

**Ministry of Education and Science of Ukraine
Cherkasy State Technological University (Ukraine)
Educational and Scientific Complex "Institute for Applied System Analysis" of the National
Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)
Institute of Information Technologies and Systems of the NAS of Ukraine
Institute for Digitalisation of Education of the NAES of Ukraine
National University "Kyiv Aviation Institute"
Kharkiv National University of Radio Electronics (Ukraine)
V. N. Karazin Kharkiv National University
Odesa Polytechnic National University
Dragomanov Ukrainian State University (Ukraine)
Bogdan Khmelnytsky Melitopol State Pedagogical University (Ukraine)
Drohobych Ivan Franko State Pedagogical University (Ukraine)
Technische Universität Berlin (Germany)
Lublin University of Technology (Poland)
Norwegian University of Science and Technology (Norway)
Universidade Aberta (Portugal)
Tallinn University (Estonia)
Anadolu University (Türkiye)
Luigj Gurakuqi University of Shkodër (Albania)
International Information Technology University JSC (Kazakhstan)**

CONFERENCE PROCEEDINGS

**of the VIII International Scientific-Practical Conference
"Information Technology for Education,
Science and Technics"
(ITEST-2026)**

June 24-25, 2026

Cherkasy 2026



DIGITALIZATION OF INTERNAL AUDIT WITHIN THE ENTERPRISE MANAGEMENT SYSTEM

Mazur I.¹, Alkema V.², Zybareva O.³, Shepeliuk V.⁴

¹Technological University Dublin, Dublin, Ireland

²KROK University, Kyiv, Ukraine

³Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine

⁴Kryvyi Rih National University, Kryvyi Rih, Ukraine

Abstract. The research focuses on the digitalization of internal audit in the enterprise management system. The object of the research is internal audit as a component of enterprise management, while the purpose is to substantiate an integrated model of internal audit digitalization and assess enterprise readiness for its implementation. The objectives of the study are to identify the key components of digital internal audit, determine criteria for assessing readiness, and formalize the assessment through an integral indicator. The study applies methods of analysis and synthesis, systematization, structural-logical modelling, comparative analysis, and generalization. The empirical basis includes a comparative dataset of five Ukrainian joint-stock companies assessed according to five criteria: formalized internal audit unit, accountability to the Supervisory Board or Audit Committee, integration with risk management and internal control, digitalization or IT development, and procedural maturity. The results show that all analyzed enterprises demonstrate a high level of institutional readiness for internal audit digitalization, although the disclosure of digital audit instruments remains uneven. The proposed model combines information, technological, analytical, control, and managerial components and enables a transition from descriptive audit practice assessment to structured evaluation of digital readiness, continuous monitoring, automated risk analysis, and support for managerial decision-making.

Keywords: Internal Audit, Digitalization, Enterprise Management, Internal Control, Risk Management, Data Analytics, Continuous Auditing, Digital Infrastructure, Audit Procedures, Readiness Indicator.

Introduction. Digital transformation significantly changes the role of internal audit in the enterprise management system, as international standards and recent studies emphasize the growing importance of internal audit in governance, risk management, control, and value creation [1; 2; 3]. Under conditions of increasing information flows, technological risks, regulatory requirements, and the need for timely managerial decisions, internal audit can no longer be limited to the retrospective verification of individual transactions [1; 4]. It increasingly becomes a function that combines control, analytics, risk assessment, monitoring, and support for corporate governance [3; 5; 6]. The relevance of the study is determined by the need to develop a systemic approach to the digitalization of internal audit, since many enterprises implement separate digital tools without creating an integrated model of their interaction with risk management, internal control, and managerial decision-making [2; 7; 8]. Therefore, the formalization of internal audit digitalization requires not only a conceptual model, but also a dataset and quantitative indicators that make it possible to compare enterprises according to their readiness for digital audit transformation [4; 6; 7].

The purpose of the work is to substantiate the theoretical provisions of internal audit digitalization in the enterprise management system, to develop an integrated model that combines information, technological, analytical, control, and managerial components, and to propose a formalized approach for assessing enterprise readiness for internal audit digitalization using a comparative dataset of Ukrainian joint-stock companies [1; 2; 4].

Formulation of the problem. In the context of enterprise digital transformation, internal audit is often reduced to the use of separate software tools, while its systemic role in management, risk control, and decision-making remains insufficiently formalized [2; 3; 8; 9]. Therefore, the problem of the study is to develop an integrated approach to internal audit digitalization and to define criteria for assessing enterprise readiness for its implementation [4; 6; 7].

Solving the problem. To solve the stated problem, a model of internal audit digitalization in the enterprise management system was proposed. The model includes five interconnected components: information, technological, analytical, control, and managerial. The information component covers data sources used in audit procedures, including accounting systems, ERP systems, CRM systems, document management systems, corporate reporting, and information on

business processes [1; 3; 5]. The technological component ensures data integration, processing, automation, and structuring [6; 7; 9]. The analytical component provides risk assessment, identification of deviations, anomaly detection, and analysis of weaknesses in business processes [4; 5; 7]. The control component includes audit procedures, monitoring, testing, and documentation of audit evidence [1; 6]. The managerial component transforms audit results into recommendations, corrective actions, and management decisions [1; 3; 10].

The empirical verification of the proposed approach was carried out using a comparative dataset of five Ukrainian joint-stock companies: JSC CB PrivatBank, JSC Ukrposhta, PJSC MetLife, PJSC IC Arsenal, and JSC Clearing House [11; 12; 13; 14; 15]. The companies were assessed according to five criteria: internal audit unit, accountability to the Supervisory Board or Audit Committee, integration with risk management and internal control, digitalization or IT development, and procedural maturity of internal audit [11; 12; 13; 14; 15]. The scoring scale was as follows: 0 means that the criterion is absent or not disclosed, 1 means partial presence or indirect confirmation, and 2 means clearly disclosed presence in public corporate reporting.

Table 1

Comparative assessment of internal audit digitalization readiness in selected Ukrainian joint-stock companies

Company	Internal audit unit	Supervisory Board / Audit Committee	Integration with risk management and internal control	Digitalization / IT development	Procedural maturity	$DIRA_i$	K_{DIRA}	Readiness level
JSC CB PrivatBank	2	2	2	2	1	9	0.90	High
JSC Ukrposhta	2	2	2	2	2	10	1.00	High
PJSC MetLife	2	2	2	1	2	9	0.90	High
PJSC IC Arsenal	2	2	2	1	2	9	0.90	High
JSC Clearing House	2	2	2	2	2	10	1.00	High

Note. A value of “0” indicates that the feature is absent or not disclosed, “1” indicates partial presence, and “2” shows clearly disclosed presence in open corporate sources. The coefficient K_{DIRA} is calculated as the ratio of the actual score to the maximum possible value, $DIRA_{max} = 10$.

The dataset shows that all analyzed enterprises have a high level of readiness for internal audit digitalization, as their normalized readiness coefficients exceed 0.67 [11; 12; 13; 14; 15]. JSC Ukrposhta and JSC Clearing House obtained the maximum value of $K_i = 1.00$, which indicates the full disclosure of all five assessment criteria [12; 15]. JSC CB PrivatBank, PJSC MetLife, and PJSC IC Arsenal obtained $K_i = 0.90$, which also corresponds to a high level of readiness [11; 13; 14]. However, the difference between companies is related to the uneven disclosure of procedural maturity and digitalization or IT development. This confirms that the digitalization of internal audit depends not only on the existence of an internal audit unit, but also on the maturity of procedures, the level of integration with risk management, and the development of digital infrastructure [2; 4; 7; 8].

The average readiness coefficient for the analyzed sample can be calculated as follows:

$$\bar{K} = \frac{\sum_{i=1}^n K_i}{n},$$

where $\bar{K}$ is the average readiness coefficient and n is the number of analyzed enterprises.

For the selected dataset:

$$\bar{K} = \frac{0.90 + 1.00 + 0.90 + 0.90 + 1.00}{5} = 0.94.$$

This result confirms that the analyzed group of enterprises has a generally high level of institutional readiness for internal audit digitalization [11; 12; 13; 14; 15].

Conclusion. The study confirmed that internal audit digitalization should be considered not as the implementation of isolated technological tools, but as a systemic transformation of audit

procedures, information flows, analytical capabilities, control mechanisms, and managerial decision support [2; 4; 6; 8]. The proposed model makes it possible to explain the relationship between digital infrastructure, internal audit, risk management, internal control, and enterprise management [1; 3; 10]. The use of formulas for calculating the integral readiness indicator and the normalized readiness coefficient provides a more objective basis for comparing enterprises and identifying their strengths and weaknesses in the transition to digital internal audit [4; 7].

The comparative dataset of Ukrainian joint-stock companies showed that all analyzed enterprises demonstrate a high level of readiness for internal audit digitalization [11; 12; 13; 14; 15]. At the same time, the results also revealed unevenness in the disclosure of digital audit instruments and procedural maturity. Therefore, further development of internal audit digitalization should focus on the integration of audit procedures with corporate information systems, automation of control processes, use of data analytics, artificial intelligence, process mining, predictive analytics, and continuous monitoring [5; 6; 7; 8; 9]. The proposed methodological approach may be used by enterprises to assess their current level of readiness for digital audit transformation and to determine priority directions for improving internal control and managerial decision-making [1; 4; 10].

References

1. The Institute of Internal Auditors: Global Internal Audit Standards. The IIA, Lake Mary (2024). <https://www.theiia.org/en/standards/2024-standards/global-internal-audit-standards/>. Accessed 17 Mar 2026.
2. Pizzi, S., Venturelli, A., Variale, M., Macario, G.P.: Assessing the impacts of digital transformation on internal auditing: A bibliometric analysis. *Technol. Soc.* 67, 101738 (2021). <https://doi.org/10.1016/j.techsoc.2021.101738>. Accessed 17 Mar 2026.
3. Betti, N., Sarens, G.: Understanding the internal audit function in a digitalised business environment. *J. Account. Organ. Change* 17(2), 197-216 (2020). <https://doi.org/10.1108/JAOC-11-2019-0114>. Accessed 17 Mar 2026.
4. Betti, N., Sarens, G., Poncin, I.: Effects of digitalisation of organisations on internal audit activities and practices. *Manag. Audit. J.* 36(6), 872-888 (2021). <https://doi.org/10.1108/MAJ-08-2020-2792>. Accessed 17 Mar 2026.
5. Vasarhelyi, M.A., Alles, M., Kuenkaikaw, S., Little, J.: The acceptance and adoption of continuous auditing by internal auditors: A micro analysis. *Int. J. Account. Inf. Syst.* 13(3), 267-281 (2012). <https://doi.org/10.1016/j.accinf.2012.06.011>. Accessed 17 Mar 2026.
6. Barros, C., Marques, R.P.: Continuous assurance for the digital transformation of internal auditing. *J. Inf. Syst. Eng. Manag.* 7(1), 11681 (2022). <https://doi.org/10.55267/iadt.07.11681>. Accessed 17 Mar 2026.
7. Eulerich, M., Masli, A., Pickerd, J., Wood, D.A.: The impact of audit technology on audit task outcomes: Evidence for technology-based audit techniques. *Contemp. Account. Res.* 40(2), 981-1012 (2023). <https://doi.org/10.1111/1911-3846.12847>. Accessed 17 Mar 2026.
8. Bertacchini, F., Gabrielli, G., Lugli, E., Marchini, P.L.: The digital (r)evolution in internal audits: Are we there yet? Some insights from Italy. *Manag. Audit. J.* 40(2), 129-152 (2024). <https://doi.org/10.1108/MAJ-06-2023-3952>. Accessed 17 Mar 2026.
9. Vitali, S., Giuliani, M.: Emerging digital technologies and auditing firms: Opportunities and challenges. *Int. J. Account. Inf. Syst.* 53, 100676 (2024). <https://doi.org/10.1016/j.accinf.2024.100676>. Accessed 17 Mar 2026.
10. Manita, R., Elommal, N., Baudier, P., Hikkerova, L.: The digital transformation of external audit and its impact on corporate governance. *Technol. Forecast. Soc. Change* 150, 119751 (2020). <https://doi.org/10.1016/j.techfore.2019.119751>. Accessed 17 Mar 2026.
11. JSC CB PrivatBank: Integrated annual report 2024. PrivatBank, Kyiv (2025). <https://static.privatbank.ua/files/2024-integrated-annual-report.pdf>. Accessed 17 Mar 2026.
12. JSC Ukrposhta: Management reporting report for 2024. Ukrposhta, Kyiv (2025). https://www.ukrposhta.ua/doc/issuer-reporting/managment_report_for_2024.pdf. Accessed 17 Mar 2026.
13. PJSC MetLife: Financial statements and management report for 2024. MetLife, Kyiv (2025). https://www.metlife.ua/content/dam/metlifecom/ua/PDFs/Issuernews/2025/2025_04/Metlife_24fsu_wit_h_Deloitte_signature.pdf. Accessed 17 Mar 2026.
14. PJSC IC Arsenal: Management report for 2024. Arsenal Insurance, Odesa (2025). <https://www.icarsenal.od.ua/zvitupr2024.pdf>. Accessed 17 Mar 2026.
15. JSC Clearing House: Financial statements, management report and audit report for 2021. Clearing House Bank, Kyiv (2022). https://clhs.com.ua/storage/app/media/docs/about/finansovi_pokaznyky/richni_zvity/2021_financial_statements_ENG_Management_report_Audit_Report.pdf. Accessed 17 Mar 2026.