

THE SUSTAINABILITY TRAJECTORY IN BUSINESS: EXPERIENCES FROM THE SLOVAK REPUBLIC

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ABSTRACT

Sustainable business is one of the main strategic factors for businesses that are trying to strengthen their competitiveness and ensure long-term prosperity in a dynamically changing market environment. Business activities in the field of sustainability include specific steps supporting economic, environmental and social balance, while addressing global challenges of sustainable business. Initiatives in sustainable business also strengthen the reputation of businesses and increase their long-term competitive advantage in the market. The presented study focuses on the analysis of sustainable business in the Slovak Republic, examining selected sustainable activities implemented by businesses. Based on a questionnaire survey that included 402 businesses of various sizes and sectors, it was found that the most frequently implemented activities are recycling and waste minimization, as well as the reduction of water and energy consumption. Sustainable activities bring benefits to businesses, such as reduced operating costs, increased image and access to new markets. Despite positive trends in sustainability, differences persist in the intensity of their application in practice. The paper emphasizes the need for a systematic approach to sustainability and the importance of involving employees in the transformation process. The findings provide a basis for further research into effective sustainable business strategies.

Keywords: enterprise, sustainable business, sustainability, sustainable activities, competitive advantage, ecology, Slovak Republic

JEL Classification: L26, M14, Q56, Q57

1 INTRODUCTION

The business environment around the world is currently extremely unstable, as it is affected by financial crises, digitalization, military conflicts, political situations, climate change, depletion of natural resources and growing demands to minimize negative impacts on the environment (Vrabcová, 2021). Sustainability has become an essential part of business over time and

should be a key element of corporate strategy, not only in the private sector, but also in public organizations. The issue of sustainability in business is more relevant and important than ever before (Nosratabadi, 2019). Sustainable socially responsible business is becoming a starting point for businesses in making effective decisions about their future direction (Musová and Drugdová, 2021). Schaltegger and Wagner (2011) describe sustainable business as contributing to solving social and environmental problems by implementing successful business and supporting sustainable development through business activities. According to Cavagnoro and Curiel (2022), sustainable business is a way of managing a business that emphasizes a long-term balance between economic growth, environmental protection and positive social impact. The goal is not only to generate maximum profit, but also to minimize negative impacts on the planet and contribute to the well-being of society. While in Western European countries, environmental, social and governance (ESG) activities are increasingly integrated into the strategic management of companies, Slovak companies are often limited to basic environmental measures, such as recycling and reducing energy consumption. Advanced forms of sustainability, such as the development of green products, the application of circular models or the systematic integration of ESG, remain marginal (Gazzola *et al.*, 2024; Laureti *et al.*, 2024). This delayed transition can be explained by a combination of factors: weaker legislative and institutional support, lower levels of ESG awareness in business practice, as well as limited resources and a cautious approach to investments in eco-innovations (Ahmadi-Gh & Bello-Pintado, 2022; Raimo *et al.*, 2021). In this context, the presented study provides an original empirical insight into the state of sustainability in the Slovak business environment. Its aim is not only to identify the most frequently implemented activities and their perceived benefits, but also to point out the differences that distinguish the Slovak context from advanced EU member states. This knowledge is crucial for the creation of more targeted policies and adaptation strategies in the conditions of the Central European space. Chavalittumrong and Speece (2022) state that many businesses implement sustainable practices and focus on building an image that speaks of the sustainability of the business. According to Litvaj *et al.* (2023), up to 62% of European entrepreneurs consider a sustainable development strategy important because it is essential for the competitiveness of the business. Another 22% of European businesses believe that a sustainability strategy will become essential for competitiveness in the future. Laureti *et al.* (2024) argue that sustainable business requires forward thinking that seeks to integrate three dimensions of sustainability:

- Economic sustainability – emphasizes job creation, ensuring profitability and taking ecosystem services into account when assessing costs and benefits. Key aspects include innovation, research and development, efficient use of resources, transparent reporting and evaluation of results, risk management and active cooperation with stakeholders (Monir and Gebremeskel, 2024).
- Social sustainability – includes aspects of environmental justice, health protection, ensuring the availability of resources and lifelong learning of employees. In promoting social sustainability, companies should give priority to the needs of employees, prioritizing their well-being over the economic goals of the companies (Morais and Silvestre, 2018).
- Environmental sustainability – primarily focuses on protecting the environment, including water quality, air quality, innovative technologies in production processes, separation and reduction of environmental burdens. Minimizing negative impacts on the environment also benefits residents, because the quality of human health is closely linked to the quality of the environment in which residents of the region in which the company is located live (Gazzola *et al.*, 2024).

Corporate sustainability activities are concrete steps and initiatives that companies implement to promote economic, environmental and social sustainability. Activities allow companies not only to contribute to solving global challenges such as climate change or social inequality, but also to strengthen their reputation and long-term competitive advantage in the

market (Kajanová *et al.*, 2022). Corporate sustainability strategies include diverse measures that promote responsible behavior towards the environment, employees, communities and society as a whole. Table 1 provides an overview of the main activities in the three key areas of sustainability.

Tab. 1 Sustainable business activities

Business activities in three areas of sustainable business:	
Social sustainability	creating employee comfort, eliminating poverty, combating discrimination, employee education and training, safety and health protection, donation, volunteering, assistance to disadvantaged groups, employment development, supporting education and consumer protection, etc.
Economic sustainability	economic activities, interaction of economic activities and interaction of the environment with the organization, rejection of corruption, transparency, protection of intellectual property, respect for the rules of competition, ecological technology, investments in sustainable projects, etc.
Environmental sustainability	consumption of renewable resources, water and energy consumption, air quality, modern technologies, reducing greenhouse gas emissions, ecological footprint, carbon footprint, biodiversity protection, creation of ecological policy, green logistics, circular economy, etc.

Source: Own research based on Kunz (2012)

Activities in the three dimensions of sustainability significantly contribute to the creation of a sustainable and prosperous enterprise. Established enterprises that have already implemented some elements of sustainability into their processes need to continuously improve or maintain these activities. Enterprises that have chosen the path of sustainability should regularly evaluate their practices, identify their strengths and, conversely, eliminate weaknesses in the future. Every enterprise initiative in the field of sustainability requires the support of employees, who must understand their role and must be identified with the enterprise's goal regarding sustainability (Danciu, 2013).

The main goal of the presented study is to analyze the issue of sustainability in business in the context of selected sustainable activities through empirical research in the form of a questionnaire in enterprises in the Slovak Republic.

To achieve the set goal, the following scientific questions were formulated:

- (1) Which environmentally sustainable activities do businesses in Slovakia most often implement?
- (2) What benefits do businesses in Slovakia most often perceive when implementing sustainable activities?

In order to fulfill the scientific objective of the article as well as the established scientific questions, this study further works with scientific hypotheses that further analyze the identified condition. As a result, statistical verification of the hypotheses was performed using a two-sided confidence interval.

2 METHODOLOGY AND DATA

To ensure a clear structure and logical continuity, the methodology of the scientific contribution was divided into three phases. The study focuses on the theoretical and practical analysis of the research issue. To achieve the set scientific goal, a detailed analysis of secondary sources related to the issue of sustainable and socially responsible business and activities within

sustainable business was carried out in the first phase. The theoretical analysis drew primarily from foreign scientific sources, which were subsequently supplemented by domestic literature. The main attention was focused on relevant studies published in renowned electronic databases, such as Web of Science (WoS), Science Direct and ProQuest. The methods of analysis, synthesis, induction, deduction, comparison, description and concretization were used in the processing of the theoretical part of the study.

After analyzing the theoretical information, the survey method was used – a questionnaire form of the survey, which appeared to be the most appropriate method of obtaining the necessary data to achieve the main goal of the presented study. The survey method served as the primary source of information for the research part of the work. Based on the obtained theoretical foundations of the given issue, a questionnaire was compiled, which was anonymous and the target group of the research was business entities operating in the territory of the Slovak Republic. The complete questionnaire consisted of two parts. Part A contained basic identification questions. This part of the questionnaire contained three identification questions, the task of which was to determine the size of the company, the industry in which the company operates and the length of time it has been on the market. In part B, attention was paid to the assessment of sustainable business and specific sustainable activities that companies carry out as part of their activities. The preparation and distribution of the electronic questionnaire was ensured using the free Google Forms platform from September 2024 to November 2024. According to the Finstat portal (2024), there are 576,508 enterprises in Slovakia. These enterprises represent the basic set. The research sample consisted of 6,781 randomly selected enterprises. One of the main criteria was that enterprises must be selected randomly from all regions of the Slovak Republic. The selection was carried out using a random number generator, which guaranteed equal chances and a high degree of randomness in the selection of the enterprises we addressed.

The variables selected for hypothesis testing are based on the theoretical framework identified in the introduction (through literature sources) and the most frequently cited areas of environmental activities and their expected benefits. Reducing water and energy consumption is among the most frequently implemented environmental measures with a direct impact on costs and efficiency (Ekins, Zenghelis, 2021; Ahmadi-Gh, Bello-Pintado, 2022). At the same time, several studies report that lower operating costs are one of the main motivations for companies to implement sustainable measures (Raimo *et al.*, 2021). The selection of these variables also reflects, among other things, their high practical relevance for companies in the Slovak economic context.

After collecting, processing and analyzing the obtained data, the questionnaire survey was evaluated statistically, numerically, graphically and the results were presented using a descriptive method. All types of tests performed, analysis and processing of the obtained data were carried out using the statistical program Statistica 14.

According to Trnka (2016), calculating the minimum size of a research sample is the process of assessing the sufficient sample size in terms of the requirements and objectives of a given study. The process involves determining the optimal sample size needed to achieve relevant results. A simple calculation is used to determine the sample size:

(1)

$$n = \frac{z^2 \times p \times (1-p)}{e^2}$$

where:

z – value, substituted from statistical tables (confidence level 95%, $z = 1.96$),

p – proportion of the sign, with unknown total values $p = 0.5$,

e – permissible margin of error (value 2–10%), research sets a value of 5%.

In connection with the main goal of the presented scientific study, the following hypotheses were formulated, which resulted from the current knowledge of the issue being addressed:

- H_1 It is assumed that businesses focus most on reducing water and energy consumption among selected activities within the framework of environmental sustainability.

Efficient water and energy management are among the most frequently implemented environmental measures in companies, as they are resources with high strategic value and limited availability (Blackburn, 2012). Reducing their consumption also brings a rapid return on investment and visible operational savings (Feroz *et al.*, 2021). Companies are thus responding to growing pressure from stakeholders and legislation, and these measures are often the first step towards a broader sustainability transformation (Ekins, Zenghelis, 2021). Research confirms that small and medium-sized enterprises in particular prefer simple and low-cost interventions that combine environmental and economic benefits (Abubakar *et al.*, 2022). In addition, digitalization in this sector allows for more accurate monitoring of consumption and identification of savings. These activities also support the achievement of sustainable development goals, especially in the areas of climate action and resource efficiency (Feroz *et al.*, 2021).

- H_2 It is assumed that implementing sustainable activities most often brings benefits to businesses in the form of lower operating costs.

Implementing sustainable measures, such as reducing energy consumption or more efficient waste management, often leads to significant cost savings (Ekins, Zenghelis, 2021). Several studies confirm that economic benefits are the main motivator for companies to implement environmental strategies (Ahmadi-Gh, Bello-Pintado, 2022). Effective sustainable practices can also improve production outputs and competitiveness of companies. In addition, companies with a high level of transparency achieve more favorable financing conditions, which further reduces their cost burden (Raimo *et al.*, 2021). Perceived savings and stakeholder pressure motivate companies to systematically improve environmental performance. As a result, it is expected that companies primarily perceive cost reduction as the main advantage of sustainable activities (Ahmadi-Gh, Bello-Pintado, 2022).

There are many practical situations where it is necessary to estimate the proportion, probability, or rate of successful observations π in a population. A two-sided confidence interval is used to test the hypotheses of a scientific study. A two-sided confidence interval is a statistical term that indicates the range of values within which a population parameter lies with a certain degree of confidence based on sample data. A two-sided confidence interval has the form (Pacáková *et al.*, 2009):

(2)

$$P\left(p - z_{1-\frac{\alpha}{2}} \sqrt{\frac{p(1-p)}{n}} < \pi < p + z_{1-\frac{\alpha}{2}} \sqrt{\frac{p(1-p)}{n}}\right) = 1 - \alpha$$

where:

π – proportion in the population,
 p – percentage of marks in the questionnaire,
 n – total range of values.

The final part of the study is based on the methods of analogy, synthesis, deduction and summarization, where the summary of conclusions is subsequently strategically supplemented by the use of a systems approach, which allows for the formulation of the future direction of the presented research.

3 RESULTS

The calculation of the minimum scope of the research shows that the size of the sample of enterprises in the questionnaire survey, which ensures sufficient representation and statistical significance, is at least 384 enterprises operating in Slovakia. The number of respondents was determined based on standard formula criteria, which include the required level of accuracy and reliability of the achieved results (Trnka, 2016). A total of 6,781 enterprises were contacted by us through direct communication via e-mail addresses. Of the total group of respondents contacted, 402 enterprises completed the questionnaire, which represents a relatively low return rate of 5.93%. The statistical level of the minimum scope of the research sample, i.e. 384 responses from the questionnaire survey, was exceeded, since 402 responses were recorded. It follows from the above that the achieved results can be generalized to the entire basic set.

The first question of the questionnaire served as an important element in the conducted survey, as it is generally expected that sustainability is more widely used in larger enterprises. The results of the questionnaire survey showed that medium-sized enterprises were the most represented, which amounted to 49.25% (198 enterprises). This was followed by small enterprises, which participated by 46.52% (187 enterprises) of the total number of enterprises, and the smallest representation was large enterprises, which responded by only 4.23% (17 enterprises).

From the data obtained, it is clear that the majority of companies in Slovakia (85.32%; 343 companies) responded that they carry out sustainable activities. Although only 28.86% (116 companies) indicated that they carry out sustainable activities regularly, it is noticeable that companies are increasingly dealing with sustainability issues, which is also confirmed by the fact that up to 50.75% (204 companies) responded that they carry out sustainable activities sporadically. A very positive finding is that only 2.24% (9 companies) indicated that they do not carry out any sustainable activities in their business.

Based on the nature of the data obtained, a two-sided 95% confidence interval was used to test the hypotheses. The data obtained for the first hypothesis H1 are presented in Table 2.

Tab. 2 Environmental sustainability activities

95% interval estimate	p	n	lower limit	upper limit
Recycling and waste minimization	48.01%	402	39%	57%
Protecting biodiversity	25.22%	402	17%	33%
Reducing carbon footprint (reducing greenhouse gas emissions)	33.91%	402	25%	43%
Green logistics (storing and delivering goods in a sustainable way)	31.30%	402	23%	40%
Reducing water and energy consumption	46.27%	402	37%	55%
Reducing greenhouse gas emissions	20.87%	402	13%	28%
Investing in renewable resources	26.96%	402	19%	35%
Producing green products	13.04%	402	7%	19%
No activities at all	5.22%	402	1%	9%

Source: Own research

It was found that 48.01% (193 companies) of the surveyed companies are engaged in recycling and waste minimization. Based on the confidence interval, it can be estimated that in the entire population of companies of a given type, from 39% to 57% of companies are engaged in recycling and waste minimization. The working hypothesis assumed that companies focus most on reducing water and energy consumption among the selected activities. Out of 402 respondents, 46.27% (186 companies) indicated that they are engaged in reducing water and energy consumption, but based on the two-sided 95% confidence interval, it can be said that in the entire population of companies of a given type, from 37% to 55% of companies are engaged in reducing water and energy consumption. This means that the working **hypothesis H1 was not confirmed**, because companies focus most on recycling and waste minimization. Reducing water and energy consumption was in second place. These two activities are followed by reducing the carbon footprint, which is addressed by 25% to 43% of the entire population of businesses of this type. The least of the selected activities is focused on the production of green products (from 7% to 19%).

Furthermore, companies were given the opportunity to express what benefits sustainable initiatives bring them. A two-sided 95% confidence interval is also used for the question regarding the benefits of implementing sustainable activities (Table 3). The second working hypothesis H2 is linked to the question: It is assumed that implementing sustainable activities most often brings companies a benefit in the form of lower operating costs.

Tab. 3 Benefits of implementing sustainability in a business

95% interval estimate	p	n	lower limit	upper limit
Competitive advantage	20.00%	402	13%	27%
Lower operating costs	53.23%	402	44%	62%
Access to new markets and opportunities	42.61%	402	34%	52%
Attracting new investors and customers	29.57%	402	21%	38%
Growing company image	37.56%	402	29%	46%
Better stakeholder relations	32.17%	402	24%	41%
Does not bring us benefits	5.22%	402	1%	9%
No activities at all	4.35%	402	1%	8%

Source: Own research

In the second case (Table 3), the working **hypothesis H2 was confirmed** and established correctly, as up to 53.23% (214 companies) perceive that implementing sustainable activities brings them an advantage in the form of lower operating costs. Based on the confidence interval, it can be estimated that in the entire population of companies of a given type, this advantage is perceived by 44% to 62% of companies. High percentages also achieved advantages such as access to new markets and opportunities. The advantage in the form of access to new markets and opportunities is perceived by 34% to 52% of companies in the entire population of companies of the given type under study. The advantage in the form of a growing company image was indicated in the survey

by 37.56% (151 companies), which means that companies largely improve in the eyes of stakeholders if they implement sustainable activities. It can be estimated that in the entire population of businesses of a given type, from 1% to 9% of businesses do not perceive that implementing sustainable activities would bring them benefits.

4 DISCUSSION AND CONCLUSIONS

The research results show that companies in Slovakia carry out a wide range of sustainable activities, with the greatest emphasis on recycling and waste minimization (48.01% of companies) and reducing water and energy consumption (46.27% of companies). These findings directly answer the first research question regarding the most frequently implemented environmental activities, and are also in line with studies by authors around Laureti (2024), who emphasize the importance of environmentally responsible measures for the long-term competitiveness of companies. Similarly, Cavagnoro and Curiel (2022) confirm that environmental sustainability is a key pillar of corporate strategy, contributing to the improvement of both economic and social outcomes. A comparison with the research of Laureti *et al.* (2024) shows that Slovak companies follow similar trends to companies in other parts of Europe, especially when it comes to integrating environmental initiatives into their processes. Interestingly, however, Slovak companies still show a low level of implementation of advanced sustainable strategies, such as the production of green products (only 13.04% of companies), which is in contrast to the findings of Gazzola *et al.* (2024), who point to the growing popularity of this activity in Western European countries. The results also indicate that sustainable activities bring significant benefits to companies, in particular reduced operating costs (53.23%) and improved image (37.56%). In this way, the second research question focused on the perceived benefits of sustainable measures is also confirmed. These findings are in line with the claims of Monir and Gebremeskel (2024), who point to the synergistic effect between environmental responsibility and financial benefits. Despite the fact that up to 85.32% of companies reported that they carry out at least sporadic sustainable activities, differences in the intensity of their application point to shortcomings in a systematic approach.

The results of the analysis confirm that sustainability is an increasingly important aspect of business in the Slovak Republic. The survey showed that the majority of companies implement sustainable activities, with the greatest emphasis on recycling and waste minimization, as well as on reducing water and energy consumption. These initiatives not only contribute to environmental protection, but also strengthen the competitiveness of companies and bring financial benefits, including reducing operating costs. The findings indicate that the implementation of sustainable strategies brings companies wider development opportunities, such as access to new markets or building a positive image in the eyes of stakeholders and the public. Despite the fact that sustainable activities are not evenly spread across all sectors and sizes of companies, the overall trend indicates a growing awareness of their importance. To achieve long-term sustainability, it is crucial for companies to regularly evaluate their practices, identify shortcomings and develop innovations in accordance with environmental, economic and social requirements. At the same time, employee support and engagement are essential, playing a crucial role in the successful implementation of these activities.

From a practical perspective, the results can serve as a guideline for policymakers to support in particular activities with high economic benefits and low implementation costs – such as recycling or energy saving. For small and medium-sized enterprises, these measures represent an entry point into sustainability, bringing them measurable savings. Gradually, these basic activities should be complemented by more advanced forms, such as green product development or circular innovation. The key is a combination of research support, practical examples and education, which will show businesses that eco-innovation can also

be economically beneficial. This creates a framework for a systematic and realistic transition to strategic sustainability.

The research conducted also has certain limitations, which are mainly the accuracy of the data and information obtained, sampling error (few actively involved respondents in the questionnaire survey, insufficient representation of enterprises despite meeting the minimum research sample size). In addition, sector specificities and the size category of the enterprise should also be taken into account when implementing sustainable strategies. For example, larger enterprises may have greater capacities to implement advanced solutions, while small and medium-sized enterprises prefer measures with an immediate financial effect. Similarly, the sector sector (e.g. manufacturing vs. services) may determine which sustainable activities are practically feasible.

The findings represent a significant contribution to the discussion on sustainable entrepreneurship in Slovakia and provide a basis for future research aimed at identifying specific tools and strategies that can enhance the positive impact of entrepreneurship on society and the environment. Although some findings (e.g., emphasis on cost reduction) confirm known trends, the paper provides a new perspective by analyzing the level of implementation of sustainable activities in the Slovak business environment on a large sample. The unique contribution of the study is the identification of a discrepancy between the declared importance of sustainability and the real implementation of advanced measures, as well as pointing out the need to move from reactive to strategic approaches. These findings provide a basis for improving policy instruments and practical strategies in the conditions of the Central European region. It is also appropriate to include moderating variables such as company size, industry affiliation, or market orientation in future research, which may influence the extent and form of sustainability implementation.

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