# INFORMATION SUPPORT FOR SUSTAINABLE DEVELOPMENT ACCOUNTING

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The research is devoted to the problem of information support for accounting for sustainable development of business entities and integration of financial and non-financial information into a single accounting and analytical system. In the context of growing demands for transparency, accountability, and digital adaptation of business, modern approaches to reporting reveal a number of gaps, including fragmented data, insufficient internal control of reliability, and the lack of a unified methodology.

The aim of the study was to develop conceptual principles that would ensure the effective integration of non-financial indicators of sustainable development into the classic accounting and analytical system of an enterprise. The study was carried out through theoretical generalization, critical analysis, structural-logical modeling, and empirical methods.

As a result, it was established that integrated reporting should not only inform external users, but also shape the strategic behavior of the enterprise, promote the digital transformation of accounting, optimize capital, and take into account long-term environmental and social risks. A model of information support for sustainable development has been substantiated, which provides for the harmonization of financial and non-financial flows, the introduction of verification mechanisms, and adaptation to international standards.

The scientific novelty lies in the combination of classical accounting principles with the needs of sustainable development based on digital adaptability. The practical value lies in recommendations for building management reporting systems that meet the requirements of the modern market and ESG indicators.

The regulation of financial reporting by business entities has a problem with the effectiveness of communicating financial and non-financial information to users. Without high-quality, reliable, and transparent reporting, it is impossible to assess the real progress of companies in achieving sustainable development goals (Gillan, Koch & Starks, 2021). These are Goal 8: Decent Work and Economic Growth, Goal 9: Industry, Innovation and Infrastructure, and Goal 12: Responsible Consumption and Production. Regulatory requirements for financial reporting are constantly increasing. At the same time, overly burdensome reporting makes it impossible for users to adequately perceive financial and other related non-financial information (FRC, SEC, VRU, NBU, 2024). It is sustainability reporting (data on environmental impact, ethical standards, social policy, management approaches) that will allow businesses to demonstrate their responsibility to society (Said Hassan, 2011).

Ukraine has clearly defined its development path as an integral part of the common European Economic Area (Yakymenko, 2021). Ukraine also has obligations to implement changes aimed at harmonizing legislation. There is a shift from the Partnership and Cooperation Agreement to the current Association Agreement (European Integration Portal, 2022). International investors with global investment portfolios are increasingly demanding high-quality, transparent, reliable, and comparable reporting from companies on ESG and sustainable development issues. Transparent disclosure of ESG information will improve an organization's reputation, provide access to capital at a lower cost, and increase competitive advantages (Beretta, V., Demartini, M. C., & De Villiers, 2025).

The success of the Sustainable Development Goals depends on the quality of information flow management at the enterprise level. Most organizations operate within fragmented reporting systems. This means that financial, tax, statistical, and non-financial data remain disconnected (Velte, 2022). This makes effective management decisions impossible. It undermines trust in reporting as a tool for transparency and accountability of business to society (Nesterenko, 2024).

The issue of timely reporting becomes relevant in view of the digitization and digitalization of business processes. Often, the financial reporting process is perceived by reporting entities as an “end in itself.” That is, reporting is done to comply with regulatory requirements (Van Bommel, Rasche & Spicer, 2023). This process does not create any added value for them. It only protects them from risks and penalties from regulators for failure to report. At the same time, regulators often perceive this process as a ritual. Integrating information systems can be a complex and costly task (Nesterenko, 2021). However, it is a necessary step to improve the efficiency and productivity of an organization. An additional problem arises from the lack of effective control over the reliability of non-financial indicators, which directly affects the quality of integrated reporting

(International Auditing and Assurance Standards Board, 2024). Therefore, the integration of environmental, social, and governance indicators into reporting is a prerequisite for the information security of the economy. Accounting has the potential to become the main tool for the formation of accounting and analytical support for sustainable development (Biloblovskyi, 2025).

In practice, the lack of proper regulatory framework and coordinated approaches makes it impossible to develop a unified model of sustainable reporting. What is the situation? In the absence of a unified methodology, each enterprise independently determines the scope, content, and format of non-financial information. I believe that reporting risks becoming a formal procedure devoid of managerial value. There is a need to develop a conceptual model for reporting management that will be able to adapt to changes in the environment.

The aim of the research is to understand the problems of information support for accounting for sustainable development of economic entities and to integrate financial and non-financial information into a single reporting system based on the principles of transparency, accountability, and responsibility in the context of sustainable development goals.

The research goal will be achieved through the phased solution of scientific tasks:

1. To provide a theoretical justification for the concept of sustainable development as an integrative approach to economic activity and to define the role of accounting as a tool for forming a reliable information base for making sustainable management decisions.

2. Analyze the structure of the modern information support system used in managing sustainable development of enterprises, taking into account its impact on the effectiveness of management decisions.

3. Explore international approaches and requirements of leading standards for non-financial and integrated reporting on the quality and verification of accounting information on sustainable development.

4. Identify and systematize problems in current sustainable development reporting practices, including data fragmentation, lack of a unified regulatory framework, and challenges related to the digitization of accounting and analytical processes.

5. Justify the feasibility of implementing unified approaches to the collection, processing, and presentation of environmental, social, and management indicators integrated into the enterprise's accounting and internal analytics system.

6. Develop a model for providing information on sustainable development that takes into account the current requirements of digital transformation, the needs of reporting users, and the tasks of ensuring economic, social, and information security.

This study stems from my desire to find an answer to the question: “Why, despite the active implementation of digital solutions, the expansion of international reporting standards, and growing public demand for corporate responsibility, does sustainability reporting remain fragmented, declarative, and ineffective?” I believe that without reliable and comprehensive financial, non-financial, and analytical information support, it is impossible to achieve a systemic transformation of business in accordance with the Sustainable Development Goals declared in the UN General Assembly Resolution (Sustainable Development Goals, 2019).

Integrated reporting today is a model of compilation and presentation logic based on principles. It is not based on a specific detailed standard of disclosure and measurement. This model allows each entity to compile its own report (Association of Chartered Certified Accountants, 2021). The change in the culture of information presentation should allow companies to better communicate the creation of added value to users than simply template disclosure of information in accordance with International Financial Reporting Standards (Beretta, Demartini, & De Villiers, 2025).

We take into account the rules of communication and interaction. After all, in countries with a straightforward culture, directness and honesty are valued. This may lead to more direct information in the reporting of such organizations (Bosi, Lajuni, Wellfren & Lim, 2022). In countries with an indirect culture, politeness and tact are valued. This may result in more indirect information in the reports of such organizations, which will be difficult for people from other cultures to understand (Wijaya, Wiratama & Kuswanto, 2023). The assumption that “more is better,” which is found in the concept of project management, will make it impossible to achieve the set goals (Amiruddin, Raharja & Purnomo, 2024). In reporting systems, fragility is expressed in receiving such a number of tasks that it becomes impossible to process them on time and without errors. Fragility arises when someone tries to make something big right away or tailor functionality to certain requirements that did not exist before (Jayasuriya & Sims, 2023). An effective tool for managing this risk is to divide a large whole into smaller parts if that whole is fragile.

International experience shows that leading companies are implementing digital tools for adaptive, scalable, and dynamic ESG reporting. Big Data, artificial intelligence, and cloud technologies significantly improve the efficiency of sustainable development data collection and analysis (Wavestone, 2024). Best practices include the use of specialized ESG platforms such as Enablon, Intelex, and Sphera to track metrics in real time and consolidate data from various sources (Google Cloud blog, 2022). This provides a holistic view of sustainability performance, and built-in report templates simplify data collection and analysis.

Companies are increasingly using Microsoft Azure and Google Cloud cloud solutions to store and process large volumes of ESG data. Cloud platforms provide scalability and automation of data entry, allowing for rapid analysis of large data sets and insights (Bean, 2021). This is especially useful for businesses with complex supply chains, as the cloud simplifies data sharing with stakeholders and increases transparency (Berardino & Vona, 2023).

This study aims to systematize the above issues and attempt to provide a scientifically sound answer to the question: "How can financial and non-financial information be integrated into a single accounting and analytical system for sustainable development? How can its adaptability, verifiability, and compliance with digital challenges be ensured?" The research also demonstrates that in the absence of a unified methodology for accounting for sustainable development, each enterprise is forced to seek its own, not always effective, solutions. As a result, the managerial value of reporting is lost.

To accomplish the research objectives, methods of logical analysis, synthesis, generalization, visualization, and comparative analysis of international approaches to reporting were used. The modeling method made it possible to propose a unified concept of accounting and analytical support for sustainable development that meets the current needs of users of reporting information, the requirements of digital transformation, and institutional accountability.

The link between modern requirements for transparency, business accountability, and the implementation of Sustainable Development Goals shows that financial indicators alone cannot reflect the full picture of a company's activities. The need to combine financial and non-financial information is becoming a key element of information support for sustainable development.

An analysis of scientific works on the theoretical foundations of accounting, the essence of integrated reporting, and its role in the management system allows us to substantiate the importance of scientific research specifically on information support for sustainable development. A review of the literature allows us to reveal socio-economic, organizational, and technological processes and phenomena. The global scientific discussion focuses on the quality, reliability, comparability, and timeliness of information on sustainable development, as well as the requirements of international standards.

An important component of the literature review is the study of the current state of accounting and reporting information systems, their capabilities and limitations, and an analysis of proposals for improving these systems. It is this perspective that allows us to identify the gaps that are the subject of the study.

The literature review section consists of subsections that sequentially examine: the historical development of accounting and integrated reporting theories; the evolution of the conceptual framework for sustainable development information provision; contemporary approaches to integrating non-financial indicators into the accounting system; and the assessment of the impact of digital technologies on reporting information processes.

In encyclopedic literature, development is seen as a process that changes the quality of something, moving from one quality to another, higher one (Great Explanatory Dictionary, 2005).

Development is not so much a question of what is, but rather of what can be done with what is. Growth and development are not at all similar concepts. Growth can occur with or without development (Berenda, 2013). The traditional paths to entrepreneurial growth are considered to be quantitative growth in production factors (production volume, labor force) and improvement in the financial and marketing performance of the enterprise (sales volume, profitability, market share compared to competitors) (Voloshchuk, 2011). Conscious stimulation of enterprise development involves improving the investment climate and selecting a strategic area of economic activity in the market with an appropriate operating strategy (Heiets, 2005).

From the perspective of a systematic approach, development is a targeted change in the qualitative state of an organization, its structure, composition, or properties, as well as quantitative or qualitative changes in the elements of the organization (Poberezhnyi, 2012).

We assume that the concept of sustainable development should be considered in the context of a territorial approach. The criteria for sustainable development of rural areas can be interpreted as the stable

development of rural communities that meets the criteria of economic, social, and environmental efficiency (Kuz, 2013).

Development is a process of passing through stages of economic growth. We divide possible development options into four independent categories: linear development; development through structural transformation; development through the smoothing of structural imbalances in the economic system; development from the position of the key role of free market (Tsepanskyi, 2009).

We identify evolutionary and revolutionary forms of development (Khvesyk, Bystriakov, Levkovska & Pylypiv, 2012). The evolutionary form is associated with gradual quantitative changes in the object, while the revolutionary form is characterized by qualitative changes in its structure.

We distinguish between progressive and regressive types of development (Tiukha, 2012). It is also proposed to divide development processes into sustainable and unsustainable (Tsybuliak, 2014).

National sustainable development strategies have different focuses: in the UK, it is the preservation of the natural environment; in Canada, it is basic human needs; in France, it is a list of various priority issues.

On the other hand, sustainable development is the development of a country's productive forces aimed at meeting the most important needs of not only the current but also future generations, while preserving the natural environment in a state that is favorable from the point of view of human health and maintaining a dynamic ecological balance (Sokil, 2017). The main goal of sustainable development is defined as the human being.

Contemporary views on the problem of sustainable development are most fully reflected in the tripartite concept of sustainable development, which we have systematized as a combination of three basic approaches: economic, social, and environmental.

Legal support for integrated reporting in international practice varies from country to country. Some jurisdictions have clearly established regulatory frameworks. In others, the use of integrated reporting remains voluntary.

These processes have gained particular momentum in the countries of the European Union. Under the influence of legislative initiatives, there has been a gradual unification of requirements for integrated and non-financial reporting (Makarenko, Serpeninova, Oleksich, Kostenko & Puhovkina, 2023).

An analysis of data for the period 2014-2024 shows a steady increase in the share of European companies that practice integrated reporting and sustainability reporting. I believe that this trend is related to the strengthening of the regulatory framework and the growing expectations of key stakeholders regarding the transparency of companies' activities.

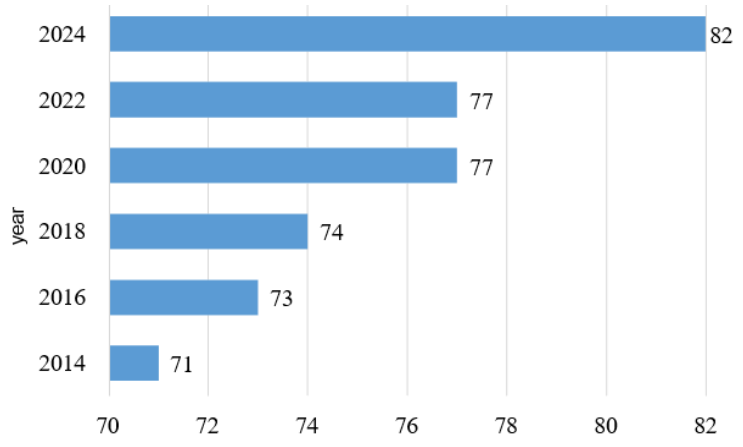


***Figure 1.*** *Share of European companies practicing integrated reporting and sustainability reporting for 2014-2024, %*

For agricultural enterprises operating in specific conditions of seasonality, spatial dispersion, and a high level of natural and climatic dependence, it is especially important to ensure a comprehensive approach to the formation of information flows (Fang & Guo, 2025). A detailed analysis of the characteristics of financial and non-financial indicators is necessary in the context of the agricultural sector. This will allow identifying key differences between them and assessing their impact on the process of integrated reporting by agricultural enterprises.

The results of the analysis show that for agricultural enterprises, financial and non-financial information flows are interdependent and complementary components of an integrated management system.

They form the basis for a comprehensive assessment of their performance. Financial indicators reflect the level, structure, and dynamics of financial capital (Zou, Shi, Chen, Deng, Lei, Zeng, Yang, Tong, Xiao & Zhou, 2023). This is the basis for short-term performance. Non-financial information represents social, environmental, and management factors. These factors determine the long-term competitiveness and sustainable development capacity of an agricultural enterprise (Katz, Gu & Jiang, 2024).

The purpose of integrated reporting is to satisfy the maximum amount of information needs regarding a wide range of circumstances of business entities (Gull, Hussain, Khan, Khan & Saeed, 2023). It is necessary to develop information support that will help reduce the inefficient use of resources in the preparation, justification, implementation, and evaluation of business decisions. It will also increase the analytical capabilities of its use in the interests of stakeholders (Hertl & Maniora, 2024).

The introduction of ESG reporting into corporate governance requires the formation of an internal institutional infrastructure (tools, monitoring mechanisms, incentive policies, strategic integration of ESG metrics) (Wu, He & Duan, 2013).

The systematic introduction of ESG reporting in organizations is only possible if an adaptive model is developed that takes into account national characteristics, institutional immaturity, and the needs of different stakeholder groups (Bari, Chimhundu & Chan, 2022).

As a result of the analysis of literary sources, I came to the conclusion that the problem of integrating financial and non-financial information remains unresolved. Many authors only outline the need for a change in the accounting paradigm. However, they do not offer specific mechanisms for implementation.

The analysis showed that modern reporting is mainly focused on quantitative economic indicators. Environmental and social aspects remain outside the analytical field. In my opinion, this creates a distorted picture of the company's activities for internal and external users of reporting. It is obvious that without taking into account the full range of sustainability indicators, management decisions will be suboptimal.

The methodology for collecting and analyzing data within this study was based on an in-depth theoretical study of integrated reporting as a key tool for providing information on sustainable development accounting. A qualitative approach was chosen, aimed at identifying and systematizing existing scientific and regulatory approaches.

The study used methods of theoretical generalization, critical analysis, modeling, and logical abstraction to study the conceptual foundations of sustainable development accounting. Particular attention was paid to internal control mechanisms for reporting reliability, verification procedures, and analytical interpretation. This is necessary to ensure transparency and adaptability of reporting in the context of digital transformation.

Structural-logical modeling was used as one of the main research tools. This allowed for a systematic presentation of the interrelationship between financial and non-financial indicators. Comparative analysis was aimed at evaluating various models and standards of integrated reporting and internal control, particularly those developed by international organizations.Schematic interpretation included the development of functional diagrams (integration matrices, control modules). They supported the theoretical justification for building information support for sustainable development at the enterprise level.

The analysis covered materials presented in the form of tables, diagrams, and charts. These simulate an integrated information system for sustainable development accounting. This involved the decomposition of reporting components, the assessment of their internal links, and the construction of adaptive control mechanisms for verifying the reliability of information.

The proposed methodological basis made it possible to form a logically coherent and analytically sound structure for the integration of financial and non-financial information flows.

In this study, the analytical base was formed on the basis of a qualitative analysis of conceptual, normative, and methodological materials (Social Accountability International, SASB Standards). They concerned the information support for accounting for the sustainable development of business entities. The main focus was on modern scientific approaches to the construction of integrated reporting, internal control, and the digitization of accounting processes.

The structural components of information flows in the enterprise, the mechanisms for their integration, the reliability of reporting, and analytical mechanisms for data processing (UPL Sustainability Report, 2025) were analyzed. Particular emphasis was placed on key tools. These are compliance matrices, logical-structural diagrams, and reporting reliability control models. After all, they visualize the relationships between financial and non-financial indicators.

Data collection was carried out by generalizing theoretical approaches to organizing reporting in the context of sustainable development, analyzing the current regulatory framework (Ukraine Report, 2025). A review of developed practical solutions for information verification was also systematized. The data was structured into logical models that demonstrate ways to combine information from different sources. Internal reporting, analytical reports, and control indicators were taken into account.

This approach allowed for a comprehensive assessment of existing methodologies and their adaptation to the conditions of digital transformation. This approach allowed for the relevance and applied value of the study for further practical developments.

The context of the study was formed on the basis of a practical analysis of the activities of leading agro-industrial enterprises of Ukraine, which disclose information on aspects of sustainable development. To form the analytical basis of the study, enterprises were selected that publicly report on environmental, social and management indicators and demonstrate efforts to integrate non-financial data into the general management information system.

The study was based on the analysis of open reports and internal accounting systems of the following companies: Agro-industrial holding "ASTARTA", Group of companies "ATK", "Vayterra Ukraine", Company "IMK", Holding "Kernel" and PrJSC "MHP". The choice of these enterprises is due to their high degree of digitalization of accounting processes, active use of integrated reporting practices, representation of various forms of management in the agricultural sector.

Within the framework of this study, data collection was carried out using a questionnaire survey, analysis of reporting documentation of agricultural enterprises, as well as modeling of information flows. The main goal of the data collection stage was to identify the real state of integration of financial and non-financial information into the accounting and analytical system of agricultural enterprises. Also, to assess the effectiveness of existing internal control mechanisms and verification of reporting. The questionnaire was aimed at identifying practices in the formation of integrated reporting, the level of digital transformation of accounting, and the readiness of enterprises to disclose ESG information. The questionnaire contained both closed and open-ended questions and was formed taking into account the conceptual provisions of sustainable development, information transparency and requirements for data reliability. The questionnaire questions covered the following blocks: the structure of integrated reporting, the presence of internal regulations, the use of digital tools, control mechanisms, sources of information and procedures for its verification.

In parallel with the survey, an analysis of open reports and internal documents of enterprises was carried out, in particular integrated reports, ESG policies, internal audits and control procedures. This allowed for verification of the data obtained, as well as for detailing the procedures for generating accounting information.

The collected data was visualized using functional models. These are indicator integration matrices, reliability control schemes, structural models of the reporting cycle. The structural-logical modeling method was used to demonstrate the relationship between data sources, information exchange channels, internal control mechanisms, and verification tools.

The reporting system in different countries is developing unevenly. In developed countries (EU, USA, Canada), it is becoming more unified and digitalized. This is due to the introduction of agricultural technologies, satellite monitoring and automated accounting systems. In developing countries, reporting often remains fragmented and less standardized. This creates problems for agricultural producers in accessing financing, subsidies and international markets.

The European Green Deal system is being actively implemented in the EU, which aims to make Europe climate neutral by 2050. This strategic initiative covers various sectors and involves the implementation of sustainable agricultural practices, reducing greenhouse gas emissions, reducing the use of pesticides and fertilizers, supporting organic production, and protecting biodiversity.

Simplified or fragmented accounting and reporting systems prevail in African and Latin American countries. This is due to limited technical resources, institutional weakness, and low levels of digitalization, which complicates the implementation of integrated reporting and reduces the transparency of the agricultural sector.

Large agricultural holdings are forced to adapt to numerous international standards. Small farms often do not have the resources to maintain detailed accounting. The digitalization of reporting creates new challenges in terms of cybersecurity and data protection. In the future, we should expect further tightening of reporting requirements, especially in the area of environmental responsibility and transparency of financial flows.

The most comprehensive are the reports of PrJSC "MHP", "Astarta" and "Kernel", which include both financial and non-financial information: mission, vision, business model, risk analysis, social responsibility and environmental impact. The integrated report of PrJSC "MHP" is characterized by a high level of disclosure of social and environmental aspects, which is consistent with the current requirements of ESG reporting.

The reports of "Vaitterra Ukraine" and "IMK" are less detailed. They lack some of the key structural elements, such as strategy, risk analysis, business model. This may indicate that the companies focus mainly on financial reporting and less in-depth disclosure of non-financial aspects. At the same time, they still contain a management report and financial reporting, which provides a basic level of transparency.

A feature of the reporting of the A.T.K. Group of Companies is the presence of more structured financial information, but at the same time a less detailed description of the business model, strategy and risks. This may complicate the assessment of the company's development prospects from the point of view of investors and other stakeholders. Some companies, in particular Astarta and Kernel, include information on the impact of the Russian invasion on their activities, which is important in terms of transparency and consideration of economic and political risks. At the same time, such data is absent from the reporting of a number of other companies. This may indicate their approach to the disclosure of sensitive data or orientation towards international investors who focus more on financial indicators.

Disclosure of non-financial information is critically important for agricultural enterprises, as their activities directly affect natural resources, ecosystems and the well-being of society, and also depend on the sustainable use of land, water and biodiversity. In the context of the Sustainable Development Goals, agribusiness plays a key role in ensuring food security, combating climate change, preserving water resources and ecosystems. By disclosing non-financial indicators, enterprises declare the attraction of "green" financing, which improves their reputation in international markets and helps to implement innovative practices of sustainable agriculture, and ensures the long-term sustainability of the industry.

Thus, the analysis of non-financial components of the reporting of leading Ukrainian agricultural enterprises demonstrates a general trend towards the integration of ESG approaches into corporate governance and strategic planning.

In general, companies pay significant attention to environmental aspects of their activities, such as energy efficiency, $CO_2$ emissions, waste management and water use. These indicators are most fully covered in the reports of PrJSC "MHP", "Astarta" and "Kernel", which also contain information on land use, biodiversity and environmental policy. Social aspects, in particular occupational safety, personnel training, local communities and charitable activities, are an important component of the reporting of most companies. However, these aspects are most thoroughly disclosed in the reports of PrJSC "MHP" and "Astarta".

Common features of non-financial reporting of agricultural enterprises include mandatory disclosure of issues such as environmental performance, labor protection, personnel training and social responsibility to communities. Most companies also disclose data on business ethics and corporate governance, which indicates a desire to comply with international ESG standards.

The study shows the lack of a unified approach and imbalance in the naming of reporting that combines financial and non-financial indicators. At the same time, more than 85% of the analyzed reports of large and medium-sized agricultural enterprises use the name "Annual Report", which includes "Management Report", "ESG Report".

The costs of implementing integrated reporting are particularly critical for small and medium-sized agribusinesses that do not have the financial resources to invest in reporting transformation. Finally, lack of management awareness indicates a strategic risk, as it is the management that must initiate change and generate the demand for enhanced transparency of business processes. enterprises.

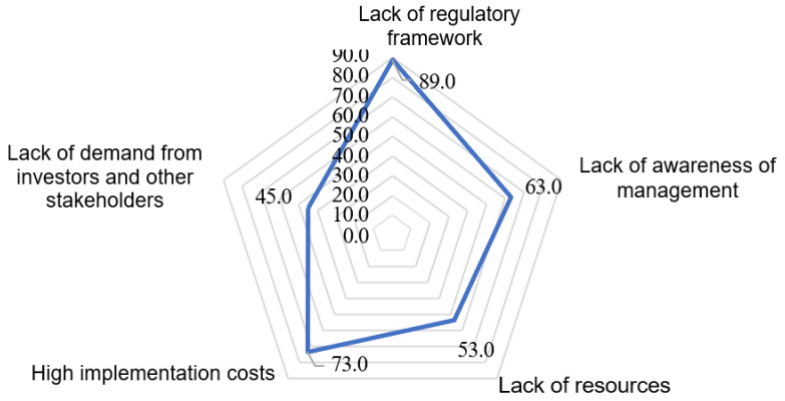


***Figure 2.*** *Expert opinion on the main barriers to the implementation of integrated reporting in agricultural enterprises, %*

Thus, the results of the expert survey emphasize that the successful implementation of integrated reporting in the agricultural sector of Ukraine is impossible without the creation of a stimulating regulatory infrastructure, financial support for enterprises at the stage of reporting transformation, and increasing the level of awareness of management personnel.

For a business model to be positively assessed by stakeholders, the company must demonstrate dynamism and the ability to create value. In order for the company to be able to create value for itself, the business model must demonstrate a positive impact on different types of capital. The company's product is considered in integrated reporting as the main generator of created value.

Thus, improving the accounting system of agricultural enterprises on the basis of building an integrated policy requires a conceptual revision of approaches to reflecting economic transactions related to the transformation and return of individual types of capital. The traditional model, focused mainly on financial results, does not allow for adequate consideration of the impact of agricultural production on the environment, rural communities and ecosystems, and therefore does not provide for the formation of a complete information plane of value creation. That is why, in the context of the transition to sustainable development, the integration of new accounting approaches into the system of accounts, tools and methods is of particular importance.

First of all, this concerns the improvement of mechanisms for accounting for environmental costs, which should not only record direct costs for environmental protection, but also take into account preventive costs, restoration of natural capital and the impact of agricultural production on climatic conditions. In parallel, the development of social accounting ensures the reflection of costs associated with the development of human capital, corporate social responsibility, and participation in programs to support rural communities. The combination of such approaches allows us to form a comprehensive vision of the effects of agribusiness - both economic and non-financial.

Thus, the integration of financial, tax, management, environmental, social and strategic accounting within a single integrated accounting system, including accounting accounts, the transformation of the eight classical elements of its method, creates the basis for the preparation of high-quality, balanced and transparent integrated reports. Such reports not only reflect the financial results of agricultural enterprises, but also record their contribution to the preservation of the natural environment, the development of human potential and the support of social stability of rural communities, which in modern conditions are the defining characteristics of long-term business sustainability.

Integrated reporting in the modern world is the main tool for informational satisfaction of public interests and expectations of stakeholders, which makes it possible to communicate the business model and long-term value of an individual business entity. Integrated reporting, especially its non-financial part, plays a special role in the context of increasing challenges of sustainable development, which have recently become planetary in scale.

In these conditions, an obvious challenge is the problem of verifying indicators, ensuring their quality, as well as increasing stakeholder confidence in integrated reports. Therefore, the issue of control, providing guarantees and audit assurances regarding integrated reports becomes particularly relevant.

All integrated reports of agricultural enterprises in Ukraine that are freely available are compiled by public interest entities and contain relevant audit opinions, the main part of which concerns assurances regarding financial reporting. This was also confirmed by the results of a survey of experts, only 3% of whom confirmed their experience of undergoing an audit of integrated reporting. At the same time, 11% of respondents (except for representatives of large enterprises, including agricultural holdings) indicated that their enterprises plan to include an external audit of integrated reporting (or annual reporting, including its non-financial component) in the near future.

Thus, the issue of verification of integrated reporting indicators in Ukraine today is reduced to providing an audit opinion with assurances regarding the financial component, while providing assurances regarding the non-financial component of integrated reports in Ukraine is practically absent. In foreign practice, in contrast, it is usually practiced to provide financial reporting together with an auditor's opinion and a separate external audit confirmation (verification guarantee) of the integrated report.

According to the International Federation of Accountants (IFAC), an integrated reporting assurance is an expression of assurance that an integrated report, including the Board's Statement of Responsibility, complies with the International Standard (Framework) on Integrated Reporting. An integrated reporting assurance is an assurance of the "whole report" in relation to integrated reports or reports in an annual report prepared in accordance with the framework. The use of integrated and annual reports as a venue for sustainability disclosure has grown significantly. Due to corporate and investor demand in some jurisdictions to mandate integrated reporting in some form, the momentum for integrated reporting around the world has also increased.

The non-financial component of integrated reporting mainly covers information on social, environmental and governance aspects of the enterprise's activities that are important for its long-term sustainability and value. This component should be subject to some verification and quality control of indicators, answering the question of how non-financial factors contribute to the achievement of strategic goals and the creation of added value in accordance with the indicators specified in the reporting.

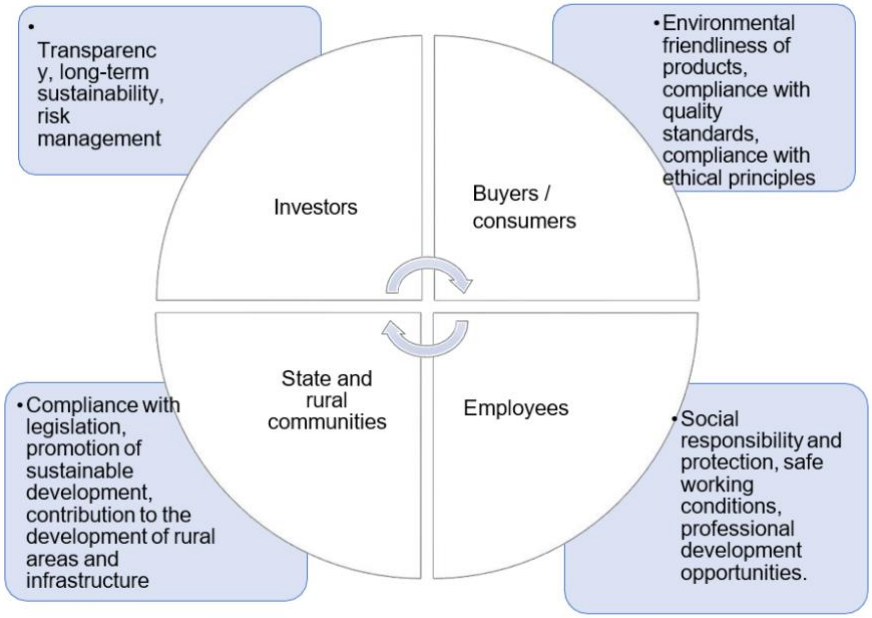


***Figure 3.*** *Expectations of key stakeholders that should be taken into account when preparing integrated reporting for agricultural enterprises*

Taking into account the expectations of key stakeholders is critical for the preparation of integrated reporting of agricultural enterprises, as it ensures the alignment of the company's strategic priorities with the interests of its stakeholders. Investors expect transparency regarding financial stability, partners – a clear vision of sustainable development, communities – compliance with environmental and social standards, and consumers – responsibility in production.

Thus, the development of a specialized structure of an integrated report for an agricultural enterprise is due both to the specifics of agricultural production, which is characterized by seasonality, dependence on natural and climatic conditions and biological cycles, and to the need to implement a comprehensive information approach to reporting, focused on a wide range of stakeholders. At the same time, in the context of the approximation of national reporting practices to EU requirements, the formation of an adapted structure of integrated reporting becomes a strategically important step towards increasing the competitiveness of agricultural enterprises.

Among the priority measures, according to the expert community, the development and approval of a unified regulatory and methodological framework for integrated reporting, training and advanced training of accounting and management personnel, as well as providing state or institutional support for agricultural enterprises at the stage of implementing new standards were most highly rated.

Also, a significant step towards transforming the reporting of agricultural enterprises is the adoption of the Strategy for the Development of Agriculture and Rural Areas until 2030 and the approval of an operational plan of measures for its implementation in 2025–2027. The adoption of this Strategy is due to a number of problems associated with full-scale military operations on the territory of Ukraine, the ineffectiveness of measures to support novice farmers and newly established farms, loss of biodiversity, negative impact on ecosystems, etc. The outlined problems make sustainable development impossible, the restoration of production and negatively affect the level of social development, the well-being of the population and the state of the environment.

The purpose of this study was achieved by implementing a number of tasks, including: analyzing modern theoretical approaches to integrated reporting, assessing the current state of enterprise information systems, identifying barriers in the practice of sustainable development accounting, and developing practical recommendations for improving such systems.

In November 2024, the International Audit and Assurance Council published the International Standard on Sustainability Assurance 5000, a standard of general requirements for ensuring assurance regarding sustainable development information. The new standard should be applied to periods starting from December 15, 2026, and provides for assessing the acceptability of the criteria used to prepare non-financial information. Its adoption is an important step in creating uniform requirements for the verification of environmental, social and governance indicators in integrated reporting, which is directly related to the objectives of this study.

The analysis showed that integrated reporting should be not only a means of informing external users, but also a strategic management tool. It contributes to capital optimization, digital transformation and taking into account the impact of enterprise activities on agro-ecosystems, which corresponds to modern practices of environmental and social reporting in the European Union. The relationship between integrated reporting, transparency of agribusiness activities and increased investment attractiveness confirms the feasibility of strengthening state support for the standardization and digitalization of reporting systems, which become an element of effective industry management.

The empirical research results confirmed that agribusinesses should consider the specific environmental and social impacts of their activities, such as land use, biodiversity impacts, labor relations, and interactions with local communities. These aspects determine the increased importance of integrated reporting for the agricultural sector, since the activities of such companies are directly related to the management of natural, social, and financial capital.

Agricultural enterprises play a key role in the transformation of agrocenoses, as they are the main actors of land use and bioresource management. The identified trends, such as intensive use of agrochemicals, monoculture farming, soil degradation and biodiversity loss, indicate the need for an integrated approach to managing these risks through an accounting system that covers both financial and non-financial aspects.

The study confirmed that non-financial information should be systematically integrated into the accounting system of the enterprise. This allows not only to meet the requirements of stakeholders and legislation, but also to form reputational capital, increase access to "green" financing, ensure long-term sustainability of the business model and increase the competitiveness of business entities. Therefore, the results of the study confirm that a modern accounting and analytical system for sustainable development should be built on the principles of integration of financial and non-financial information, digital adaptability and proper data verification.

## REFERENCES


1. Association of Chartered Certified Accountants. (2021). *The integrated report framework*. https://surl.li/obbxeh
2. Afolabi, H., Ram, R., & Rimmel, G. (2022). Harmonization of sustainability reporting regulation: Analysis of a contested arena. *Sustainability, 14*(9), 5517. https://surl.li/aurhom
3. Amiruddin, D., Raharja, S. J., & Purnomo, M. (2024). The influence of organizational climate in ERP implementation on information system service quality and user satisfaction: A study on an Indonesian petrochemical company. *Review of Integrative Business and Economics Research, 14*(1), 276–295.
4. Bari, N., Chimhundu, R., & Chan, K.-C. (2022). Dynamic capabilities to achieve corporate sustainability: A roadmap to sustained competitive advantage. *Sustainability, 14*(3), 1531. https://surl.li/fgaqfs
5. Bean, R. (2021, February). Why is it so hard to become a data-driven company? *Harvard Business Review*. https://surl.li/wgtnmu
6. Berardino, D. D., & Vona, S. (2023). Big data and decision-making: A structured literature review. *European Scientific Journal, ESJ, 17*, 374. https://surl.li/dntibn
7. Berenda, N. I., & Ostapenko, N. V. (2013). Development of environmental accounting in Ukraine taking into account world experience. In *Theoretical and practical aspects of sustainable development of the financial system of Ukraine* (Pt. 2, pp. 205–214). Vizavi.
8. Beretta, V., Demartini, M. C., & De Villiers, C. (2025). Integrated reporting: Developing an injustice assessment framework and a research agenda. *Accounting, Auditing & Accountability Journal, 38*(9), 1–29. https://surl.li/sczgyo
9. Bian, W., & Bian, W. (2022). Construction of application model of accounting framework platform for industry-finance integration management under the background of multimedia technology. *Mobile Information Systems, 2022*, 1–10. https://surli.cc/lasxgv
10. Biloblovskyi, S. (2024). Data management and the concept of big data in sustainability reporting. *Odesa National University Herald. Economy, 29*(3(101)). https://surl.li/aswggj
11. Biloblovsky, S. V. (2025). Institutional transformation of reporting to ensure sustainable development of organizations in conditions of global instability. *Bulletin of the Sumy National Agrarian University. Series: Economics and Management*, 1(101), 25–31. https://surl.li/kwwxjf
12. Bosi, M. K., Lajuni, N., Wellfren, A. C., & Lim, T. S. (2022). Sustainability reporting through environmental, social, and governance: A bibliometric review. *Sustainability, 14*(19), 12071. https://surl.li/dgakfj
13. Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes, 97*(2), 117–134. https://surli.cc/dsyfcz
14. Bushman, R., Chen, Q., Engel, E., & Smith, A. (2004). Financial accounting information, organizational complexity and corporate governance systems. *Journal of Accounting and Economics, 37*(2), 167–201. https://surl.lu/xjlrkb
15. Cabinet of Ministers of Ukraine. (2014, August 20). *Regulations on the Ministry of Finance of Ukraine* (Resolution No. 375). https://surl.lu/lzavpi
16. Cabinet of Ministers of Ukraine. (2022). *Recommendations on the approximation of Ukrainian legislation to EU law*. European Integration Portal. https://surli.cc/azjyyu
17. Chen, S., Song, Y., & Gao, P. (2023). Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management, 345*, 118829. https://surl.lu/lgotph
18. Ciampi, F., Demi, S., Magrini, A., Marzi, G., & Papa, A. (2021). Exploring the impact of big data analytics capabilities on business model innovation: The mediating role of entrepreneurial orientation. *Journal of Business Research, 123*, 1–13. https://surl.li/pmtbos
19. Dimes, R., & de Villiers, C. (2023). Hallmarks of integrated thinking. *The British Accounting Review*, 101281. https://surl.li/kqyrox
20. Doherty, R., Kampel, C., Koivuniemi, A., Pérez, L., & Rehm, W. (2023). Revenue growth is good. Profitable growth is better. Profitable growth that advances ESG priorities is best. Here's how outperformers who actively choose growth deliver the growth trifecta. *McKinsey & Company*. https://surl.lu/fgpetp
21. Doyle, J., Ge, W., & McVay, S. (2007). Determinants of weaknesses in internal control over financial reporting. *Journal of Accounting and Economics, 44*(1–2), 193–223. https://surl.li/uczwyh
22. Du Toit, E., Marx, B., & Smith, R. J. (2024). Delineating the parameters of integrated thinking: A synthetic literature review. *Journal of Economic and Financial Sciences, 17*(1). https://surl.lt/cuopzd
23. European Commission. (2022). *Corporate Sustainability Reporting Directive (CSRD)*. https://surl.li/gxbesg
24. Financial Reporting Council. (n.d.). *Our purpose*. https://surl.li/yomjmy
25. Geets, V. M. (2005). Institutional transformations and social development. *Economics and Forecasting*, (2), 9–36.
26. Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance, 66*, 101889. https://surl.lt/kjbhxw

27. Global Reporting Initiative. (n.d.). *GRI standards*. https://surl.li/uwqxai
28. Google Cloud. (2022). *Report: What it will take for CEOs to fund a sustainable transformation*. https://surl.lu/mtzyvs
29. Gull, A. A., Hussain, N., Khan, S. A., Khan, Z., & Saeed, A. (2023). Governing corporate social responsibility decoupling: The effect of the governance committee on corporate social responsibility decoupling. *Journal of Business Ethics, 185*(2), 349–374. https://surl.li/tmzyzb
30. Herremans, I. M., & Nazari, J. A. (2016). Sustainability reporting driving forces and management control systems. *Journal of Management Accounting Research, 28*(2), 103–124. https://surl.li/zqyftl
31. Hertl, I. C., & Maniora, J. (2024). Forward-looking sustainability information and financial analysts. *Journal of International Accounting Research, 23*(1), 79–113. https://surl.lu/iemjrf
32. International Auditing and Assurance Standards Board. (2024). *International Standard on Sustainability Assurance 5000: General requirements for sustainability assurance*. IAASB. https://surl.li/vgptda
33. International Integrated Reporting Council. (2021). *International integrated reporting framework*. https://surl.lt/ntzyxl
34. International Organization for Standardization. (2010). *ISO 26000: Guidance on social responsibility*. https://surl.li/iylajn
35. Jayasuriya, D. D., & Sims, A. (2023). From the abacus to enterprise resource planning: Is blockchain the next big accounting tool? *Accounting, Auditing & Accountability Journal, 36*(1), 24–62. https://surl.li/zndzpp
36. Jensen, M. C. (2010). Value maximization, stakeholder theory, and the corporate objective function. *Journal of Applied Corporate Finance, 22*(1), 32–42. https://surl.li/nqccth
37. Jones, T. M., & Felps, W. (2013). Shareholder wealth maximization and social welfare: A utilitarian critique. *Business Ethics Quarterly, 23*(2), 207–238. https://surl.li/cilwbg
38. Katz, S., Gu, Y., & Jiang, L. (2024). Information extraction from ESG reports using NLP: A ChatGPT comparison. *SSRN*. https://surl.li/ufwbne
39. King, S. (2024). Integrated thinking in business: Conditions and benefits of implementation (integrated reporting context). *Financial and Credit Activity: Problems of Theory and Practice, 2*(55), 519–530. https://surl.li/rrehvo
40. Kuz, V. I. (2013). Development of the theory and methodology of accounting in the context of ensuring the strategic development of business entities. *Scientific Bulletin of the BDFEU. Economic Sciences*, (2), 207–215.
41. Latysheva, O., Rovenska, V., Smyrnova, I., Nitsenko, V., Balezentis, T., & Streimikiene, D. (2021). Management of the sustainable development of machine-building enterprises: A sustainable development space approach. *Journal of Enterprise Information Management, 34*(1), 328–342. https://surl.lt/gnfhno
42. Li, Q., Li, T., & Zhang, Y. (2024). ESG performance, heterogeneous creditors, and bond financing costs: Firm-level evidence. *Finance Research Letters, 66*, 105527. https://surl.lu/kvsawc
43. Makarenko, I., Serpeninova, Y., Oleksich, Z., Kostenko, O., & Pugovkina, Y. (2023). Integrated reporting of leading companies in the field of corporate social responsibility in the EU and Ukraine: Case studies and benchmark analysis. *Journal of Innovations and Sustainability, 7*(1). https://surl.lt/ldyqgd
44. Nesterenko, O. O. (2021). The place of reporting in the management of the financial results of an enterprise. *Problems of the Theory and Methodology of Accounting, Control and Analysis*, (1), 26–32. https://surl.li/kmgiul
45. Nesterenko, O., Mytrofanova, L., & Kyzym, A. (2024). Development of methodological aspects of integrated reporting: Implementation of European experience. In *Economic strategy and prospects for the development of the trade and services sector* (Issue 1(35), pp. 18–32). DBTU.
46. Norris, S. (2023). In the eye of the beholder: Stakeholder perceived value in sustainable business models. *Long Range Planning*, 102406. https://surl.li/gbmlzz
47. Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & De Colle, S. (2010). Stakeholder theory: The state of the art. *Academy of Management Annals, 4*(1), 403–445. https://surl.li/htfqqc
48. Poberezhny, R. O. (2012). Main directions of development of mechanical engineering enterprises. *Bulletin of NTU "KhPI"*, (13), 90–100.
49. Radionov, Y. (2021). Institutional theory in the development of economic science. *Economy of Ukraine, 64*(4(713)), 30–50. https://surl.li/dhijku
50. Robertson, J. (n.d.). *SA8000 standard*. Social Accountability International. https://surl.lu/ikvkko
51. Said, H. A. (2011). Corporate financial reporting complexity: Recommendations for improvement. *Review of Business, 31*(2), 69–78. https://surli.cc/mnfzle
52. Semenyshena, N., Khorunzhak, N., Lazaryshyna, I., Yurchenko, O., & Ostapenko, Y. (2021). Accounting institute: On the genesis and impact of management revolutions. *Independent Journal of Management & Production, 12*(3), s243–s261. https://surl.li/gsrwou
53. Shojaie, S., Matin, H. Z., & Barani, G. (2011). Analyzing the infrastructures of organizational silence and ways to get rid of it. *Procedia – Social and Behavioral Sciences, 30*, 1731–1735. https://surl.li/blfqdb
54. Skotarczyk, M. A. (2011). *The effect of culture on the implementation of International Financial Reporting Standards* (Senior thesis). Claremont McKenna College. https://surl.li/aqgpmr

55. Smith, D. C. (2025). The intellectual history of Milton Friedman's criticism of corporate social responsibility. *Modern Intellectual History, 22*(1–2), 184–210. https://surl.li/kcjpiy
56. Sokil, O. G. (2017). Methodology of accounting for sustainable development. *Problems of Theory and Methodology of Accounting, Control and Analysis*, (1), 247–259.
57. Spierdijk, L., & Zaouras, M. (2017). The Lerner index and revenue maximization. *Applied Economics Letters, 24*(15), 1075–1079. https://surl.li/yxpqoc
58. Sustainable development. (n.d.). In *Wikipedia*. https://surl.li/zmkxus
59. Thijssens, T., Bollen, L., & Hassink, H. (2016). Managing sustainability reporting: Many ways to publish exemplary reports. *Journal of Cleaner Production, 136*, 86–101. https://surl.li/xpyttc
60. Thun, T. W., Schneider, A., Kayser, C., & Zülch, H. (2024). The role of sustainability integration into the corporate strategy: A perspective on analysts' perceptions and purchase recommendations. *Heliyon, 10*(3), e25008. https://surl.lt/ufaqxq
61. Tsybulyak, V. Y. (2014). *Institutional foundations of rural development in Ukraine: Scientific and applied aspect*. NAS of Ukraine, Institute of Economics and Forecasting.
62. Tsepansky, E. V. (2009). Forms and methods of managing socio-economic development: A theoretical aspect. *University Scientific Notes*, (3(31)), 273–279.
63. Tyukha, I. V. (2012). Socio-economic development of the enterprise: Essence and specific manifestations. *Effective Economy*, (6). https://surl.lt/ihjcep
64. Tarmuji, I., Maelah, R., & Tarmuji, N. H. (2016). The impact of environmental, social and governance practices (ESG) on economic performance: Evidence from ESG score. *International Journal of Trade, Economics and Finance, 7*(3), 67–74. https://surl.lu/izgopx
65. The Structure of the Neoclassical Theory. (2024). In L. Tsoulfidis (Ed.), *Springer studies in the history of economic thought* (pp. 191–221). Springer Nature Switzerland. https://surl.li/kedilj
66. Ukraine. President of Ukraine. (2019, September 30). *On the Sustainable Development Goals of Ukraine for the period up to 2030* (Decree No. 722/2019). https://surli.cc/jgkhnl
67. Ukraine. Verkhovna Rada of Ukraine. (1999). *On the National Bank of Ukraine* (Law No. 679-XIV). https://surl.li/zonfsa
68. Ukraine 2025 report. (2025). European Commission. https://surl.lu/usunke
69. Ukrainian Center for Economic and Political Research named after Oleksandr Razumkov. (2021). *Ukraine: 30 years on the European path*. Zapovit.
70. UPL Limited. (2025). *Sustainability report 2024–2025*. https://surl.lu/vumgni
71. U.S. Securities and Exchange Commission. (n.d.). *Our goals*. https://surl.lu/figopp
72. Van Bommel, K., Rasche, A., & Spicer, A. (2023). From values to value: The commensuration of sustainability reporting and the crowding out of morality. *Organization & Environment, 36*(1), 179–206. https://surl.li/fwovnm
73. Velte, P. (2022). Archival research on integrated reporting: A systematic review of main drivers and the impact of integrated reporting on firm value. *Journal of Management and Governance, 26*(3), 997–1061. https://doi.org/10.1007/s10997-021-09582-w
74. Voloshchuk, L. O. (2011). Accounting and analytical support for the management of innovative development of an enterprise. *Proceedings of the OPU*, (2(36)), 329–338.
75. Wavestone. (2024). *Data and AI executive leadership survey 2024*. https://surli.cc/cncfxv
76. Wijaya, S. F., Wiratama, J., & Kuswanto, V. (2023). An evaluation of integrating ERP system to develop a business strategy. In *2023 International Conference on Information Management and Technology (ICIMTech)* (pp. 1–6). https://surl.lu/vjqweo
77. Wu, Q., He, Q., & Duan, Y. (2013). Explaining dynamic capabilities for corporate sustainability. *EuroMed Journal of Business, 8*(3), 255–272. https://surl.li/vuewry
78. Yang, X., Shira, R. K., Dang, L. P., & Hao, P. (2025). Unforeseen benefits: Can ESG enhance corporate access to commercial credit financing? *Research in International Business and Finance, 75*, 102735. https://surl.li/zlelbq