

ENVIRONMENTAL SUSTAINABILITY IN BUSINESS

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Purpose: The goal of the paper is to analyze the concept of environmental sustainability.

Design/methodology/approach: Critical literature analysis. Analysis of international literature from main databases and polish literature and legal acts connecting with researched topic.

Findings: Environmental sustainability is characterized by an interdisciplinary approach that considers the interconnectedness of environmental, social, and economic systems. It emphasizes long-term thinking, systems thinking, collaboration, policy and governance, education and awareness, economic considerations, and resilience and adaptation. Implementing sustainable business practices offers numerous benefits for organizations. These benefits include environmental conservation, cost savings, enhanced brand reputation, regulatory compliance, innovation and differentiation, employee engagement and retention, and long-term resilience. However, there are also potential disadvantages, such as initial costs, complex implementation, resistance to change, limited availability of sustainable technologies, complexity of measurement and reporting, supply chain challenges, and potential trade-offs. Despite the challenges, the advantages of implementing sustainable environmental business practices outweigh the drawbacks. The benefits include improved profitability, market competitiveness, customer loyalty, risk mitigation, and long-term business viability. By properly planning, managing change, and continuously improving, organizations can successfully navigate the challenges and reap the rewards of sustainable environmental practices.

Originality/value: Detailed analysis of all subjects related to the problems connected with the environmental sustainability in business.

Keywords: Industry 4.0; business practices, sustainability, sustainable business, sustainable business practices, CSR, environment, environmental sustainability.

Category of the paper: literature review.

1. Introduction

Environmental sustainability refers to the practice of utilizing resources and engaging in activities in a manner that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. It involves maintaining a delicate balance between human activities and the natural environment, ensuring that our actions do not deplete or harm natural resources, ecosystems, or the overall ecological balance (Liu et al., 2023).

The concept of environmental sustainability recognizes the interconnectedness and interdependence of ecological, social, and economic systems. It emphasizes the long-term preservation and conservation of natural resources, biodiversity, and the overall health of the planet. By adopting sustainable practices, we strive to minimize negative impacts on the environment, promote ecological integrity, and foster a more harmonious relationship between humans and nature (Cerciello et al., 2023).

The goal of the paper is to analyze the concept of environmental sustainability.

2. Sustainable business practices- main concepts

Achieving environmental sustainability requires a collective effort from individuals, businesses, governments, and international organizations (Sułkowski, Wolniak, 2015, 2016, 2018; Wolniak, Skotnicka-Zasadzień, 2008, 2010, 2014, 2018, 2019, 2022; Wolniak, 2011, 2013, 2014, 2016, 2017, 2018, 2019, 2020, 2021, 2022; Gajdzik, Wolniak, 2023, Michalak, Wolniak, 2023). It involves making conscious choices in our daily lives, adopting sustainable technologies and practices, supporting policies that prioritize environmental protection, and fostering a mindset of stewardship towards the planet. By embracing environmental sustainability, we can create a healthier and more sustainable future for ourselves and generations to come.

The concept of environmental sustainability can be defined as follows (Moghrabi et al., 2023; George et al., 2022; Das et al., 2021; D'Adamo et al., 2022):

- Environmental sustainability refers to the responsible use and preservation of natural resources to meet the needs of present and future generations, while maintaining the health and integrity of ecosystems.
- Environmental sustainability is the practice of using resources in a way that preserves the balance and well-being of natural systems, allowing for their long-term viability and the ability of future generations to meet their needs.

- Environmental sustainability involves making choices and taking actions that protect and enhance the quality of the environment, promote social well-being, and ensure economic prosperity, without compromising the ability of future generations to meet their own needs.
- Environmental sustainability is the recognition that human activities are interconnected with the environment, and it encompasses the responsible management of resources, reduction of waste and pollution, conservation of biodiversity, and the promotion of social and economic equity.
- Environmental sustainability involves maintaining and restoring the health of ecosystems, minimizing the depletion of natural resources, reducing greenhouse gas emissions, and fostering a society that values and protects the environment for the benefit of current and future generations.

Presented definitions highlight the importance of balancing environmental, social, and economic considerations to ensure the long-term well-being of both the planet and its inhabitants (Jananipriya and Usha, 2022).. Environmental sustainability is about taking a holistic approach to address the interconnectedness of environmental challenges and seeking solutions that promote harmony between human activities and the natural world (Singh et al., 2022).

Key principles of environmental sustainability include (George et al., 2022; Das et al., 2021, Lathabhavan, 2022; Singh et al., 2022; Cerciello et al., 2023, Liu et al., 2023; Pietro et al., 2021):

- **Conservation:** Protecting and preserving natural resources, such as water, air, forests, wildlife, and energy sources, to ensure their availability for future generations.
- **Renewable Energy:** Promoting the use of clean and renewable sources of energy, such as solar, wind, hydro, and geothermal power, to reduce reliance on finite fossil fuels and mitigate greenhouse gas emissions.
- **Waste Reduction and Recycling:** Minimizing waste generation, practicing recycling, and adopting responsible waste management strategies to reduce the consumption of resources and prevent pollution.
- **Biodiversity Preservation:** Protecting and restoring biodiversity by conserving ecosystems, habitats, and species, as well as promoting sustainable agricultural practices and responsible land use planning.
- **Sustainable Consumption and Production:** Encouraging responsible consumption patterns by promoting sustainable and ethical production methods, reducing resource consumption, and minimizing waste throughout the lifecycle of products and services.
- **Climate Change Mitigation:** Taking actions to reduce greenhouse gas emissions, adapt to the impacts of climate change, and promote resilience in the face of environmental challenges.

- **Social Equity:** Recognizing the importance of social justice and ensuring that sustainable practices benefit all members of society, including marginalized communities and future generations.

In the table 1 there is a presentation of the most important aspects of environmental sustainable business practices.

Table 1.

Most important aspects of environmental sustainable business practices

Aspect	Description
Interdisciplinary Approach	Environmental sustainability recognizes that environmental issues cannot be addressed in isolation. It requires an interdisciplinary approach that combines knowledge from various fields such as ecology, economics, social sciences, and policy-making. By integrating these perspectives, sustainable solutions can be developed that consider the environmental, social, and economic dimensions of the challenges at hand.
Long-Term Perspective	Environmental sustainability emphasizes long-term thinking and planning. It acknowledges that the consequences of our actions today can have far-reaching impacts on future generations. By taking a proactive approach and considering the long-term implications of our decisions, we can make choices that support the well-being of both current and future populations.
Systems Thinking	Environmental sustainability encourages us to think holistically and consider the interconnectedness of environmental, social, and economic systems. It recognizes that changes in one aspect of the system can have ripple effects on other components. For example, the degradation of ecosystems can lead to the loss of biodiversity, which in turn can impact the availability of natural resources and affect human well-being. By understanding these complex relationships, we can develop strategies that address the root causes of environmental challenges.
Collaboration and Partnerships	Achieving environmental sustainability requires collaboration and partnerships at various levels. It involves cooperation between governments, businesses, civil society organizations, and individuals. Collaborative efforts can lead to the sharing of knowledge, pooling of resources, and the development of innovative solutions that are more effective in addressing environmental issues.
Policy and Governance	Environmental sustainability relies on the development and implementation of effective policies and governance frameworks. Governments play a crucial role in creating and enforcing regulations that promote sustainable practices, protect natural resources, and incentivize sustainable investments. Policy measures may include setting emission reduction targets, implementing environmental impact assessments, promoting renewable energy incentives, and establishing protected areas for biodiversity conservation.
Education and Awareness	Environmental sustainability is closely linked to education and raising awareness about environmental issues. By promoting environmental literacy and fostering a sense of environmental responsibility, individuals can make informed decisions and adopt sustainable practices in their personal and professional lives. Education plays a key role in empowering individuals to become agents of change and advocates for environmental protection.
Economic Considerations	Environmental sustainability recognizes the importance of integrating environmental considerations into economic decision-making. It challenges the traditional view that economic growth and environmental protection are mutually exclusive. Sustainable economic models aim to decouple economic growth from resource consumption and environmental degradation, promoting the development of green technologies, sustainable business practices, and the creation of green jobs.
Resilience and Adaptation	Environmental sustainability also involves building resilience and adapting to environmental changes and uncertainties. Climate change, natural disasters, and other environmental disruptions pose significant challenges. By investing in resilient infrastructure, promoting adaptive strategies, and supporting vulnerable communities, we can enhance our ability to cope with and recover from environmental shocks.

Source: Authors own work on the basis of: (George et al., 2022; Das et al., 2021, Lathabhavan, 2022; Singh et al., 2022; Cerciello et al., 2023, Liu et al., 2023; Pietro et al., 2021).

3. Benefits and disadvantages in implementation of sustainable business practices in organizations

Sustainable environmental business practices offer numerous benefits to both businesses and the environment. Some of the key benefits include (George et al., 2022; Das et al., 2021; Lathabhavan, 2022; Singh et al., 2022; Cerciello et al., 2023, Liu et al., 2023; Pietro et al., 2021):

- **Environmental Conservation:** By adopting sustainable practices, businesses can reduce their ecological footprint, minimize resource consumption, and preserve natural habitats. This helps in conserving biodiversity, protecting ecosystems, and mitigating climate change.
- **Cost Savings:** Sustainable environmental practices often lead to long-term cost savings for businesses. For example, implementing energy-efficient technologies and practices can reduce energy consumption and lower utility bills. Similarly, optimizing waste management processes can minimize disposal costs. Over time, these savings can contribute to improved profitability.
- **Enhanced Brand Reputation:** Consumers are increasingly conscious of environmental issues and tend to favor businesses that demonstrate a commitment to sustainability. By adopting sustainable environmental practices, businesses can improve their brand reputation and gain a competitive advantage. This can attract environmentally conscious customers, increase customer loyalty, and expand market share.
- **Regulatory Compliance:** Many countries and regions have implemented environmental regulations to protect the environment and promote sustainable practices. By complying with these regulations, businesses can avoid legal issues, penalties, and reputational damage. Sustainable environmental practices help businesses stay ahead of evolving regulations and demonstrate responsible corporate citizenship.
- **Innovation and Differentiation:** Embracing sustainable environmental practices often spurs innovation within organizations. It encourages businesses to develop and implement new technologies, products, and services that are environmentally friendly. This focus on sustainability can differentiate businesses in the market and create new opportunities for growth.
- **Employee Engagement and Retention:** Sustainable environmental practices can contribute to a positive work environment, fostering employee engagement and satisfaction. Employees often take pride in working for environmentally responsible organizations, which can lead to increased productivity and retention of talented individuals.

- **Long-Term Resilience:** Sustainability is inherently focused on long-term thinking and planning. By integrating sustainable environmental practices into their operations, businesses build resilience against environmental risks and uncertainties. This helps them adapt to changing market conditions, mitigate potential disruptions, and ensure long-term business viability.

While implementing sustainable environmental business practices offers numerous benefits, there are also some potential disadvantages that businesses may face (Yacob et al., 2022). These disadvantages include (George et al., 2022; Das et al., 2021, Lathabhavan, 2022; Singh et al., 2022; Cerciello et al., 2023, Liu et al., 2023; Pietro et al., 2021):

- **Initial Costs:** Transitioning to sustainable environmental practices often requires upfront investments in equipment, technologies, and infrastructure. These initial costs can be a barrier for small and medium-sized businesses with limited financial resources. However, it's important to note that many sustainable practices offer long-term cost savings and return on investment.
- **Complex Implementation:** Adopting sustainable environmental practices can involve complex changes in processes, supply chains, and organizational culture. It requires careful planning, coordination, and employee training. The complexity of implementation can pose challenges for businesses, especially if they lack the necessary expertise and resources to navigate the transition effectively.
- **Resistance to Change:** Employees and stakeholders may resist or be reluctant to embrace sustainable environmental practices. Change can disrupt established routines and require individuals to learn new skills or adapt to different ways of doing things. Overcoming resistance to change and gaining buy-in from employees and stakeholders can be a significant challenge during the implementation phase.
- **Limited Availability of Sustainable Technologies:** Depending on the industry or region, businesses may face limitations in the availability and affordability of sustainable technologies or resources. For example, renewable energy sources may not be readily accessible, or sustainable materials may be more expensive or have limited availability. This can hinder the adoption of certain sustainable practices.
- **Complexity of Measurement and Reporting:** Measuring and reporting on the environmental impact of sustainable practices can be complex. It requires collecting accurate data, implementing monitoring systems, and ensuring transparency in reporting. Businesses may face challenges in tracking and quantifying their progress toward environmental goals, which can affect their ability to communicate their sustainability achievements effectively.

- **Supply Chain Challenges:** Implementing sustainable environmental practices may require collaboration and coordination with suppliers and partners in the supply chain. Ensuring that suppliers adhere to sustainable standards and practices can be challenging, particularly if they operate in different regions or have different priorities. Maintaining consistency and alignment across the supply chain can be a significant hurdle.
- **Potential Trade-Offs:** In some cases, implementing certain sustainable practices may involve trade-offs or compromises. For example, switching to alternative materials may have different environmental impacts or affect product quality. Businesses need to carefully evaluate the potential trade-offs and find the right balance between sustainability goals and other operational considerations.

The advantages and disadvantages of implementing sustainable environmental business practices demonstrate the multifaceted nature of sustainability (Sani, Garg, 2023). While the initial costs, resistance to change, and complexities of measurement pose challenges, the benefits far outweigh the drawbacks (Anaman et al., 2023). Enhanced reputation, cost savings, regulatory compliance, innovation, and market opportunities are compelling incentives for businesses to embrace sustainability (Lathabhavan, 2022). With proper planning, effective change management, and continuous improvement, organizations can successfully navigate the challenges and reap the rewards of sustainable environmental practices (Sanchez-Planelles et al., 2022). It is clear that integrating sustainability into business strategies is not only an ethical imperative but also a strategic advantage for long-term success.

4. Examples of environmental sustainable business practices

Sustainable environmental business practices encompass a wide range of strategies and initiatives that organizations can adopt to minimize their environmental impact and promote long-term sustainability (Wolniak, 2016; Czerwińska-Lubszczyk et al., 2022; Drozd, Wolniak, 2021; Gajdzik, Wolniak, 2021, 2022; Gębczyńska, Wolniak, 2018, 2023; Grabowska et al., 2019, 2020, 2021). In table 2 there are examples of various types of sustainable environmental business practices and in table 3 the examples of their implementation in real organizations.

Table 2.
Types of sustainable environmental business practices

Type of sustainable practice	Description
Energy Efficiency	Organizations can invest in energy-efficient technologies, such as LED lighting, smart thermostats, and energy management systems, to reduce energy consumption. They can also implement renewable energy sources like solar panels or wind turbines to generate clean energy on-site.
Waste Reduction and Recycling	Implementing waste management practices, such as recycling programs, composting, and waste segregation, can help organizations reduce the amount of waste sent to landfills. They can also adopt circular economy principles by reusing or repurposing materials and implementing closed-loop systems.
Water Conservation	Organizations can implement water-saving technologies and practices to minimize water consumption. This can include installing low-flow fixtures, using water-efficient irrigation systems, and adopting water recycling and rainwater harvesting techniques.
Sustainable Supply Chain Management	Organizations can work with suppliers to ensure sustainability throughout the supply chain. This involves selecting suppliers that adhere to environmental standards, promoting responsible sourcing of materials, and collaborating on initiatives like carbon footprint reduction and ethical labor practices.
Green Building Design	When constructing or renovating facilities, organizations can adopt green building design principles. This includes using sustainable materials, optimizing energy efficiency through insulation and natural lighting, and implementing water-saving fixtures and systems.
Carbon Footprint Reduction	Organizations can measure and monitor their carbon footprint and develop strategies to reduce greenhouse gas emissions. This can involve initiatives like energy-efficient transportation, promoting telecommuting and video conferencing, and offsetting emissions through carbon offset projects.
Product Lifecycle Management	Organizations can focus on sustainable product development and lifecycle management. This includes considering environmental impact throughout the product's lifecycle, from raw material sourcing to manufacturing, use, and disposal. They can implement design for sustainability principles, promote product durability and repairability, and explore product take-back and recycling programs.
Environmental Education and Awareness	Promoting environmental education and awareness among employees, customers, and stakeholders is crucial for fostering a culture of sustainability. Organizations can conduct training programs, awareness campaigns, and provide resources to educate individuals about environmental issues and sustainable practices.
Stakeholder Engagement and Collaboration	Engaging with stakeholders, including customers, communities, NGOs, and government agencies, is essential for effective sustainability initiatives. Organizations can collaborate with stakeholders to develop shared sustainability goals, seek feedback, and address concerns to drive meaningful change.
Reporting and Transparency	Organizations can enhance transparency by measuring, reporting, and disclosing their environmental performance. They can adopt sustainability reporting frameworks like the Global Reporting Initiative (GRI) or the Carbon Disclosure Project (CDP) to communicate their sustainability efforts and progress to stakeholders.

Source: Authors own work on the basis of: (George et al., 2022; Das et al., 2021, Lathabhavan, 2022; Singh et al., 2022; Cerciello et al., 2023, Liu et al., 2023, Alfaras and Alfaras, 2021; Mohaghegh et al., 2021).

Table 3.
Examples of sustainable environmental business practices

Organization	Type of sustainable practice	Description
Google	Energy Efficiency	Google is committed to energy efficiency and has made significant investments in renewable energy. The company has implemented energy-efficient data centers and offices, and it has also purchased renewable energy to offset its carbon emissions.
Patagonia	Waste Reduction and Recycling	Patagonia, an outdoor clothing company, promotes waste reduction and recycling. They offer a product repair program, encouraging customers to repair their clothing rather than buying new items. Patagonia also uses recycled materials in their products and encourages customers to recycle their old garments.
Coca-Cola	Water Conservation	Coca-Cola is focused on water conservation. The company has implemented water-saving initiatives in its manufacturing processes, such as water recycling and rainwater harvesting. They also work with local communities to replenish water sources and protect watersheds.
IKEA	Sustainable Supply Chain Management	IKEA is known for its commitment to sustainable supply chain management. The company sources sustainably produced wood for its furniture and promotes responsible forestry practices. IKEA also invests in renewable energy projects and aims to produce as much energy as it consumes.
Interface	Green Building Design	Interface, a global carpet tile manufacturer, demonstrates sustainable building design. They have implemented green building practices in their factories and offices, including energy-efficient lighting, rainwater harvesting, and the use of recycled materials in their carpet tiles.
Tesla	Carbon Footprint Reduction	Tesla is a leader in carbon footprint reduction through its electric vehicles (EVs). By producing EVs and promoting clean energy, Tesla aims to reduce carbon emissions from transportation. The company also invests in the development of sustainable energy solutions, such as solar panels and energy storage.
Unilever	Product Lifecycle Management	Unilever focuses on sustainable product lifecycle management. The company has set ambitious goals to reduce its environmental impact, including using sustainably sourced ingredients, minimizing packaging waste, and promoting responsible product use and disposal.
National Geographic Society	Environmental Education and Awareness	The National Geographic Society is a renowned organization that focuses on environmental education and raising awareness about conservation. They publish magazines, produce documentaries, and develop educational resources to inform and inspire people about the importance of environmental stewardship.
Starbucks	Stakeholder Engagement and Collaboration	Starbucks is committed to stakeholder engagement and collaboration. The company works with coffee farmers to promote sustainable farming practices and ensure fair trade. Starbucks also engages customers in recycling initiatives and provides resources to educate them about sustainability.
Philips	Reporting and Transparency	Philips, a multinational electronics company, focuses on product innovation for sustainability. They develop energy-efficient lighting solutions, such as LED bulbs, to reduce energy consumption. Philips also offers products and systems for sustainable healthcare and promotes circular economy principles.

Source: Authors own work on the basis of: (George et al., 2022; Das et al., 2021, Lathabhavan, 2022; Singh et al., 2022; Cerciello et al., 2023, Liu et al., 2023, Alfaras and Alfaras, 2021; Mohaghegh et al., 2021).

Presented examples showcase how real organizations across various industries are implementing sustainable environmental business practices to minimize their environmental impact and drive positive change. By adopting these practices, organizations demonstrate their commitment to sustainability and contribute to a more sustainable future.

5. Conclusion

In conclusion, achieving environmental sustainability requires a collective effort from individuals, businesses, governments, and international organizations. It involves making conscious choices in our daily lives, adopting sustainable technologies and practices, supporting policies that prioritize environmental protection, and fostering a mindset of stewardship towards the planet. By embracing environmental sustainability, we can create a healthier and more sustainable future for ourselves and generations to come.

The concept of environmental sustainability encompasses responsible use and preservation of natural resources, maintaining the health and integrity of ecosystems, and meeting the needs of present and future generations. It involves making choices and taking actions that protect the environment, promote social well-being, and ensure economic prosperity without compromising the ability of future generations to meet their own needs.

Environmental sustainability is characterized by an interdisciplinary approach that considers the interconnectedness of environmental, social, and economic systems. It emphasizes long-term thinking, systems thinking, collaboration, policy and governance, education and awareness, economic considerations, and resilience and adaptation.

Implementing sustainable business practices offers numerous benefits for organizations. These benefits include environmental conservation, cost savings, enhanced brand reputation, regulatory compliance, innovation and differentiation, employee engagement and retention, and long-term resilience. However, there are also potential disadvantages, such as initial costs, complex implementation, resistance to change, limited availability of sustainable technologies, complexity of measurement and reporting, supply chain challenges, and potential trade-offs.

Despite the challenges, the advantages of implementing sustainable environmental business practices outweigh the drawbacks. The benefits include improved profitability, market competitiveness, customer loyalty, risk mitigation, and long-term business viability. By properly planning, managing change, and continuously improving, organizations can successfully navigate the challenges and reap the rewards of sustainable environmental practices.

Integrating sustainability into business strategies is not only an ethical imperative but also a strategic advantage for long-term success. Businesses that embrace sustainable environmental practices demonstrate their commitment to environmental stewardship, gain a competitive edge

in the market, and contribute to a more sustainable future for all (Jonek-Kowalska, Wolniak, 2021, 2022; Jonek-Kowalska et al., 2022; Kordel, Wolniak, 2021, 2023; Rosak-Szyrocka et al., 2023; Gajdzik et al., 2023, Orzeł, Wolniak, 2021, 2022; Ponomarenko et al., 2016; Stawiarska et al., 2020, 2021; Stecula, Wolniak, 2022; Olkiewicz et al., 2021; Wolniak, 2013, 2016; Hys, Wolniak, 2018).

The organizations showcased in a paper exemplify the diverse approaches to sustainability. Google's focus on energy efficiency and renewable energy demonstrates its commitment to reducing carbon emissions. Patagonia's emphasis on waste reduction and recycling promotes a circular economy and encourages customers to adopt more sustainable consumption habits. Coca-Cola's efforts in water conservation highlight the importance of responsible water management in manufacturing processes. IKEA's sustainable supply chain management practices and investment in renewable energy contribute to a more sustainable and responsible business model. Interface's implementation of green building design principles showcases how organizations can reduce their environmental impact through sustainable infrastructure. Tesla's pioneering work in carbon footprint reduction through electric vehicles and clean energy solutions is driving the transition to a low-carbon transportation sector. Unilever's focus on product lifecycle management emphasizes the need for sustainable sourcing, responsible packaging, and responsible product use and disposal. The National Geographic Society's commitment to environmental education and awareness is instrumental in fostering a culture of environmental stewardship. Starbucks' stakeholder engagement and collaboration efforts demonstrate the importance of working with suppliers, customers, and communities to drive sustainability initiatives. Philips' emphasis on reporting and transparency helps communicate their sustainability efforts and progress to stakeholders while developing innovative, energy-efficient solutions for various industries.

By adopting sustainable environmental business practices, organizations showcase their dedication to minimizing their environmental impact and promoting long-term sustainability. These practices not only benefit the planet but also offer opportunities for cost savings, resource efficiency, and enhanced brand reputation. Moreover, they contribute to the achievement of global sustainability goals, such as those outlined in the United Nations' Sustainable Development Goals (SDGs).

It is essential for organizations to continue exploring and implementing sustainable practices, adapting them to their specific contexts and continuously improving their environmental performance. Collaboration and knowledge-sharing among organizations, policymakers, and other stakeholders are crucial for scaling up sustainable practices and creating a collective impact. With a collective effort, we can build a more sustainable future for generations to come, where businesses operate in harmony with the environment, promote social well-being, and drive positive change.

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