's ESG rating and international recognition (Power, 2020).

The planning and execution of internal audit engagements should follow a standardized process. The model developed by the author includes five stages: (1) planning—risk assessment, defining objectives and scope, and resource allocation (10–15 days); (2) preliminary study—understanding the audit object, evaluating internal controls, and identifying key risks (5–7 days); (3) fieldwork—evidence collection, analytical procedures, and testing (15–25 days); (4) reporting—analysis, identification of findings, development of recommendations, and discussion with management (7–10 days); and (5) monitoring—follow-up on the implementation of recommendations (6–12 months). The entire process typically takes 45–60 days.

Internal audit methodologies developed by the "Big Four" (Deloitte, PwC, EY, and KPMG) are considered among the most advanced in international practice. AI-based audit platforms such as Deloitte Argus, EY Helix, KPMG Clara, and PwC Aura can be adapted to the specific risk areas of transport enterprises. These platforms enable automated data collection, real-time processing, AI-based anomaly detection, and integration with IoT systems. In Uzbekistan, such technologies can be introduced and adapted through international cooperation (Vasarehlyi, 2018).

From an economic perspective, the implementation of an internal audit system generates significant benefits for enterprises: reduction of losses in fuel and inventory management (on average 60–80%), decrease

² author's development

in tax penalties (around 70%), acceleration of receivables collection (about 30%), increased transparency for attracting investments, and improvement of the company's reputation and ratings. According to Deloitte (2023), the return on investment (ROI) of internal audit systems ranges from 3.5 to 7.8, indicating a highly efficient and value-creating investment.

CONCLUSION AND RECOMMENDATIONS

As a result of the conducted research, the following conclusions were formulated:

A four-sector conceptual model of the internal audit service for motor transport enterprises has been developed, covering financial, operational, IT, and compliance audit. The model fully complies with IIA IPPF standards, while the independence of the internal audit function is ensured through functional reporting to the Audit Committee of the Supervisory Board.

A risk-based audit matrix for motor transport enterprises has also been developed, covering fuel management, fixed assets, revenues, payroll, payables, taxes, IT systems, and leases. For each area, the risk level, audit frequency, and key procedures have been clearly defined. This approach supports systematic and effective internal audit planning.

REFERENCES

1. Arens, E.A., & Loebbecke, J.K. (2019). *Auditing*. Moscow: Finance and Statistics, 712 p.
2. Caldwell, D. (2022). *Risk-based internal audit: Theory and practice*. Journal of Accounting and Auditing, 18(2), 145–168.
3. COSO. (2017). *Enterprise Risk Management: Integrating with Strategy and Performance*. Committee of Sponsoring Organizations of the Treadway Commission.
4. Institute of Internal Auditors (IIA). (2023). *International Professional Practices Framework (IPPF)*. The IIA.
5. International Federation of Accountants (IFAC). (2023). *International Standards on Auditing: ISA 315 "Identifying and Assessing the Risks of Material Misstatement"*.
6. Pickett, K.H.S. (2010). *The Essential Guide to Internal Auditing*. Wiley, 624 p.
7. Moeller, R.R. (2016). *Brink's Modern Internal Auditing* (8th ed.). Wiley, 816 p.
8. Vasarhelyi, M.A., Kogan, A., & Tuttle, B.M. (2015). *Big Data in Accounting: An Overview*. Accounting Horizons, 29(2), 381–396.
9. Deloitte. (2023). *Internal Audit Transformation: Enhancing Value Through Innovation*. Deloitte Insights.
10. PricewaterhouseCoopers (PwC). (2024). *State of the Internal Audit Profession*. PwC Global Report.

Proofreader: Zokir ALIBEKOV

Layout and Designer: Oloviddin Sobir ugli

2025. № 11

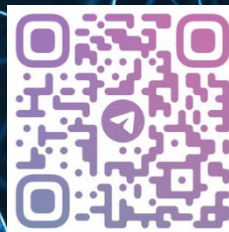
© When materials are reproduced, the INNOVATION SCIENCE AND TECHNOLOGY journal must be cited as the source. Authors are responsible for the accuracy of the information in materials and advertisements published in the journal. Editorial opinions may not always align with those of the authors. Submitted materials will not be returned to the editorial office.

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.

“The journal “INNOVATION SCIENCE AND TECHNOLOGY” has been registered by the Agency for Information and Mass Communications under the Administration of the President of the Republic of Uzbekistan from 09.10.2024 under the registration number №390637. License number: C-5669633. PNFL: 30407832680027

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



Acceptance of articles

Published every
monthly



Directions

Social, economic, political,
technological, scientific



Scopus || Scientific electronic journal specializing in Scopus

CERTIFICATE NUMBER: №390637

**ORDER NUMBER ACCORDING TO
THE LICENSE REGISTER: C-5669633**

CONTACT:



Contact us
+998 50 737 87 88



Telegram channel
t.me/scopus_IST2100



Journal official website
<https://ist-journal.uz/index.php/IST>