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Integrated approach to accounting in the context of sustainable development and circular economy

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Abstract. In today's environment, ensuring sustainable development is one of the long-term goals of any state, and therefore consideration of new approaches and concepts remains relevant. The purpose of this study was to investigate approaches to accounting in the context of the circular economy. The study assessed some main approaches to financial reporting based on the principles of sustainable development and the circular economy, and conducted a comparative analysis of the similarities and differences. Conclusions were drawn regarding the role of existing standards in the activities of enterprises in the context of achieving sustainable development goals. The large number of existing international and national standards results in the absence of a single global approach that could meet the needs of all market participants. In addition, each approach focuses on a specific component of non-financial reporting disclosures, and therefore is more or less effective in different situations. An analysis of accounting approaches in countries such as Japan, Germany, Finland, the United States, Canada, Brazil, and Ukraine was conducted. It was found that in these countries, the general approaches are similar and based on international standards, while in some countries local laws may be applied, which form more specific reporting principles. The findings of the study highlighted the importance of a unified global approach to reporting that can meet the needs of the market. The practical value of the study lies in the possibility of using the results to develop public policy and corporate strategies in the field of sustainable development

Keywords: accounting efficiency; audit; financial reporting; environmental sustainability; social responsibility

INTRODUCTION

In 2015, the United Nations adopted the Sustainable Development Concept as part of the adoption of the 2030 Agenda (Transforming our world…, 2015). This is a global action plan that covers 17 sustainable development goals and aims to ensure economic growth, social well-being, and environmental protection. In view of this, there is a rapid search for new opportunities to improve the efficiency of this process. One of the ways to achieve this goal is through the circular economy, which is an economic model aimed at maximising the efficient use of resources and

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minimising waste. It is an alternative to the traditional linear economy, which is built on the principles of "take, use, throw away". In a circular economy, resources and materials retain the value for as long as possible, and waste and emissions are minimised.

The main idea behind the circular economy is to create closed loops where products, materials, and resources are reused. The circular economy is based on several key principles: preservation and restoration of natural capital, which means using resources in such a way that these resources can be renewed or replaced by alternative, more sustainable sources; optimisation of resources to ensure the most efficient use; creation of closed cycles where all materials are in a continuous cycle, i.e., waste is turned into raw materials for new products; minimisation of negative environmental impact, which means reducing harmful emissions. Implementation of circular economy approaches helps to increase resource efficiency, reduce negative environmental impact, and ensure sustainable economic development. These issues are in the focus of attention of the global scientific community.

S. Aureli *et al.* (2023) examined how management accounting systems can contribute to the transition to a circular economy by studying the implementation of sustainable circular business models in six companies specialising in innovative, environmentally friendly packaging solutions. The study found that circular initiatives lead to new organisational configurations and value networks, but managers often bypass traditional accounting functions in favour of informal accounting and life cycle analysis. These alternative approaches promote multi-stakeholder dialogue and a life cycle perspective, which is essential to the principles of the circular economy. The study results highlight the need to develop management accounting systems that go beyond financial performance to promote resource conservation and stakeholder engagement, and emphasise the importance of training accountants in sustainability and circularity.

The unification and standardisation of accounting standards is essential for creating transparent, understandable and comparable financial statements, which is especially important in the context of globalised markets. This avoids confusion due to the diversity of approaches in different countries, reduces audit costs and facilitates the process of analysing financial results for investors, creditors, and other stakeholders. As noted by M. Dubinina *et al.* (2022; 2023), the unification of norms in the EU is supported by directives aimed at reducing the diversity of accounting practices. In Ukraine, there is also a need to harmonise legislation to ensure compliance with international standards, facilitating integration into global economic processes.

The circular economy as an alternative to the linear economy on the example of the European Union countries was considered by T. Gorokhova *et al.* (2023). The analysis emphasised that this development model focuses on the efficient use of potential opportunities, promoting balanced social development, and prioritising environmental protection. The transition to a circular economy is aimed at increasing global prosperity and social equality while reducing environmental risks. However, successful implementation requires conscious efforts by each country to create a favourable environment through the necessary reforms. The transition to a circular economy must be systemic, involving cooperation between all stakeholders at the local, regional, national, and international levels.

N.C. Hanumante *et al.* (2019) modelled the circular economy in a comprehensive planetary framework that integrates human, environmental, and industrial components to assess its global systemic impacts. By modelling 90 different implementation pathways at nine levels of resource consumption and population growth, the study showed how different circular economy strategies affect resource use and ecosystem resilience. The study findings demonstrate that the implementation of circular economy practices significantly delays or even prevents resource-driven system collapse, highlighting the critical need for large-scale implementation over the next 70-90 years. At the same time, the study also warns that overly aggressive circular economy measures could lead to the depletion of ecosystem services, emphasising the need for a balanced approach.

E. Costa *et al.* (2023) investigated how circular economy practices are implemented within alpine collective ownership (CO) in Italy and identified two main forms of circularity: network and forest. Network circularity focuses on promoting social cooperation and coordination between different institutions to support the local community and strengthen regional ties. Forest circularity points out the sustainable supply of wood, optimising the cascade use and processing of wood to minimise waste and environmental impact. The authors highlighted the important role of accounting in promoting these circular practices by proposing specific accounting indicators. These indicators are intended to help COs transform the economic model into a biodiversity-based circular economy, ensuring that resources are effectively redistributed to benefit both the community and forest ecosystems. Ultimately, the study demonstrates how integrating circular economy principles with sound accounting practices can contribute to sustainable development and resilience in alpine areas.

Opportunities and prospects for development in the field of bioproducts as an alternative to conventional plastics for creating a circular economy in Ukraine were investigated by T. Shevchenko *et al.* (2022). They described the significant potential in Ukraine both to develop the production of such high-tech products and to ensure the principles of operation of enterprises according to the principles of the circular economy.

Thus, economic science is actively researching issues related to the peculiarities of the implementation and functioning of the circular economy and the principles of sustainable development, but the accounting and reflection of these processes in accounting is not sufficiently covered. Therefore, the purpose of the current study was to assess the peculiarities of accounting approaches and to find

mechanisms to improve the efficiency of accounting for materials and resources for the rational use and ensure the environmental and economic sustainability of enterprises.

MATERIALS AND METHODS

To achieve the research objective, a comprehensive approach was used, including qualitative and quantitative analysis. The main focus was on a comparative analysis of reporting systems that regulate financial and non-financial information disclosure in the context of sustainable development and the circular economy. Particular attention was paid to how these systems reflect the environmental, social, and economic aspects of companies' activities and contribute to the achievement of sustainable development goals. The study analysed several international standards governing non-financial reporting by companies. Among them are ISAE 3000 – International Standard on Assurance Engagements (2013), which regulates the audit of non-financial information, including social, environmental and ethical aspects; AA1000 Assurance Standard (n.d.), which focuses on taking into account the needs of stakeholders in reporting; GRI – Global Reporting Initiative (n.d.), which discloses economic, environmental and social aspects of activities in reporting; SASB – Sustainability Accounting Standards Board (SASB Standards, n.d.) – industry standards for disclosing non-financial indicators important to investors; and IIRC (International Integrated Reporting Council) (Integrated Reporting, n.d.), which integrates financial and non-financial aspects into reporting to reflect the real value of a company. The analysis of these standards was carried out by comparing the principles, requirements, and recommendations for integrating sustainable development and the circular economy into accounting. For this purpose, the general provisions of the standards were analysed using the deduction method, which allowed identifying the practical applicability to the work of enterprises in the context of integrated accounting. This made it possible to assess the possibilities of integrating the principles of the circular economy into the financial reporting system and determine the effectiveness of different approaches.

In addition to international standards, national standards of several countries were analysed: Japan – the Japan's Corporate Governance Code (2021) and environmental reports of the Ministry of Agriculture, Forestry and Fisheries (MAFF) (n.d.); Germany – the German Sustainability Code (Deutscher Nachhaltigkeitskodex, n.d.); Finland – the Finnish Accounting Act 1336/1997 (2017), which regulates non-financial reporting; and the United States and Canada – SASB Standards (n.d.) and Canadian Standards Association (n.d.). These national standards were compared with international standards to identify commonalities and differences in approaches to the circular economy and sustainable development. This allowed identifying how countries adapt global approaches to the local conditions and market requirements. This research was important for assessing the possibility of integrating international standards into local regulatory systems.

The case study method was used to study the practical experience of implementing these standards. The experience of reporting in such countries as Japan, Germany, the United States, Canada, Brazil, and Ukraine was studied. The analysis of these cases has helped to identify the best practices for implementing the principles of the circular economy in accounting and the impact on the efficiency of enterprises. The results of the comparison of reporting systems and the analysis of the cases became the basis for the development of recommendations for integrating sustainable development and the circular economy into the reporting practices of enterprises.

RESULTS

The theoretical aspects of sustainable development cover many areas, exploring ways to ensure long-term harmony between economic growth, social well-being and environmental protection. One of the main concepts of sustainable development is the triple bottom line model, which includes economic, environmental and social components, known as the "three pillars of sustainable development". The economic component of this concept focuses on economic development that does not damage natural resources and ensures equal access to economic benefits for all generations. It also includes the use of renewable resources and support for the efficient use of existing resources. The environmental component includes the preservation of natural ecosystems, biodiversity, and minimisation of the negative impact of human activity on the environment. This aspect emphasises the importance of renewable resources, as well as the need to control the use of non-renewable resources to prevent the depletion of natural resources. The social pillar of sustainable development aims to ensure equity, well-being, and access to basic needs for all people. This includes fighting poverty, ensuring equal access to education and healthcare, and protecting human rights. At the theoretical level, sustainable development also implies a transition to an economy that not only provides material growth but also improves the quality of life through social inclusion and environmental sustainability. An essential concept is the idea of 'planet limits', which reminds one of the need to stay within the Earth's ecological capacity to avoid critical disruptions in natural systems. The connection between the theoretical concept of sustainable development and the circular economy is significant, as both ideas are aimed at achieving a balanced development that takes into account economic, environmental and social aspects. The circular economy is a tool that can help to realise the goals of sustainable development by ensuring the harmonious coexistence of economic growth, improved living standards and environmental protection.

In the circular economy, eco-design is important, which means that products are designed in such a way that these products can be easily repaired, disassembled and recycled (Morseletto, 2020; Corvellec *et al*., 2020). This concept considers the entire life cycle of a product, from raw material extraction to disposal. Another key aspect is the reduction

of resource consumption, which is achieved through the optimisation of production processes. Instead of purchasing goods, consumers in the circular economy are increasingly using rental, leasing or sharing services, which helps to extend the life cycle of products and reduce waste. Products that fail or are no longer in use are not thrown away, but are recycled or reused to create new products, helping to conserve resources and reduce the need to extract new materials. The circular economy strives to create systems where waste is minimised or eliminated, which is achieved through improved recycling processes, the introduction of closed loops of material use and increased responsibility for production and consumption. This model of economy has numerous benefits (Vaio *et al*., 2022). It ensures economic sustainability by reducing dependence on primary resources, which can be expensive or limited, reducing costs and increasing business stability. Social responsibility within the circular economy contributes to the creation of new jobs in the areas of processing, repair and maintenance, and contributes to a higher standard of living through greener consumption. The environmental benefits of the circular economy include a reduced environmental impact through waste reduction, lower greenhouse gas emissions, and the rational use of natural resources (Bressanelli *et al*., 2020).

An integrated approach to accounting in the context of sustainable development and the circular economy takes into account not only traditional financial indicators, but also the social, environmental, and economic aspects of a company's activities. This approach is aimed at creating a more complete and transparent picture of the company's activities, considering its impact on all stakeholders, the environment, and society as a whole. A key part of it is integrated reporting, as it covers not only financial indicators but also non-financial aspects such as environmental and social factors (Evans, 2023). This helps to create a more comprehensive picture of a company's sustainability. Integrated reporting includes traditional financial statements, such as balance sheet, income statement, and cash flow statement; environmental indicators, such as the amount of resources used, greenhouse gas emissions, waste management, and energy efficiency; social indicators, such as labour conditions, human rights, staff development, impact on local communities, and governance indicators, such as corporate governance, ethical standards, and responsibility to stakeholders (Mahbob & Hashim, 2022). Environmental aspects are taken into account in financial accounting to assess the company's environmental impact (D'Adamo *et al*., 2021; Mahmood *et al*., 2023). This may include emissions as part of production costs or possible liabilities in the event of environmental fines, assessment of natural resource costs and inclusion of these costs in the company's general expenses, waste management costs, including recycling or disposal, and assessment of energy efficiency, which may include the costs of implementing energy-efficient technologies.

The circular economy aims to reduce the use of natural resources, reuse materials, and minimise waste. In accounting, this can be done by accounting for the value of reuse of materials (taking into account the value of materials that are reused or recycled), reducing waste disposal costs (saving money through the implementation of effective waste management systems), and introducing innovations (the costs of developing new products or processes that comply with the principles of the circular economy). There is no global consensus on which sustainability reporting principles should be used as the main ones. Each of the approaches proposed by an organisation or country has its own peculiarities and focuses more or less on certain components of the company's financial or non-financial position. One of these approaches is ISAE 3000 (International Standard, 2013), which regulates the audit of non-financial information, including social, environmental, ethical and other aspects of a company's activities. ISAE 3000 provides a framework for verifying non-financial aspects of operations, such as resource efficiency, environmental impact, waste management, and other indicators that are consistent with the principles of the circular economy. The standard creates the conditions for ensuring reliable and accurate non-financial information disclosed by companies in the reports, which is key to maintaining the trust of stakeholders such as investors, regulators, and society as a whole. The standard regulates the verification of a company's internal management systems, in particular in terms of resources and waste, which are critical to achieving the goals of the circular economy. However, the main specialisation of these principles is the disclosure of non-financial information of various kinds, and therefore these principles cannot be used as a complete single reporting for analysing the company's activities. Nevertheless, the information provided within its framework can be used to draw conclusions about the company's activities in the context of its impact on society or the environment.

In the context of the circular economy, SAE 3000 is becoming an important tool for verifying reports that disclose information about companies' sustainability strategies, achievements, and results. It is based on three main principles. The first is the principle of materiality. It ensures that a company's reporting addresses the most important issues. The second is the principle of completeness, which ensures that all relevant information about the company's activities within the circular economy is included in the report. The last is the principle of responsibility, which ensures that the company adequately responds to the expectations and needs of stakeholders in relation to the circular economy. In the agriculture sector, for example, ISAE 3000 facilitates the audit of non-financial aspects such as resource efficiency (water and soil management), environmental impact and waste management (organic waste, recycling). The standard ensures that agricultural companies report on the sustainability practices, which is important for maintaining the trust of stakeholders such as investors, regulators, and consumers.

One of the most widely used standards is the GRI (n.d.), which are internationally recognised standards for sustainability reporting. These standards provide a coherent framework for companies to disclose information on the

economic, environmental and social aspects of the operations. The main goal of the standards is to provide a universal approach to reporting that can be adapted to the specific needs and characteristics of companies in different industries. The GRI standards include key indicators that allow companies to assess and report on such aspects of the circular economy as material consumption, energy efficiency, waste management, environmental impact and stakeholder engagement (a report on the processes of interaction with stakeholders, including customers, suppliers, governments and public organisations, as well as on the consideration of the expectations in the implementation of circular practices). In other words, the GRI standards provide companies with an opportunity to demonstrate the achievements in implementing the circular economy, in particular through transparent disclosure, which is the basis for increasing trust among investors, customers and other stakeholders. This includes reporting on the use of natural resources, energy efficiency, waste management, and the environmental impact of production practices.

The SASB Standards (n.d.) focus on providing investors and stakeholders with material information about the impacts of sustainable development, particularly in the context of a circular economy. The SASB standards define key indicators that companies should use to disclose information about the environmental, social and governance practices that are relevant to the financial condition and performance. In the context of the circular economy, SASB standards help companies report on aspects such as resource efficiency (indicators to measure the efficiency of material resources in production processes), waste management (volumes, types, and methods of waste disposal, as well as efforts to reduce waste), energy efficiency and environmental impact (disclosing information on energy consumption, use of renewable energy sources and environmental impact), innovation and business models (reporting on the implementation of new business models that support the concept of the circular economy, such as production-use-recycling models, renting instead of selling, or implementing reverse logistics for product collection and recycling), social impact (includes indicators to assess the social impact of business processes, such as the impact on jobs, health, and safety of employees).

In the context of the circular economy, the IIRC (Integrated Reporting, 2024) provides disclosures that show how a company creates and retains value in the long term, taking into account the principles of sustainable development. According to this principle, six types of capital are distinguished: financial, productive, intellectual, human, social, and natural. In the context of a circular economy, this means that companies should report on how these companies impact natural resources (natural capital), optimise the use of material and production resources (production capital), and how these companies integrate knowledge and innovation (intellectual capital) into the business processes. IIRC emphasises the importance of creating long-term value for all stakeholders. Integrated reporting under the IIRC standard includes disclosures on a company's strategy, risk and opportunity management, and how these aspects are linked to the principles of the circular economy. The similarities and differences between these approaches are shown in Table 1.

Table 1. Similar and different components of approaches to the formation of sustainable financial reporting

Approach	Unique components (what makes the approach special among others)
ISAE 3000	Independent verification of non-financial information and ensuring its reliability
	A wide range of audits, including information systems, internal controls and corporate governance
AA1000AS	Focus on integrating stakeholder needs and expectations into reporting
	Assessment of reporting compliance with the principles of materiality, completeness, and relevance
	Specialises in ensuring transparency of the reporting process in the context of sustainable development and the circular economy
GRI	Provides standards that allow comparing the results of various companies from different industries
	Focus on transparency of environmental, economic and social aspects of activities
	Focus on a wide range of stakeholders
SASB	Industry-specific approach to reporting, taking into account the specifics of the industry
	Integration of non-financial indicators with an emphasis on financial aspects of reporting
	Focus on information that is important to investors and shareholders
IIRC	Integration of six types of capital into one report (financial, production, intellectual, human, social, natural)
	Focus on creating long-term value and company development strategy
	Integrating information for a complete picture of the company's activities, including environmental protection and the circular economy

Source: compiled by the authors based on data from ISAE 3000 (2013), AA1000 AS (n.d.), GRI (n.d.), IIRC (n.d.), SASB (n.d.)

Thus, different approaches to financial reporting can be applied to achieve different goals of the circular economy. Nevertheless, there is no single approach to this type of reporting. Therefore, each country should create its own national standards based on one of these frameworks to achieve the goals being considered most important. In addition, companies themselves can decide which type of reporting to submit for the own purposes and capabilities.

All the approaches analysed above are used in one form or another in different countries around the world. Rather, it is rare that sustainability reporting is based on different standards than those already mentioned. For example, in Japan, GRI and SASB standards are the most widely used. Companies often use GRI for reporting to stakeholders, ensuring comparability of data on a global level, while SASB is only gradually gaining traction. As for local specifics, it is worth highlighting some of the regulations that the Japanese government has developed for sustainability reporting. For example, Japan's Corporate Governance Code (2021) contains provisions on environmental and social responsibility, drawing attention to the importance of reporting on the environmental and social aspects of companies' activities. The Japanese Ministry of Agriculture, Forestry, and Fisheries also publishes an annual report (MAFF, n.d.) analysing environmental performance in the agricultural sector, which also provides guidance and requirements for companies to report and manage environmental aspects of agricultural operations. There is also a certification system for organic products called JAS (Japanese Agricultural Standards) (MAFF, 2022), also issued by MAFF. It includes stringent standards for the use of pesticides, fertilisers, and crop cultivation methods that promote sustainable development. Reporting for JAS-certified farmers includes regular inspections and compliance reports. In accordance with these national norms, the specifics of reporting according to international standards are also formed.

The practice of the European Union countries also shows that countries prefer to present financial statements in accordance with international standards. Nevertheless, such countries still have certain norms or recommendations for submitting such reports, which are a kind of supplement to the existing standards. For example, in Germany, the national code of sustainable development (Deutscher Nachhaltigkeitskodex, DNK, 2024) is widespread. At its core, it is a voluntary instrument developed by the German Council for Sustainable Development. It offers a framework for companies to report on the sustainability activities, with a focus on environmental, social and governance aspects. In other countries, the norms as such are described only in the form of laws or legislative acts. In Finland, for example, the Finnish Accounting Act (Accounting Act 1336/1997, 2017) sets out requirements for non-financial reporting, including information on environmental, social and governance aspects. In Sweden, such regulations are partially described in The Swedish Annual Accounts Act (1995), which also obliges large companies to provide non-financial information in the annual reports, including data on environmental, social and governance aspects.

In North and Latin America, the most commonly used standards in this region are the SASB standards, which are actually developed by an organisation from the United States of America. In Canada, the local standards are those developed by the Canadian Standards Association (CSA, n.d.). The organisation develops standards that promote safety, health, environment, and technical excellence. CSA operates both at the national and international level. Brazil also has certain regulations, namely Instruction CVM 480 (2009), issued by the Brazilian Securities Commission (CVM). It describes the requirements for disclosure of information on social and environmental performance of companies. Other countries in South America also have only certain legal provisions rather than the own standards.

In Ukraine, the situation is no different from the countries analysed above. Local companies often use international standards, such as the Global Reporting Initiative (GRI) or the Sustainability Accounting Standards Board (SASB), which are generally the most widely used in the world. The legal framework and guidelines consist of a number of laws, such as the Law of Ukraine No. 996-XIV "On Accounting and Financial Reporting in Ukraine" (1999), which sets out the basic requirements for accounting and reporting, and the Resolution of the National Commission for Securities and Stock Market Commission (NSSMC) "On Approval of the Regulation on Disclosure of Information by Securities Issuers" (2023) in the context of disclosure requirements for public companies, including non-financial social responsibility reporting, environmental and governance aspects.

DISCUSSION

The study focused on the concept of the circular economy. It was noted that its foundation is the formation of a business cycle in which the company's waste is processed into finished products. Thus, a 'cycle' is formed in which waste is only a part of the used products. The conceptualisation of the circular economy was carried out as part of the study by J. Kirchherr *et al.* (2023). The researchers noted that most of the studies lacked the practical applicability of the circular economy. The conclusion emphasises the importance of reaching consensus on a definition of the circular economy for effective policymaking and cross-sectoral cooperation. However, it acknowledges that a final, universally accepted definition may be elusive due to the dynamic nature of technology, environmental conditions and socio-political contexts. The study shows that ongoing research and periodic revisions are necessary to keep the concept of the circular economy relevant and adaptable, fostering a shared understanding that can support its practical application.

In turn, E.H. Arruda *et al.* (2021) also explored the existing problems in the study of the circular economy. The conclusions of the study highlighted the connection between the shortcomings of the circular economy concept and the fact that it was not formulated by the scientific community and was not properly considered in the academic environment.

The main conclusions of the study indicate that in order to achieve a true circular economy, it is necessary to implement strategies to extend the life of the resource. This concept is often seen as a necessary component of sustainable development, with private companies playing a key role. In these works, scholars consider the circular economy in the same way as described in the current study (on accounting and reporting of non-financial information). Although the concept is indeed relatively young and may have problems in theoretical justification of some aspects, its implementation should lead to positive consequences in the context of achieving sustainable development goals in the long run. Therefore, the lack of a certain framework should not prevent the achievement of economic and social sustainability goals. The same conclusion was reached, in particular, by M. Borrello *et al.* (2020), who noted that despite criticism, the concept of the circular economy is gaining popularity in both academic and practical discussions as an alternative to current global industrial systems. In the opinion, despite the fact that the debate around the principles of implementing the circular economy concept has gained momentum in policymaking and sustainable development strategies around the world, there is still a need for a more diverse and practical discussion on the implementation of practices. Thus, the conclusions of the scholars agree with the main idea of the current study regarding the relevance of more active application of the concept in real life.

The study focused on possible approaches to the preparation of financial statements to disclose the principles of the circular economy. The challenges of the circular economy and accounting applications were discussed by M.A. Ibrahim (2021). The paper's findings highlighted the benefits of the circular economy, such as increasing economic value and promoting sustainability, but also identified several challenges to integrating it into current accounting practices. These challenges included the need for appropriate accounting information on natural capital, measuring environmental and social impacts, measuring performance in a circular economy, and the inadequacy of current accounting systems to report on renewable resources and environmental responsibility. It was concluded that the lack of standardised rules for reporting on the circular economy makes it difficult to make comparisons between economic units, as reporting is currently voluntary. In this regard, the researchers recommend the inclusion of renewable resources and waste in accounting reports, the introduction of several accounting methods to handle circular economy processes, and the conclusion of agreements on waste valuation if market prices are not available. The researcher also emphasises the need to disclose the risks associated with maintaining a linear economy and calls for the development of new accounting standards and indicators that reflect circular economy practices, allowing for better comparisons between economic units. The current study also drew attention to the disclosure of all these indicators, in particular, through various types of reporting. It was concluded that different approaches reflect these indicators in different ways, and accordingly, allow for completely different final results. In turn, each company should choose an approach that would allow it to achieve its goals.

The current study did not provide recommendations specifically for reporting on energy efficiency or achieving social goals, although a significant number of approaches were considered that allow for the formation of sustainability reporting as such. Circular economy initiatives through energy metering and sustainable energy efficiency under the Integrated Reporting Framework were considered by A.H. Almagtome *et al.* (2020). The authors noted that the introduction of an integrated reporting system is a significant shift in the ability to provide corporate financial statements. Such reporting allows focusing on providing past, present and future information to create value in organisations. This is because traditional accounting systems, which primarily provide financial information, are insufficient to promote sustainable development, which requires both financial and non-financial data. With this in mind, the researchers proposed 16 variables for energy accounting and the state of energy efficiency at an enterprise. A study in the context of assessing social impacts was conducted by S. Scarpellini (2021). The scientist noted that in the current conditions for disclosing the impact on the social component of society's development by companies, the need to formulate such principles exists. The need to accurately measure and report on social impacts other than job creation was emphasised, especially in the context of new cyclical business models. It was proposed to use such indicators as social impact, job creation, new skills, tax revenues, transparency, environmental education, public health and cooperation (with the authorities, society, etc.). Thus, the implementation or the development of national standards based on them would allow achieving significant positive results in this area.

CONCLUSIONS

The above work highlighted the importance of ensuring harmony between economic growth, social well-being and environmental protection, in particular through the implementation of the circular economy concept. A significant number of reporting standards have been considered, such as ISAE 3000, GRI and SASB, each of which contains unique approaches to sustainability reporting, especially within the framework of the circular economy for agricultural companies. The use of each approach depends on the needs and goals of the reporting company. The experience of sustainability reporting by individual countries, namely Japan, the European Union, the United States, Canada, Brazil and Ukraine, was also considered. Based on the experience, it can be seen that the basis for this type of reporting is widely used in global practice. Nevertheless, individual countries formulate the own norms and recommendations for submitting such reports.

The theoretical foundations of sustainable development emphasise the need for an integrated approach that harmonises economic growth, social justice and environmental care. One such approach could be the concept of a

circular economy, which is based on a closed-loop production cycle through innovative business models such as product leasing, product sharing and product life cycle extension. This approach not only reduces industries' dependence on limited resources, but also contributes to economic stability by reducing costs and creating new jobs in sectors such as repair, recycling, and resource management.

Accounting and reporting play a crucial role in the realisation of sustainable development and the circular economy. Integrated reporting, which combines traditional financial data with environmental and social indicators, offers a complete picture of a company's performance and impact on the ability to achieve sustainability goals. This approach is consistent with the principles of transparency and accountability, which are critical to building trust among stakeholders, including investors, customers, and regulators. Various standards such as ISAE 3000, AA1000AS, GRI, SASB and IIRC provide a framework for companies to report on the sustainability efforts. Each of these standards has its own unique features, focusing on different aspects of non-financial reporting, but all the standards contribute to a more holistic understanding of corporate impact on society and the environment.

Although these standards are globally accepted, there is no universal framework for sustainability reporting. Countries and organisations adapt the reporting methods to the specific needs and regulatory environment. Most of the countries whose experience was studied in this paper have used international practices as a basis and developed the own reporting regulations, taking into account the specifics of a particular country. The same practice is widespread in Ukraine: international standards exist together with national legislation to improve the quality of sustainability reporting.

The role of accounting in the context of sustainability reporting is not only to track financial performance, but also to provide a broader view of how companies contribute to or impair the well-being of people and the planet. By applying the principles of circular economy and sustainability, companies can create long-term value that benefits all stakeholders, ensuring that economic growth does not come at the expense of environmental degradation or social inequality. In the future, it is important to develop more standardised and widely accepted reporting systems.

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Інтегрований підхід до бухгалтерського обліку в умовах сталого розвитку та циркулярної економіки

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Анотація. В сучасних умовах забезпечення сталого розвитку є однією із довгострокових цілей будь-якої держави, а тому розгляд нових підходів та концепцій залишається актуальним. Ціллю даного дослідження було дослідити підходи до бухгалтерського обліку за умов упровадження циркулярної економіки. В рамках дослідження була проведена оцінка деяких основних підходів до формування фінансової звітності на основі принципів сталого розвитку та циркулярної економіки, проводився порівняльний аналіз їхніх схожих та відмінних складових. Було зроблено висновки стосовно ролі чинних стандартів у діяльності підприємств в контексті досягнення цілей сталого розвитку. Велика кількість наявних нині міжнародних і національних стандартів призводить до відсутності єдиного світового підходу, що міг би задовольнити потреби усіх учасників ринку. Крім того, кожен із підходів фокусується на певній складовій розкриття нефінансової звітності, а тому є більш чи менш ефективним у різних ситуаціях. Був проведений аналіз підходів до бухгалтерського обліку в таких країнах, як Японія, Німеччина, Фінляндія, США, Канада, Бразилія та Україна. Виявлено, що в цих державах загальні підходи схожі та ґрунтуються на міжнародних стандартах, водночас в окремих країнах можуть застосовуватися локальні закони, що формують більш специфічні принципи подачі звітності. Висновки дослідження підкреслюють важливість єдиного глобального підходу до звітності, що зможе задовольнити потреби ринку. Практична цінність дослідження полягає в можливості використання результатів для розробки державної політики та корпоративних стратегій у сфері сталого розвитку

Ключові слова: ефективність обліку; аудит; фінансова звітність; екологічна стійкість; соціальна відповідальність