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ESG Reporting in the Logistics Chain

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Abstract:

Purpose: *The aim of the article is to analyse and assess the problems associated with the implementation of ESG reporting requirements by state institutions and companies.*
Design/Methodology/Approach: *The research methodology was based on a critical analysis of the literature and a comparative analysis over time and space of various ESG reports published by companies. Moreover, the research methodology was based on a mixed approach, combining quantitative and qualitative methods, including the analysis of ESG reports and interviews.*
Findings: *The results indicate that the new requirements and obligations imposed on enterprises under ESG reporting require the development of methods for measuring environmental impact factors and their implementation, which include the development of technical and organisational guidelines for measurement methods and methods for reporting the results. From a systemic point of view, the reporting obligation should take into account the bi-directional data flows embedded in the cost centres of the logistics chain. The undefined legal reporting standards and methods for measuring environmental impact factors leave room for interpretation and the measurement may be subject to errors, which may result in the liability of reporters in the future.*
Practical Implications: *The article identifies the essential elements of assessment that should be included in an ESG report. It first identifies: the subject of the environmental, social and corporate governance assessment, their scope and the form of the study and assessment of the company under review. An important element of the article is also a proposal for the examination of the criteria necessary for the correct preparation of the ESG report.*
Originality/Value: *The study findings emphasize the need for further research into the problems of ESG reporting, and preparing methods and principals which will enable reports to be prepared in accordance with the requirements of the CSRD directive.*

Keywords: *ESG report, CSRD directive, ESG in logistics chain.*

JEL codes: *M14, Q56, L91, L23, Q01.*

Paper type: *Research article.*

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1. Introduction

The Sustainable Development Strategy implemented in the European Union and the Sustainable Development Goals (SDGs) adopted by the United Nations have imposed a number of new obligations on participants in logistics chains, including the measurement of emissions and the reporting of their results. The timetables adopted by the signatories of international agreements to implement pro-efficiency strategies, as well as the criteria and methods for reporting the results of implementation, required the development of new concepts and IT tools.

The new requirements and obligations imposed on enterprises require the development of such methods for measuring environmental impact factors and their implementation, which include the development of technical and organisational guidelines for measurement methods and methods for re-porting the results. From a systemic point of view, the reporting obligation should take into account the bi-directional data flows embedded in the cost centres of the logistics chain.

The reporting obligation introduced by law covering large enterprises relevant to the economic system in the first stage is likely to be extended to medium-sized enterprises in subsequent years. The undefined legal reporting standards and methods for measuring environmental impact factors leave room for interpretation and the measurement may be subject to errors, which may result in the liability of reporters in the future.

2. Literature Review

2.1 ESG Reporting in the Light of the Agendas of the Adopted UN Goals

The negative changes taking place in the natural, social and economic environment are reflected in the agendas adopted by the United Nations (UN). A particular expression of interest in this issue can be seen in the 2030 Agenda for Sustainable Development, in which signatories have committed to 17 Sustainable Development Goals (SDGs) and 169 associated targets.

This agenda focuses on five aspects of critical importance to humanity and the planet (the so-called 5xPs): People; Planet; Prosperity; Peace; Partnership (UN, 2015). In order to realise these five thematic areas, business owners and managers must be actively involved in achieving the stated demands of the sustainability signatories.

As a result, building capacity for risk management and resilience, including in relation to climate change risks and in the face of the climate crisis, becomes an overarching goal for business actors. In order to accelerate the achievement of the 17 goals set by 2023, the UN has introduced a number of Agendas and supplements on the use of new technologies and innovations. The UN Agenda of 19 December 2023, assigns particular importance to: science, technology and innovation in achieving the

Sustainable Development Goals. Undoubtedly, the creation and development of new technologies and innovations by scientists and their subsequent diffusion increases the possibility of achieving the adopted goals, but most likely in a horizon longer than 2030 (Walsh *et al.,* 2020).

2.2 ESG in European Union Legislation

The EU Corporate Sustainability Reporting Directive (CSRD) entered into force on 14 December 2022, by Decision (EU) 2022/2464 of the European Parliament and of the Council. The directive amended Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU with regard to corporate sustainability reporting. The CSRD is not directly applicable by the member countries and therefore requires transposition and implementation into national law by each EU country. European Union regulations directly shaping ESG reporting requirements are (Marcinkowka 2022; Gajda *et al.,* 2024).

➢ Directive (EU) 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards the disclosure of non-financial and diversity information by certain large undertakings and groups - the Non-Financial Reporting Directive (NFRD);

➢ Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on disclosure of information related to sustainable development in the financial services sector - the SFDR (Sustainable Finance Disclosure Regulation);

➢ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020, on the establishment of a framework to facilitate sustainable investment, amending Regulation (EU) 2019/2088 the so-called EU Taxonomy;

➢ Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU with regard to corporate sustainability reporting - CSRD (Corporate Sustainability Reporting Directive);

➢ Proposal for a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937 of 15 March 2024. - CSDD (Corporate Sustainability Due Diligence Directive).

One of the European Union's first legal instruments on non-financial reporting was the NFRD Directive (Non-Financial Reporting Directive), which introduced requirements related to the reporting of non-financial information by certain large companies, with the aim of increasing awareness and transparency on the environmental, social and employee-related impacts of companies.

The NFRD directive was adopted in 2014 and came into force in December 2014. The obligation to report under the NFRD directive took effect from the financial year beginning 1 January 2017. The requirements of the directive applied to large entities, which are public-interest entities that exceed the criterion of an average number of 500 employees during the financial year as at the balance sheet date. From 2022, the NFRD directive has been replaced by the CSRD directive.

The CSRD directive (Corporate Sustainability Reporting Directive) is a European Union directive that is one of the tools used by the EU in connection with the adoption of the European Green Deal and is intended to influence the improvement of reporting and ensure transparency of corporate sustainability reporting. The directive applies to all member states and imposes specific ESG reporting obligations.

The first reporting under the CSRD directive applies from the 2024 financial year and applies to businesses previously subject to the NRFD directive (companies with more than 500 employees that are public interest entities). Reports for 2024 are to be published in 2025. In subsequent years, the reporting obligation will be extended to further companies subject to criteria and timetables (directive (EU) 2022/2464):

➢ from 1 January 2025, large companies with more than 250 employees and/or €40 million in net sales revenues and/or €20 million in total assets will be subject to the reporting obligation; the reporting deadline is 2026.

➢ from 1 January 2026, small and medium-sized listed companies and other companies with more than 50 employees and/or €8 million in net sales revenues and/or €4 million in total assets will be subject to the reporting obligation; the reporting deadline is 2027, with the proviso that listed SMEs may defer the new obligation for 2 years.

➢ from 1 January 2028, non-EU companies that have a subsidiary in the EU with an annual turnover of more than €150 million in the EU will be subject to the reporting obligation; the reporting deadline is 2029.

The CSRD directive modernises and strengthens the rules for the reporting of information by company boards on social and environmental impacts and their corporate governance. With this, simplified sustainability standards will be developed for small and medium-sized listed companies.

These reports are to be submitted in accordance with the European Sustainability Reporting Standards (ESRS). These standards have been developed in draft form by The European Financial Reporting Advisory Group (EFRAG), which provides technical advice to the European Commission in the form of ESRS drafts and also supports their effective implementation. As a result, this group, among others, has published three guidance documents on the application of the ESRS.

These documents are (EFRAG, 2024):

- EFRAG IG 1 - on materiality assessment in ESRS.
- EFRAG IG 2 - concerning the value chain in the ESRS.
- EFRAG IG 3 - contains ESRS data points in the form of an Excel workbook with an accompanying explanatory note.

The first set of ESRS standards was published in the Official Journal on 22 December 2023 in the form of a delegated regulation. These standards apply to companies that comply with the aforementioned standards, regardless of the sector in which they operate. Undoubtedly, the adopted standards are aligned with the ongoing EU policy, in terms of sustainable development, while building on international standardisation initiatives (Kowalkowska and Martyniuk 2024).

At the same time, the adopted standards and provisions of the CSRD directive are designed to achieve certainty and reliability in the sustainability information to be provided by companies, and at the same time to provide a digital taxonomy of information on the company's social, environmental and corporate governance impacts. The CSRD directive aims to ensure that investors and other stakeholders in a company have access to information that enables them to assess the impact of companies on people, the environment and to assess the risks and financial opportunities arising from climate change and other sustainability issues.

Unfortunately, these provisions indicate in a very synthetic and laconic manner the emergence of additional and significant costs associated with preparation and reporting. It can be assumed that in time, as the demand for ESG reporting develops, there will be, probably initiatives for its certification, which will probably contribute to additional financial burdens for companies on which this requirement is imposed.

The CSRD directive introduces requirements that are more detailed and rigorous in terms of reporting, such as auditing requirements, digital reporting format or increased transparency and quality of ESG data. The challenge posed to companies will undoubtedly pay dividends in the future, being an opportunity to gain the trust of investors and customers, which they will gain by fulfilling the obligations imposed by the directive.

2.3 ESG in Polish Legislation

As previously mentioned, the CSRD directive is not applied directly by the member states, which means that it requires transposition and implementation into national law - Polish law. The provisions of the CSRD directive are currently being implemented into national legislation through the provisions of the laws: on accounting, on auditors, audit firms, public supervision and other laws (PIBR, 2024). The work on this act (act number: UC14) can be followed on the website of the Government Legislative Centre (PIBR, 2024).

For the time being, these amendments to the laws are in the form of legislative work drafts. This draft is burdened with a number of amendments tabled, mainly by the Lewiatan Confederation and the Confederation's MPs, who are opposed to the introduction of the Directive's provisions in the Polish legal order.

On 21 November 2024, the Sejm adopted a law implementing the CSRD directive, the draft law is now forwarded to the Senate and then, if there are no amendments, it will be submitted to the President of the Republic of Poland for signature (PIBR, 2024). This means that the provisions of the CSRD directive are still not implemented in the Polish legal order and time is running out.

3. Research Methodology

The research methods used include, among others: critical analysis of the literature on the subject, analysis of legal acts and regulations, analysis of non-financial companies reports of the surveyed paper, chemical, construction, energy, light and packing industries.

4. Research Results and Discussion

4.1 Objectives and Scope of ESG Reporting in Logistics Chain Management

Contemporary socio-economic problems resulting from socio-political changes since the 1990s and the globalising trade and economy have had a direct impact on the development of logistics and collaborative management methods in international business relationships.

The level of development of economic actors and capital markets requires that ESG reporting processes take into account the diversity of companies and the impact of changes in the external environment, including political and socio-economic changes, on methods for measuring their environmental impact.

In the documents of the draft regulations covering ESG reporting, we do not find methodologies for investigating service companies including logistics companies co-operating in international logistics chains. The internationalisation of logistics services, although widespread, creates room for interpretation of the obligations that result from their mandatory application.

As of the date of this article, in the EU, the legislative process imposing reporting obligations on companies has been completed in 10 countries. In the remainder, legislative processes are underway, the delay or lack of regulation of which may distort the assessment process of companies operating in capital markets, their competitiveness and access to capital.

The ESG report is a document that imposes additional obligations on the aforementioned designated companies and the institutions that will monitor the implementation of the process. The ESG is a synthetic indicator relating to key areas of corporate management that have sustainability and social responsibility as their goal.

Through reporting, boards of directors of companies are expected to demonstrate that their strategic objectives include in their scope: environment, society and economic governance. In the case of the environment, corporate managements are to show how their strategic decisions affect the environment, in particular in the areas of reducing greenhouse gas emissions, waste management and the exploitation of natural re-sources.

The social area of the report, on the other hand, focuses on showing the company's relationship with its environment, particularly in terms of its impact on employees, customers and the local community.

This means that within this part of the report, the company's management has to present the existing working conditions and employee rights, the existing relationship with customers and the business ethics applied, and the existing impact of its decisions on the functioning of the local community.

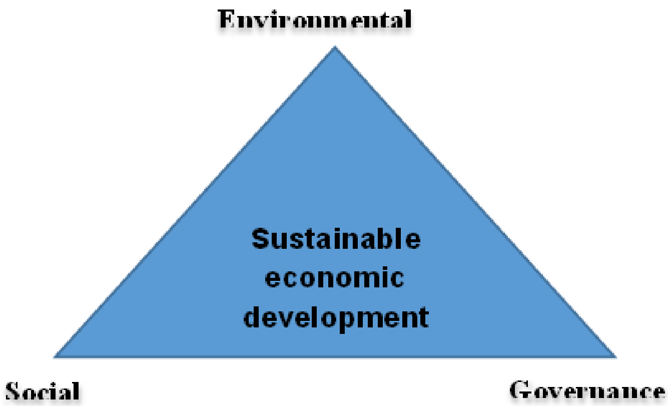
The final element of the triad, corporate governance, deals with the company's management methods and techniques, including accountability for the adopted management standard and ensuring transparency and compliance with current legislation. Within this area, issues concerning the accountability of the management for its decisions, the adopted governance structure and financial transparency are relevant.

In principle, one might be tempted to say that modern companies that are leaders in their industries or sectors pursue such strategic objectives in order to gain a competitive advantage, with the difference that they do not pursue all these activities at the same time and to the same extent, and that these strategic objectives are not systematised and operationalised in any way.

The role of the ESG report is not only to enforce this on company boards, but to structure it within existing strategic corporate management systems. Also, an important objective of the ESG report is to show how the company manages the risks of the discussed triad of economic sustainability areas.

Defining strategic goals and strategies for the areas (parameters) of environment, society and corporate governance forms the basis for seeking optimal solutions for sustainable economic development. Defining the interdependencies of these three (parameter areas) is important from the point of view of planning and steering economic sustainability in the company, as well as control by the ESG reporting system. The proposed relationships between the sustainability parameters (areas) within the ESG framework are presented in Figure 1.

Figure 1. *ESG optimisation parameters for sustainable economic development.*



Source: *Own study.*

These parameters should have the following functions:

- an orientation function, indicating to institutions and company managements possible courses of action for sustainable economic development.
- selection function, allows for the selection of optimal solutions for sustainable economic development.
- coordination function, enabling the decomposition of the main objective into sub-objectives, which in turn allows for the coordination of individual steps in the implementation of sustainable economic development requirements.
- control function, consists of establishing a specific value for the above-mentioned parameters (e.g. society, corporate governance environment), which the company's management should achieve in the adopted period of time, which makes it possible to get an idea of the stage of advancement of the sustainable economic development strategy.

The ESG report is an important instrument of the planning and control function. In the case of the planning function, it is a source of data and information necessary for planning the achievement of sustainable economic development by 2030 at central EU and EU Member State level and at company level, which are obliged to report.

At the same time, the monitoring function aims to identify parameter values that will not be achieved in the adopted sustainable economic development strategy also at the level of the European Union and enterprises.

Another issue is the implementation of mandatory reporting in the group of large and medium-sized logistics companies. In their case, it would be appropriate to consider the introduction of a reporting obligation extended by scopes that better reflect the possibility of measuring it and in the assessment of their impact on the environment.

Table 1. *Factors affecting on environment of logistics companies*

No.	***Environmental impact factor***	***Location of synergistic effects***	
1.	Intensity of energy consumption	Opex	Capex
2.	Material intensity	Opex	Capex
3.	Productivity	Opex	Capex
4.	Emissions from processes to the environment	Opex	Capex
5.	Employment	Opex	Capex
6.	Accident and sickness absence	Opex	Capex
7.	Disruption to business continuity	Opex	Capex
8.	Responsiveness of the company to changes in supply demand	Opex	Capex
9.	Corporate responsiveness to environmental change	Opex	Capex
10.	Volume of waste by group for distribution channels	Opex	Capex

Source: *Own elaboration.*

The implementation of the changes advocated in the UN documents and the CSRD directive, concern companies operating in global markets, for which the causal links to achieve synergistic effects require overcoming barriers embedded in the differentiation of actors in technical, economic, social and political terms.

4.2 ESG Reporting in Cost Sites and Process Management

The environmental impact reporting obligations imposed on large companies include the reporting of the magnitude of their use by means of quantification. The complex organisational structures of enterprises and the methods used in practice for measuring the quantities that characterise processes for management and reporting purposes are based on measuring them at designated Cost Locations [CIPs].

ERP-class information systems used in enterprise management provide companies with the capacity to report and manage dispersed organisations. This dispersion and elaborate data structures, together with the lack of methodologies for conducting surveys of resource consumption and their conversion into planning quantities, presents a challenge to reporting teams and determines the risk of an erroneous statement of intent.

In the area of business risk assessment methods, the risk of pro-efficiency technology design and investment project management is important. The scope of reporting and the multi-year reporting obligations imposed on entities may require managements to make investment decisions with high efficiency and security.

The linking of business objectives, technology and project management methods is a significant challenge in light of the sub-optimisation phenomena and the relevance of investment decisions and the creation of forecasts of their future effects. Table 2 shows the scope of reporting according to the ESMA methodology.

Table 2. *ESMA reporting scopes*

No.	Subject of the assessment	Scope and form	Comments
A	**Scope of presentation**	easily accessible	
		non-discriminatory	
		free of chargé	
		simple language	
		Concise	
		Nonunderstanding	
		Fair	
		Clear	
		non-misleading	laid out in an easy to read manner
B	**Form of presentation**	using characters of a readable size	
		style to make them easier to understand	
		updating published information	on their websites
		state the date of publication of the information	
		clearly identify any updated text	update date
C	**Responsibilities of the financial market participant**	provide legal entity identifiers (LEI)	
		indicate the International Securities Identification Number (ISIN)	
		publish a report for a basket of indices	for the basket and for each index
		make a statement of negative impact on sustainability	
		identify the minimum main negative impacts on sustainability factors	
D	**Characterisation of the main negative impacts on sustainable development**	identify one or more additional main negative impacts on the climate or other environment	
		identify additional fundamental negative impacts on social issues	labour rights, human rights

		define methods to prevent corruption or bribery	
		define responsibilities for the implementation of policies	within the framework of organisational strategies and procedures
E	**Description of the purpose of identification and setting priorities**	provide a description of the methodology for assessing each major negative environmental impact	methodologies take into account the likelihood and severity of negative impacts
			likelihood of potentially irreversible consequences
		provide a description of the data sources used	
		provide a description of the planned activities	explaining how actions have led to a reduction in the main negative impacts.
		provide a description of how the sustainable investment objective will be monitored	
		define sustainable development indicators	research and comparison throughout the life cycle of a financial product
F	**Methods for monitoring the sustainable investment objective**	linkage of internal and/or external control mechanisms	
		carbon dioxide emissions	tonne of carbon dioxide equivalent
		enterprise value	sum of market capitalisation of shares
G	**Scope of reporting**	investments	current value of the investment
			the current value of all investments
		CO² emissions	carbon footprint
			emissions intensity of carbon
		energy intensity	renewable energy sources
			non-renewable energy sources
			energy consumption intensity
		emissions to water	direct nitrate emissions
			direct phosphate emissions
			direct pesticide emissions
			high water deficit area
			hazardous waste
			non-recycled waste
			factors affecting biodiversity and ecosystem changes
		air pollutants	direct emissions of sulphur dioxide (SOx/SO2)

			direct emissions of nitrogen oxides (NOx/NO2)
			direct emissions of ammonia (NH3),
			direct emissions of particulates (PM2.5)
			direct emissions of volatile organic compounds other than methane (NMVOCs)
			direct emissions of total heavy metals (HM) (including cadmium, mercury and lead)
		gender pay gap	
		human rights policy	

Source: *Own elaboration.*

The new obligations imposed on participants in financial markets that support the development of the economy require managers of these capital investment entities to meet new requirements and obligations under the rigour of accountability for the application of methodologies, the quality of data and the results of actions taken, both in terms of reporting and the achievement of investment objectives.

The established management, reporting and governance practices of financial and capital market participants are subject to oversight by capital market security and fair competition authorities.

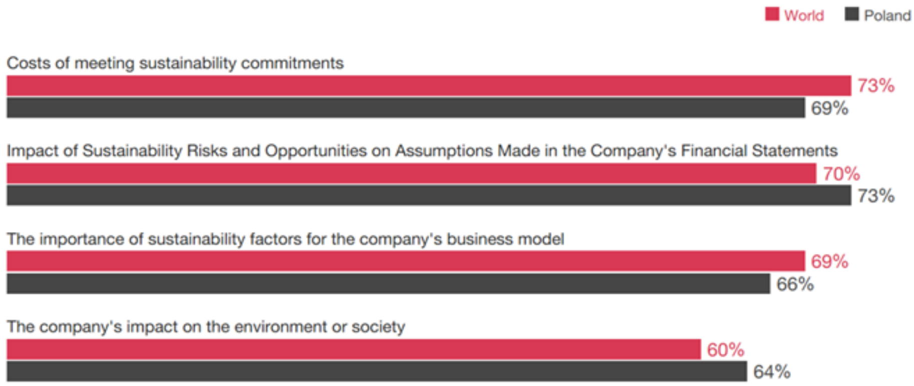
The ESG reporting obligation is also associated with significant costs related to the preparation of the research methodology, collection of data and information on the company's environmental, social and corporate governance impact, preparation and approval by various advisors including: legal, environmental, financial advisors.

The costs of cooperation with various external advisors can amount up to one million PLN, depending on the structure of the report or the scale of the company's business. In addition, the ESG report is accompanied by an opinion on its audit by an authorised auditor, which also generates additional costs.

It should also be borne in mind that making an ESG report public entails an increase in fixed costs within the company, among other things through the involvement of employees in preparing the required data and information.

These amounts are often difficult to isolate directly and companies estimate them very differently, but they are undoubtedly significant amounts on an annual basis, as mentioned above.

Figure 2. *Study of the impact of ESG reporting implementation obligations on the cost of meeting them according to PWC.*



Source: *Global survey conducted by PWC among investors in 2022.*

According to the authors of the study, entitled State of the TCFD 2022 Report, '90 per cent of investors and other users consider climate-related financial disclosures in their financial decision-making, and 66 per cent of them indicated that such disclosures "influence the way financial assets are valued".

A literature survey conducted involving the identification of methods for assessing companies' impacts on the water environment is exemplified by the PWC methodology shown in Figure 3.

This methodology can be considered exemplary in terms of its scope and method of presenting results and risks.

4.3 Examples of ESG Report Implementation, Structure, Scope and Presentation of Results

The obligations imposed on companies to report and publish environmental impact results allow companies to freely construct and shape the form and content of the report. The lack of well-established methodologies, freedom in the scope and form of the report and the structure of the data may have an impact on the limited possibilities of using it in benchmarking studies.

The implementation process of the ESG reporting obligation in the signatory countries of the UN Declaration on Sustainable Development Goals and subject to the CSRD directive varies in terms of scope, methods and period of development and implementation of the legal basis.

Table 3 presents the results of a research of regulatory implementation processes in twenty-six countries, signatories to the UN Declaration and subject to the CSRD directive.

Figure 3. *Activity assessment method and classification of the company's impact for water according to PWC methodology.*

Source: *CSRD directive is changing the value creation strategy of companies, PWC, 2023.*

Table 3. *Status of the legislative process for implementing mandatory reporting in selected countries.*

No.	**Country**	**Implementation date**	**Deployment status**	**Requirement for the first publication of the report**
1	Austria		not implemented	
2	Belgium		not implemented	
3	Bulgaria	August.2024	implemented	2025 to 2024
4	China		not implemented	
5	Cyprus		not implemented	
6	Czech Republic		not implemented	
7	Denmark	January 2024	implemented	2025 to 2024
8	Estonia		not implemented	
9	Finland	December 2023	implemented	2025 to 2024
10	France	January 2024	implemented	2025 to 2024
11	Greece		not implemented	
19	Germany		not implemented	
27	Hungary	April 2024	implemented	2025 to 2024
14	Iceland		not implemented	
28	Italy	August 2024	implemented	2025 to 2024
17	Latvia		not implemented	
16	Lithuania	July 2024	implemented	2025 to 2024
15	Luxembourg		not implemented	
18	Malta		not implemented	
13	Netherlands		not implemented	
20	Poland		not implemented	
21	Portugal		not implemented	
22	Romania	January.2024	implemented	2025 to 2024
23	Slovakia	2024	implemented	2025 to 2024
24	Slovenia		not implemented	
12	Spain		not implemented	
25	Sweden	July 2024	implemented	2026 to 2025
26	USA		not implemented	

Source: *Own elaboration.*

As of the date of this publication, only 7 of the 26 countries surveyed have implemented CSRD-related regulations. There is a plausible presumption that regulation will vary from country to country in the manner and extent of reporting and the methods used to conduct assessments of published reports.

In order to carry out the study, the authors developed criteria for the examination and evaluation of reports embedded in the requirements of the ESMA. Table 4 Results of examination of selected ESC reports according to authors' criteria.

Table 4. *Criteria for examining and evaluating the ESG annual report according to the authors.*

Marks	***Evaluation criterion***	***Rating scale***
A1	Presentation principles	0-5
B1	Form of presentation	0-5
C1	Date of publication of the information	0-1
C2	Legal Entity Identifiers (LEI)	0-1
C3	International Securities Identification Numbers (ISIN)	0-1
C4	Negative impact statement on sustainability	0-1
C5	Minimum main negative impacts on sustainability factors	0-1
C6	Identification of minimum negative impacts on sustainability factors	0-1
C7	Description of the methodology for assessing each main negative environmental impact	0-1
C8	Description of planned activities	0-1
D1	Identification of at least one additional major negative impact on the climate or other environment	0-1
D2	Identification of additional fundamental negative impacts on social issues	0-1
D3	Defining a method to prevent corruption or bribery	0-1
D4	Definition of responsibilities for implementation of policies	0-1
E1	Provide a description of the methodology for assessing each major negative environmental impact	0-1
E2	Provide a description of the methodology for assessing each major negative environmental impact	0-1
E3	Provide a description of the data sources used	0-1
E4	Presentation of a description of the planned activities	0-1
E5	Provide a description of how the sustainable investment objective will be monitored	0-1
E6	Defining sustainable development indicators	0-1
F1	Linking internal or external control mechanisms	0-1
F2	Determination of carbon dioxide emissions	0-1
F3	Determination of enterprise value	0-1
G1	Size (value) of investment	0-1
G2	Determination of CO2 emissions	0-1
G3	Determination of energy intensity	0-1
G4	Determination of water emissions	0-1
G5	Determination of air pollution	0-1
G6	Determining the gender pay gap	0-1
G7	Description of the human rights policy	0-1

Source: *Own elaboration.*

Based on the evaluation criteria presented in Table 4, seven reports were investigated and the results of the study are presented in Table 5.

In the conducted study, in the evaluation of reports, a linearly interpolated rating scale was adopted, in the range of grades taking values from 2 to 5, with the highest limit value being 5.

Table 5. *Results of examination of selected ESC reports according to authors' criteria.*

Marks	Evaluation criterion	Rating scale	Report 1	Report 2	Report 3	Report 4	Report 5	Report 6	Report 7
A1	Reporting period	*Year*	2023	2023	2023	2023	2023	2021	2022
A2	Company size		large	large	large	large	large	large	large
A3	Core activities		commercial	production	commercial	distribution	commercial	production	production
A4	Leading activity		logistics	distribution	services	production	logistics	distribution	distribution
A5	Branch of economy		paper industry	chemical industry	construction industry	energy industry	light industry	chemical industry	packaging industry
A6	Number of countries in business activity		32	80	6	1	39	8	30
A7	Number of entities or business units covered		105	340	61	122	12		300
A8	Employment	*number of persons*	4 200	99 723	7 337	8 732	29 930	35 421	15 055
A9	Revenues	*mln EUR*	1 900	47 600		671	3 721	131 341	1 000
A10	Number of suppliers	*number of entities*	2 500		4 172		1 238		230
A11	Number of customers	*number of entities*	100 000			3 300 000	1 962		
A13	number of pages in the report	*pages*	61	174	186	157	151	346	107
B	Formal assessment	*number of points*	30	35	34	35	34	34	35
		max. number of	38	38	38	38	38	38	38
		assessment / scale	3,9/5,0	4,6/5	4,5/5	4,6/5	4,5/5	4,5/5	4,6/5
C	Whether the entity's country has	*yes/no*	yes	no	no	no	no	no	no

Source: *Own elaboration.*

A distributed study of seven ESG reports submitted by large, listed companies represented the economies of France, Germany, Poland and the USA. The data of the subjects on which this study was based have been anonymised.

The study of the reports carried out leads the authors of this publication to conclude that:

- There is no document standard that would enable the study and evaluation of the effects of the implementation of solutions affecting the reduction of emissions into the environment.
- There is a lack of a document standard that would enable the comparison of multiple reports for the purpose of undertaking risk assessment and investment attractiveness of entities.
- An examination of the reports reveals a wide variation in the presentation of

the company's environmental impact and risks.

- All reporting entities did not provide data on the date of publication of the report, limiting themselves to indicating the reporting period.
- Reporting entities did not provide identification data in the reports, allowing them to be identified and the reports to be cross-checked with records and reports filed with financial market regulators.
- The way the report is reported and how it can be downloaded meets the requirements of the ESMA document, is available on the website, the download is not subject to consent or registration, and the report itself can be opened on PCs and standard software that supports pdf format. (2) Reading and evaluating the report, including the identification of quantitative data, is labour-intensive and requires an understanding of the reporting purpose function.
- In the case of Report 1, the main narrative in the presentation of the results was based on their synthetic, simple and intuitive presentation
- In the case of Report 3, the study was labour-intensive and the message was oriented towards the presentation of the company's potentials, goals and descriptions of its activities in the markets.
- The survey revealed a lack of a standard methodology for assessing risks in the companies' operations.
- One of the surveyed companies omitted in its report to present the results of its impact in the exploitation of water resources.

It should be particularly noted that in all cases, the teams compiling these reports have shown exceptional determination in researching and evaluating future requirements and scopes not yet in force in their home countries.

4.4 The Responsibility of those Responsible for ESG Peporting in Companies - The Legal Context

In accordance with the legal regulations applicable to companies subject to mandatory reporting of their environmental impact (ESG), members of company bodies are jointly and severally liable for damages caused by breaches concerning the reliability and quality of the activity reports submitted.

Persons responsible for submitting re-ports that do not comply with legal requirements or that contain unreliable data are also subject to criminal liability. The liability of persons may also relate to the consequences of the filing of reports and the manner in which information relevant to their impact on the valuation of a financial instrument or entity on the capital market is made public.

Linking in the report the results of the investment activity of the company, with its impact on the wider environment, carries the risk of sub-optimisation arising from the planned methods of measuring the effects of the investment with their results in terms of their environmental impact. In the process of planning an investment with a specific environmental objective, a method risk may materialise, involving the selection of an investment project management method, which involves linking environmental objectives with economic objectives within the investment.

Documented benchmarking assessment methods may also be subject to the risk of an assessment that does not take into account cause-and-effect relationships and the characteristics of the enterprise's environmental and economic system as an organised and managed whole.

At present, the market situation of companies oriented towards the development of ‘zero-emission’ technologies, e.g. in vehicle manufacturing, leads to the conclusion that, in the long term, the planned efficiency of investments subject to ex-post evaluation falls far short of the technical and economic assumptions underlying investment decisions based on ex-ante analyses and studies.

5. Conclusions, Proposals, Recommendations

The analysis of the survey conducted allows us to conclude that companies have expended considerable technical, organisational and economic effort to prepare for the implementation of the new legal regulations, including the ESG reporting obligation.

A survey of the state of implementation of ESG reporting regulations conducted on a group of 26 countries showed that only seven of them implemented the regulations in time for companies to comply with the conditions and requirements set by the law.

The process of implementing the 2024 reporting obligation in the light of the above studies imposes the following risks on those required to report:

- Inability to comply with legal requirements to the extent that may contribute to the risk of filing a report that does not comply with legal and corporate governance requirements.
- Incurring economic and organisational efforts that may affect the economic efficiency of the business.
- The lack of indicator-based performance measurement methods and standards, which are crucial for conducting economic and market evaluation of listed entities and their market valuation.
- The data presented in the reports include, from the point of view of concreteness, sensitive data and their protection in a transitional period in which legal regulations do not apply to all entities operating on the global capital markets.

In the opinion of the authors of this study, in the light of the risks involved, the socio-political changes and the growing phenomena of recession and economic crisis, the time for the implementation of the reporting obligation should be delayed so that the process of implementing the new requirements does not affect the maintenance of their competitiveness and security.

Based on the study results, several recommendations can be made. The conducted research and the evaluation of its results allow to define the following recommendations:

- The legislative process of implementing new legal regulations in the European Union should be discussed, including their impact on the legal effects and economic results of capital market participants.
- Assess the effects of the introduction of new legal regulations and the effects of their impact on maintaining the competitiveness of European Union enterprises participating in global logistics chains.
- Expand national and sectoral research in the development of guidelines for the creation of report templates and report evaluation methods, covering factual, legal, technical and organizational aspects.
- Conduct extended comparative research on the reporting and reporting methods used on the EU market, taking into account the specificity of legal requirements contained in national legislations.

Consideration should be given to establishing a *vacatio legis* for legal regulations and obligations imposed on capital market participants in individual EU member states, so as to minimize the adverse effects of the implementation of new regulations at different times and with different legal rigors.

All the reports of companies examined in this article included entities operating on international markets or operating in global logistics chains, for which new legal regulations and their economic effects may significantly affect their operational and economic competitiveness.

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