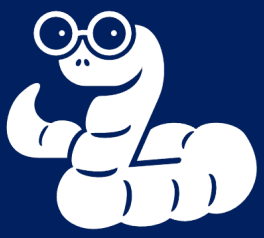

WORKing papers in Management Science

WORMS/25/04

ESG in SMEs: Between Awareness and Action

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ESG in SMEs: Between Awareness and Action

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Introduction

The growing urgency to implement sustainable practices in business operations stems from increasingly complex and pressing challenges related to environmental degradation and resource scarcity. In the face of these challenges, sustainable development (SD) is no longer merely a popular slogan but is increasingly perceived as an imperative that concerns not only large corporations but also small and medium-sized enterprises (SMEs), due to their critical role in the global economy.

ESG (Environmental, Social, Governance) reporting is fundamentally connected to the concept of sustainable development (SD), as it operationalizes the assessment and communication of a company's environmental impact, social responsibility, and governance practices—three pillars essential for achieving long-term sustainability goals. By integrating ESG factors into corporate reporting, organizations contribute to a broader transformation toward a more equitable, low-carbon, and transparent economy. The institutionalization of ESG reporting in the European Union began with Directive 2014/95/EU (NFRD), which required large public-interest entities to disclose non-financial information. This regulatory framework was later expanded by the Corporate Sustainability Reporting Directive (CSRD), which extends reporting obligations to a wider group of companies, including listed small and medium-sized enterprises (SMEs) by 2027. To support SMEs in this process, the Voluntary Sustainability Reporting Standard for SMEs (VSME) was introduced, offering a structured approach to ESG disclosure that enhances transparency, facilitates access to financing, and strengthens the role of SMEs in the sustainable transition.

Although the implementation of ESG principles appears to offer SMEs an opportunity to strengthen their market position, it is increasingly associated with the necessity to adapt to forthcoming regulations. Thus, the transformation towards sustainable development often poses a significant challenge for SMEs, which relates to three key issues. The first is sustainable development itself and the implementation of ESG principles, encompassing a range of diverse issues—from energy efficiency and waste management to social responsibility, corporate governance, and reporting transparency. Each of these areas demands awareness (understanding what ESG entails), appropriate competencies (how to implement its components), and resources (such as financial, organizational, or informational resources, which often constitute significant

limitations for many SMEs). The second issue concerns the specificity of the SME sector, which is not a homogeneous category but includes companies of varying sizes, organizational structures, degrees of process formalization, and industry-specific conditions. This diversity means that a universal approach to the implementation of sustainable practices is often ineffective, and adaptation efforts must be precisely tailored to the particular realities of each enterprise. The third and most complex issue is the implementation of ESG principles in SMEs. This process is not merely a declarative adoption of certain values but requires the systematic integration of environmental, social, and governance objectives into everyday operational and strategic practices. For companies with limited resources and often a low level of process formalization, this represents a demanding and multidimensional task.

The aforementioned reasons appear to be crucial for understanding why the actual pace of ESG implementation in the SME sector remains insufficient (Baratta et al., 2023; Barro et al., 2025; Budiakova & Konchenko, 2024; Iamandi et al., 2019; Kurtanović & Kadušić, 2024). However, it should be emphasized that the reasons for this insufficient pace are significantly more diverse than the three key issues outlined above would suggest. These issues—awareness and competencies regarding ESG, the specificity of the sector, and the multidimensionality of implementation—merely define the general framework within which a range of more detailed and often interconnected factors can be identified.

Therefore, the main aim of this article is to deepen the knowledge and understanding of the specificity of ESG implementation in SMEs, with particular emphasis on the complexity of the ESG area itself and the diversity of the SME sector in terms of one dimension of operational scale—the size of the enterprise. The article attempts to examine how this diversity affects entrepreneurs' level of knowledge about ESG, the perceived importance of ESG, the motivations for undertaking ESG-related actions, and the current state of their implementation. Consequently, this publication contributes to a better understanding of the diverse conditions underpinning the SME sector's transformation toward sustainable development. In the following sections, against the background of a literature review and the identified research gap, the main research hypotheses are presented. Subsequently, the research method is discussed, followed by an analysis of the results. The article concludes with a discussion, summary, and an indication of limitations and future research directions.

Literature review

Sustainable development, as a concept originating from the Brundtland Commission report (Simon, 1987) and encompassing a holistic perspective of development based on three dimensions (economy, society, environment) or the Triple Bottom Line (TBL) approach—Profit, People, Planet (Elkington, 1997)—is currently recognized as a key economic, social, and environmental imperative. Defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Anand et al., 2021; Simon, 1987), it forms the foundation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). Over the past decades, sustainable development has evolved into a complex field of research, analyzed from multiple perspectives, ranging from the macro level—covering entire economic systems—to the micro level—focused on specific economic entities and their management practices (Abu Hassan et al., 2024; Dyllick & Hockerts, 2002).

Despite intense academic interest and numerous scientific debates, the contribution of the SME sector to achieving sustainable development goals remains a relatively underexplored area (de Jesus Pacheco et al., 2019; Prashar & Sunder M, 2020; Setyaningsih et al., 2024). Meanwhile, SMEs, which account for over 95% of the global economy, play a crucial role in generating economic prosperity, fostering innovation, and creating employment, while simultaneously having a significant impact on the environment and society (Chenari, 2023; Thompson, 2014). Due to their specific characteristics, diverse organizational structures, and limited resources, SMEs are increasingly facing social, market, and regulatory pressures to implement sustainable business practices that would enable them to maintain competitiveness and secure access to key resources over the long term. In this context, the integration of ESG principles is gaining increasing importance as the operationalization of the idea of sustainable development at the organizational level, including in the SME sector.

It should be emphasized that the literature identifies a range of recurring barriers hindering the process of ESG implementation in SMEs. Among the most frequently cited obstacles are financial constraints, which include both high initial costs associated with the adoption of sustainable technologies and practices, as well as difficulties in obtaining access to appropriate financing sources (Álvarez Jaramillo et al., 2019; Durrani et al., 2024), alongside economic risks related to the uncertainty of returns on ESG investments (Garrido-Ruso et al., 2024; Liou et al., 2023). In addition to financial barriers, organizational barriers are also significant. These primarily include a lack of sufficient leadership engagement (Kasiri et al., 2020), a low level of awareness of the benefits resulting from ESG implementation, and a shortage of the necessary technical and substantive competencies required for the effective execution of sustainability initiatives (Durrani et al., 2024; Kasiri et al., 2020). Furthermore, the complexity of ESG regulations and the lack of appropriate institutional support further hinder enterprises' ability to effectively implement these principles (Durrani et al., 2024; Kasiri et al., 2020). Additionally, there is a prevailing belief that systematic ESG reporting is resource- and time-intensive and primarily dedicated to large enterprises (Joy-Camacho & Thornhill, 2024; Mezzio et al., 2022; Westman et al., 2019).

Thus, SMEs often undertake ESG-related actions primarily in response to external pressures (Muhammad Auwal et al., 2020; Widia & Wibisono, 2024), such as supply chain requirements (Lee et al., 2017), investor expectations, and evolving legal regulations (Drobetz et al., 2024; Lee et al., 2017). Consequently, their approach to ESG tends to be reactive rather than strategic (Lee et al., 2017; Permatasari & Gunawan, 2023). Meanwhile, research shows that conscious and systematic ESG implementation by SMEs can yield numerous benefits, such as improved reputation and stakeholder trust (Permatasari & Gunawan, 2023), increased access to favorable financing sources (Serino & Campanella, 2024), and gaining a competitive advantage in the market (Cantele & Zardini, 2018; Dudek & Kulej-Dudek, 2024; Permatasari & Gunawan, 2023).

In summary, despite numerous challenges related to the integration of sustainable development (SD) principles into SMEs' operational and strategic activities, this sector is making and will continue to make efforts to implement ESG standards. Overcoming existing barriers can be facilitated primarily by raising entrepreneurs' knowledge and awareness levels and, equally importantly, by developing financial instruments supporting ESG implementation. However, it should be noted that the nature of the challenges faced by SMEs in this area has remained relatively constant over the past decades. The literature consistently identifies a similar range of barriers, with financial and organizational limitations being recognized as key obstacles to the effective realization of sustainable development strategies. Moreover, these observations remain consistent regardless of the research perspective or the geographical context of the analyzed enterprises. The fact that, despite longstanding awareness of these barriers, they have not been successfully overcome suggests the necessity of changing both research and practical approaches toward SMEs. It seems advisable to move away from treating SMEs as a homogeneous category of enterprises and instead to recognize the complexity and internal diversity of this group of entities. Only a detailed analysis of internal differences and the operational mechanisms of SMEs can enable a deeper understanding of their specific operating conditions and the real reasons behind the persistent difficulties in ESG implementation. Such a deeper perspective could ultimately lead to the development of more effective, appropriately tailored strategies and instruments supporting the SME sector in achieving sustainable development goals.

Therefore, the primary aim of this article is to deepen the knowledge and understanding of the specificity of ESG implementation within the small and medium-sized enterprises (SME) sector, with particular emphasis on the complexity of the ESG domain itself and the diversity of SMEs concerning company size as a key dimension of operational scale. Additionally, four specific objectives were identified: (1) To investigate how company size influences entrepreneurs' level of knowledge about ESG; (2) To analyze the relationship between company size and the perceived importance of ESG issues; (3) To identify the motivations for undertaking ESG-related actions across different SME size groups; (4) To assess the state of ESG implementation and reporting depending on company size.

For each of these research areas, corresponding hypotheses have been formulated. The first analyzed area concerns the knowledge of sustainable development issues among SMEs. According to the available literature, this knowledge is limited, which may constitute a significant barrier to undertaking ESG-related activities (Durrani et al., 2024; Kasiri et al., 2020). Based on this, the following hypothesis was formulated:

H1: As company size increases, the level of knowledge of sustainable development concepts and issues also increases.

The next area of analysis concerns the motivations behind ESG implementation by SMEs. The literature emphasizes that these actions are primarily reactive, driven by external pressures such as customer, investor, and regulatory demands, rather than internal strategic considerations (Lee et al., 2017; Permatasari & Gunawan, 2023). In this context, a set of hypotheses was formulated:

H2a: As company size increases, the importance attached to sustainable development issues increases.

H2b: As company size increases, the degree to which sustainable development is embedded in core company values and mission increases.

H2c: As company size increases, the degree to which sustainable development is embedded in the company's strategy and operational plans increases.

The third area of analysis covers the scope and complexity of ESG activities undertaken by SMEs. The literature suggests that ESG implementation in this group of companies is fragmented and typically limited to individual components, mainly environmental ones, at the expense of a holistic approach encompassing all three ESG pillars (Lee et al., 2017; Westman et al., 2019; Dyllick & Hockerts, 2002). Based on these premises, the following hypothesis was formulated:

H3: As company size increases, the level of ESG implementation also increases.

The final aspect analyzed is the systematic reporting of ESG activities, which is relatively rare among SMEs due to the belief that it is a resource- and time-intensive process dedicated mainly to large firms (Joy-Camacho & Thornhill, 2024; Mezzio et al., 2022; Westman et al., 2019). Accordingly, the following hypothesis was formulated:

H4: Medium-sized enterprises report ESG more frequently than small and micro-sized enterprises.

The above hypotheses constitute the starting point for further empirical analysis aimed at achieving a better understanding of the specific characteristics of the SME sector within the defined research areas.

Research method

In order to achieve the main objective and the specific objectives, cross-sectional research was conducted using a quantitative approach implemented through the CAWI method (Computer-Assisted Web Interviewing). In the first stage, a research instrument was developed in the form of a proprietary questionnaire. Subsequently, a purposive sampling strategy was

adopted, targeting Micro, Small, and Medium-Sized Enterprises (SMEs) operating in Poland. In each enterprise surveyed, one questionnaire was completed. The respondents were individuals holding managerial positions (e.g., CEO, managing director) responsible for corporate social responsibility (CSR) or for reporting activities related to sustainable development and/or ESG. A nationwide research panel was utilized, and the data collection was carried out in December 2024. The responses were recorded in a database using IBM SPSS Statistics software.

The questionnaire consisted of 10 main questions, 8 specific questions, and a demographic section comprising 7 items. The questionnaire primarily employed closed-ended questions with single or multiple-choice formats. In the demographic section, one open-ended question was included—concerning the year the enterprise was established. The remaining demographic questions addressed company size, primary type of activity, territorial scope, business model and leading profile of the enterprise, assessment of the financial situation, and the outlook regarding the company's overall situation in relation to sustainable development engagement.

The main part of the questionnaire contained questions corresponding to the main and specific research objectives. The questionnaire was divided into research areas, as illustrated in Figure 1. The first area concerned awareness, knowledge of sustainable development, and motivators for undertaking sustainability-related activities. The second area focused on the actions currently implemented and the barriers and difficulties associated with ESG implementation. The third area examined issues related to the monitoring of activities for sustainable development purposes. The final section was devoted to the broadly understood outcomes of financial and non-financial performance following the implementation of sustainable development activities.

Depending on the nature of the question, the questionnaire employed five-point Likert scales or nominal scales. For the Likert scale questions, responses were coded on a five-point scale, where 5 indicated strong agreement/knowledge and 1 indicated strong disagreement/lack of knowledge. The reliability of the scales and subscales of the questionnaire, measured using Cronbach's alpha coefficient, ranged between 0.611 and 0.954. Since the coefficient meets the minimum desired threshold, the questionnaire can be considered reliable.

The study included 533 respondents. The total SME population in Poland in 2023 was 2,727,164 (Eurostat, 2024). At a 95% confidence level, assuming a fraction size of 0.5 and a maximum margin of error of 5%, the minimum sample size required for representativeness is 384 organizations. Therefore, the obtained research sample can be deemed procedurally

representative. The sample consisted of 182 micro-enterprises (34%), 169 small enterprises (31.7%), and 183 medium-sized enterprises (34.3%).

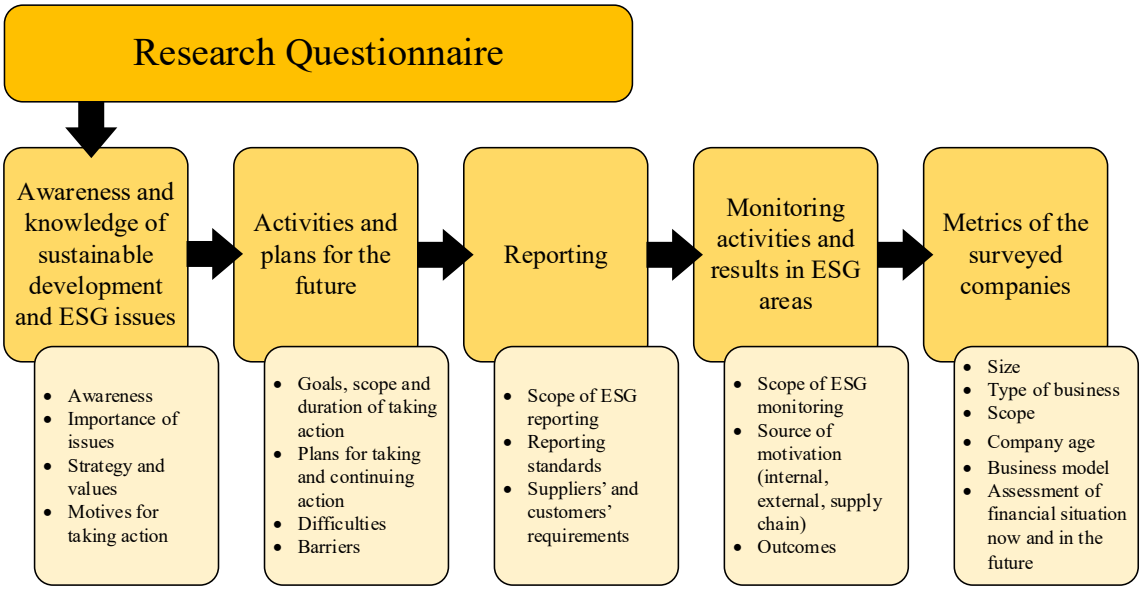

Figure 1. Research framework, Source: Own elaboration

The collected data were analyzed using non-parametric statistical tests, appropriate for the research problem. This choice resulted from the fact that the data distribution did not conform to a normal distribution, and the groups compared during the study were unequal in size. The verification of detailed statistical hypotheses concerning the significance of differences between the examined groups was conducted using the Kruskal-Wallis test, supplemented by an in-depth analysis of significant pairwise differences (micro – small – medium enterprises) using Dunn's test with Bonferroni correction. To verify hypotheses reflecting the relationships between the studied variables, the non-parametric Spearman's rho test was employed.

Results

The first element subjected to analysis was the familiarity with terms characteristic of sustainable development (Figure 2). Hypothesis H1 was proposed: As the size of the enterprise increases, the level of familiarity with concepts and issues related to sustainable development also increases. To verify this, a detailed research hypothesis *Hb1 was formulated: There is a relationship between the size of the enterprise and the level of familiarity with sustainable development-related terminology*.

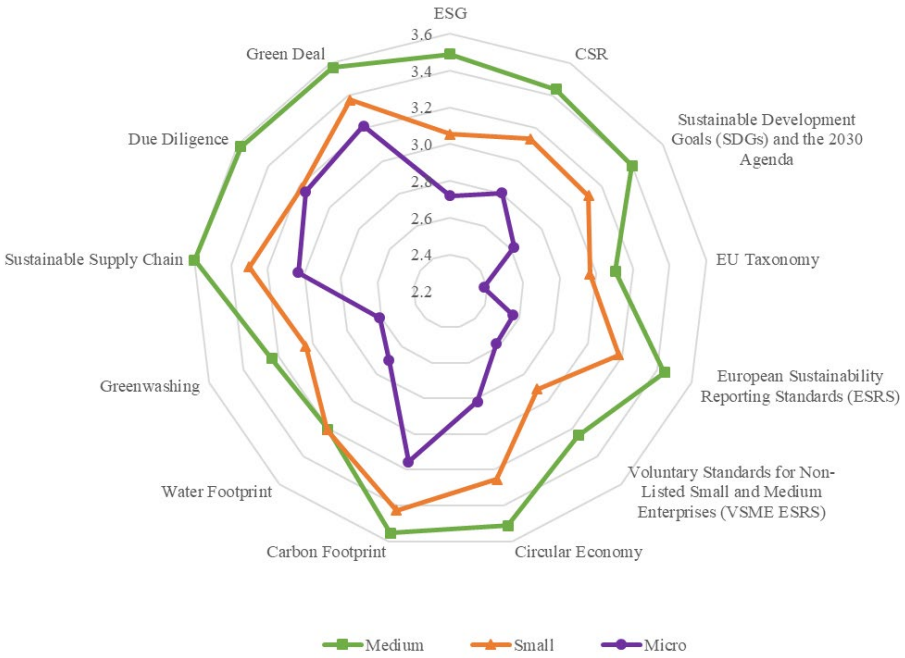

Figure 2. Familiarity with sustainable development terms
Source: Own elaboration

The collected data indicate that the familiarity with sustainable development concepts among micro-enterprises is low—only for terms such as "carbon footprint," "Green Deal," "due diligence," and "sustainable supply chain" do the responses exceed the midpoint of the scale; the remaining terms are virtually unknown. In small enterprises, the responses suggest slightly greater awareness; however, the results tend to oscillate around an average score of 3.0. Although awareness is higher among small enterprises compared to micro-enterprises, it still remains clearly below average. Medium-sized enterprises exhibit the highest level of familiarity with the terms (though only a few responses exceed the average of 3.5). Thus, the analysis shows that SMEs are generally not fully familiar with sustainable development concepts, especially "EU Taxonomy" and "Greenwashing," with "Green Deal" and "carbon footprint" being the best-known terms.

The Kruskal-Wallis tests revealed statistically significant differences in the responses provided by SMEs. Further in-depth analysis (using the Dunn post-hoc test with Bonferroni correction) identified areas where no significant differences were found, primarily between small and medium-sized enterprises, where statistically significant differences did not occur in most areas except for ESG and VSME-ESRS (in these cases, differences were found between all pairs: micro-small, small-medium, and micro-medium). In the micro and small enterprise pair, no significant differences were noted for "carbon footprint," "Green Deal," and "due diligence."

To verify hypothesis Hb1, a correlation analysis was conducted using the non-parametric Spearman's rho test. For each variable, the correlation coefficients were statistically significant, allowing the rejection of the null hypothesis of no relationship between company size and familiarity with sustainable development concepts. Weak positive correlations were found between all variables (ranging from 0.107** to 0.313**), except for the relationship between company size and ESRS familiarity, where a moderate correlation was observed.

The next step in the analysis was to examine the extent to which sustainable development issues are considered important by the surveyed enterprises. Respondents were asked not only whether these issues are important but also whether they are reflected in strategic and operational plans as well as in company values and cultural norms. The following hypotheses were proposed: *H2a: As the size of the enterprise increases, the importance of sustainable development issues also increases. H2b: As the size of the enterprise increases, the degree of embedding sustainable development within core values and mission increases. H2c: As the size of the enterprise increases, the degree of embedding sustainable development within strategy and operational plans increases.* For verification, the following detailed research hypotheses were formulated: Hb2a: The larger the enterprise, the greater the importance assigned to sustainable development issues; Hb2b: The larger the enterprise, the higher the degree of embedding sustainable development within core values and mission; Hb2c: The larger the enterprise, the higher the degree of embedding sustainable development within the strategy and operational plans.

Once again, the highest values were recorded for medium-sized enterprises, where sustainable development is perceived as important (although not exceeding an average score of 3.7) and relatively well embedded both in the mission and in strategy and operational plans. In small enterprises, the scores were slightly lower: sustainable development was perceived as important (3.4), but its implementation within strategy and values was lower (average around 3.0). Thus, a clear gap between perceived importance and actual implementation is observed in small enterprises. Micro-enterprises exhibited the lowest recognition of sustainable development values (3.0) and an even lower level of implementation (2.6), indicating that sustainable development elements are barely reflected in their strategies and values.

Statistically significant differences in the assessment of the importance of sustainable development issues occurred only between micro and medium-sized enterprises ($p=0.001$). Regarding the presence of ESG in values and mission, the Kruskal-Wallis test ($H(2)=31.598$, $p<0.001$) and the Dunn post-hoc test with Bonferroni correction revealed significant differences

among all groups. Similar results were obtained for the presence of ESG in strategies and operational plans ($H(2)=42.176$, $p<0.001$).

Additionally, a correlation analysis using the non-parametric Spearman's rho test was conducted (due to non-normal distribution confirmed by the Kolmogorov-Smirnov test: $p<0.001$). A weak positive correlation was found with importance (0.154**), core values and mission (0.243**), and strategy and operational plans (0.281**), allowing for the acceptance of the hypothesis regarding the relationship between company size and the importance and embedding of sustainable development within core values, mission, and strategy.

Next, the motivations behind undertaking sustainable development activities by enterprises were analyzed (Figure 3).

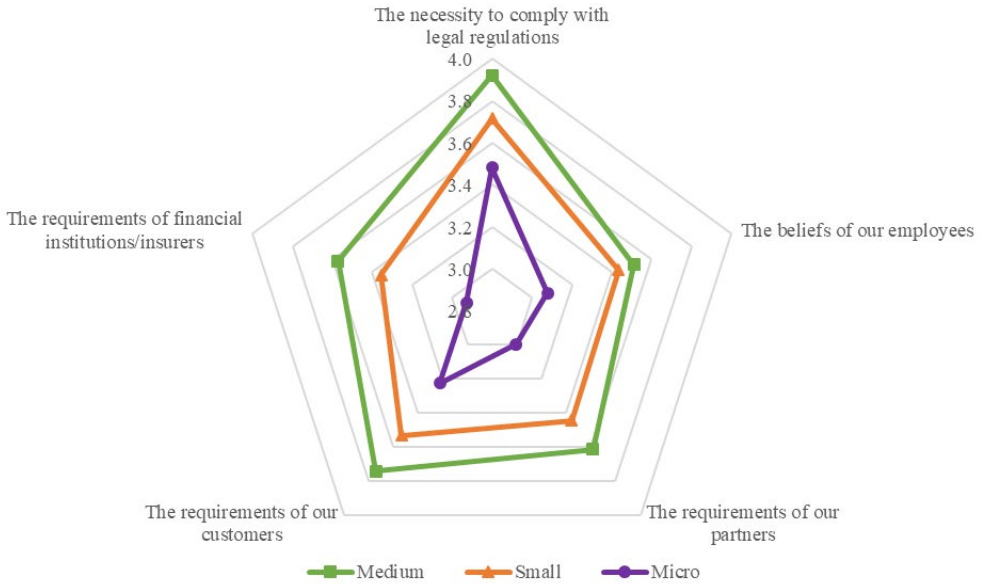

Figure 3. Motivations for undertaking sustainable development activities.
Source: Own elaboration

The need to comply with legal regulations is the strongest motivation across all types of enterprises. This is particularly evident among small and medium-sized enterprises, where the average response approaches 4.0, suggesting that legal regulations and legislative obligations are the main drivers of sustainable development activities. In micro-enterprises, the motivation related to regulatory compliance is slightly lower (3.5), which may stem from a lower pressure to meet legal standards and a lack of specific regulations in this regard. Statistical tests showed that significant differences in responses on this issue occur between micro and medium-sized enterprises.

Regarding market pressure from customers and contractors, a clear gap can be observed between medium and small enterprises compared to micro-enterprises. Nevertheless, tests

confirmed significant differences between micro and small enterprises (p=0.017) and between micro and medium enterprises (p=0.004). The requirements of contractors and business partners effectively motivate medium-sized enterprises to undertake sustainable development activities (average score: 3.6). This pressure is somewhat less pronounced among small enterprises (3.4) and significantly weaker among micro-enterprises (3.0). This is further confirmed by the tests, which showed statistically significant differences between micro and small enterprises (p=0.003) and between micro and medium enterprises (p=0.000).

These findings indicate that the larger the enterprise, the more integrated it is within supply chains where sustainable development becomes a growing element of cooperation. A similar pattern can be observed regarding increasing customer pressure (medium enterprises: 3.8; small: 3.6; micro: 3.2). However, significant differences in responses occurred only between micro and medium enterprises (p=0.002), suggesting that larger enterprises must respond more actively to customer expectations for pro-social and pro-environmental actions.

Financial institutions' requirements represent another motivation for sustainable development activities, though they are much stronger for medium (3.6) and small (3.4) enterprises than for micro-enterprises (2.8). Statistically significant differences were found between micro and small enterprises (p=0.005) and between micro and medium enterprises (p=0.000). This may suggest that access to external financing for larger enterprises is increasingly dependent on compliance with sustainable development standards. It can also be assumed that smaller enterprises either have limited access to financing or are not yet required to meet sustainability-related criteria.

A more detailed analysis allowed an examination of the types of activities in which the surveyed enterprises engage (Table 1). The research hypothesis H3 was proposed: A relationship can be observed between the size of the enterprise and the level of advancement in ESG activities. To verify this, a detailed hypothesis Hb3 was formulated: The larger the enterprise, the greater the advancement of ESG activities.

The various SME activities in the ESG area were divided into three areas: environment (variable ENV), society (variable SOC), and governance (variable GOV). For the purpose of verifying the research hypothesis, the traditional five-point Likert scale was adjusted to a 0–4 scale, where 0 indicated no implemented actions characterizing the analyzed area, 1 indicated actions planned but not yet implemented, 2 indicated actions in the process of implementation, 3 indicated actions largely implemented, and 4 indicated actions fully implemented.

Statistical analysis of the data for the three variables showed that for micro-enterprises, the median scores were as follows: ENV = 1.62, SOC = 1.58, and GOV = 1.50; for small

enterprises: ENV = 2.00, SOC = 2.17, and GOV = 2.00; and for medium-sized enterprises: ENV = 2.37, SOC = 2.33, and GOV = 2.50. These results indicate a clear shift in the median distribution of responses toward higher values with increasing enterprise size.

The distribution of responses did not follow a normal distribution for any of the ESG groups (for ENV $Z(533)=0.094$, $p<0.001$; for SOC $Z(533)=0.129$, $p<0.001$; for GOV $Z(533)=0.132$, $p<0.001$). Subsequent tests regarding the significance of differences in the medians of responses according to organization size revealed statistically significant differences between the analyzed enterprises. In the case of ENV actions, dependencies were confirmed between micro and small enterprises ($p=0.033$) and between micro and medium enterprises ($p=0.000$). The test results provided grounds to accept the existence of differences between small and medium enterprises ($p=0.339$).

Similar results were observed for activities in the SOC and GOV areas, where no statistically significant differences were found between small and medium enterprises (for SOC $p=0.289$ and for GOV $p=0.189$).

Subsequently, Table 1 summarizes the degree of implementation of actions across the three areas: ENV, SOC, and GOV, depending on the size of the enterprise. The data analysis indicates that the majority of enterprises are either in the "in progress" phase or have largely or fully implemented ESG initiatives (summed responses indicate that this applies to approximately 50% of micro-enterprises, over 75% of small enterprises, and over 80% of medium-sized enterprises).

The smallest differences occurred in the "not implemented" category, where micro-enterprises dominated across all three areas. The lack of undertaken actions may indicate a low prioritization of ESG activities, caused by limited knowledge (as previously demonstrated) as well as by low external requirements. Furthermore, the data show that the advancement level in ESG implementation increases with company size, which, in the case of small and medium-sized enterprises, represents a considerable difference compared to micro-enterprises. When examining individual ESG categories, it becomes evident that in the environmental area (ENV), medium and small enterprises show the highest relative share of activities at the “in progress” and “largely implemented” stages. In contrast, as many as 35% of micro-enterprises have not undertaken any actions in this area. It is important to highlight the significant gap between micro and small enterprises in the “in progress” and “largely implemented” categories, as well as the lack of a noticeable difference between micro and small enterprises in the “fully implemented” category.

Table 1. Level of ESG initiatives implementation according to company size and ESG action area (Environment, Society, Governance), Source: Own elaboration

Initiative/Activity	**Environment: ENV**			**Society: SOC**			**Governance: GOV**		
Company	micro	small	medium	micro	small	medium	micro	small	medium
Not implemented	35%	11%	6%	38%	10%	5%	34%	10%	4%
In planning phase	12%	12%	12%	9%	14%	11%	12%	13%	12%
In progress	21%	36%	36%	21%	34%	35%	23%	34%	33%
Largely implemented	20%	29%	32%	20%	31%	35%	18%	31%	35%
Fully implemented	11%	11%	14%	12%	11%	14%	13%	13%	16%

In the social dimension (SOC), a similar dynamic can be observed—medium-sized enterprises are the most engaged, which may be linked to more developed CSR/ESG strategies and greater regulatory obligations. However, small enterprises recorded the highest share in the "in planning phase" category, indicating that, in time, they may catch up to medium-sized enterprises through initiatives at various stages of implementation.

The third analyzed dimension—governance (GOV)—is characterized by the highest level in the "fully implemented" category (16%) among medium-sized enterprises, likely due to regulations and reporting requirements. Moreover, a clear trend is visible: as enterprise size increases, engagement in the governance area also increases.

The results of Spearman's rho statistical correlation analysis showed that for each variable, the correlation coefficients are statistically significant ($p<0.001$), allowing for the rejection of the null hypothesis regarding the absence of a relationship between enterprise size and the level of advancement in environmental ($rhoS=0.285$), social ($rhoS=0.318$), and governance ($rhoS=0.283$) areas. It should be noted that all coefficients between the analyzed variables are positive, meaning that the increase in enterprise size is accompanied by a higher level of ESG activity advancement. Although the values of the correlation coefficients are statistically significant (at the 0.001 level), they should generally be interpreted as weak, except for the social dimension, where the strength of the relationship with enterprise size is moderate. In summary, there is no basis to reject hypothesis Hb3.

The next element analyzed was ESG reporting (Figure 4). Hypothesis H4 was proposed: Medium-sized enterprises report ESG activities more frequently than small and micro-enterprises. To verify this, the detailed research hypothesis Hb4 was formulated: There are statistically significant differences in the medians of responses between micro, small, and medium-sized enterprises.

The vast majority of micro-enterprises do not engage in ESG reporting (over 60%); if we assume that "uncertain" responses are also negative, this figure rises to over 85%. Small and medium-sized enterprises undertake significantly more actions in this area (almost 44% of small enterprises and nearly 60% of medium-sized enterprises prepare ESG reports).

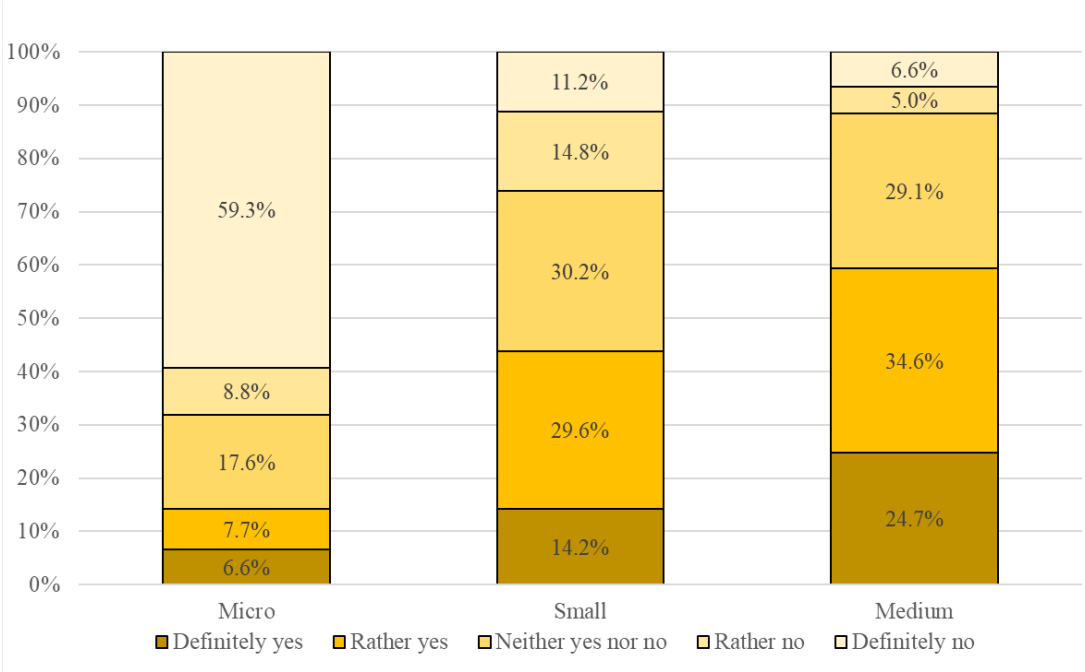

Figure 4. Preparation of ESG reports – breakdown by company size
Source: Own elaboration

The analysis revealed that the distributions of the variables deviated from normality ($Z(533)=0.175$, $p<0.001$). To verify the research hypothesis, the Kruskal-Wallis test was applied, with results ($H(2)=140.643$, $p<0.001$) indicating significant differences in medians between the groups. Dunn's post-hoc test with Bonferroni correction confirmed the significance of differences between micro and small enterprises ($p<0.001$), micro and medium enterprises ($p<0.001$), and small and medium enterprises ($p=0.006$). Therefore, hypothesis Hb4 was confirmed.

During the study, respondents were also asked which standards are used by enterprises that report on sustainable development. The analysis of these data shows that companies most frequently choose the ISO 14001 Standard and the International Standard on Assurance Engagements (ISAE 3000), as well as standards developed by EFRAG and CSRD. The Global Reporting Initiative (GRI) standard was selected the least often, which, despite its popularity among large enterprises, is likely perceived as too costly and complex for smaller firms. The results are consistent both in terms of overall numbers and when broken down by company size.

Medium-sized enterprises more frequently apply complex, international standards, owing to their greater financial resources necessary for the implementation and maintenance of

reporting systems. They are also more likely to employ sustainability and reporting specialists, use external ESG consulting services, and face greater regulatory pressure (thus opting for standards such as CSRD and EFRAG) as well as market pressure (partners expecting compliance with global standards). Additionally, consumer environmental awareness drives these enterprises toward greater transparency.

Small enterprises, by contrast, tend to choose a simpler path, opting for less complex national or sectoral standards due to their limited resources. They often focus on the minimum reporting requirements stipulated by regulations (e.g., supply chain obligations or contractual requirements with partners). Micro and small enterprises, operating mainly on local markets, also experience lower levels of market pressure. As a first step toward reporting, they often choose standards focusing on environmental aspects (e.g., ISO 14001), and they prefer standards based on collected data (such as CDP, which concentrates on greenhouse gas emissions, although collecting such data can be challenging for micro-enterprises).

The observed differences in the popularity of various standards can be attributed to several key factors, including implementation costs, the complexity of standards, market pressures, legal regulations, and access to resources and expertise.

Discussion and conclusions

In light of the growing importance of sustainable development and the implementation of European ESG policies and regulations, a key challenge remains the engagement of as many enterprises as possible—regardless of their size—in sustainable development activities. Micro, small, and medium-sized enterprises (SMEs), which together account for approximately 51% of Poland's GDP (with micro-enterprises contributing nearly 30%) and a significant share of national employment, play a particularly important role in this process.

The conclusions drawn from the conducted analyses point to both the opportunities and the needs for supporting different SME groups in implementing sustainable development strategies, taking into account their potential impact as well as their structural limitations.

The survey results indicate a significant potential within the SME sector for advancing sustainable development. Unfortunately, the lack of coherent policy, frequent changes, shifting plans and deadlines, the absence of a defined reporting standard, and the lack of clearly articulated goals at both the European and national levels have created considerable disinformation. Numerous negative signals from the large enterprise sector also generate uncertainty regarding ESG implementation among SMEs. Further concerns arise from the fact that external factors predominantly drive the adoption of pro-environmental and pro-social

initiatives. This may suggest a lack of internal motivation to introduce new standards, which, in the long term, could lead to the perception of ESG as an unwanted legal obligation.

If we assume that the long-term goal of ESG policies and regulations is the broad dissemination of sustainable practices across enterprises of all sizes, it will be crucial to ensure adequate support for companies at different stages of this transformation. From the perspective of the contribution of various enterprise groups to national GDP, particular attention should be given to micro-enterprises. However, analyzing their environmental and social impact—both positive and negative—proves to be considerably complex.

The environmental impact of micro-enterprises is usually limited, stemming from their operational scale, low resource consumption, limited production, and local market focus. Nevertheless, their social impact, although relatively small at the systemic level, can be significant at the local level, manifested through job creation, support for local communities, and the shaping of social relations and values.

Small enterprises are characterized by a moderate environmental impact—greater than that of micro-enterprises, yet still significantly lower than that of large-scale companies. In certain sectors, however, they may generate notable emissions or waste. Their social impact increases particularly when they are integrated into supply chains or engage in social initiatives, including at the local level.

In the case of medium-sized enterprises, a stronger environmental impact is increasingly noticeable, resulting from larger scales of production, transport, and resource consumption—often comparable to large entities, particularly in industrial sectors. Their social influence also grows, as companies of this size frequently play a significant role in regional development, influencing relationships with suppliers, customers, and the broader community.

The results of the conducted research confirm that as enterprise size increases, so too does awareness and engagement in sustainable development initiatives. This phenomenon can be attributed both to stronger external pressures and to a broader range of available internal resources. At the same time, across all analyzed enterprise groups, a gap is visible between the declared importance of sustainable development principles and their actual reflection in strategies, missions, and operational activities.

Thus, increasing the indicators related to sustainable development requires actions that facilitate greater engagement from enterprises. Above all, it is necessary to enhance support for micro and small enterprises in adapting to sustainability regulations. Educational and financial initiatives are particularly needed, especially regarding the European Sustainability Reporting Standards (ESRS) and the EU Taxonomy.

Micro-enterprises should initially focus on fundamental areas such as CSR and the Green Deal before moving on to more complex regulatory issues. It is also important to provide advisory support for implementing ESG strategies and values into operational activities. For small enterprises, refining operational strategies would be essential to narrow the gap between the declared importance of sustainability issues and their actual implementation. Strengthening access to green financing and support for meeting market standards (such as certification and ESG reporting) is also recommended.

Medium-sized enterprises should continue to apply best practices and further strengthen the integration of sustainable development into their strategies and core values. Meanwhile, reporting activities should be supported through communication campaigns and advisory services to help companies better understand the often complex requirements of reporting standards.

In conclusion, SMEs play a crucial role in the Polish economy. Therefore, it is extremely important to ensure that current and forthcoming ESG-related solutions do not worsen the situation of SMEs—for example, by increasing reporting burdens or operating costs. The key may lie in designing appropriate reporting standards that highlight the advantages of sustainable development and foster greater interest and recognition of its principles among SMEs.

Limitations

There are several limitations that should be considered when interpreting the findings of this study. First, the research relied on subjective indicators to measure key variables, which may introduce a degree of bias stemming from individual perceptions. While such indicators are common in sustainability-related studies, their inherent subjectivity may affect the reliability and comparability of the results. Second, the number of items across the ESG categories was not evenly distributed. Although the allocation of items was aligned with existing ESG reporting frameworks, the imbalance could potentially affect the weight and emphasis of each dimension in the analysis.

Third, the study was conducted exclusively among companies operating in Poland. As a result, the findings may reflect country-specific characteristics, including regulatory, cultural, and economic conditions, which may limit the generalizability of the conclusions to businesses operating in other national contexts.

Furthermore, while the sample included various enterprises, a quota sampling approach could have more accurately reflected the actual distribution of micro, small, and medium-sized enterprises in the population. This would enhance the representativeness of the results.

Lastly, the data did not meet the assumptions of normality, which restricted the use of certain parametric statistical techniques. This limitation may have influenced the depth and scope of the statistical analysis.

Future research

Future research will primarily focus on an in-depth comparative analysis of the results obtained in Poland and data from other Visegrad Group countries (surveys are currently being conducted in the Czech Republic, Slovakia, and Hungary). Such an approach will enable the identification of common challenges as well as region-specific conditions affecting the implementation of sustainable development practices by SMEs. Another important direction for further exploration involves a detailed analysis of the barriers and challenges reported by enterprises, considered in relation to their self-reported performance across the three pillars of sustainability: environmental, social, and economic. This type of analysis may reveal which obstacles are most critical to achieving sustainable outcomes and how these vary depending on enterprise size.

It is also advisable to investigate the role of supply chain integration as a factor contributing to the intensification of sustainability efforts—particularly in the case of medium-sized enterprises, which increasingly act as key nodes in business networks. This influence may prove especially significant. Furthermore, the relationship between compliance with ESG standards and access to external financing should constitute another research area, especially in the context of the capacities and limitations of smaller enterprises, which—although not yet fully subject to regulatory requirements—may already be experiencing market or institutional pressure in this regard.

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Tytuł: ESG w MŚP: między świadomością a działaniem

Streszczenie

Celem artykułu było pogłębienie wiedzy na temat wdrażania zasad ESG (Environmental, Social, Governance) w sektorze małych i średnich przedsiębiorstw (MŚP) w Polsce, z uwzględnieniem wpływu wielkości przedsiębiorstwa na poziom znajomości zagadnień, motywy podejmowania działań oraz stan implementacji i raportowania ESG. Badanie przeprowadzono metodą ilościową (CAWI) na próbie 533 przedsiębiorstw. Wyniki wskazują, że wraz ze wzrostem wielkości firmy rośnie zarówno poziom wiedzy o ESG, jak i zakres

wdrażanych działań. Największym motywatorem dla przedsiębiorstw są wymagania regulacyjne oraz presja rynku i klientów, szczególnie widoczne w średnich przedsiębiorstwach. Analiza wykazała także istotne bariery implementacyjne, takie jak ograniczone zasoby i brak spójnych standardów raportowania. Artykuł podkreśla konieczność zwiększenia wsparcia edukacyjnego i finansowego dla mikro i małych przedsiębiorstw oraz odpowiedniego dostosowania regulacji, aby zachęcić MŚP do aktywnego udziału w transformacji w kierunku zrównoważonego rozwoju.

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