

SME adoption of Voluntary Environmental Actions

Joonatan Van Eecke Laaksonen
R0807804

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Abstract

This study examines how the drivers and barriers faced by small and medium-sized enterprises (SMEs) in adopting voluntary environmental actions influence the nature of their adoption. The research identifies two primary adoption types: symbolic, characterized by superficial environmental actions, and substantive, involving a genuine integration of environmental practices. It reveals that financial and strategic motivations, such as green premiums, fiscal advantages, brand enhancement and customer demand, are pivotal in driving substantive adoption. In contrast, barriers like low environmental awareness and resource constraints often lead to symbolic adoption, resulting in minimal impact.

The revised conceptual model, developed from the study's findings, underscores that addressing economic constraints through financial incentives and improving environmental awareness can facilitate deeper engagement. Ethical motivations alone are less effective without accompanying financial or strategic benefits. The study contributes to existing literature by refining the understanding of SME environmental actions and suggesting that substantive adoption is more likely when both financial and strategic drivers are present, whereas symbolic adoption frequently arises from awareness-related and resource-based barriers.

These insights are crucial for tailoring future research and practical interventions aimed at enhancing SME engagement in environmental actions. Improved awareness and targeted incentives can support SMEs in transitioning from symbolic to substantive adoption, ultimately aligning their sustainability efforts with business objectives.

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Keywords & Abbreviations

Voluntary Environmental Actions

VEPs – Voluntary Environmental Programs

EMPs – Environmental Management Practices

SMEs – Small and Medium-Sized Enterprises

CSR – Corporate Social Responsibility

Low Environmental Awareness

Resource Constraints

Financial Drivers

Strategic Drivers

Environmental Responsibility

1. Introduction

1.2 Background

Our planet faces a multitude of environmental challenges, ranging from biodiversity loss and deforestation to water scarcity and pollution. If left unaddressed, these issues could precipitate significant ecological and social crises. The latest provisional State of the Global Climate report by the World Meteorological Organization (WMO) underscores the urgency of the situation, revealing that 2023 was the warmest year on record, with global temperatures rising approximately 1.4 degrees Celsius above pre-industrial levels.

Since the Industrial Revolution and the advent of globalization, businesses have had a profound impact on these environment concerns. In response, Corporate social responsibility (CSR) has emerged as a crucial strategy for companies seeking to mitigate their environmental footprint. CSR involves companies taking responsibility for the social and environmental consequences of their operations (Licandro et al., 2023). As businesses have expanded, their environmental impact has intensified, prompting increased scrutiny of how environmental regulations shape corporate behavior (Aragòn-Correa et al., 2020).

While many companies that prioritize CSR invest in sustainable practices, such as reducing carbon emissions, minimizing waste, and conserving resources, scandals like Volkswagen's 2015 Diesel Scandal have raised questions about the authenticity of CSR efforts. Such incidents can reduce CSR to mere corporate rhetoric, a phenomenon known as greenwashing (Mi et al., 2018; Walker & Wan, 2012). This discrepancy underscores the limitations of relying solely on CSR principles for environmental improvement.

To address these limitations, environmental regulation has become a vital complement to CSR. Although mandatory regulations have proven effective in enhancing corporate environmental performance, they are often criticized for being rigid and potentially detrimental to competitiveness (Aragòn-Correa et al., 2020). This raises an important question: Can governments enhance corporate environmental performance by encouraging rather than imposing environmental actions?

One approach to voluntary environmental actions is through voluntary environmental programs (VEPs). VEPs aim to improve environmental quality by encouraging businesses to adopt protective measures that address externalities, unintended side effects of business activities that are not reflected in the cost of goods or services (Borck & Coglianesse, 2009; Eidelwein et al., 2018). Advocates of VEPs argue that these programs represent a new paradigm in corporate oversight, addressing regulatory gaps left by governments in managing corporate environmental behavior (Christmann & Taylor, 2002).

While large corporations often lead the discussions on environmental stewardship, small and medium-sized enterprises (SMEs) also play a critical role. Defined by the European Commission as businesses with fewer than 250 employees and an annual turnover of up to €50 million, SMEs make up 99% of all businesses in the EU, generate about 85% of new jobs, and account for two-thirds of private sector employment (Annual Report 2022/23 SME Performance Review EU).

Despite their significant potential, SMEs face substantial barriers to adopting environmental actions. According to a 2023 report by the International Council for Small Business (ICSB), challenges such as limited resources, time constraints, and a lack of environmental expertise hinder SMEs from implementing effective environmental actions. Additionally, SMEs often prioritize cost-effective solutions aligned with their financial goals, complicating the integration of comprehensive environmental management.

To fully leverage their environmental potential, SMEs need support to overcome these barriers. As we move towards a more sustainable future, collaboration among governments, large corporations, SMEs, and individuals will be essential in addressing the complex environmental challenges that lie ahead. My research will explore the motivations and challenges SMEs face in adopting voluntary environmental actions and how these actions are adopted.

1.3 Problem Definition & Research Question

Previous research has indicated that resource constraints pose a significant barrier to the adoption of environmental actions among SMEs, encompassing deficiencies in financial resources, knowledge, and time (Sweeney, 2007). Although SMEs generally have a smaller individual environmental footprint compared to larger corporations, a perception often recognized by SME owners and managers, their collective environmental impact is substantial (Brammer et al., 2012). Despite their importance, there remains a notable gap in the literature on how SMEs adopt voluntary environmental actions, particularly regarding how their unique motivations and challenges influence this process.

My research aims to address this gap by exploring the relationship between SMEs' drivers and barriers to implement voluntary environmental actions and the nature of their adoption. The central research question is: **"How do the drivers and barriers faced by SMEs in adopting voluntary environmental actions influence the nature of their adoption?"**

My study will provide a comprehensive overview of the factors influencing SMEs' engagement in voluntary environmental actions. The literature review will examine existing research on the drivers and barriers for SMEs in this context, focusing on the unique challenges and motivations that differentiate them from larger firms.

Following the literature review, the methodology section will outline the approach taken to investigate these issues, including an empirical analysis based on 20 in-depth interviews with representatives from 15 distinct SMEs in Belgium. The data analysis will provide insights into SMEs' practical experiences with voluntary environmental actions, distinguishing between substantive and symbolic adoption.

The discussion will interpret these findings, examining which motivations, such as ethical concerns or financial and strategic incentives, are more influential in SMEs' decisions to adopt environmental actions and how these drivers correlate with the nature of adoption.

This research is particularly relevant as it addresses a significant gap in the current literature. While there is substantial research on larger corporations' environmental actions, the specific context of SMEs, despite their critical role in the economy and environment, has been less thoroughly examined. Understanding SMEs' drivers and barriers can offer valuable insights for supporting these enterprises in their environmental efforts, leading to more effective and widespread adoption of voluntary environmental actions.

The final section of my study will synthesize the findings, discuss their implications for both research and practice, and acknowledge any limitations encountered during the research process.

2. Literature Review

2.2 Voluntary Environmental Action

In this research, I will distinguish between two types of voluntary environmental actions that SMEs can adopt: Environmental Management Practices (EMPs) and Voluntary Environmental Programs (VEPs). EMPs refer to actions SMEs undertake to reduce their environmental impact, such as establishing internal policies, improving energy efficiency, reducing waste, recycling, sustainable sourcing, and eco-friendly transportation (Brammer et al., 2012; Khanna et al., 2007; Reyes-Rodríguez, 2021; Uhlaner et al., 2012).

On the other hand, VEPs are standards or programs that SMEs can voluntarily adopt to showcase their commitment to environmental stewardship. Examples of VEPs include green certification standards, eco-labeling schemes, sustainability reporting frameworks, and participation in industry-led environmental initiatives. These programs often provide guidelines, resources, and recognition to encourage businesses toward more sustainable practices (Tashman et al., 2021).

Historically, environmental challenges have primarily been addressed through regulations imposed by governments on businesses and individuals. While these regulations are central to environmental governance, their effectiveness has often been limited by political opposition, high monitoring costs, and the lack of global enforcement mechanisms (Aragón-Correa et al., 2020). In response, VEPs have emerged as alternative, market-driven instruments that complement traditional regulatory approaches (Tashman et al., 2021).

VEPs encompass various approaches, including environmental management systems like ISO 14001, performance standards such as the Forest Stewardship Council and codes of conduct like the UN Global Compact. Often supported by governmental bodies, trade associations, and NGOs, these programs offer certification or seals of approval, signaling a firm's environmental commitment to stakeholders (Tashman et al., 2021). Table 1 provides examples of international voluntary environmental programs and their objectives.

Table 1: Selected International Voluntary Environmental Programs

Example	Type of VEP	Objective	Reference
ISO 14001	Environmental Management System (EMS)	To improve environmental performance through systematic management	https://www.iso.org/standard/60857.html
Forest Stewardship Council	Environmental Performance Mandates	To promote responsible forest management practices	https://fsc.org/en
Eco Cart Certificate	Environmental Performance Standards	To certify the environmental impact of products or processes	https://ecocart.io
United Nations Global Compact	Codes of Conduct	To align business strategies with universal principles in human rights, labour, environment, and anti-corruption	https://unglobalcompact.org
B Corp Certificate	Certification of Social and Environmental Performance	To certify companies meeting high standards of social and environmental performance, accountability, and transparency	https://www.bcorporation.net/en-us/

Voluntary environmental programs offer several advantages for SMEs. By adopting VEPs, SMEs can not only enhance their environmental performance but also gain credible recognition for their efforts. This recognition, often displayed through certifications on products and services, helps distinguish firms from their competitors and appeals to environmentally conscious consumers (Aragón-Correa et al., 2020).

However, there are also notable drawbacks. VEPs can be costly and typically require operational changes to comply with program standards (Khanna et al., 2007). For SMEs, which are typically characterized by limited resources and operational constraints, implementing these changes can be particularly challenging and may not always be feasible. In contrast, adopting environmental management practices (EMPs) without formal certification can be more cost-effective and flexible. However, this approach may lack the public recognition that VEPs provide. Therefore, combining VEPs with EMPs may be an effective strategy for SMEs, allowing them to achieve meaningful environmental improvements while balancing cost and flexibility.

2.3 The distinctive nature of SMEs

To effectively assess the environmental performance of small and medium-sized enterprises (SMEs), it is essential to recognize their unique characteristics compared to larger firms. EU policy instruments have frequently applied a 'one-size-fits-all' approach to environmental issues, often neglecting the unique characteristics of small and medium-sized enterprises (Gibb, 1997). While individual SMEs

generally have a smaller environmental footprint, their collective impact is substantial due to their large numbers (Petts, 2000).

According to the 2022/23 Annual Report on European SMEs, an average SME is estimated to emit about 67 tons of CO₂ and 75 tons of greenhouse gases annually, which is lower than that of larger enterprises. However, SMEs collectively account for 63.3% of all business emissions, underscoring their significant role in overall emissions.

SMEs often resist traditional environmental policy tools, which are typically designed with larger firms in mind (Williamson et al., 2006). To effectively improve environmental performance among SMEs, it is essential that policies and programs are adapted to their specific characteristics. Unlike larger firms, SMEs face unique constraints such as limited financial resources, reduced access to expertise, and operational limitations, making it more challenging to implement comprehensive environmental strategies.

Research shows that due to limited resources, managers of small firms are often unwilling to go much beyond what the law requires (Darnall et al., 2010). However, some unique aspects of small firms, such as shorter communication lines, closer internal interactions, and the direct influence of a founder's vision, can sometimes motivate these firms to go beyond regulatory obligations and adopt more proactive environmental measures (Aragón-Correa et al., 2008).

Given these constraints and opportunities, it is essential that policies and support systems are tailored to meet the specific needs of SMEs. By recognizing the unique challenges they face, we can develop effective environmental strategies that support the immediate and long-term goals of SMEs.

2.4 Drivers for Voluntary Environmental Action

The literature identifies three major themes as motivational drivers for implementing voluntary environmental actions in the context of SMEs: Financial, Strategic, and Ethical Drivers.

2.4.1 Financial Drivers

Financial drivers cover the economic incentives and considerations that motivate firms to engage in voluntary environmental actions. These drivers are primarily concerned with the potential financial benefits associated with implementing environmental actions, such as fiscal advantages, costs efficiency and green premiums (Aragón-Correa et al., 2020). By implementing for instance measures such as energy efficiency upgrades, waste reduction strategies, and recycling programs, SMEs may lower their expenses and improve their overall financial performance.

While financial rewards, such as the possibility of earning a green premium, are often highlighted as motivators, the direct link between adherence to VEPs and financial gains remains uncertain. Although

participation may improve a firm's legitimacy, it does not always guarantee higher prices or a return on investment (Ferrón Vilchez et al., 2017; King et al., 2005).

2.4.2 Strategic Drivers

Strategic drivers relate to the pursuit of competitive advantage, enhanced reputation, and market differentiation. By engaging in VEPs, firms can demonstrate their commitment to sustainability and attract environmentally conscious customers (Tashman et al., 2021).

The literature underscores several strategic motivations for adopting VEPs. For instance, VEPs that offer certification and benchmarking schemes provide firms with a recognized seal of approval, signaling their environmental commitment to stakeholders, such as customers, communities, and regulators (Tashman et al., 2021). These programs help stakeholders assess a firm's environmental behavior, particularly when they lack the means to monitor practices directly (Darnall & Edwards, 2006). Furthermore, participation in VEPs can enhance a firm's public recognition and brand image, reinforcing its market position (Lyon & Maxwell, 2007).

Recent research by Madrid-Guijarro and Duréndez (2024) highlights the quest for legitimacy as a crucial driver for environmental actions, especially for SMEs. Social pressure from stakeholders, including customers, suppliers, and competitors, motivate SMEs to adopt environmental measures.

Additionally, firms with strong environmental performance are better positioned to participate in VEPs, as they require fewer adjustments to align with these programs. Such firms aim to strengthen their environmental differentiation and secure competitive advantages (King & Lenox, 2000; Rivera, 2002).

2.4.3 Ethical Drivers

Ethical drivers reflect SMEs' motivation to engage in environmental actions based on social responsibility, awareness, and personal environmental attitudes. Carrete, Arroyo, and Trujillo (2014) found that environmental responsibility is a major motivator for environmental actions. Firms with established CSR policies are more likely to adopt environmental practices as they view it as part of their duty as responsible corporate citizens.

Additional research confirms that SMEs with strong ethical commitments are more likely to exceed regulatory requirements in their environmental practices. These firms perceive their participation in VEPs as a moral obligation and a way to contribute to societal well-being, even when resources are limited (Aragón-Correa et al., 2020).

In summary, the literature identifies key drivers for voluntary environmental actions among SMEs, categorized into financial, strategic, and ethical themes. These drivers include environmental responsibility, competitive advantage, legitimacy, stakeholder pressure, brand image, and green premiums.

2.5 Barriers for Voluntary Environmental Action

Firms that choose to adopt environmental actions often face several barriers. For instance, Zhou (2009) reported that Chinese SMEs encountered financial and technological constraints from supply chain partners and international organizations, which impeded their efforts to enhance ecological performance.

In the building sector, Liu (2012) identified the cost of adapting and monitoring manufacturing operations to reduce environmental impact as a significant barrier. Additional challenges included difficulties in meeting environmental certification criteria and a lack of experience with environmental practices. Carrete et al. (2014) also found that low environmental awareness among SMEs was a principal inhibitor to adopting environmental actions. Furthermore, the limited resources available to SMEs, whether economic, human, informational, or experiential, pose critical challenges to managing environmental actions, even in countries with higher environmental awareness.

Studies confirm that many SME owners and managers have low environmental awareness and perceive their impact as negligible (Brammer et al., 2012). This perception is often recognized by the belief that environmental problems are global in nature and beyond the capacity of SMEs to address (Johannson, 1997).

Financial considerations play a crucial role in firms' decisions to engage in voluntary environmental actions. The decision to adopt VEPs for instance can be complex, as some programs involve significant costs that may not necessarily provide clear competitive advantages. Conversely, lower-cost VEPs are sometimes viewed as mere tools for greenwashing (Castka & Corbett, 2016). Therefore, SMEs must carefully evaluate the costs and benefits of VEP participation to ensure alignment with their financial goals and genuine environmental commitments.

A specific issue for SMEs is the frequent failure to recognize the economic benefits of environmental practices (Revell & Blackburn, 2007). McKeiver and Gadenne (2005) found that even when managers are environmentally aware, they often do not perceive the financial advantages of these activities. Consequently, positive environmental behavior may stem more from personal values and attitudes rather than a clear economic rationale.

In summary, the literature identifies several barriers to adopting voluntary environmental actions, including adoption costs, a lack of perceived economic benefits, low environmental awareness, financial

and technological constraints, limited resources (economic, human, informational, and experiential), lack of experience, and difficulties in meeting certification criteria. These barriers can be categorized into three main themes: economic constraints, resource constraints, and environmental awareness.

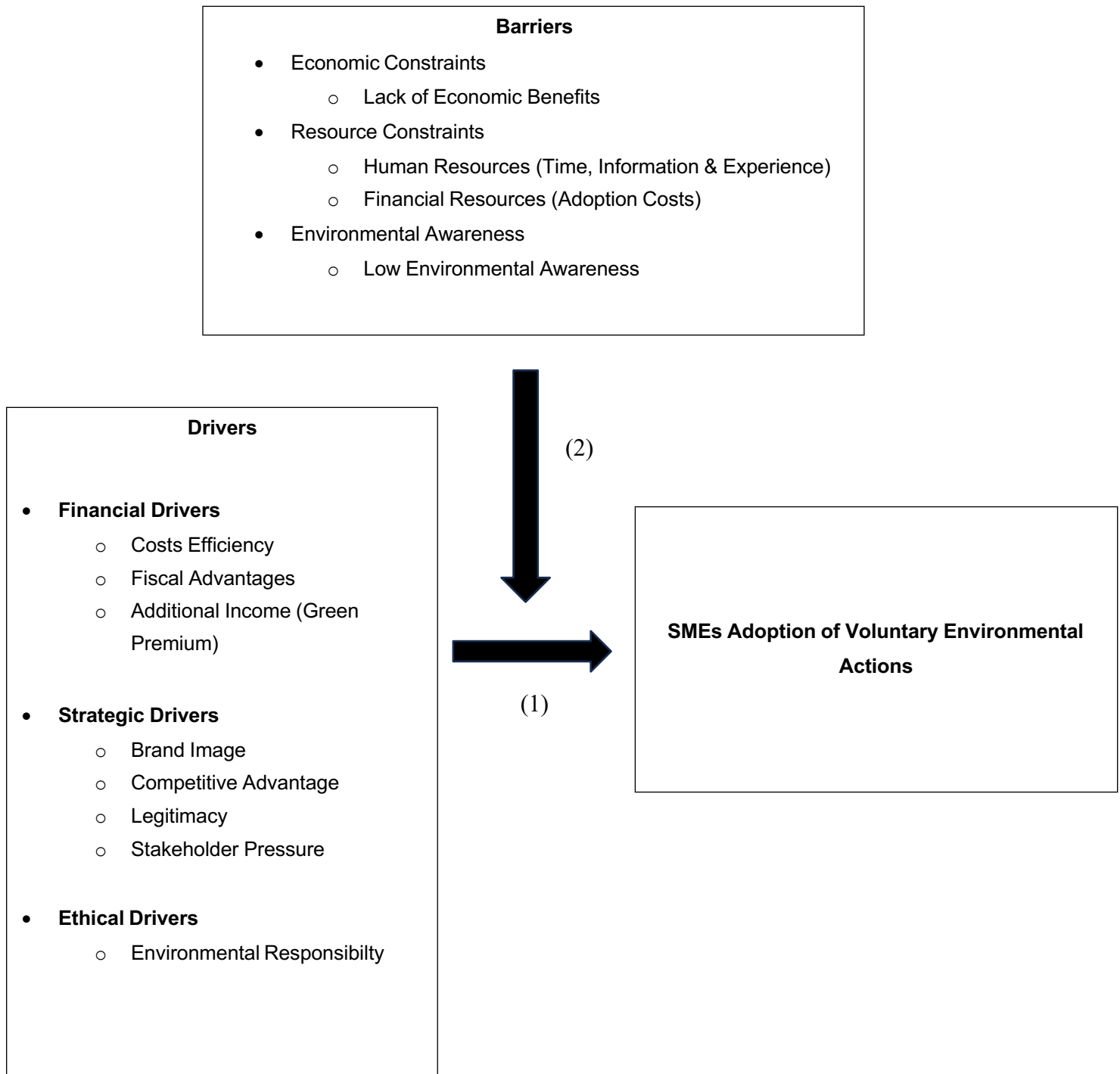
2.6 Conceptual Model

The conceptual model presented in Figure 1 is derived from the literature and serves as a framework to guide this research. It visualizes the expected relationships between the drivers and barriers influencing the adoption of voluntary environmental actions among SMEs.

The dependent variable, which is subject of investigation in this study, is SMEs adoption of voluntary environmental actions. The literature on corporate social responsibility, environmental practices and programs highlights various drivers and barriers that influence SMEs' willingness to adopt voluntary environmental actions. The drivers found were categorized into financial, strategic, and ethical motivations, while the barriers included economic, resource-related, and awareness-based challenges. Although the literature highlights these broad categories, it lacks specific insights into how particular drivers and barriers influence different types of adoption among SMEs. This gap will be addressed in the empirical analysis.

The actual decision to adopt voluntary environmental actions is influenced by a complex dynamic of factors. This study aims to measure the impact of these factors on the adoption process, considering the potential discrepancy between SMEs' intentions and their eventual behaviour. The independent variables in this model are the drivers of adoption, while the barriers act as mediating factors. Drivers have a positive influence on adoption (1), whereas barriers may hinder this effect (2). The empirical analysis will further explore which drivers and barriers are associated with symbolic versus substantive EMP or VEP adoption.

Figure 1: Conceptual Model



3. Methodology

3.1 Research Design

A qualitative approach, employing multiple semi-structured interviews, was selected for the empirical analysis for two key reasons: (1) to gain an in-depth understanding of drivers and barriers influencing the adoption of voluntary environmental actions among SMEs operating in Belgium, and (2) to address the complexity and variability of environmental actions across different sectors. A qualitative methodology is well-suited to capture the nuanced experiences, drivers, and barriers faced by SMEs, allowing for a detailed exploration of these phenomena. This approach facilitates the identification of patterns and themes that may not be evident through quantitative methods, providing a richer assessment of the nature of adoption.

3.2 Data Collection and Sampling

3.2.1 Data Collection

Data collection involved conducting 20 interviews with representatives from 15 diverse SMEs across Belgium (see Table 2). Each interview lasted between 45 and 90 minutes and covered the SMEs' environmental actions, motivations for participation, barriers encountered, and the nature of adoption. Fifteen of these interviews were conducted online via Teams, while the remaining five were conducted over the phone.

In-depth semi-structured interviews with predominantly open-ended questions were essential to effectively explore the range of environmental actions SMEs could be undertaking. Each interview was transcribed verbatim to ensure accurate capture of participants' responses. Following transcription, the data underwent rigorous coding and categorization to identify key themes and concepts. These were organized into meaningful categories, detailed in the coding grid (Table 4).

Secondary sources of information, web sites and public environmental reports describing the environmental activities of the SMEs, were analysed to supplement and verify information about the SMEs' environmental activities. Some secondary sources were accessed online, while others were provided directly by the SMEs. In some cases (five), two executives were interviewed. The use of diverse information sources allows researchers to triangulate information to increase the validity of results.

3.2.2 Data Sampling

The study was carried out among SMEs operating in Belgium. The interest in this particular region was influenced by my own location, which facilitated participant recruitment. I employed purposive sampling to select participants based on specific criteria relevant to my research objectives. Participants were required to hold management positions within their organizations, as such individuals are likely to possess a comprehensive perspective on company operations and strategic decision-making, thus offering valuable insights into their environmental actions (Aragón-Correa et al., 2008).

Initially, finding SMEs willing to participate in the study proved challenging, as many potential participants were either reluctant to share information or cited time constraints. To address this issue, I employed the snowball sampling technique. This approach involved requesting current participants to refer additional candidates who met the study criteria following each interview.

The SMEs were selected randomly without targeting specific sectors. Theoretical saturation was achieved within the subset of service-based SMEs when no new themes emerged. For future research, including more product-based SMEs is recommended, as they may face different challenges and motivations related to environmental actions.

A general overview of the SMEs involved in the study, including their roles, affiliations, sector, number of employees, and tenure, is provided in Table 2.

Table 2: Participant Characteristics

Role	Company	Sector	Employees	Time Active in the company
Front Office Manager	Multimedi BV	IT & Education	5	1 year or less
Teacher	Multimedi BV	IT & Education	5	6 years
Sales Coordinator	Herbert NV	Industrial	5	1 year or less
Chief Executive Officer	Herbert NV	Industrial	5	20 years
Sales Support Coordinator	Product of the Year	Marketing	12	1 year or less
Chief Operating Officer	Product of the Year	Marketing	12	11 years
General Manager	Onan Coffee	Food and Beverage	9	5 years
Creative CEO	Onan Coffee	Food and Beverage	9	19 years
Chief Operating Officer	SuperFourchette	Food and Beverage	6	5 years
Kitchen Manager	SuperFourchette	Food and Beverage	6	5 years
Chief Executive Officer	Pauwels Orthopedie	Healthcare Retail	4	25 years
Vice President Human Resources	Theo Technologies	Software industry	36	4 years
Chief Operating Officer & Founder	Just Russel	Pet Food and Supplies	50	4 years
Operational Director	Bold Architecten	Architecture	22	20 years

Chief Executive Officer	Calvet	Industrial	24	28 years
Area Manager	Elis Gourmet Burger	Food and Beverage	4	1 year or less
Chief Executive Officer & Founder	Officenter	Commercial Real Estate	52	14 years
Chief Executive Officer	Automation	Industrial	55	30 years
Chief Financial Officer	Brauzz	Sustainable Household Retail	6	4 years
Chief Executive Officer	Acsa Food	Retail	6	11 years

3.2.3 Interview Questions

Table 3: Interview Guide

Objective	Questions
1. Company and Participant Information	<ul style="list-style-type: none"> • What services or products are you offering at organisation X? • Can you introduce yourself and your role?
2. Drivers and Barriers for Voluntary Environmental Actions	<ul style="list-style-type: none"> • Which environmental actions do you carry out inside your business? <ul style="list-style-type: none"> ○ Why and How (in what ways) do you implement these actions? • Are you aware of voluntary environmental programs? • Are you participating in a certain environmental program, study or certificate? <ul style="list-style-type: none"> ○ Why and how are you (not) participating in such voluntary environmental programs? • What specific challenges do you encounter in participation to these programs or practices? <p><i>Depending on the initial responses, follow-up questions were asked regularly.</i></p>
3. Nature of adoption	<ul style="list-style-type: none"> • What impact do these programs have on your company or business practices, what has changed since their adoption? • Are the VEPs or environmental practices you are carrying out, such as... imposing penalties for incorrect implementation? • Have you noticed that the perception about sustainability within your company has changed since the implementation of certain practices or programs? • Is your organisation's environmental performance (and in relation to the voluntary environmental program) measured and evaluated? <ul style="list-style-type: none"> ○ (e.g. waste production; CO2 emissions; VEP performance; ...)
4. Future Aspirations and Conclusions	<ul style="list-style-type: none"> • How do you see the role of sustainability within your organisation and/or sector evolving in the future? • What kind of environmental improvements could you implement right now? • How do you think SMEs participation in voluntary environmental programs can be improved?

3.3 Data Analysis

In conducting semi-structured interviews, thematic analysis emerges as the primary methodological approach. This approach was chosen for its ability to delve deeply into participants' responses, revealing recurring themes and patterns that offer rich, detailed insights into their perspectives and experiences.

The analysis was structured around three key areas that align with the research questions: (1) Drivers for Adopting Voluntary Environmental Actions, (2) Barriers for Adopting Voluntary Environmental Actions, and (3) The Nature of Adoption. To support the findings, the analysis incorporated direct quotes and illustrative examples from the interviews and secondary data.

In addition to confirming themes identified in the literature, the analysis revealed new insights. A significant barrier identified was the lack of customer demand for environmental actions. Many SMEs reported that without substantial market pressure or incentives, there is minimal motivation to pursue more extensive environmental initiatives. Other drivers and barriers identified from the data included "innovation and knowledge," "lack of awareness around VEPs," and "lack of customer demand." The concept of "green premium" was categorized now separately, while "additional income" now encompasses subsidies or extra revenue from environmental actions. Furthermore, the nature of adoption was categorized into two main themes: Symbolic Adoption and Substantive Adoption, with three sub-dimensions: Transparency, Depth of Implementation, and Level of Impact.

This methodology underscores the holistic nature of this research. While environmental responsibility was occasionally mentioned as a secondary or tertiary motivator, it was not typically the primary driver. Instances where environmental actions were primarily motivated by the desire to improve the natural environment were coded as 'environmental responsibility.' Details of the coding process and other relevant codes can be found in Table 4, the coding grid.

Table 4: Coding Grid

Theme	Category	Subcategory	Code	
Nature of Adoption	Symbolic Adoption	Transparency	Selective Disclosure	
		Depth of Implementation	Surface-Level Adoption	
		Level of Impact	Low Impact	
	Substantive Adoption	Transparency	Full Transparency	
		Depth of Implementation	Comprehensive Integration	
Level of Impact		High Impact		
Adoption Barriers	Environmental Awareness	Environmental Awareness	Low Environmental Awareness	
		Lack of Awareness around VEPs	Lack of VEP Awareness	
		Resource Constraints	Human Resource Constraints (Time & Knowledge)	Human Resource Constraints
			Financial Constraints	Financial Constraints
	Economic Constraints	No Customer Demand or Interest	Lack of Customer Demand (Market Pressure)	
	No Clear Financial Benefits	No Financial Benefits		
Drivers for Voluntary Environmental Action	Financial Drivers	Fiscal Advantages	Fiscal Advantages	
		Cost Efficiency	Cost Efficiency	
		Green Premium	Green Premium	
		Additional Income (Subsidies, Extra Income)	Additional Income	
	Strategic Drivers	Brand Image & Marketing	Brand Image	
		Customer Demand	Customer Demand	
		Innovation & Knowledge	Innovation & Knowledge	
		Competitive Advantage	Competitive Advantage	
	Ethical Drivers	Environmental Responsibility	Environmental Responsibility	

3.4 Reliability and Validity

Qualitative data tends to be subjective, context-specific, and susceptible to confirmation bias (McSweeney, 2021). To ensure the reliability and validity of this study, several methodological strategies were carefully implemented.

First, data triangulation was employed to address the subjectivity of qualitative data. Information was collected from multiple sources, including in-depth interviews and secondary data such as company sustainability reports and industry publications. By cross-verifying findings across these different sources, the study enhanced the credibility and robustness of the results.

Next, the analysis and interpretation of data were conducted with careful attention to the specific contexts in which the data were collected. Consideration was given to industry norms, organizational culture, and regional influences to ensure that the conclusions drawn were contextually accurate and relevant. This approach helped maintain the validity of the findings and prevented overgeneralization beyond the appropriate context.

To mitigate the risk of confirmation bias, the research process was guided by reflexivity and transparency. Reflexivity involved continuous self-reflection on potential biases and preconceptions, ensuring they did not influence the analysis of the data. Transparency was maintained through detailed documentation and open sharing of my research methods, data collection processes, and analytical frameworks.

Ethical considerations were also central to the research process. Informed consent was obtained from all participants, with measures taken to ensure their confidentiality and anonymity when asked. Given the sensitive nature of some of the information shared, careful discretion was exercised in determining which data would be included in the final analysis. Participants were assured that their data would be treated with respect and care, upholding ethical integrity throughout the study.

Through the application of these strategies, the study was able to enhance the reliability and validity of the qualitative analysis, ensuring that the findings are credible, contextually appropriate, and ethically sound.

4 Results

The empirical analysis begins by examining the nature of adoption of the voluntary environmental actions, differentiating between symbolic and substantive adoption. Afterwards, it explores the drivers (financial, strategic, and ethical) and barriers (awareness, resource and economic constraints) impacting SMEs' engagement with environmental actions, providing a comprehensive understanding of adoption dynamics. To capture the full range of initiatives SMEs, undertake to address environmental concerns, I analysed both environmental management practices and voluntary environmental programs within the broader framework of "voluntary environmental actions."

This approach allows for a detailed examination of how SMEs engage with environmental issues, from basic compliance to proactive, voluntary efforts. By studying EMPs and VEPs together, we gain a clearer picture into the motivations driving SMEs' environmental strategies.

4.1 Adoption of Voluntary Environmental Actions

The environmental management practices observed among the sample included waste management, eco-friendly transportation initiatives, energy efficiency measures, carbon offset reduction practices, internal environmental policies, and eco-friendly sourcing and products. Among the 15 SMEs examined, only a minority were actively engaged in VEPs, with most abstaining from such initiatives. The VEPs adopted varied, from participation in research programs to obtaining certifications and adhering to environmental frameworks. Detailed information about the VEPs adopted by the participants can be found in the appendix.

Notably, there were no significant differences between product-based and service-based SMEs regarding the nature of adoption.

4.1.1 Symbolic versus Substantive Adoption

The data revealed two distinct types of adoption of voluntary environmental actions: symbolic and substantive adoption.

Symbolic adoption refers to when a company adopts environmental actions in a superficial manner, without a real intention to bring about significant changes. This approach is more about creating a green image or meeting external expectations, such as stakeholder pressure, rather than making substantial improvements in practice (Potoski & Prakash, 2013). Substantive adoption refers to integrating environmental measures into the company's operations and making real changes to improve environmental performance.

The nature of adoption was further distinguished into three sub-dimensions: Depth of Implementation (*Surface-Level Adoption vs Comprehensive Integration*) Transparency (*Selective Disclosure vs Full Transparency*) and Level of Impact (*Low vs High Impact*).

4.1.1.1 *Depth of Implementation (Surface-Level Adoption vs Comprehensive Integration)*

Most SMEs in the sample engaged in minimal environmental actions, primarily performing surface-level adoption. These actions included basic initiatives such as recycling office waste, promoting eco-friendly transportation, remote work and banning plastic use. These measures were seen as easy to implement and did not significantly address larger environmental issues. Consequently, most SMEs did not actively integrate environmental actions into their core operations and did not prioritize environmental concerns in their daily activities.

In contrast, a minority of SMEs demonstrated comprehensive integration of environmental actions, making organization-wide changes to address multiple aspects of their environmental impact. Notably, all SMEs that adopted VEPs integrated operational changes to improve environmental performance. Contrary to some literature suggesting VEPs might be adopted merely for symbolic reasons, none of the SMEs in this sample adopted VEPs solely for superficial purposes. The following quotes illustrate the operational changes resulting from VEP adoption:

"What changed the most (after adoption of the VEP) is, we try to get the clearest possible view of the entire supply chain. For example, regarding the protein source, we have seen that chicken is much more sustainable than lamb, so we no longer work with these suppliers. We are currently looking into assigning a certain weight to the protein source that appears in the meals through an algorithm, to estimate the CO2 impact per formula more accurately."
– COO, Just Russel

"We're now taking more initiative, with external consulting advice, to map our environmental impact out ourselves and then choose investments where we can make a real impact." – CFO, Brauzz

"All our buildings have become more energy efficient as a result (of adopting Crossroads 2 Sustainability), and therefore more sustainable. We have been able to reduce our CO2 emissions as a result." - CEO, Officenter

4.1.1.2 *Transparency of Monitoring and Reporting (Selective Disclosure vs Full Transparency)*

A key finding from the data is that none of the SMEs were required to monitor or report on their environmental impact or performance, even though some sourced procurement from outside Belgium. More than half of the SMEs reported that they had never disclosed any environmental-related information, despite having an online blog for communicating with customers and stakeholders. As a result, most SMEs had little awareness of their environmental impact.

Selective disclosure refers to reporting only minor environmental actions or projecting an image of environmental responsibility while avoiding full transparency about more significant and impactful environmental challenges. Concrete monitoring mechanisms to ensure adherence to environmental actions were generally found only in VEPs, as illustrated by the following quotes:

"With B Corps certification, if you don't quite meet the minimum score, you lose your certificate, but those are the only sanctions they can really impose as participation is voluntary." - COO, Just Russel

"You lose the certificate if you fail multiple times to improve your score." - CFO, Brauzz

"Yes, indeed, there are sanctions if you don't take any action after receiving the funds. They require reporting, so it's well-monitored." - CEO, Officenter

4.1.1.3 Level of Impact (Low vs High Impact)

To distinguish between the level of impact that voluntary environmental actions have on the environment, we may conclude that mainly the VEPs that were adopted led to a significant impact on environmental performance.

Low Impact refers to environmental actions that offer minimal measurable benefits. The majority of environmental management practices (EMPs) in the data fall into this category. For instance, while practices such as recycling office waste, promoting remote work, and reducing plastic use were observed, they generally provided limited measurable environmental benefits. Among the EMPs, carbon offset reduction measures, such as installing solar panels and adopting electric cars, were the only ones with discernible impacts.

High Impact actions, on the other hand, produce substantial environmental benefits, including significant reductions in carbon emissions, waste, or resource consumption. Mainly the VEPs adopted by SMEs led to such substantial changes. These programs resulted in operational adjustments that significantly improved environmental performance.

In summary, there is a notable distinction between the adoption of EMPs and VEPs. EMPs such as solar panels, electric cars, office waste recycling, and eco-friendly transportation (bike and carpooling) were predominantly surface-level actions with low impact. These practices were not systematically monitored or reported and generally represented symbolic efforts rather than substantive changes. In contrast, the VEPs adopted led to meaningful operational changes, demonstrated a high level of environmental impact, and were actively monitored and publicly reported. Consequently, EMPs can be viewed as largely symbolic, while VEPs represent substantive actions with significant environmental benefits.

4.2 Adoption Barriers

The barriers to adopt voluntary environmental actions found in the literature were also found in the data: environmental awareness, resource constraints and economic constraints.

4.2.1 Environmental Awareness

The most significant barrier to adopting environmental actions among SMEs was a low level of environmental awareness. Without a clear understanding of their environmental impact, the potential benefits of adopting environmental actions, and the specific requirements or advantages of various Voluntary Environmental Programs (VEPs), SMEs are less likely to prioritize or invest in meaningful environmental initiatives. Many SMEs that do not participate in VEPs are unaware of these programs and their objectives, which is the primary obstacle to their engagement.

Additionally, most SMEs view their environmental impact as minimal and prioritize other business objectives over environmental action. This perception is reinforced by their belief that SMEs in general are not significant polluters compared to larger corporations. As a result, environmental engagement often takes a lower priority, further reducing their motivation to participate in VEPs or additional EMPs.

4.2.2 Resource Constraints

Resource barriers identified included Human Resources (Time, Knowledge & Experience) and Financial Resources.

CEOs highlight the difficulty of allocating resources and managing change within their organizations to adopt new environmental actions. Limited capacity and competing priorities hinder SMEs' ability to effectively commit time and resources to environmental concerns. For instance, "Product of the Year," an SME that offers three types of certificates for companies, faces challenges in developing a new sustainability certification due to its small team and existing commitments. In addition, the quotes below show the lack of resources (experience, knowledge, time and financial) that inhibit SMEs from engaging in environmental actions:

"I think if there's a clear plan and initiative that outlines how and what needs to be done, we can look into environmental actions to be taken. And, of course, it must also be financially advantageous for us." - Ellis Gourmet Burger, Area Manager.

"I think, especially in the construction sector, that the entire chain, both the people and like us the intermediaries, as well as the suppliers, need to gradually be tuned in with the right approach and knowledge to get environmental improvement." - CEO, Calvet

"It's primarily a matter of time. It's not just about having the resources. It also involves managing change among people. We need to do things differently, and that requires flexibility from individuals." - CEO, Automation

The operational director of Bold Architecture acknowledged further on the challenges regarding the adoption of environmental practices in the construction sector. For instance, the BREEAM Certificate (Building Research Establishment Environmental Assessment Method) is a well-recognized sustainability standard, its adoption is limited due to perceived administrative burdens and the need for a BREEAM assessor. The industry tends to pursue it only when required by customers.

"Many see the BREEAM method as having excessive administrative burdens and requiring an additional assessor. Over the past 20 years, various regulations like Environmental Impact Assessments and Energy Performance of Buildings have aimed to enhance construction sustainability. To improve this, architects need clear, practical, and independent information." – Operational Director, Bold Architecture

The director further elaborated on the challenges of adopting environmental informed material choices:

"For instance, baked ceramic facade bricks, though durable, require significant energy for production. In contrast, materials like wooden planks or Rockpanel use less energy but face approval issues and shorter lifespans. Comparing materials is complex, as factors like building context, usage period, and structural needs must be balanced with environmental impact, fire certification, and acoustic properties."

In contrast however, the SMEs that adopted VEPs had the consensus that, while the process entails additional administrative work and costs, the benefits outweigh the challenges, as illustrated by the quotes below:

"These are lengthy processes, as you must get all suppliers on board. It's a costly process. It's a supply chain involving many players that need managing and depend on how much they want to share and invest their time. It was challenging to share data because you don't always have everything under your control, that's certainly a difficulty. But the cost of the certificate itself is reasonable and certainly not a barrier that would have stopped us." - CFO, Brauzz

"At our end, the main challenges lie in growing these products and securing funding for them, as there's also a significant time commitment required, but it remains beneficial to participate." - COO, Just Russel

4.2.3 Economic constraints

The main barrier for participation in voluntary environmental actions, as perceived by the SMEs themselves, was the need for clear financial outcomes. Although the literature suggested that environmental actions can offer indirect or direct financial advantages such as green premium, new and more loyal customers, quantifying these benefits can be challenging.

Most SMEs indicated that without customer demand or clear financial benefits to adopt voluntary environmental actions, they are unlikely to pursue them. Front Office Manager at Multimedi BV emphasizes that small enterprises tend to focus more on financial performance than environmental issues, given their acute financial pressures. Companies like Herbert NV and Calvet, both operating in the industrial machinery sector, noted a lack of incentives on both the supply and demand sides, which discourages them from pursuing greener alternatives. Similarly, Theo Technologies, Multimedi BV, and Pauwels Orthopedie reported minimal customer demand for eco-friendly alternatives, which has led to a lack of active pursuit of environmental improvements.

"The pressure to perform in other areas is greater than that from policy instruments regarding environmental issues. Economic pressure for growth and survival takes priority, in a small enterprise where you are close to the business owner and there are fewer layers between decision-makers and yourself. You are more aware of the company's financial health, so if there are financial incentives, then this could be interesting to participate in, only if we see that it becomes more important from the customer's perspective." - Front Office Manager, Multimedi BV

"The reason why I don't put a bio certificate on all my coffee, even though all my coffee meets the minimum requirement for being organic, is because I don't want to pay for that certification" – Creative CEO, Onan Coffee

"I think if, at a certain point, if it starts to resonate with customers, it could be interesting to participate. But okay, it's unfortunate that it always goes back to the economic aspect." – CEO, Calvet

"You have to understand, if our competitors don't do it, why should we be the frontrunners?" – CEO, Automation

This hesitation to invest time and resources without a clear return on investment highlights the economic constraints that SMEs face in participating in voluntary environmental actions. Even though SMEs like Calvet recognize the value of sustainability, they often prioritize economic considerations, indicating that environmental engagement may not be feasible without external incentives, such as a strong consumer demand.

4.3 Adoption Drivers

Financial and strategic drivers were the primary factors influencing SMEs' motivation to implement environmental actions (both for EMPs and VEPs). Ethical motivation was generally seen as a secondary driver. Due to resource constraints and other priorities typical for SMEs, such as financial growth and survival, they tended to engage in environmental actions, only when they could see a clear financial or strategic advantage.

4.3.1 Financial Drivers

Financial drivers encompass the financial factors that motivated SMEs to adopt environmental programs and practices. The main outcome found was that in this sample, financial incentives were the most significant motivators cited to adopt environmental actions. The financial sub-drivers that were found were fiscal advantages, cost reductions and potential financial gains like green premiums.

Carbon offset reduction practices (solar panels and electric cars) were frequently adopted for their financial advantages. For instance, participants from various firms, including Calvet, Herbert NV, Officenter, Acsa Food, and Automation, highlighted fiscal benefits as a key reason for choosing electric cars, rather than environmental concerns.

CEO Calvet: "Personally, for myself, I did consciously choose an electric car for environmental reasons, but let's say that other people within Calvet mostly drive electric cars because it's so fiscally attractive."

Sales Coordinator Herbert NV: "Yes, we have hybrid cars in the company, but to be honest, this is mainly for fiscal benefits rather than sustainability."

CEO Acsa Food: "Electric cars was indeed a fiscal choice, I am not really convinced that electric cars are automatically better for the environment."

CEO Automation: "Of course, electric cars also have a fiscal aspect. Our CFO found that important, so of course, this makes it easier to take that step."

CEO Officenter: "Yes, hybrids are a purely fiscal story. I also have a hybrid. Well, I drive 30 km electrically. I mean, that's nothing, right, so it's not about wanting to be more efficient. Of course, we do want to encourage electric cars to our customers by providing charging stations at every Officenter."

Furthermore, many SMEs have installed solar panels on their office roofs. Among these businesses, some chose solar panels primarily for their fiscal benefits and reduced long-term costs. Others, who are renting their office spaces and thus cannot choose their energy source, still recognize the

advantages of solar energy. Additionally, a number of SMEs cited both financial incentives and a commitment to environmental responsibility as key drivers for adopting solar panels. As the CEO of Pauwels Orthopedie noted:

"I had solar panels installed because they're seen as more environmentally friendly, but as a small business owner, you naturally want to pursue initiatives that also have a financial benefit, unfortunately. So, yes, the primary goal was to enhance long-term cost-efficiency in energy. But this doesn't mean that we disregard environmental concerns. We wouldn't adopt practices that are cheaper if they are harmful to the environment."

In some cases, SMEs found additional revenue opportunities through environmental actions. For example, Calvet extended the lifespan of its machines by refurbishing and reselling them, generating extra income while promoting sustainability. Machines that couldn't be repaired were donated to a scrap metal partner, although Calvet does not track their final disposition.

CEO Calvet: "If the machine is still in fairly good condition, yes, it will definitely be refurbished. We will repair it and potentially overhaul it. Then, we can reintroduce them to the market. Of course, we mainly do this because it gives additional returns. We don't track our entire supply chain, so if we can't repair machines and reintroduce them to the market, we hand them over to an external partner who collects scrap metal. What happens to the machine afterwards, we don't know."

Similarly, some companies recognized the potential of a "green premium" as a financial incentive for environmental actions. For instance, the CEO of Automation discussed their strategy of charging a green premium for more environmentally friendly S.A.F.E data centre containers. While these containers are more expensive to produce, they have reduced CO2 emissions due to the use of 80% circular metals.

The CEO remarked: "The green premium might seem assertive, but it prioritizes green initiatives. However, we must balance this to avoid compromising our interests. As an SME, it's crucial not to undermine ourselves in the pursuit of sustainability. While Europe strives to set an environmental example, regions like India, China, and America grapple with significant pollution challenges. Sometimes, our actions inadvertently compromise our own interests, and we certainly want to avoid that, don't we?"

Similarly, Just Russel's COO explained that their pursuit of B Corp and Eneco certificates was financially motivated, as customers responded positively to these certifications and were willing to pay a 10 to 15% premium for products associated with them:

"Customers see the value in certification, and the additional cost is justified. If we can offer a green alternative at a premium, we do so. The same logic applies to the Eneco certificate, allowing us to charge a premium for products with 100% green energy." - COO, Just Russel

Officenter's involvement in the Crossroads 2 Sustainability project was also driven by financial and strategic factors. This project focused on energy efficiency and renewable energy, offering access to European subsidies and innovative knowledge, while also promoting cost savings through energy-efficient measures. By using data-driven solutions, Officenter reduced operational costs and enhanced its environmental performance, advancing its sustainability goals.

"The Crossroads 2 Sustainability initiative, led by our European partners, especially in Eindhoven, provided us with technical expertise and access to subsidies. This involved installing sensors in meeting rooms and coworking spaces to monitor air quality, energy consumption, and heating. These systems help manage buildings more effectively, optimizing energy use and reducing costs, while also promoting sustainability." - CEO, Officenter

4.3.2 Strategic Drivers

The strategic drivers identified in the data include brand image, customer demand, and competitive advantage. Customer demand emerges as a significant motivator, with many SMEs responding to market pressures and evolving consumer preferences by integrating sustainability into their business practices.

For instance, the COO of Just Russel observed a growing preference among consumers for environmentally conscious products. This trend has prompted the company to explore measures to mitigate the environmental impact of pet ownership. *"We've noticed an increasing customer demand for brands that address the environmental impact of pet ownership," the COO explained. "While the current trend leans towards insect-based products, we remain committed to finding and offering more sustainable alternatives."* This connection between customer demand and environmental strategies is also evident in the adoption of voluntary environmental programs by companies like Bold Architecture and Brauzz.

Several SMEs view brand image and competitive advantage as key strategic factors in adopting voluntary environmental actions. Many companies stress the importance of aligning their operations with sustainability to enhance brand appeal, attract environmentally conscious consumers, and gain a competitive edge:

CFO Brauzz noted, "As a business offering sustainable cleaning products, we must also demonstrate a commitment to sustainability in areas beyond our core operations to stay true to our values. Our primary goal is to eliminate plastic packaging, so our entire company naturally revolves around sustainability, making it a standout feature."

The General Manager of Onan Coffee echoed this sentiment: "Direct Coffee Trade is our competitive advantage, so everything at our company must align with our core values of ethics, sustainability, and quality. All our environmental practices stem from our commitment to these principles."

Similarly, the COO of Just Russel emphasized, "For our brand, we make a concerted effort to prioritize pet well-being and preventive health, considering environmental factors throughout the lifecycle of pet ownership. We are actively evaluating our entire production chain to identify areas where CO2 emissions can be reduced. Sustainability is deeply embedded in our company culture and drives our ambitions."

The Kitchen Manager of Superfourchette added, "Our commitment to sustainable business practices is aligned with our mission and values. We aim to prove that sustainable entrepreneurship can indeed succeed. We emphasize these commitments in our marketing efforts, including our website and social media platforms, to showcase our use of sustainable and locally sourced products."

These findings reveal a clear relation between customer demand, brand image and the adoption of environmental actions. The absence of such customer demand results in a diminished incentive for SMEs to engage in environmental action as we've seen in the section of barriers. Conversely, when customers show a preference for environmentally conscious products and commitment to sustainability, SMEs are motivated to adjust their brand image and product offerings to align with these expectations.

4.3.3 Ethical Drivers

The ethical drivers identified from the data shed light on the efforts of SMEs towards environmental responsibility. As previously discussed, there were no voluntary environmental actions solely driven by environmental responsibility. Only EMPs like office waste recycling initiatives and eco-friendly transportation options were prominent among all 15 SMEs, reflecting a collective sense of environmental responsibility. However, as we saw in the section of the nature of their adoption, these are mainly to be regarded as symbolic actions due to their minimal impact.

Some SMEs however did state to engage in some environmental actions primarily due to a sense of environmental responsibility. For instance, Creative CEO Onan Coffee described efforts to create safe pathways for elephants passing through coffee plantations, demonstrating a proactive approach to wildlife conservation and coexistence:

Creative CEO Onan Coffee: "We observed that elephants were passing through our coffee plantations, so we constructed a pathway within the coffee plantation by planting orange trees along it. These allowed the elephants to traverse the plantation safely, in contrast to other plantations that install wired fences."

Similarly, the CFO of Brauzz highlighted the engagement in voluntary initiatives such as RIVER CLEAN. By integrating sustainability into their organizational culture and values, SMEs like Brauzz exemplify a commitment to environmental concerns and social responsibility:

CFO Brauzz: "We also strive to support voluntary environmental initiatives. For instance, we have participated in RIVER CLEAN with our team, cleaning the canals in Brussels and the rivers in Amsterdam using kayaks."

Furthermore, we have invested in renewable energy, such as supporting biogas installations in Switzerland last year, as part of our ambition to become carbon neutral as a company."

Officenter's CEO also emphasized their focus on reducing environmental impact by choosing to renovate existing buildings rather than embarking on new construction projects. This approach significantly lowers CO2 emissions by 40% compared to new construction while also minimizing the need for additional space, aligning with Officenter's commitment to sustainability as outlined in their 2023 Sustainable Impact Report.

4.4 The Impact of Drivers and Barriers on the Nature of Adoption

Analysing the drivers and barriers affecting SMEs' engagement in environmental actions reveals several key relationships and patterns. These insights have led to the development of new propositions, which are integrated into the revised conceptual model presented in Figure 2. The revised model retains the core propositions from the literature, emphasizing the central role of drivers (1) and barriers (2) in shaping the nature of voluntary environmental action adoption.

The model suggests that adoption barriers can be mitigated by strong environmental drivers. For instance, addressing resource constraints through financial incentives or improving environmental awareness could potentially facilitate adoption. The analysis distinguishes between substantive and symbolic adoption, with substantive adoption being the desired outcome. As we've seen in the data, all voluntary environmental actions based purely on ethical motivations were merely symbolic characterized by low impact and surface-level adoption. The following propositions have emerged and are integrated into the revised conceptual model:

Proposition (3): Voluntary environmental actions both financially and strategically driven led to actions with substantive adoption.

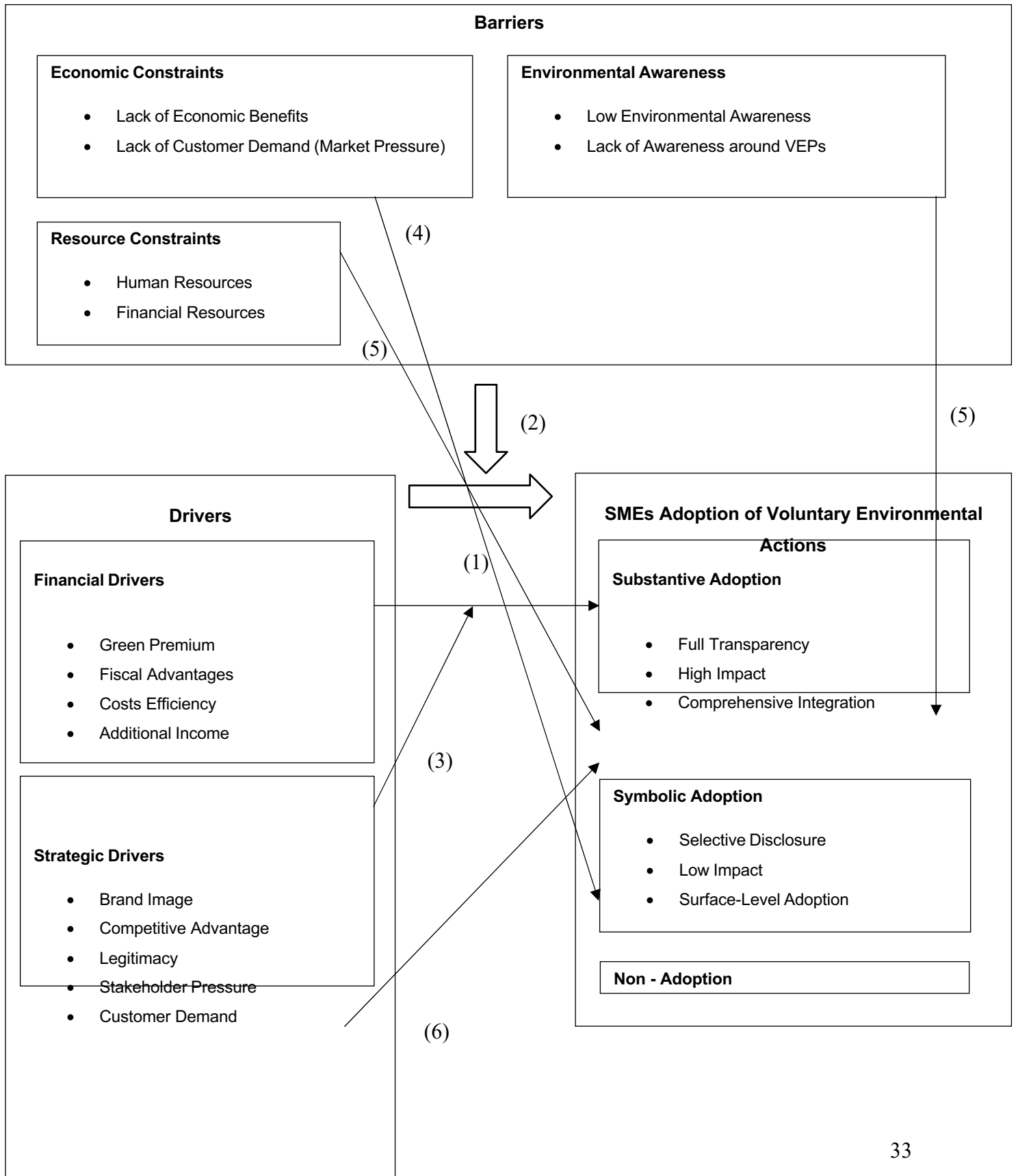
Proposition (4): Economic constraints were the primary barriers holding SMEs to adopt voluntary environmental actions.

Proposition (5): Low level of environmental awareness and resource constraints, contribute to surface-level adoption of voluntary environmental actions which tend to be minimal and symbolic.

Proposition (6): Ethical drivers alone are less likely to lead to substantive adoptions. While ethical considerations can influence environmental actions, SMEs are more likely to adopt substantively when ethical motivations are complemented by clear financial and strategic benefits.

4.5 Revised Conceptual Model

Figure 2: Revised Conceptual Model with empirical data



Ethical Drivers

- Environmental Responsibility

5 Discussion

In this study I explored the adoption of voluntary environmental actions among small and medium-sized enterprises, revealing key insights into how these businesses engage with environmental practices and programs. I identified two primary types of adoption among SMEs: symbolic and substantive adoption. Symbolic adoption is characterized by superficial measures without delivering significant environmental benefits. In contrast, substantive adoption involves a genuine integration of environmental actions into SMEs operations, leading to real improvements in environmental performance.

Several barriers to adoption were found, including economic constraints, low environmental awareness, and limited resources. These barriers often lead SMEs to adopt symbolic actions over substantive changes. Financial and strategic drivers, such as green premiums and brand image, are crucial in motivating SMEs to engage in substantive environmental actions. Ethical drivers tend to be less influential on their own, often resulting in symbolic rather than substantive adoption when not accompanied by clear financial or strategic benefits.

The empirical analysis reveals suggest that while financial and strategic drivers can help overcome some barriers, without significant financial or strategic incentives, SMEs are likely to settle for symbolic rather than substantive actions. The revised model introduces new insights into the relationship between adoption types and the factors that influence them. It proposes that substantive adoption is more probable when both financial and strategic motivations are present, whereas symbolic adoption often stems from economic constraints and low environmental awareness.

This research makes several notable contributions to the literature on SMEs' adoption of voluntary environmental actions. By differentiating between symbolic and substantive adoption, the data improves our understanding of how SMEs engage with environmental actions. The finding that financial and strategic drivers are more influential than ethical considerations in motivating substantive adoption refines existing knowledge. This aligns with previous research that highlights financial rewards and competitive advantage as significant motivators for SMEs to engage in environmental programs (Tashman et al., 2021; King et al., 2005).

The revised conceptual model incorporates empirical insights into how drivers and barriers interact to shape the nature of adoption. This model extends the theoretical framework presented by previous studies and offers a practical tool for understanding and facilitating SMEs' environmental engagement.

The findings support the conceptual framework that emphasizes the role of drivers and barriers in influencing VEA adoption. The distinction between symbolic and substantive adoption aligns with existing literature on the effectiveness and authenticity of environmental actions (Aragón-Correa et al., 2020; Potoski & Prakash, 2013). Financial and strategic drivers highlighted in our study are consistent with prior research identifying economic incentives and competitive advantages as significant

motivators (Tashman et al., 2021; King & Lenox, 2000). Conversely, barriers like economic constraints and low environmental awareness confirm previous findings on the challenges faced by SMEs (Zhou, 2009; Carrete et al., 2014).

While this study reaffirms the importance of financial and strategic drivers and the impact of barriers, it introduces a nuanced perspective by clearly differentiating between symbolic and substantive adoption. Unlike earlier studies that treated environmental actions as a binary choice, this research provides a more detailed view of how SMEs' motivations and constraints influence the depth and authenticity of their environmental efforts.

5.1 Limitations

Several limitations should be considered when interpreting the findings of my research. Firstly, research questions and data collection methods may be influenced by researcher's personal interests and biases. This could result in a skewed interpretation of the data and potentially limit the generalizability of the findings. Moreover, the data were collected from small and non-probable samples, which may not accurately represent the broader population of SMEs (Stutterheim & Ratcliffe, 2021). As such, the findings may not be applicable to all SMEs, and caution should be exercised when extrapolating the results to other contexts.

Additionally, the reliance on data collected from a single person within each organization may limit the validity of the results. This approach may not capture the full range of perspectives within the organization and could result in a distorted portrayal of the company's practices and behaviours. However, given the research focus on exploring the drivers motivating voluntary environmental initiatives within SMEs, the sampling strategy consistently targeted individuals occupying high management positions. This choice was made to ensure that the participants included were actively involved in the decision-making process regarding environmental strategies.

Despite these limitations, the findings of my research have significant implications for researchers examining issues of environmental actions within SMEs. It is important for researchers to recognize the diversity of SMEs and acknowledge that environmental actions may vary across different organizations.

5.2 Conclusion

In today's business landscape, companies should recognize that integrating environmental actions that benefit society is not just a matter of social responsibility but also a strategic advantage. For managers, it is essential to recognize that achieving long-term success and maintaining market relevance increasingly depend on adopting sustainable practices. These practices not only enhance a company's environmental and social impact but also bolster its long-term resilience and competitiveness.

To address the research question, **""How do the drivers and barriers faced by SMEs in adopting voluntary environmental actions influence the nature of their adoption?"** I analyzed the patterns between various motivations and challenges affecting the depth and authenticity of environmental actions within small and medium-sized enterprises.

The research findings reveal a notable discrepancy, while SMEs acknowledge global environmental challenges, many are not actively addressing them within their operations. The primary drivers for engaging in voluntary environmental actions are largely financial and strategic rather than environmental concerns. This finding aligns with the literature, which highlights the importance of cost reduction, green premiums and other potential financial benefits in motivating SMEs to adopt environmental actions. Strategic considerations, such as enhancing brand image and responding to consumer demand, are also pivotal in shaping SMEs' environmental strategies.

However, significant barriers hinder deeper environmental engagement. Key obstacles include low environmental awareness and the lack of clear economic benefits, which prevent SMEs from adopting more substantial environmental actions. This highlights the urgent need for targeted education and outreach initiatives to stimulate environmental initiatives within the SME sector.

My research further distinguishes two types of adoption, symbolic and substantive adoption. Substantive adoption, characterized by genuine integration of environmental actions into SME operations, is more likely when driven by both financial and strategic motivations. These drivers can help SMEs overcome barriers such as resource constraints and low environmental awareness. In contrast, symbolic adoption, characterized by minimal or superficial environmental actions, often result from these same barriers.

Overall, the study provides valuable insights into how SMEs' motivations and challenges influence their environmental actions. Financial and strategic incentives are crucial for promoting substantive adoption of environmental practices, whereas barriers related to environmental awareness and resource limitations often lead to symbolic adoption. Economic constraints, including unclear economic benefits and low customer demand, are major barriers to adopting voluntary environmental actions and may consequently lead to non-adoption. Addressing economic constraints and boosting environmental awareness are essential for deepening and enhancing the effectiveness of SMEs' environmental actions. These steps will help advance both their sustainability efforts and their business goals.

5.3 Practical Implications

The findings of this research carry practical implications for both scholars and practitioners interested in environmental actions within SMEs. Despite the limitations discussed, several key insights emerge, which can inform future research directions and practical interventions.

Firstly, the predominant barrier identified among SMEs in this study was the lack of environmental awareness. This presents an opportunity to engage SMEs in well-designed environmental programs by providing them with better guidance and education. Practical interventions could include targeted outreach initiatives aimed at raising awareness about the benefits of participating in voluntary environmental programs and practices. By effectively communicating the potential advantages, such as cost savings, enhanced brand reputation, and access to new markets, SMEs may be more inclined to engage in such practices.

Moreover, researchers and practitioners must recognize the diversity within the SME sector and understand that voluntary environmental actions may vary across different sectors. Future research should adopt a context-specific approach, examining the unique challenges and opportunities faced by SMEs in various sectors. For example, comparing the environmental challenges encountered by service-based versus product-based SMEs could provide valuable insights into how different types of SMEs approach and implement environmental actions.

Furthermore, there is a need for longitudinal studies to assess the long-term impact of voluntary environmental actions on SMEs. By tracking changes in environmental performance and business outcomes over time, researchers can provide valuable insights into the effectiveness of different interventions and strategies.

In conclusion, while this research advances our understanding of the motivations and challenges faced by SMEs in engaging with voluntary environmental actions, there remains much to explore. Future studies should address the identified limitations and build upon these findings to develop more effective strategies for promoting environmental stewardship among SMEs. By fostering a culture of sustainability within the SME sector, stakeholders can contribute to positive environmental outcomes and sustainable economic development.

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7. Appendix

Table 1 - Adopted Voluntary Environmental Programs among the participating SMEs

Voluntary Environmental Program	Objective	SMEs Adoption Drivers	Status of Participation
Eneco Certificate	The sustainability of energy consumption by using 100% green energy.	Financial Drivers <ul style="list-style-type: none"> • Green premium Strategic Drivers <ul style="list-style-type: none"> • Brand Image & Marketing • Competitive Advantage 	Active
B Corps Certificate	To attain certification, a minimum score of 80 must be attained, evaluating the social and environmental impacts.	Financial Drivers <ul style="list-style-type: none"> • Green premium Strategic Drivers <ul style="list-style-type: none"> • Brand Image & Marketing 	Planned
B Corps Certificate		Strategic Drivers <ul style="list-style-type: none"> • Brand Image & Marketing 	Planned
Eco Cart Certificate	Eco Cart offers carbon footprint transparency for products through automated emissions calculations using industry standards and supply chain data.	Strategic Drivers <ul style="list-style-type: none"> • Brand Image & Marketing 	Discontinued
BREEAM – Excellent	Building Research Establishment Environmental Assessment Method (BREEAM). An internationally recognized rating system for the sustainability of buildings.	Strategic Drivers <ul style="list-style-type: none"> • Customer Demand 	Active (when customer demands)
Crossroads 2 Sustainability	Collaborative efforts around energy efficiency and renewable energy that have a direct impact on CO2 reduction in buildings.	Financial Drivers <ul style="list-style-type: none"> • Subsidies • Costs Efficiency (Energy) Strategic Drivers <ul style="list-style-type: none"> • Innovation • Knowledge 	Active