European Journal of Sustainable Development (2025), **14**, 3, 803-820 ISSN: 2239-5938
Doi: 10.14207/ejsd.2025.v14n3p803

Implementation of Green Practices: The Role of Knowledge and Financial Resources

By Vriti Sharma

ABSTRACT:
Companies have made profits by causing environmental pollution, but now there is a global push for green development. As a part of this shift, green practices are becoming increasingly important for businesses to help protect the environment. Many studies have explored the benefits of green practices, yet discussions often focus on their advantages but overlook key factors needed for successful implementation. This research aims to address this gap by examining the "how" and "what" required to implement green practices, specifically focusing on knowledge and financial resources. These factors are the basic requirements for implementing new initiatives. Knowledge is important because without proper knowledge, businesses may struggle to implement effective strategies, and without financial resources, they may lack the means to invest in green practices.
To understand the importance of these factors, this research utilizes Qualitative Comparative Analysis using survey data from 60 participants in the UK and Germany from 2,788 energy-intensive companies. The findings show that internal knowledge is important for successfully implementing green practices. The findings also highlight the importance of a company's financial stability for successfully implementing green practices. Even with access to external funding resources, post-implementation outcomes may be less effective if internal financial stability is weak.

Keywords: Green Practices, Financial Resources, Knowledge, Green Practices Implementation

1. Introduction

Since the Industrial Revolution, businesses have grown and created wealth, but this has also caused severe environmental damage (Homaeigohar & Elbahri, 2017). Issues like pollution, climate change, and resource depletion have made people more aware of the need for sustainable business practices. As a result, governments, consumers, and investors are pushing companies to adopt green practices. Governments have introduced strict environmental regulations to encourage businesses to operate more sustainably (Porter & van der Linde, 1995). At the same time, consumers prefer eco-friendly brands, and companies want to improve their public image by showing commitment to corporate social responsibility (Zailani et al., 2015).

Green practices include energy efficiency, waste reduction, carbon footprint reduction, sustainable supply chains, and eco-friendly technology (Ghisetti & Rennings,

[1] Department of Adult Education, Educational and Research Institute of Retraining and Advanced Training, Mykhailo Dragomanov Ukrainian State University, Kyiv, Ukraine
[2] Department of Foreign Languages, Ternopil National Pedagogical University named after Volodymyr Hnatyuk, Ternopil, Ukraine
[3] Faculty of Natural and Geographical Education and Ecology, Dragomanov Ukrainian State University, Kyiv, Ukraine
[4] Department of Germanic Philology, Faculty of Philology, Admiral Makarov National University of Shipbuilding, Mykolaiv, Ukraine
[5] Department of Foreign Languages for Specific Purposes, Faculty of Foreign Philology, Zaporizhzhia National University, Zaporizhzhia, Ukraine

2014). These actions help businesses protect the environment while remaining profitable. While many studies highlight the advantages of implementing green practices (Dodds & Holmes, 2016; Lumbanbatu & Aryanto, 2019), less attention has been given to the key factors determining how businesses can successfully adopt them. Simply recognizing the benefits of sustainability is not enough—companies need the right resources to implement these practices.

One of the main challenges businesses face is understanding what is needed to implement green practices successfully. While some firms have embraced sustainability, others struggle due to a lack of knowledge and financial limitations. Companies need knowledge and expertise to successfully implement green practices (Horbach et al., 2012). The importance of knowledge has been highlighted by the knowledge-based view (KBV) in the literature; the theory highlights knowledge as an essential resource that enables firms to develop innovative strategies and integrate sustainability into their operations (Grant, 1996). Businesses with strong knowledge can develop and apply better sustainable strategies using new technologies and research.

However, knowledge alone is not enough. Financial resources are also crucial for green practices (Hart, 1995). While knowledge helps businesses plan sustainable solutions, financial stability ensures they can afford them. The resource-based view (RBV) highlights that financial resources are a key strategic asset that allows companies to invest in green technologies and sustainability initiatives (Barney, 1991). Energy-intensive industries often face high costs when adopting greener methods, so they may need external funding or government support (Dangelico & Pontrandolfo, 2015).

Thus, to understand the basics of implementing green practices, this study examines how knowledge and financial resources lead to implementing green practices in energy-intensive industries. The findings will contribute to the ongoing discussion on sustainability by offering practical insights into overcoming key barriers to green practice adoption.

2. Literature Review

2.1 Defining Green Practices

Green practices refer to environmentally sustainable actions and strategies that organizations adopt to reduce their ecological footprint and enhance sustainability. These practices aim to minimize environmental harm, optimize resource utilization, and promote efficiency while ensuring long-term economic and environmental benefits (Klassen & Whybark, 1999). Green practices commonly focus on recycling, remanufacturing, sustainable sourcing, energy efficiency, waste reduction, and carbon footprint minimization (Özceylan et al., 2014).

2.2 Benefits of Implementing Green Practices

Implementing green practices offers numerous benefits for companies. One of the key benefits of adopting green practices is the significant reduction in harmful emissions and waste, thereby enhancing ecological performance (Konietzko et al., 2019). Green practices improve productivity by minimizing resource wastage and optimizing operational efficiency (Korhonen et al., 2017). Organizations that integrate green practices

into their operations can maximize product functionality and ensure efficient resource consumption, improving operational performance (Sehnem et al., 2019). Another important benefit of green practices is financial accessibility, as proactive organizations often secure more straightforward access to capital from environmentally responsible investors, reducing the cost of capital and enhancing economic performance (Doh et al., 2009). Additionally, aligning operations with environmental and social goals strengthens stakeholder relationships, mitigates risks, and enhances competitiveness (Hull & Rothenberg, 2008), while strict environmental regulations further drive productivity and market advantage (Porter & Van der Linde, 1995).

2.3 Challenges and Research Question Development

While the literature broadly supports green practices, some argue about the significant challenges. One of the primary concerns is the high up-front and operational costs associated with green practices, which can negatively impact short-term financial performance (Ambec & Lanoie, 2008). Studies have reported mixed evidence regarding the impact of green practices on firm performance. For instance, Zhu et al. (2006) found that only internal environmental management practices positively correlated significantly with firm performance in China. Umar et al. (2021) observed an insignificant relationship between green purchasing and firm performance.

Financial performance is particularly problematic for energy-intensive industries, where low profit margins and high upfront costs make it difficult to invest in carbon reduction technologies (Bijnens et al., 2024; Wen et al., 2021). Overcoming these constraints is essential for enabling firms to invest in sustainability and enhance financial performance. RBV provides a theoretical lens to understand this issue, emphasizing that companies gain a competitive advantage by leveraging valuable, rare, and non-substitutable assets (Barney, 1991). Firms with strong financial capabilities can invest in green innovations, infrastructure, and R&D, facilitating the implementation of sustainable practices and ensuring long-term competitiveness (Lepoutre & Heene, 2006). Given these financial challenges, this study explores:

RQ1: How Does additional funding mitigate the financial constraints of energy-intensive industries?

In addition to financial constraints, knowledge gaps pose a significant challenge for companies adopting green practices. Many managers lack a clear understanding of the benefits of sustainability, leading to hesitation in investing in green initiatives (Carlini & Grace, 2021). Without sufficient knowledge, firms may struggle with cost control and risk, making misguided technological investments (Foxon & Pearson, 2008; Wen et al., 2021). Furthermore, implementing sustainability initiatives increases managerial responsibilities, requiring more significant expertise and commitment (Abbas & Sağsan, 2019; Amrutha & Geetha, 2020). Managers with limited knowledge may be less engaged, making developing and executing effective sustainability strategies cumbersome (Mtembu, 2019). The KBV theory provides a strong theoretical foundation for understanding this challenge, emphasizing that knowledge is a fundamental strategic resource that drives innovation and sustainability (Grant, 1996). Unlike tangible assets, knowledge is embedded in company

processes, learning, and stakeholder interactions, making it essential to successfully implement green practices (Roy & Thérin, 2007; Uhlaner et al., 2011). Given the important role of knowledge in overcoming these barriers, this study explores:

RQ2: How does knowledge lead to effective implementation of green practices?

3. Methodology

3.1 Sample

This study focuses on energy-intensive industries in Germany and the UK, as these sectors are among the largest carbon emitters and face significant pressure to adopt sustainable practices. Germany and the UK were selected due to their leadership in green finance, policy frameworks, and workforce development. The UK consistently ranks at the top of the Global Green Finance Index (GGFI), with London leading global sustainable finance efforts (Mobilising Green Investment, 2023). Germany, known for its strong environmental policies, pioneered the Energiewende and Renewable Energy Sources Act (EEG), setting global standards in renewable energy transitions (Schreurs, 2016).

Additionally, this study focuses on companies with at least 500 employees. In Germany, companies with 500+ employees are legally required to incorporate sustainability and environmental responsibility into their corporate governance (The Sustainability Code, 2017). Similarly, in the UK, larger firms are subject to mandatory sustainability reporting and carbon reduction commitments under frameworks such as the Companies Act 2006 (UK Government, 2013).

The Orbis database was used to identify firms classified under Energy Intensive Industries (EIIs) using the NACE Rev. 2 classification system. The selection process began with 30,523,665 global companies, which were narrowed to 1,074,556 after applying a regional filter. A further refinement limiting companies to those with at least 500 employees resulted in a final sample of 2,788 active companies.

3.2 Data Collection & Data Analysis

A 32-question survey was distributed via Qualtrics to finance and sustainability professionals in the selected companies. This study applies Qualitative Comparative Analysis (QCA) using the fuzzy-set QCA (fsQCA) approach (Ragin, 2008) to identify factors influencing the successful implementation of green practices. Boolean algebra determines causal patterns, categorizing implementation outcomes as success (1) or failure (0). Variables are operationalized as dummy or fuzzy-set values (0 to 1). The results will be analyzed based on consistency and causal combinations, identifying key factors contributing to companies' perceived success in green practices. For RQ2, which examines the role of stakeholder knowledge, fuzzy-set calibration was applied to the relevant variables. The calibration followed established fsQCA principles (Ragin, 2008), where 0 represents full non-membership and 1 represents full membership. Intermediate thresholds (0.25, 0.5, and 0.75) were assigned based on both theoretical reasoning and the distribution of survey responses. Specifically, scores of 1–3 were calibrated as 0.25 (low knowledge), 4–6 as 0.5 (moderate knowledge), 7–9 as 0.75 (good knowledge), and 10 as 1 (excellent knowledge). This approach ensures a gradual and logical differentiation across

knowledge levels. While the calibration provides a structured categorization, it is acknowledged that findings could be sensitive to threshold choices.

4. Results

Since this is a preliminary analysis, not all outcome variables have been tested. This study applies QCA to examine the role of stakeholder knowledge and financial resources in implementing green practices, using 60 survey responses. The analysis focuses on R&D improvement as the key outcome (Q19 and Q30; see appendix for survey questions). It addresses RQ1, which evaluates the role of additional financial resources, and RQ2, which examines the importance of stakeholder knowledge in supporting green practice implementation.

First, to assess the impact of financial resources on R&D, ApproachedFunding (Q26, see appendix for survey question) was used as the condition, indicating whether a company sought external funding. Since Q26 was a multiple-choice question, it was recoded into a binary variable (1 = any option chosen from 1 through 9, 0 = did not approach). Fuzzy-set calibration was applied to categorize R&D impact (Q30) on a scale from 0 (no impact) to 1 (excellent impact).

The first step of the analysis focused on determining whether *seeking external funding alone* **was sufficient to drive** *R&D improvements***. The results in Table 1 indicate that** *external funding alone does not strongly contribute to R&D success***. The sufficiency score for external funding was** *low (INCL = 0.500, PRI = 0.125)***, suggesting that merely obtaining additional financial resources** *does not guarantee innovation success***.**

Table 1: Truth Table Q30 (Approached Funding & R&D Outcome); Source: Own

ApproachedFunding (Q26)	R&D Outcome (Q30)	N	INCL	PRI
0	0.0	11	0.432	0.194
1	1.0	14	0.500	0.125

Since the impact of *external funding on R&D* **did not show strong results, the next step was to analyze the role of a company's** *financial stability (Q29: Financial Stability, please refer to appendix for survey question)***. However, financial stability** *could not be studied in isolation* **because the survey questions were structured in a way that** *a company's financial stability can only improve if additional financial resources are present***. This means that** *financial stability and external funding are interdependent***, and a combined effect is necessary to significantly impact R&D outcomes.**

To examine this relationship, a multi-step QCA analysis was conducted, as presented in Table 2, which explores the interaction between ApproachedFunding (Q26), Financial Stability (Q29), and R&D Outcome (Q30). The results show that firms with strong financial stability (Q29 = 1) had the highest sufficiency score (INCL = 0.947, PRI

= 0.833), even when they did not seek external funding. Conversely, companies that approached external funding but lacked financial stability (Q29 = 0) showed lower sufficiency scores (INCL = 0.800, PRI = 0.167), reinforcing the idea that financial stability plays a more important role than simply securing additional funding.

Table 2: Truth Table Q30 Multi-Step QCA; Source: Own

ApproachedFunding (Q26)	Financial Stability (Q29)	R&D Outcome (Q30)	N	INCL	PRI
0	0 (Unstable)	1.0	4	0.520	0.077
0	1 (Stable)	1.0	3	0.947	0.833
1	0 (Unstable)	1.0	2	0.800	0.167
1	1 (Stable)	1.0	4	0.839	0.375

Lastly, to understand the significance of knowledge in the effective implementation of green practices, the initial analysis emphasized R&D improvement (Q19) as a key outcome. Conditions included Q14, Q15, Q16, Q17, and Q18 (refer to the appendix for survey questions). A fuzzy-set transformation was applied to calibrate knowledge levels, ensuring a standardized measurement scale across responses. The following categorization was used to classify knowledge levels:

- 0: No knowledge = 0
- 1-3: Low knowledge = 0.25
- 4-6: Middle knowledge = 0.5
- 7-9: Good knowledge = 0.75
- 10: Excellent knowledge = 1

This transformation allowed to analyze how varying levels of knowledge across different stakeholder groups as a condition (managers, employees, suppliers, customers, and the public) influenced R&D success.

Table 3: Truth Table Q19 (Knowledge & R&D Outcome); Source: Own

Managers' Knowledge Importance (Q14)	Employees' Knowledge Importance (Q15)	Suppliers' Knowledge Importance (Q16)	Customers' Knowledge Importance (Q17)	Public Knowledge Importance (Q18)	utcome		nclusion	RI
0.75	0.75	0.75	0.75	0.75	.583		.583	
0.5	0.5	0.25	0.5	0.25	.375		.375	.75

0.5	0.5	0.5	0.5	0.75	.75		.75	.75
0.75	0.5	0.5	0.75	0.5	.75		.75	.75
1	1	0.75	0.5	0.5				
1	1	1	1	0.5	.75		.75	.75

As shown in Table 3, the results confirm that managers and employees are the key drivers of R&D success. Companies with higher internal knowledge (managers and employees scoring closer to 1) consistently showed better R&D outcomes. While knowledge from external stakeholders (suppliers, customers, and the public) contributed positively, it was not as impactful as internal expertise within the organization.

Conclusions

The findings highlight that stakeholder knowledge, particularly among managers and employees, plays a crucial role in R&D success, reinforcing the KBV, which emphasizes the importance of knowledge and expertise as key drivers of green practice implementation. Similarly, the findings about financial resources in R&D success align with the RBV, demonstrating that financial stability is more critical for implementing green practices than external funding alone. While funding can support innovation, it does not guarantee success unless firms have a strong financial foundation to invest in sustainable development effectively. Based on these findings, managers and policymakers are encouraged to develop internal knowledge ecosystems by promoting regular training, cross-functional learning initiatives, and partnerships with external knowledge sources, such as green or sustainability consultants. To enhance financial resilience, firms should integrate green investment planning into their long-term financial strategies, allocate internal budgets for sustainability initiatives, and engage with blended finance mechanisms that reduce reliance on short-term external funding. Together, these actions can better position firms to implement sustainable practices effectively.

Since this is a preliminary analysis, future steps will include analyzing which types of financial investors organizations seek, the constraints they face in accessing financial resources, and the multi-step effect of additional financial resources on other company outcome variables. Similarly, to understand the importance of knowledge, the study will further investigate which stakeholder group's knowledge is most crucial for implementing green practices and analyze its impact on other outcome variables, such as cost management. Additionally, the study will examine regulatory frameworks and their role in facilitating or hindering green practice implementation. This paper serves as an initial exploration, with further analysis planned to provide a more comprehensive understanding of the financial, knowledge-based factors influencing the implementation of green practices.

Although this study provides valuable insights into the role of knowledge and financial resources in implementing green practices, the study comes with several limitations. First, the research is limited to energy-intensive industries in the UK and Germany, which may not reflect the conditions in other regions or industries with different

regulatory frameworks, financial structures, or sustainability priorities. Second, the study focuses only on knowledge and financial stability, excluding other potential factors such as organizational culture, technological capabilities, and stakeholder engagement, which may also influence the implementation of green practices. Third, the sample size of 60 responses may limit the generalizability of the findings, as a larger sample would provide more robust results. Fourth, although the calibration followed a systematic logic, the results could be sensitive to the threshold choices. Sensitivity analysis will be conducted as a future research step, as the current paper presents preliminary findings based on the original calibration scheme. Future research could expand the study to other industries and countries, incorporate additional contextual and organizational factors, increase the sample size, and use longitudinal analysis to track the long-term impact of financial stability and knowledge on green practice implementation. Longitudinal studies would be particularly valuable for assessing whether financially stable firms adopt green practices earlier and achieve stronger long-term sustainability and performance outcomes. Future research could also explore how internal financial stability interacts with strategic decision-making in the timing of green investments. Additionally, future research should consider mixing qualitative methods, such as interviews or case studies, to explore communication flows and feedback mechanisms among internal and external stakeholders, offering more profound insights into how these interactions influence the success of green practice implementation. Despite these limitations, this study provides important insights into the fundamental prerequisites for successfully implementing green practices in energy-intensive industries.

Acknowledgment: The research has been supported by the project "The Role of Green Finance and Investment Banks Support in Advancing Sustainable Practices and Meeting Green Deal Milestones in Energy Intensive Industries" (IG310024)

References

Abbas, J., & Sağsan, M. (2019). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. Journal of Cleaner Production, 229, 611–620. https://doi.org/10.1016/j.jclepro.2019.05.024

Ambec, S., & Lanoie, P. (2008). Does It Pay to Be Green? A Systematic Overview. Academy of Management Perspectives, 22(4), 45–62. https://doi.org/10.5465/amp.2008.35590353

Amrutha, V., & Geetha, S. (2020). A systematic review on green human resource management: Implications for social sustainability. Journal of Cleaner Production, 247, 119131. https://doi.org/10.1016/j.jclepro.2019.119131

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Bijnens, G., Anyfantaki, S., Colciago, A., Jan, D. M., Falck, E., Labhard, V., López-García, P., Lourenço, N., Meriküll, J., Parker, M., Röhe, O., Schroth, J., Schulte, P., & Strobel, J. (2024). Productivity in the Face of Climate Change. http://hdl.handle.net/11159/654042

Carlini, J., & Grace, D. (2021). The corporate social responsibility (CSR) internal branding model: aligning employees' CSR awareness, knowledge, and experience to deliver positive employee performance outcomes. Journal of Marketing Management, 37(7–8), 732–760. https://doi.org/10.1080/0267257x.2020.1860113

Chen, Y. S. (2007). The positive effect of green intellectual capital on competitive advantages of firms. Journal of Business Ethics, 77(3), 271-286.

Dangelico, R. M., & Pontrandolfo, P. (2015). Being 'green and competitive': The impact of environmental actions and collaborations on firm performance. Business Strategy and the Environment, 24(6), 413-430.

Dodds, R., & Holmes, M. (2016). Is there a Benefit from being Green? Assessing Benefits from Marketing Sustainability by North American Hotels. *Journal of Hotel & Business Management*, *05*(02). https://doi.org/10.4172/2169-0286.1000145

Doh, J. P., Howton, S. D., Howton, S. W., & Siegel, D. S. (2009). Does the market respond to an endorsement of social responsibility? The role of institutions, information, and legitimacy. Journal of Management, 36(6), 1461–1485. https://doi.org/10.1177/0149206309337896

Foxon, T., & Pearson, P. (2008). Overcoming barriers to innovation and diffusion of cleaner technologies: some features of a sustainable innovation policy regime. Journal of Cleaner Production, 16(1), S148–S161. https://doi.org/10.1016/j.jclepro.2007.10.011

Ghisetti, C., & Rennings, K. (2014). Environmental innovations and profitability: How does it pay to be green? An empirical analysis of the German innovation survey. Journal of Cleaner Production, 75, 106-117.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17(S2), 109–122. https://doi.org/10.1002/smj.4250171110

Green Finance Taskforce. (2018). (rep.). Accelerating Green Finance. Retrieved February 2024,

Hart, S. L. (1995). A natural-resource-based view of the firm. Academy of Management Review, 20(4), 986-1014.

Homaeigohar, S., & Elbahri, M. (2017). Graphene membranes for water desalination. NPG Asia Materials, 9(8), e427. https://doi.org/10.1038/am.2017.135

Horbach, J., Rammer, C., & Rennings, K. (2012). Determinants of eco-innovations by type of environmental impact—The role of regulatory push/pull, technology push, and market pull. Ecological Economics, 78, 112-122.

Hull, C. E., & Rothenberg, S. (2008). Firm performance: the interactions of corporate social performance with innovation and industry differentiation. Strategic Management Journal, 29(7), 781–789. https://doi.org/10.1002/smj.675

Klassen, R. D., & Whybark, D. C. (1999). The impact of environmental technologies on manufacturing performance. *Academy of Management Journal, 42*(6), 599–615. https://doi.org/10.5465/256980

Konietzko, J., Bocken, N., & Hultink, E. J. (2019). Circular ecosystem innovation: An initial set of principles. Journal of Cleaner Production, 253, 119942. https://doi.org/10.1016/j.jclepro.2019.119942

Korhonen, J., Nuur, C., Feldmann, A., & Birkie, S. E. (2017). Circular economy as an essentially contested concept. *Journal of Cleaner Production*, *175*, 544–552. https://doi.org/10.1016/j.jclepro.2017.12.111

Lepoutre, J., & Heene, A. (2006). Investigating the Impact of Firm Size on Small Business Social Responsibility: A Critical Review. Journal of Business Ethics, 67(3), 257–273. https://doi.org/10.1007/s10551-006-9183-5

Wen, H., Lee, C. C., & Zhou, F. (2021). Green credit policy, credit allocation efficiency and upgrade of energy-intensive enterprises. Energy Economics, 94, 105099. https://doi.org/10.1016/j.eneco.2021.105099

Lumbanbatu, K., & Aryanto, V. D. W. (2019). Green Practices implementation as prerequisite to sustain firm competitive advantages. In *IGI Global eBooks* (pp. 731–751). https://doi.org/10.4018/978-1-5225-7915-1.ch036

Mobilising Green Investment. (2023). In www.gov.uk/official-documents. Government of UK. https://data.parliament.uk/DepositedPapers/Files/DEP2023-0323/Green-finance-strategy-2023.pdf

Mtembu, V. (2019). Does having knowledge of green human resource management practices influence its implementation within organizations? Problems and Perspectives in Management/Problems & Perspectives in Management, 17(2), 267–276. https://doi.org/10.21511/ppm.17(2).2019.20

Özceylan, E., Paksoy, T., & Bektaş, T. (2013). Modeling and optimizing the integrated problem of closed-loop supply chain network design and disassembly line balancing. Transportation Research Part E Logistics and Transportation Review, 61, 142–164. https://doi.org/10.1016/j.tre.2013.11.001

Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. Journal of Economic Perspectives, 9(4), 97-118.

Ragin, C. C. (2008). Redesigning Social Inquiry. https://doi.org/10.7208/chicago/9780226702797.001.0001

Roy, M., & Thérin, F. (2007). Knowledge acquisition and environmental commitment in SMEs. Corporate Social Responsibility and Environmental Management, 15(5), 249–259. https://doi.org/10.1002/csr.145

Schreurs, M. A. (2016). The Paris Climate Agreement and the Three Largest Emitters: China, the United States, and the European Union. Politics and Governance, 4(3), 219–223. https://doi.org/10.17645/pag.v4i3.666

Sehnem, S., Vazquez-Brust, D., Pereira, S. C. F., & Campos, L. M. S. (2019). Circular economy: Benefits, impacts, and overlapping. *Supply Chain Management: An International Journal*, *24*(6), 784–804. https://doi.org/10.1108/SCM-06-2018-0213

The Sustainability Code. (2017). In https://www.deutscher-nachhaltigkeitskodex.de (4th edition). German Council for Sustainable Development. Retrieved February 10, 2025, from https://www.nachhaltigkeitsrat.de/wp-content/uploads/2018/03/The_SustainabilityCode_2017.pdf

Uhlaner, L. M., Berent-Braun, M. M., Jeurissen, R. J. M., & De Wit, G. (2011). Beyond Size: Predicting Engagement in Environmental Management Practices of Dutch SMEs. Journal of Business Ethics, 109(4), 411–429. https://doi.org/10.1007/s10551-011-1137-x

UK Government. (2013). *The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013* (SI 2013/1970). Retrieved from https://www.legislation.gov.uk/uksi/2013/1970/contents/made

Umar, M., Khan, S. a. R., Zia-Ul-Haq, H. M., Yusliza, M. Y., & Farooq, K. (2021). The role of emerging technologies in implementing green practices to achieve sustainable operations. The TQM Journal, 34(2), 232–249. https://doi.org/10.1108/tqm-06-2021-0172

Yu, Z., Khan, S. a. R., & Liu, Y. (2020). Exploring the role of corporate social responsibility practices in enterprises. Journal of Advanced Manufacturing Systems, 19(03), 449–461. https://doi.org/10.1142/s0219686720500225

Zailani, S., Eltayeb, T. K., Hsu, C. C., & Tan, K. C. (2015). The impact of external institutional drivers and internal strategy on environmental performance. International Journal of Operations & Production Management, 35(1), 38-57.

Zhu, Q., Sarkis, J., & Lai, K. (2006). Green supply chain management: pressures, practices and performance within the Chinese automobile industry. Journal of Cleaner Production, 15(11–12), 1041–1052.

Appendix

Survey Questionnaire

1. Where is your organization located?
    - United Kingdom
    - Germany
    - Another Country
2. Which industry does your organization belong to?
    - Minning and Quarrying
    - Manufacturing
    - Waste Management and Remediation
    - Transport
    - Utilities (Gas, Water, Electricity)
    - Others
3. What is the ID of your organization?
4. Does your organization face financial constraints?
    - Yes
    - No

5. Has your organization ever utilized green practices (can choose multiple options)?
    - Green credits
    - Grant for Sustainability Projects
    - •Sustainability Linked loans
    - Green human resource management
    - No
    - Others
6. How strongly do uncertain returns on investment act as a financial constraint in implementing green practices? (0- no impact, 1-Very low impact, 10 very high impact)
7. How strongly do high upfront costs serve as a financial constraint in implementing green practices? (0- no impact , 1-Very low impact, 10 very high impact)
8. How important are employees in your decision to implement green practices? (0-not at all important, 10 – extremely important)
9. How important are suppliers in your decision to implement green practices? (0-not at all important, 10 – extremely important)
10. How important are customers in your decision to implement green practices? (0-not at all important, 10 – extremely important)
11. How important are managers in your decision to implement green practices? (0-not at all important, 10 – extremely important)
12. How important is the public in your decision to implement green practices? (0-not at all important, 10 – extremely important)
13. How strongly does legal regulatory requirements impact your decision to adopt green practices? (0- no impact, 1-very low impact, 10 very high impact)
14. Is knowledge about green practices among managers important for the implementation of these practices? 0-not at all important, 10 – extremely important)
15. Is knowledge about green practices among employees important for implementation of these practices? 0-not at all important, 10 – extremely important)
16. Is knowledge about green practices among suppliers important for the implementation of these practices? 0-not at all important, 10 – extremely important)
17. Is knowledge about green practices among customers important for the implementation of these practices? 0-not at all important, 10 – extremely important)
18. Is knowledge about green practices in public important for the implementation of these practices? 0-not at all important, 10 – extremely important)
19. How strongly would greater knowledge about green practices increase investments in Research & Development in your organization? (0- no impact , 1-Very low impact, 10 very high impact)
20. How strongly would knowledge about green practices improve cost management in your organization? (0- no impact , 1-Very low impact, 10 very high impact)
21. How severe were the financial constraints experienced by your organization following the implementation of green practices? (0- no impact , 1-Very low impact, 10 very high impact)
22. How strong was the impact of financial constraints on introducing technologies for green practices in your organization?
23. How strongly did the implementation of green practices improve your organizational corporate image? (0- no impact , 1-Very low impact, 10 very high impact)

24. How strongly did implementing green practices improve the organizational market position? (0- no impact , 1-Very low impact, 10 very high impact)
25. How strongly did knowledge among managers about green practices improve investment decisions within your organization? (0- no impact , 1-Very low impact, 10 very high impact)
26. Did you approach for additional funding to alleviate financial constraints? (can choose multiple options).
    - Investment Bank
    - Commercial Bank
    - Private investor
    - Government support scheme
    - Venture capital companys
    - Crowdfunding Platforms
    - Angel Investors
    - Microfinance Institutions
    - Others
    - Did not approach
27. When seeking additional funding for green practices, which constraint did your organization face? (can choose multiple options)
    - Lack of standardized definitions and metrics
    - Regulatory uncertanities
    - Investor risk perception
    - Limited investor interest
    - Complex Application process
    - Project Viability Assessment
    - Others
    - None
28. Did ease of obtaining funding play a role in deciding whether your organization should seek additional funding?
    - Yes
    - No
29. How strongly did additional funding improve your organizational financial situation? (0- no impact , 1-Very low impact, 10 very high impact)
30. How strongly did additional funding improve Research and Development efforts within your organization? (0- no impact , 1-Very low impact, 10 very high impact)
31. If you want to provide any further information please write here.
32. If you are interested in the results of the survey, please write your email address here (optional)