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ASSESSING THE LEVEL OF ESG PRINCIPLES IMPLEMENTATION IN
REGIONAL INDUSTRIAL ENTERPRISES

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Abstract: This article develops a methodological approach for assessing the level of Environmental, Social and Governance (ESG) principles implementation in regional industrial enterprises. The study focuses on the need to evaluate ESG not only as a reporting requirement, but also as a practical management system that reflects how industrial enterprises use resources, protect employees, interact with local communities and organize transparent corporate governance. The article applies an IMRAD structure and combines comparative analysis, indicator grouping, scoring assessment and integrated index calculation. Based on international sustainability disclosure approaches, the study proposes a three-dimensional ESG assessment framework adapted to regional industrial conditions. The findings show that ESG implementation in regional enterprises should be assessed through process-based indicators covering production, logistics, procurement, human resource management, risk management and reporting. The proposed methodology can help regional authorities, enterprises and investors identify weak areas, compare enterprises and design targeted improvement measures.

Keywords: ESG, regional industry, industrial enterprises, sustainability assessment, process-based management, environmental responsibility, social responsibility, corporate governance, ESG index, regional development.

Abstract footnotes: The conceptual interpretation of ESG and sustainability impacts is based on the GRI Standards [1–3], the United Nations 2030 Agenda [8], and the empirical ESG literature [12–13].

1. Introduction

Regional industrial enterprises play a decisive role in employment creation, technological modernization, export expansion and the formation of local value chains. At the same time, their activities are closely connected with environmental pressure, consumption of energy and water resources, industrial waste generation, labor safety and corporate governance quality. Therefore, the assessment of ESG implementation has become an important scientific and practical issue for regions seeking sustainable economic development.

ESG principles reflect three interrelated dimensions of enterprise performance. The environmental dimension evaluates the impact of production on natural resources and ecosystems. The social dimension reflects labor conditions, employee development, occupational safety and interaction with local communities. The governance dimension assesses transparency, accountability, internal control, anti-corruption mechanisms and risk management. For industrial enterprises, these dimensions should be embedded in daily business processes rather than treated as separate reporting indicators.



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International practice shows that ESG assessment is increasingly connected with investment decisions, supply chain requirements and competitiveness. The GRI Standards are used by organizations to understand and report their impacts on the economy, environment and people in a comparable and credible manner. IFRS S1 requires disclosure of sustainability-related risks and opportunities useful to users of general purpose financial reports, while IFRS S2 focuses on climate-related disclosures. In the European Union, companies within the scope of the CSRD report according to the European Sustainability Reporting Standards. These standards demonstrate that ESG is becoming a structured information system for decision-making, not only a voluntary image-building tool.¹

For regional industrial enterprises, the issue is more complex because enterprises differ in size, technological level, access to finance, sectoral specialization and environmental pressure. A universal ESG rating is not sufficient. The assessment must consider regional industrial characteristics, process maturity and the availability of reliable data. This article therefore proposes a practical methodology for assessing the level of ESG implementation in regional industrial enterprises through three tables and three visual analytical diagrams.

The purpose of the study is to develop a structured approach for evaluating the level of ESG principles implementation in regional industrial enterprises and to identify how ESG indicators can be integrated into regional industrial management.

Introduction footnotes: International ESG disclosure requirements are discussed with reference to IFRS S1 and IFRS S2 [4–5], the European Sustainability Reporting Standards [6], and the OECD Guidelines for Responsible Business Conduct [7].

2. Methods

The study uses a combination of qualitative and quantitative methods. The qualitative part includes literature analysis, comparison of international ESG approaches and systematization of ESG requirements for industrial enterprises. The quantitative part is based on a scoring model that evaluates enterprise performance on a scale from 0 to 5. This approach allows the researcher to transform different ESG indicators into comparable values and calculate an integrated ESG index.

The methodological logic consists of five stages. First, the main business processes of regional industrial enterprises are identified. Second, ESG indicators are grouped according to environmental, social and governance dimensions. Third, each indicator is evaluated using a unified scoring scale. Fourth, weighted average scores are calculated for E, S and G blocks. Fifth, the integrated ESG index is determined and interpreted according to maturity levels.

The proposed ESG index uses the following weighted formula: $ESGi = 0.40E + 0.30S + 0.30G$, where $ESGi$ is the integrated ESG implementation index, E is the average environmental score, S is the average social score and G is the average governance score. The environmental block receives a higher weight because regional industrial enterprises

¹Global Reporting Initiative (2021), GRI 1: Foundation 2021; IFRS Foundation (2023), IFRS S1 and IFRS S2; European Commission (2023), European Sustainability Reporting Standards.

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usually have a direct impact on emissions, energy consumption, water use and waste generation.²

Table 1. Methodological framework for assessing ESG implementation in regional industrial enterprises

Sta	Assessment focus	Main methods	Expected result
1	Identification of regional industrial processes	Process analysis, document review	Key processes such as production, logistics, procurement, HR and risk management are identified
2	Grouping of ESG indicators	Indicator classification, expert judgement	Indicators are divided into environmental, social and governance blocks
3	Scoring of each indicator	0-5 score scale, comparative assessment	The current level of ESG implementation is measured
4	Calculation of ESG block scores	Weighted average method	Separate E, S and G scores are obtained
5	Interpretation of ESG maturity	Index analysis, gap analysis	Enterprises are classified by implementation level and priority improvements are defined

Table 1 shows that ESG assessment should be organized as a consistent research process. The first stage is especially important because regional industrial enterprises differ by sector and technological complexity. For example, food processing enterprises may have high water consumption, while textile and chemical enterprises may have greater risks related to waste and emissions. Therefore, the selection of indicators should begin with the analysis of real production processes rather than with a purely formal checklist.

The scoring stage allows enterprises of different sizes to be compared. However, the score should not be used only for ranking. Its main purpose is diagnostic: to show which ESG block is weak, which business process needs improvement and which managerial actions are required. This is why the methodology combines numerical assessment with qualitative interpretation.

²The weighting structure is proposed by the author for regional industrial assessment and may be adjusted by sector, environmental intensity and stakeholder priorities.

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Figure 1. Structure of the integrated ESG assessment index

Structure of the Integrated ESG Assessment Index

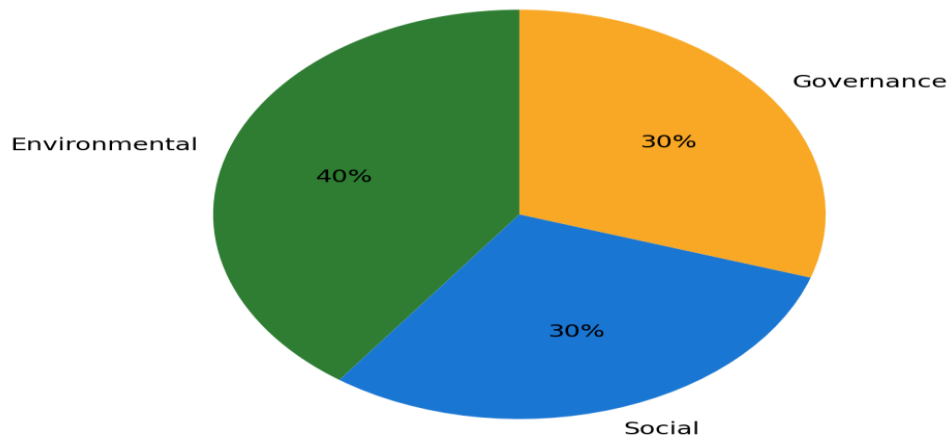


Figure 1 illustrates the proposed balance between ESG dimensions. The environmental block receives 40 percent of the total weight because industrial enterprises usually create the highest direct pressure on natural resources. The social and governance blocks each receive 30 percent because labor safety, personnel development, transparency and risk management are also essential for long-term sustainability. The weights may be adapted for specific sectors, but the proposed structure is suitable for general regional industrial assessment.

Methods footnotes: The proposed indicator grouping draws on GRI materiality and disclosure principles [1–3], environmental management guidance in ISO 14001 [9], and social responsibility guidance in ISO 26000 [10]. The weights and 0–5 scoring scale are the author's methodological proposal.

3. Results

The results of the study indicate that ESG implementation in regional industrial enterprises can be classified according to maturity levels. At the initial level, enterprises may have separate environmental or social activities, but these actions are not systematic. At the fragmented level, some departments collect ESG-related information, yet the data are not connected with strategic decisions. At the systemic level, ESG indicators are included in internal management. At the integrated level, ESG becomes part of corporate strategy, investment planning and risk management. At the advanced level, ESG performance is connected with innovation, digital monitoring and public reporting. ³

This maturity-based interpretation is important for regional policy. If most enterprises are at the initial or fragmented level, regional support should focus on awareness, simple reporting tools and basic environmental monitoring. If enterprises are at the systemic level, support should focus on digital ESG dashboards, internal audit and integration with investment programs. If enterprises are already at the integrated level, attention should shift to international certification, green financing and export-oriented sustainability requirements.

³The maturity-level classification is an author-developed analytical framework informed by international sustainability reporting and responsible-business-conduct guidance.

Table 2. ESG implementation maturity levels for regional industrial enterprises

Maturity level	Score interval	Main characteristics	Recommended management action
Initial	0.0-1.0	ESG principles are almost absent; data are not collected systematically	Introduce basic ESG awareness and primary environmental control
Fragmented	1.1-2.0	Separate ESG activities exist, but they are not linked with enterprise strategy	Create ESG responsibility centers and unified data collection
Systemic	2.1-3.0	ESG indicators are included in selected business processes	Integrate ESG indicators into production, HR, procurement and reporting
Integrated	3.1-4.0	ESG is linked with strategy, internal audit and risk management	Develop ESG-based investment planning and digital monitoring
Advanced	4.1-5.0	ESG is fully embedded in strategy, innovation, reporting and stakeholder dialogue	Use international standards, green finance and public sustainability reporting

Table 2 demonstrates that ESG implementation should be viewed as a gradual development process. Many regional enterprises cannot immediately reach advanced ESG performance because they may lack financial resources, digital systems and specialized personnel. Nevertheless, even the transition from fragmented to systemic ESG management can improve resource efficiency and reduce operational risks. The maturity model therefore helps to set realistic targets for each enterprise.

The proposed maturity levels also make it possible to evaluate regional industrial policy. A region with many enterprises at the systemic and integrated levels can be considered more prepared for green investment and sustainable supply chains. In contrast, a region where enterprises remain at the initial level requires stronger institutional support, training programs and simplified ESG assessment tools.

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Figure 2. ESG implementation maturity levels in regional industrial enterprises

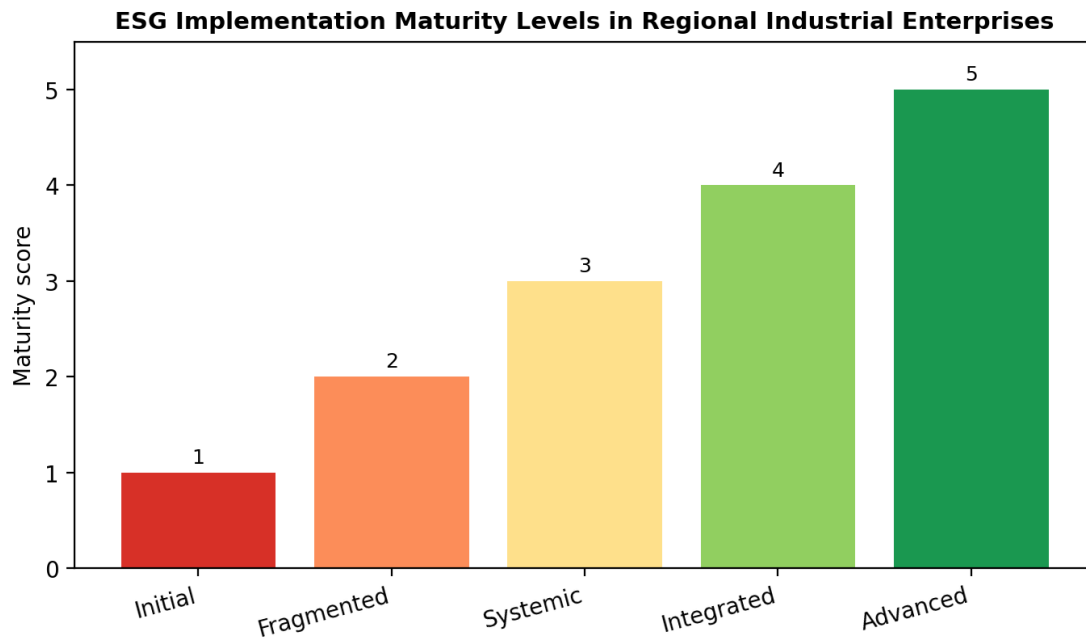


Figure 2 presents the maturity scale visually. The diagram shows a movement from simple, uncoordinated ESG actions to advanced integration. In practical assessment, this visual model can be used during interviews with enterprise managers, regional economic departments and investors. It also helps to communicate the results in a simple form for non-specialist stakeholders.

Table 3. Core ESG indicators for assessing regional industrial enterprises

ESG block	Indicator	Measurement unit	Management meaning	Data source
Environmental	Energy intensity	kWh per unit of output	Shows resource efficiency of production	Energy invoices, production records
Environmental	Water consumption	m3 per unit of output	Reflects pressure on regional water resources	Water meters, utility reports
Environmental	Waste recycling rate	Percent	Shows transition toward circular economy practices	Waste management reports
Social	Occupational safety incidents	Number per year	Measures labor safety and risk prevention	HR and safety records
Social	Employee training intensity	Hours per employee	Shows investment in human capital	Training plans, HR reports
Social	Community projects	Number or budget share	Reflects regional social responsibility	CSR reports, local agreements

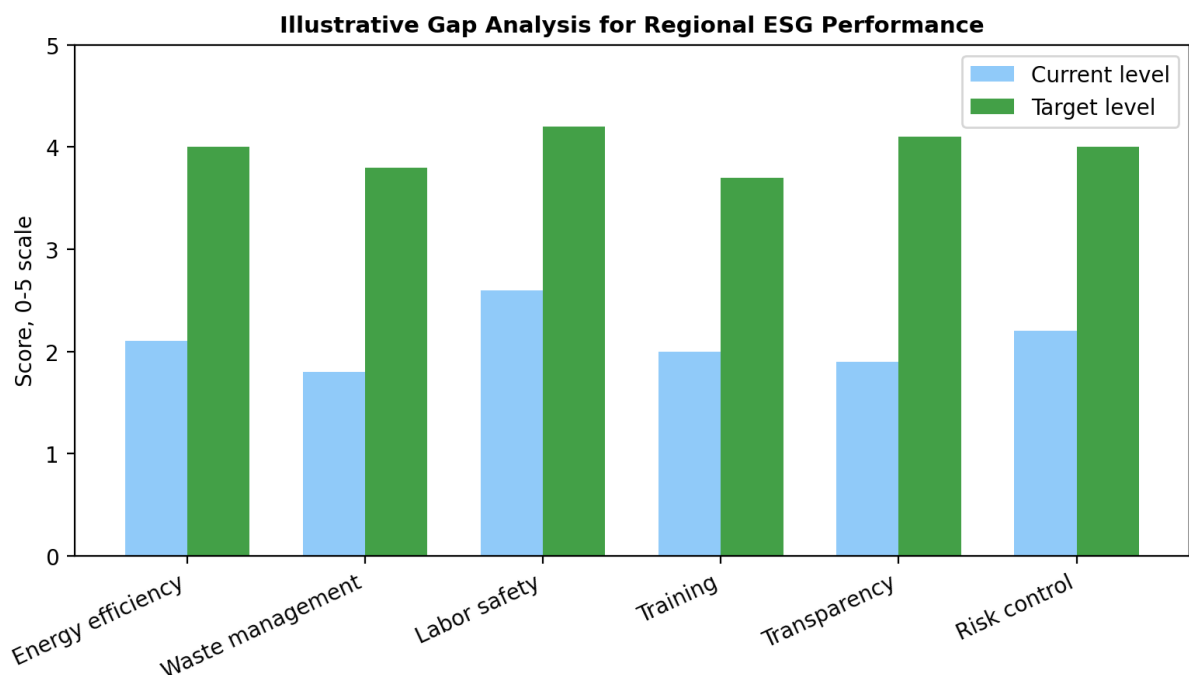
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Governance	Internal control maturity	0-5 score	Measures control over operations and finance	Audit reports, internal regulations
Governance	Anti-corruption policy	0-5 score	Shows prevention of unethical practices	Compliance documents
Governance	ESG disclosure quality	0-5 score	Assesses completeness and reliability of reporting	Annual reports, ESG reports

Table 3 provides a compact indicator system for assessing the level of ESG implementation in regional industrial enterprises. The indicators are selected so that they can be measured using enterprise-level data. This is important because overly complex ESG systems may remain formal if enterprises cannot collect reliable information. The table combines quantitative indicators, such as energy intensity and water consumption, with qualitative scoring indicators, such as internal control maturity and disclosure quality.⁴

The environmental indicators show how efficiently an enterprise uses regional natural resources. The social indicators reveal whether the enterprise contributes to safe employment and human capital development. The governance indicators assess whether decisions are transparent, controlled and accountable. Together, these indicators create a balanced picture of ESG implementation and can be used for both internal management and regional comparison.

Figure 3. Illustrative gap analysis for regional ESG performance



⁴Indicator selection draws on the GRI Standards, ISO 14001:2015, ISO 26000:2010 and the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (2023).

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Figure 3 shows how the proposed methodology can be used for gap analysis. The current level of ESG performance is compared with the target level. In this example, the largest gaps are observed in waste management, transparency and training. This means that improvement programs should not be general, but should focus on the weakest indicators. Such a visual approach makes ESG assessment more useful for managerial decision-making.

Results footnotes: The maturity levels, integrated ESG index, tables, and diagrams are developed by the author. Their interpretation is consistent with the process-integration evidence reported by Eccles, Ioannou and Serafeim [12] and the broader ESG-performance evidence synthesized by Friede, Busch and Bassen [13].

4. Discussion

The proposed methodology confirms that ESG implementation in regional industrial enterprises should be assessed through a process-based and indicator-based approach. A simple statement that an enterprise supports sustainability is not enough. The enterprise must demonstrate how ESG principles are reflected in production planning, resource use, procurement, logistics, labor safety, community relations and corporate governance.⁵

One of the most important issues is data reliability. Regional enterprises may collect information for accounting or technical purposes, but not always in a form suitable for ESG analysis. Therefore, the first practical step should be the creation of a unified ESG data register. This register should include environmental data, social data, governance documents and evidence of internal control. Without such a register, ESG assessment may become subjective.⁶

Another important issue is sectoral differentiation. The same ESG indicator cannot have equal importance in all sectors. For example, energy intensity is critical for cement, metallurgy and textile enterprises, while water use may be more important for food processing and agricultural processing enterprises. This means that regional ESG assessment should include both general indicators and sector-specific indicators.

The results also show that ESG assessment can support regional development policy. Local authorities can use ESG scores to identify enterprises that need technological modernization, environmental support or management training. Investors can use ESG results to reduce risk and select more responsible enterprises. Enterprises can use the results to improve competitiveness, reduce costs and prepare for international supply chain requirements.⁷

At the same time, the methodology has some limitations. The proposed scoring system requires expert judgement, and therefore the quality of assessment depends on the competence and independence of evaluators. In addition, some enterprises may not have

⁵See Porter and Kramer (2011) on shared value and Eccles, Ioannou and Serafeim (2014) on the organizational and performance implications of corporate sustainability.

⁶Reliable, comparable and decision-useful sustainability information is a central principle of GRI reporting and IFRS Sustainability Disclosure Standards.

⁷OECD (2023) emphasizes risk-based due diligence across operations, supply chains and business relationships; Friede, Busch and Bassen (2015) synthesize evidence on ESG and financial performance.



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complete ESG data. Future research should develop digital tools for automated ESG monitoring and test the methodology on real regional industrial datasets.

Discussion footnotes: The discussion of shared value, stakeholder relations and competitiveness is informed by Porter and Kramer [11], OECD responsible-business guidance [7], and ISO 26000 [10]. The limitations concerning expert judgement and data availability are identified by the author.

Conclusion

The study concludes that the assessment of ESG principles implementation in regional industrial enterprises is a necessary condition for sustainable industrial development. ESG assessment allows enterprises and regional authorities to identify environmental risks, improve labor conditions, strengthen governance quality and increase investment attractiveness.

The proposed methodology is based on three ESG blocks: environmental, social and governance. It uses a 0–5 scoring scale, maturity levels and an integrated ESG index. The methodology is practical because it connects ESG indicators with real business processes and can be adapted to different industrial sectors.

The article recommends that regional industrial enterprises introduce ESG data collection systems, conduct regular internal ESG audits, integrate ESG indicators into strategic planning and use international standards as methodological guidance. Regional authorities should support enterprises through training, methodological recommendations, digital monitoring platforms and incentives for green modernization. 8

Overall, ESG assessment should not be seen as a formal reporting requirement. It should become a management instrument that helps regional industrial enterprises move toward resource efficiency, social responsibility, transparent governance and long-term competitiveness.

Conclusion footnotes: Recommendations concerning ESG reporting, environmental management and strategic integration are supported by GRI [1–3], IFRS sustainability standards [4–5], ESRS [6], ISO 14001 [9], and the corporate-sustainability literature [12–13].

REFERENCES:

1. Global Reporting Initiative. (2021). GRI 1: Foundation 2021. Global Reporting Initiative.
2. Global Reporting Initiative. (2021). GRI 2: General Disclosures 2021. Global Reporting Initiative.
3. Global Reporting Initiative. (2021). GRI 3: Material Topics 2021. Global Reporting Initiative.
4. IFRS Foundation. (2023). IFRS S1: General Requirements for Disclosure of Sustainability-related Financial Information. International Sustainability Standards Board.
5. IFRS Foundation. (2023). IFRS S2: Climate-related Disclosures. International Sustainability Standards Board.

⁸The recommended measures are consistent with the UN 2030 Agenda, GRI Standards, ISO environmental and social-responsibility guidance, and IFRS sustainability disclosure requirements.



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6. European Commission. (2023). Commission Delegated Regulation (EU) 2023/2772 as regards sustainability reporting standards (European Sustainability Reporting Standards).
7. OECD. (2023). OECD Guidelines for Multinational Enterprises on Responsible Business Conduct. OECD Publishing.
8. United Nations. (2015). Transforming our world: The 2030 Agenda for Sustainable Development. United Nations.
9. International Organization for Standardization. (2015). ISO 14001:2015 Environmental management systems—Requirements with guidance for use.
10. International Organization for Standardization. (2010). ISO 26000:2010 Guidance on social responsibility.
11. Porter, M. E., & Kramer, M. R. (2011). Creating shared value. Harvard Business Review, 89(1/2), 62–77.
12. Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. Management Science, 60(11), 2835–2857. <https://doi.org/10.1287/mnsc.2014.1984>
13. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2,000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>

