

Exploration of small and medium entities' actions on sustainability practices and their implications for a greener economy

Implications
for a greener
economy

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Hammed Afolabi and Ronita Ram
University of Reading, Reading, UK
Khaled Hussainey
University of Portsmouth, Portsmouth, UK
Monomita Nandy
Brunel University London, London, UK, and
Suman Lodh
Kingston University, London, UK

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Abstract

Purpose – The authors explore the behaviour and perspectives of SMEs' owners towards a greener economy and its implications for net zero carbon emissions target.

Design/methodology/approach – The authors draw on the mirroring concept and 26 semi-structured interviews with SMEs' owners and managers to provide insights and explore the misalignment between SMEs' actions and perceptions and the technical architecture (and requirements) of achieving net zero carbon emissions in the UK.

Findings – The authors find that SMEs lack trust and are sceptical about the government's net zero emissions agenda. The authors also find that lack of understanding and perceived benefits, and supply chain complexities (end-to-end emissions) are the key factors hindering SMEs interests in engaging with better carbon emissions management and environmental management system (EMS). Moreover, pressure from external stakeholders, particularly banks and customers, is a strong driver to draw SMEs more effectively with sustainability and environmental impact disclosure.

Research limitations/implications – The sample is limited to 26 SMEs' owners operating in seven industries. Future research could explore the result in other industries. Further research could also investigate how the sustainability reports produced by SMEs are useful for different user groups' decision-making. This study reinforces the social constructionist approach to advance our understanding of SMEs' actions towards carbon emission management and EMS.

Practical implications – This study shows how government policies and SMEs' interests can be aligned to achieve the net zero carbon emissions target.

Originality/value – This is the first study to examine the perceptions and behaviour of SMEs towards the ongoing pursuit of a greener economy in the UK, including the key factors driving their actions and reasoning.

Keywords Carbon emissions management, Environmental management system, Mirroring concept, SME, Sustainability practice, Net zero carbon emissions, UK

Paper type Research paper



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1. Introduction

In the last two decades, the extent of Small and Medium Entities (SMEs) [1] responsible corporate citizenry has become a major concern globally, due to the impact of their activities on the environment and society (Corazza, 2018). For example, it is estimated that SMEs are accountable for 60–70% of industrial pollution within Europe (OECD, 2018). Particularly, in the UK, SMEs constitute 99% of the businesses, generating around 60% of commercial waste and causing over 43% of industrial pollution (see ONS, 2017, 2021). Hence, SMEs' responsible behaviour, especially regarding their environmental footprint, has become crucial factor in pursuing a greener economy and a more sustainable planet (Amaeshi *et al.*, 2016).

Recently, there has been a global movement and rapid accountability pressure from multi-stakeholders, including policymakers, especially in the UK, about the social and environmental management system (EMS) and sustainability practices among SMEs (Blundel *et al.*, 2013; Boakye *et al.*, 2021). In 2019, the UK's parliament remained the first to issue the requirement for the government to reduce the net emissions of greenhouse gases to 100% by 2050 (HM Government, 2019) [2]. Following this, the UK government has explicitly announced its commitment to achieving the target and specifically called for more SMEs to lead the charge to net zero (see HM Government, 2021a, b). This has been underpinned by the percentage of SMEs in the UK and the degree of emissions generating from their operations (ONS, 2021). This, however, raises concerns about the behaviour of SMEs towards the zero emissions agenda in the UK.

A significant number of studies have explored SMEs' sustainability practices, particularly focused on the barriers and their environmental management tools in developed countries (e.g. Girella *et al.*, 2019; Long *et al.*, 2018; Higgins *et al.*, 2015) and developing countries (e.g. Groot *et al.*, 2019; Gupta, 2017; Ghazila *et al.*, 2015; Kehbila *et al.*, 2009). However, only a few studies have documented the engagement of environmental practices within SMEs (e.g. Eweje, 2020; Hampton, 2019; Hendrichs and Busch, 2012), especially in the UK (e.g. Boakye *et al.*, 2021; Conway, 2015; William and Schaefer, 2013), including eco-innovation strategies for sustainable transition within SMEs (see Kiefer *et al.*, 2018; Radicic and Alkaraan, 2022).

While there is evidence of substantial research on SMEs' sustainability practices, the existing knowledge is less clear about the extent SME's behaviour and sustainability performance can drive and correspond to the requirement of achieving a greener economy. Alkaraan (2021, 2022a) have raised debates about the separation of governance aspects and internal behaviour in evaluating organisations' contributions to social and environmental management. Consequently, several studies have attempted to demonstrate the link between organisations internal behaviour and governance and their actionable strategy on narrative reporting and sustainability performance (e.g. Alkaraan *et al.*, 2022; Hussainey *et al.*, 2022). However, this perspective remains under-explored within the spectrum of SMEs. Particularly, research on the actions of SMEs towards pursuing a greener economy via the lens of their internal behaviour and perception and how this drives their actionable strategy on sustainability performance, particularly in the UK have not yet been considered. Importantly, this above-mentioned problem also remains a part of the main debate among the policymakers and world leaders during the COP26 [3] (OECD, 2021). Thus, Chatzistamoulou and Tyllianakis (2022) raise a call and provide evidence for the need of urgent empirical study to explore SMEs performance towards a greener economy and sustainable planet. Our study responds to this concern and explores the behaviour and perspectives of SMEs towards a greener economy and its implications for the net zero (carbon emissions) target in the UK. Consequently, we ask the following question- *Can the SMEs behaviour and perceptions towards sustainability practices translate into tangible outcomes of achieving net zero carbon emissions in the UK?*

The UK presents a distinctive context for this research, because of its legislative agenda to achieve the reduction of net emissions of greenhouse gasses to 100% by 2050, amid the increased number of SMEs in this domain generating a high level of emissions (see ONS, 2021). We conduct twenty-six semi-structured interviews with the owners and managers of

SMEs operating in the UK, particularly in construction, health and safety, foods and beverages and tourism. This is based on prior studies that show that these sectors are the largest contributors to the total carbon footprint (e.g. air pollution and emission of greenhouse gases) not only in the UK but other countries such as Japan, US, China, Australia and Canada (see, [Hsieh and Kung, 2013](#); [Eckelman and Sherman, 2018](#)). Moreover, the concept of mirroring is applied to explore the behaviour of SMEs towards sustainability practices may translate into the tangible outcome of achieving the net zero carbon emissions target. The concept of mirroring is used as it provides a lens to explore organisational management techniques and their innovative means of managing constraints and implementing strategic decisions to achieve expected outcomes ([Mendy, 2020](#)).

Drawing on the mirroring concept, our study reveals that there is a misalignment between SMEs' management system, culture, knowledge (and reasoning) and their actions towards achieving net zero carbon emissions. Particularly, the findings show there are complexities in the supply chain of SMEs (end-to-end emission) measurement, which contributes significantly to the constraints they face in improving their actions towards the pursuit of a sustainable planet. Further, the analysis reveals possible greenwashing in the carbon emission management process among SMEs, due to the lack of effective supervision and proper audit of their application of EMS. Also, the findings show that SMEs' action on carbon emissions management and reduction are ignored in the government policies. Thus, there is a need for support and effective steering mechanisms to decarbonise SMEs' supply chains and monitor the processes involved. Moreover, our results reveal that pressure from external stakeholders, such as banks and customers, is a strong mechanism to enhance SMEs interest towards EMS and carbon emission management. Finally, our findings reveal that SMEs lack trust and are sceptical about the government's net zero emissions agenda as they believe it could be a political strategy for the government to pursue their personal interests.

This study entails four main contributions. First, to the best of our knowledge, this is the first study to examine the perceptions and behaviour of SMEs towards the ongoing pursuit of a greener economy in the UK, including the key factors driving their actions and reasoning. While prior studies have examined SMEs involvement and their perceptions of benefits for engaging with environmental management practices ([Brammer *et al.*, 2012](#); [Williams and Schaefer, 2013](#); [Luederitz *et al.*, 2021](#)), we shift the research lens towards studying SMEs internal behaviour in the pursuit of a sustainable planet and the factors driving their reasoning and actionable strategy toward a greener economy. This is a vital contribution to understand SMEs' actions towards the net zero carbon emission agenda and sustainable development, and how their actions can translate into tangible outcomes.

Second, we contribute to the literature on factors driving SMEs engagement with EMS and carbon emission management ([Ferenhof *et al.*, 2014](#); [Johnstone, 2020](#)) by adding controversies among SMEs on the government agenda and lack of government supervision to the list. This provides a deeper understanding of how controversies among SMEs on government agenda can influence SME owners' behaviour and actionable strategy in carbon emission management. Third, we add to the literature on SMEs' supply chain management (such as [Kumar and Singh, 2017](#)) by showing that decarbonisation of SMEs' supply chain and consistent monitoring of the processes involved are relevant in driving SMEs behaviour towards carbon emission measurement and disclosure. Finally, our results reveal different mechanisms that the policymakers can adopt to enhance SMEs' interest in a greener economy and carbon emission management. Therefore, this study provides practical implications by demonstrating how government policies and SMEs' interests can be aligned to achieve the net zero carbon emission targets.

The remainder of this paper is organised as follows: [Section 2](#) discusses the UK climate change target and government policies and reviews the literature on SMEs sustainability practices, carbon performance and EMS. [Section 3](#) discusses the theoretical lens of the study. [Section 4](#) describes the methodology, and [Section 5](#) presents the findings. [Section 6](#) provides the discussion and conclusion.

2. Literature review

2.1 *The UK's climate change target and government policies*

Climate change is considered a focal environmental issue facing the globe today and arguably remains the key focus of international policy, especially in Europe and the UK (UN, 2022). In 2019, the UK government amended the climate change Act 2008 to become the first major economy globally to pass laws to bring all greenhouse gas emissions to net zero by 2050 (HM Government, 2019). Further, following the recommendations from the independent climate change committee [4], the government set six carbon budgets, with the sixth budget covering a short-term target of reducing emissions by 78% by 2035 compared to 1990 levels (HM Government, 2021a,b). Thus, based on the Climate Change Act 2008 (2050 target amendment) Order 2019, the UK climate action change broadly includes measures to promote cleaner alternatives in energy supply, to cut carbon emissions and drive corporate reporting of carbon emissions and support energy efficiency and climate action overseas (HM Government, 2022).

Following the above, in April 2022, the UK government mandated climate change reporting for all large businesses using the guidelines from the Task Force on Climate-related Financial Disclosures (TCFD). The underlying aim of this mandate is to increase the quantity and quality of climate-related reporting among the largest UK companies and to help them understand the financial impact of their exposure to climate change and encourage their shift towards a greener economy (HM Treasury, 2022). To ensure this, the Financial Reporting Council is now responsible for compliance with the rules and ensuring alignment between businesses' climate change reporting and the TCFD recommendations and frameworks, particularly in the key areas (governance, strategy, risk management and metrics). This is to ensure that there is uniformity and accountability climate change reporting among businesses. With this, more than 1,300 UK's largest traded companies, banks and insurers, including private entities with over 500 employees and £500 million annual turnover, are expected to disclose their climate-related financial information, such as climate-related risks and opportunities (HM Treasury, 2022). Moreover, other policy initiatives, such as the fuel duty tax (for fuel burnt by UK car drivers), climate change levy (to be paid by polluters in the business sector on every unit of energy consumed) and emission trading scheme, energy company obligation and contract for difference have also been introduced by the government to drive UK businesses' action towards a greener economy.

However, while the initiatives above indicate the UK government unwavering commitment toward the net zero emissions target and ambition for businesses to embrace sustainability, the regulatory curve and rules tend to focus predominantly on larger businesses. Importantly, despite the available certainty about the carbon emissions targets, it can be argued that the carbon policies pertinent to SMEs are largely normative. Although there is an indication that mandatory climate-related financial reporting may soon include SMEs (see, HM Government, 2021b), however, the current initiatives for SMEs are based on voluntary interventions and appeal from the government for SMEs to engage with different actions in fighting against climate change and reducing carbon emissions. See Table 1 for the list of actions demanded from SMEs.

There is a recent emergence of the global initiative, named SME Climate Hub [5], founded with the aim of mainstream climate action in the SMEs community and enabling SMEs to build resilient businesses for the future. These include the provision of a library of external tools and practical resources to support SMEs on their net zero journey (SME Climate Hub, 2022). Based on this, the UK government has partnered with respected climate groups and business owners for SMEs in the UK to join the climate Hub and engage with different actions to reduce their carbon footprint, as provided in Table 1.

Nevertheless, following the prominence of climate change and the direction of the UK government policy amid the significant role SMEs need to play based on their level of

environmental footprint, exploring SMEs behaviour and perspectives in this context remains a suitable issue of focus, on which this research is based.

2.2 SMEs perception of sustainability practices and carbon performance

Sustainability has become a common trend globally, particularly among policymakers and businesses, to ensure a balance between economic growth, social well-being and environmental care (Gray, 2010). In other words, it includes fulfilling the needs of current generations without compromising the needs of future generations (Ukaga *et al.*, 2011). Therefore, sustainability has gradually emerged as a conscious practice among businesses to ensure that their operations and activities are tailored towards protecting people, the planet and the environment (Stubbs and Higgins, 2018).

Following the above, SMEs predominantly encompass an informal structure often managed by their owners. Thus, personal attitudes and choices of the owners can tremendously affect the ethical behaviour and sustainability performance among SMEs (Moore and Manring, 2009). Thus, SMEs’ owners have greater autonomy in the environmental strategic direction their business will take and the extent of responsibility it can assume. This, therefore, signals the influence of SME owners’ attitudes and perspectives toward the strategy and extent of SMEs engagement with carbon emissions management and sustainability practices. Nonetheless, there is a debate in the literature on the actions and perspectives of SME’ owners toward carbon emissions management and appropriate strategy to engage with sustainability practices (Hendrich and Busch, 2012).

Prior studies have demonstrated environmental management system (hereafter EMS) as a common and significant tool for achieving better sustainability performance and improving carbon emission management (e.g. Johnstone, 2020; Qian *et al.*, 2018). By definition, EMS is a system developed within an organisation (internally) or created externally, such as ISO14001, which encompasses elements of planning, policy-making, strategy implementation and innovative means of controlling waste and other inefficient processes (ISO, 2004). Drawing from prior studies, EMS includes seven aspects: “(1) corporate environmental policy and planning sets, (2) resource availability, (3) environmental management training, (4) planning, documentation, measurement, monitoring, and evaluation of implementation goals for environmental responsibility, (5) certification and compliance with ISO standards, (6) failure analysis, course corrections and improvements to environmental policy, and (7) minimizing environmental impact and improving environmental performance” (see, Ferenhof *et al.*, 2014, p. 45). Following this, there are various benefits ensuing from implementing and adopting EMS. For example, Anton *et al.* (2004) show that adopters of EMS tend to have an increase reduction in solid waste, air emission and energy use. Likewise, in a study of SMEs in the

S/N Key actions

- | | |
|---|---|
| 1 | To measure and analyse their greenhouse gas emissions |
| 2 | To reduce their energy consumptions |
| 3 | To reduce waste and fighting obsolescence |
| 4 | To minimise the use of unnecessary single-use plastics |
| 5 | To use recyclable materials |
| 6 | To reduce the amount of packaging use |
| 7 | To invest in green energy and green office equipment |
| 8 | To choose greener infrastructures and equipment, and promote environmentally friendly ways of working |

Source(s): HM Government (2021b), UK SME Climate Hub (2022)

Table 1.
Key actions
demanding from SMEs
in fighting carbon
footprint and
contributing towards
the pursuit of a greener
economy

wineries industry across the US, [Cordano et al. \(2010\)](#) find that voluntarily implementation of EMS increases the achievement of better recycling practices and energy conservation amongst SMEs.

However, despite these benefits, there is contradictory evidence which signals a lack of willingness among SMEs owners to adopt EMS. For example, [Morsing and Perrini \(2009\)](#) note that many SMEs' owners consider environmental matters, particularly carbon emission management to be a global issue, which is beyond their control to resolve. This perception is consistent with the findings of other studies that report the responses of many SME owners that characterise EMS as business-oriented and not environmentally oriented ([Collins et al., 2007](#)). This is due to their beliefs that they have an insignificant impact on the environment ([Gadenne et al., 2009](#)). In particular, in comparison to large companies, SMEs often fail to realise the economic benefits and the publicity of engaging in various environmental activities ([Revell and Blackburn, 2007](#)). In agreement, [Brammer et al. \(2012\)](#) investigate the perceptions of EMS practice amongst 102 SME across five sectors in the UK and found that SMEs' owners perceive fewer benefits. This, however, suggests that the failure to see the economic benefits of environmental activities amongst SMEs' owners hinders their willingness to engage in such activities and disclose their impact on ESG accountably ([McKeiver and Gadenne, 2005](#)).

Nevertheless, aside from the economic arguments, other studies confirm external pressure from local communities, customers and environmental interest groups ([Vives, 2006](#)), including compliance with legislation ([Kehbila et al., 2009](#)) and owners' perception and values as significant drivers towards a better sustainability performance amongst SMEs ([Williams et al., 2006](#)). However, [Williams and Schaefer \(2013\)](#) examine SMEs owners' motivation towards climate change issues in East of England and find out that the owners' personal knowledge and professional values are the most essential in their engagement with climate change as the most significant environmental issue and not necessarily the regulation. [Collins et al. \(2007\)](#) argue that owners-managers' personal values and attitudes amidst the minimum voluntary regulations could drive a better sustainability performance amongst SMEs. On this note, a compelling question that remains whether the owners' awareness and positive attitude and reaction to external pressure (compliance to minimum disclosure requirement) would guarantee the disclosure of information useful for stakeholders' decision amongst SME?

Evidence from SMEs in the manufacturing sector in New Zealand suggests that owners' positive attitude and awareness of environmental activities do not necessarily translate into a better engagement with quality environmental practices, especially in waste management ([Cassells and Lewis, 2011](#)). This evidence is consistent with the findings of a recent study that analyses the sustainability reports of SMEs operating in the European Financial sector prepared following the GRI standards ([Ortiz-Martinez and Marin-Hernandez, 2020](#)). They find that the SMEs sustainability report narratives are weak and not extensive, thus, there is the problem of a lack of valuable content in SMEs sustainability reporting. Therefore, this questions the impact of a minimum non-financial disclosure requirement for SMEs in addressing the important needs of their stakeholders. Thus, what is less evident, however, remains a significant concern in this context is whether SMEs' owners are aware of the significant environmental activities and ESG impact disclosure that matters to their main stakeholders. This brings us to the impact of the external pressure as the main key that could drive SMEs engagement with better sustainability practices and carbon emissions management.

2.3 External pressures for SMEs engagement with better sustainability practices and carbon emissions management

Research shows that external pressure from communities, customers and NGOs positively impacts the adoption of environmental management and disclosure among SMEs ([Lee, 2009](#)).

Expanding this, [Testa *et al.* \(2016\)](#) note that large companies frequently transmit external pressure from regulators, communities and customers down the value chain, thus pushing SMEs toward better sustainability practices. In agreement, [Darnall *et al.* \(2010\)](#) examine the influence of stakeholders' pressure on environmental management practices amongst SMEs and find that SMEs are more responsive to regulatory and value chain pressure in adopting proactive environmental practices. In the same vein, [Darnall *et al.* \(2008\)](#) argue that excessive pressure from stakeholders is necessary for better environmental management practices amongst SMEs, because SMEs fail to respond to these pressures very often, resulting in their exclusion from large companies' supply chain.

However, with the limited resources characterised by SMEs ([Mangla *et al.*, 2017](#)), how SMEs would adequately respond to external pressure and improve their sustainability practices remains an important question in this sense. Thus, in a study of SMEs in the fashion industry in Italy, [Testa *et al.* \(2017\)](#) show that collaborative approaches would help SMEs build stronger, sustainable strategies and meet the needs of their major stakeholders. Similarly, [Alkaraan \(2022b\)](#) demonstrates that organisations can sustain long-term legitimacy, credibility and success by creating shared values between society and shareholders. This evidence, therefore, mirrors the studies regarding the relevance of networking among SMEs' key stakeholders, regulators and community members in ensuring a sustainable practice of environmental management among SMEs (e.g. [Lozano, 2015](#); [Zanghelini *et al.*, 2016](#)). Additionally, [Fassin \(2008\)](#) demonstrates that intermediary institutions and officials frequently neglect SMEs' ideas and opinions when consulting organisations to develop environmental management policies and assume that large companies' policies can be transferred down to SMEs. This, however, often results in sustainability policies that are complicated and bureaucratic and impractical for SMEs to implement or enhance their disclosure or measurement of their ESG impacts ([Lozano, 2015](#)).

Consequently, the regulation is rather perceived as environmental threat and burdensome instead of opportunities amongst SMEs, as it appears to tremble SMEs' needs and the significance of their stakeholders ([Vives, 2006](#)). This therefore points to an obvious conclusion on the lack of interest in environmental disclosure amongst SMEs ([Williams *et al.*, 2006](#)) and raises a significant debate on whether the minimum voluntary regulation or mandatory measures would suffice the integration of transparent and accountable social and environmental disclosure amongst SMEs annual reporting ([Collins *et al.*, 2007](#)).

Following a comprehensive literature review, we argue that there are diverse empirical puzzles that need to be unravelled by future research. First, there is limited knowledge of SMEs owners' construction of sustainability report as an essential business report to be issued to stakeholders timely and accountably. Thus, the external pressure that yields SMEs adoption of specific sustainability practice and categories of stakeholders they are motivated to respond to remains largely unknown. Second, there is a lack of research looking into SMEs EMS settings and their approach to identifying key sustainability information that significantly matters. Third, very little research has been conducted considering the actions of SMEs in reducing their carbon emission, particularly their innovative means of constructing EMS since the UK government currently favours voluntary approach to environmental engagement in SMEs. Finally, little is known about the diffusion of the importance of EMS in SMEs setting, hence, the training and specific support from the UK government to motivate and guide SMEs towards transiting to net zero carbon emissions need to be explored.

Therefore, this research looks specifically at the behaviour of SMEs' owners (and managers) in engaging with environmental management to lower their carbon emissions, focusing on the current state of their sustainability practices and actions taken towards transiting to net zero carbon emissions. It also compares the motivations and perceptions of SMEs' owners and managers towards the pursuit of a greener economy with the perceptions of the UK government and advice and framework provided by international organisations.

3. Theoretical framework

In prior studies, the communication of the impact the activities of businesses have on the environment, including their core motivations have been explored through a diverse theoretical lens (stakeholder theory (Deegan, 2002; Gaia and Jones, 2017), legitimacy theory (Boiral, 2016) and institutional theory (DiMaggio and Powell, 1983)).

However, while these theories help us to understand the motivations and factors driving business towards sustainability practices, our knowledge on how people and institution opt to shape their system and manage organisations obstacles that collide with their specific objectives and its impact on their expected outcome is limited (Mendy, 2020). This study, therefore, applies the concept of mirroring to examine the actions of SMEs toward sustainability practices, including their perspectives on the ongoing pursuit of a greener economy. The mirroring concept provides the lens to explore how the conditions of SMEs' sustainability practices can be improved and how government's policies and strategy can be better structured and presented to engage SMEs more in the transition to net zero carbon emissions in the UK.

Drawing from Colfer and Baldwin's (2016) study on the unified picture of mirroring, the concept emerges from two key distinctive sources, which include the studies on innovation, product design and product as complex systems (e.g. Ulrich, 1995) and studies on organisation as complex systems and organisations design (Weick, 1976). Expanding this, organisation is conceived as a complex system with diverse components that require a set of tasks and decisions to maintain the system (Baldwin and Clark, 2000). At the same time, "innovation" is conceptualised as the process of identifying problems and acquiring new knowledge to solve them (Nonaka, 1994), and "product design" is interpreted to require adequate coordination of wide range of disciplines, embody in a complex processes and technical systems (Colfer and Baldwin, 2016). Hence, due to the diverse challenges involved in coordinating complex and technical systems, various scholars recommend that organisation's formal setting should/will "mirror" the underlying design and agenda of the technical system (e.g. Chesbrough and Teece, 1996).

The above view, therefore, reinforces the assumption that organisational ties, such as culture, communication, knowledge distribution and employment relations should correspond to the technical dependencies in the work being performed to achieve the desired outcome (Baldwin and Clark, 2000). Thus, the mirroring concept opines that within a complex system; organisation management system and technical architecture of the system will "mirror" one another, so that the network structure of one will correspond to the structure of the other (Colfer and Baldwin, 2016).

The concept of "mirroring" is the approach where organisations' systems, management, communication practices and decision-making are shaped by their products and expected outcomes (MacCormack *et al.*, 2012). The argument that remains in this context is that organisation's product and outcome "mirror" the shape and structure of the organisation's management system, problem-solving routine, governance structures and communication pattern in which they are developed (MacCormack *et al.*, 2012). Therefore, mirroring is considered a management technique, tool and innovative means of coupling organisations and products to implement strategic change and achieve expected outcomes (Mendy, 2020).

Mirroring concept has been employed in different studies to investigate different constraints organisations face and how they manage them whilst engaging in innovation (e.g. Elia *et al.*, 2017); and the technical challenges and cultural limitation SMEs owners encounter in a service improvement and new product launches (Mendy, 2020). However, whilst there is evidence of mirroring having efficient and effective results in multinational enterprises (see, Elia *et al.*, 2017), there are findings from other studies that demonstrate the model can explain various complexities surrounding organisations' behaviour towards innovation and success of their expected outcome. These include transformational leadership and HRM practice

standardisation (Top *et al.*, 2015), macroeconomic constraints and staff competence, product performance and management constraints (Liu and Vrontis, 2017). Mendy (2020) argues that how an organisation examines its systems, tasks, people and performance, including its chain of authority is significant in maximising best outcomes in the context of innovation and product design.

However, the application of mirroring on organisation's sustainability practices, particularly within the context of SMEs remains under-explored. Thus, the motivations underpinning the application of the mirroring concept in this study are threefold. First, the application of the mirroring concept is helpful to understand the underlying strategies of the organisation in addressing the challenges in a complex process. This study examines the change in behaviours of SMEs regarding sustainability practices in the existence of different challenges in the process. Second, when any organisation faces challenges, it often results in innovation to overcome obstacles (Mendy, 2020). Mirroring concept explains how various components of an organisation can mirror each other to achieve an innovative outcome. Based on the literature review in Section 2, similar challenges are observed in SMEs, which supports the premise of this study of building the theoretical framework in line with mirroring. Finally, the construct of sustainability practices among SMEs remains vague and contested with diver problems that still need to be resolved (Testa *et al.*, 2017).

Moreover, as highlighted in Section 2.1, the current initiatives for SMEs in the UK are predominantly voluntary. They remain an appeal from the government for them to engage with different actions (see Table 1). Further, prior studies have demonstrated seven key aspects of EMS that should be followed by businesses (Ferenhof *et al.*, 2014, p. 45) and international organisations, such as the United Nations have developed different initiatives, particularly the SME Climate Hub to support SMEs in their journey toward net zero carbon emissions. Therefore, with the conception of mirroring, the premise of this study remains that the extent in which organisational ties, such as attitude, culture, knowledge distribution and management system correspond to the technical architecture and requirement of sustainability practices and greener economy will have significant impact on the achievement of the UK net zero carbon emissions target. This, however, provides the basis for this study to identify any misalignment between the government's perception and policy and SMEs' behaviour and interest in the transition to net zero carbon emissions in the UK.

4. Research methods

This study employs a social-constructionist and qualitative approach because of their ability to provide quality accounts and insights about the phenomenon studied (Bryman and Bell, 2015). Importantly, with the growing enthusiasm from the UK government and policy makers to achieve the net zero carbon emissions target, particularly for more SMEs to engage more in this context (see, HM Government, 2021a,b), it is imperative to understand SMEs' sustainability practices, and their attitudes and perspectives towards a greener economy and more sustainable planet. This is to help make more sense of better ways SMEs sustainability practices can be improved, and how legislatives' policies can be more aligned with SMEs' interest in achieving the net zero carbon emissions target.

4.1 Interviews

This study uses interviews to collect the required data. Twenty-six semi-structured interviews with owners and managers of small businesses in the UK were carried out between August 2021 and May 2022.

The interview questions are derived from the key arguments developed from the prior studies and the concept of mirroring, which underpins the premise of this study.

The interview guide contained 30 questions, with a mixture of open and closed, including forced-choice questions, divided into two main sections. First, the extent of SMEs adoption and application of sustainability practices. Second, the attitudes and perspectives of SMEs toward transition to the net zero carbon emissions in the UK (organisational systems, shape, challenges and a way forward). These two sections are intended to capture and comprehend the actions of SMEs towards sustainability practices and their intentions and suggestions toward a greener economy and more sustainable planet, and how this can contribute to achieving the UK net zero carbon emission target (See [Appendix 1](#) for full list of the interview questions). To ensure the credibility of the interview questions, we pilot tested the questions with four businesses and made the required refinements as needed before carrying out the interviews. Ethics approval was also obtained from the relevant university before interviews were conducted.

To select the participants of this study, we approached the UK based SMEs [\[6\]](#) from different sectors (construction, health and safety, food and beverages, pharmaceutical, IT and technology, health and safety, tourism and health and beauty) who are involved in sustainability reporting practices and show their interest to take part in the research. Twenty-six businesses from different sectors and locations (particularly Wales, England and Scotland) agreed to take part in this study. We interviewed the owners and managers as they are knowledgeable about the organisation setting and have greater autonomy in the environmental strategic direction and the extent of their business engagement with carbon emission management and EMS ([Qian et al., 2018](#)). [Table 2](#) provides a summary of the demographics of the businesses that are involved in this study [\[7\]](#). Further detail of the businesses that participated in this study is provided in [Appendix 2](#). Due to the participants' busy schedules, particularly relating to the post-Covid-19 activities, we conducted the interviews via Microsoft teams and followed up with telephone calls and emails in case further clarifications were needed. All the participants, except three, were business owners and the interviews were conducted on average 40 min with each participant. All the interviews were recorded and transcribed verbatim. Although the number of adequate interviews is different across disciplines ([Denzin and Lincoln, 1994](#)), twenty-six interviews were considered adequate as we reached the saturation point.

4.2 Data analysis

The materials collected from the interviews are analysed using a thematic coding scheme following qualitative analysis procedures ([Bryman and Bell, 2015](#)). The transcripts are first coded following the general thematic coding scheme based on recurring themes and patterns, such as criticisms of the government policies, perceived benefits, actions towards the carbon emissions management and EMS and a plan towards net zero emission target. Subsequently, the transcripts are re-read and more specific themes are identified following the concept of

Table 2.
Summary of the
business
representatives from
different industries
who participated in the
interview

Industry	No.	Size of business	No.	Age	No.
Construction	4	Micro	18	1–5 years	7
Health and Safety	4	Small	5	5–10 years	4
Food and Beverages	2	Medium	3	10 years +	15
Pharmaceutical	1				
IT and technology	8				
Health and Beauty	2				
Tourism	1				
Other	4				
Total	26		26		26

mirroring, particularly in relation to how organisations react to different constraints and manage and implement key strategic decisions whilst engaging in innovation to achieve expected outcomes. These themes are later combined and presented as the main two themes in the findings section: SMEs' extent of adoption of sustainability practices, actions toward carbon emissions management and EMS and attitude and perspectives towards the UK net zero emissions target. Figure 1 presents the thematic map based on the various themes that emerged.

5. Findings

This section presents the current state of SME sustainability practices and their behaviour and perspectives towards pursuing a greener economy in the UK.

5.1 Current state of SMEs' sustainability practices

First, the participants (P) [8] demonstrate their awareness of the importance of sustainability report/reporting, with over 85% claiming that a sustainability report represents a way to communicate their actions on the environment, social and governance issues to all their stakeholders. Second, however, despite the evidence of SMEs' awareness of sustainability report/reporting significance (Mangla *et al.*, 2017), we find that out of twenty-six businesses, only seven businesses have issued sustainability report in the last five years. In exploring the reasons behind this condition, it is notable that participants articulated conceptions pervade with contradictions. These include negative influences identified and coded out of the data collected that are directly or indirectly hindering SMEs engagement with disclosing their sustainability related impact (core challenges) and the drivers perceived possible to improve their actions and behaviour toward the overall sustainability practices (motivational factors).

5.1.1 Core challenges. The participants provide us with critical reflection from their practical experiences that stimulate different drivers identified as rationales for SMEs' reluctance not to produce sustainability reports and improve their practices. The themes that emerged from the interviews include lack of resources and expertise, lack of clarity, knowledge gap, lack of perceived benefits and voluntary approach of sustainability reporting practice. More specifically, there is a significant gap in SME owners' knowledge in

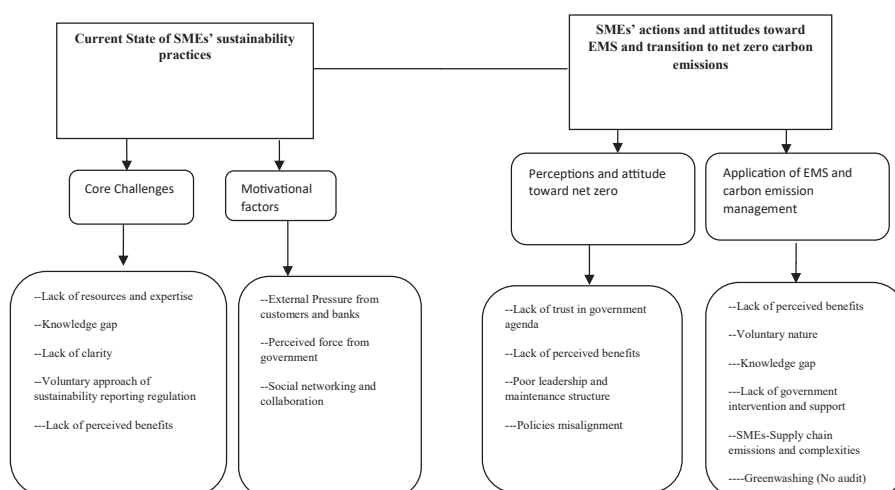


Figure 1.
Thematic map

understanding and measuring the impact their activities have on the environment and how to deal with various developments in this context, despite the existence of the UK SME Climate Hub. This is not surprising, considering lack of knowledge and technical know-how has been the central premise of SMEs not engaging with sustainability reporting practices in literature (see, [Girella et al., 2019](#); [Arena and Azzone, 2012](#)).

The majority of the participants emphasised the issue of lack of clarity and availability of diverse information, which increases their level of confusion in producing such reports. In agreement, the Global Reporting Initiative standards, the Integrated Reporting Framework, Sustainability Accounting Standard Board standards, the United Nation Global Compact, Climate Disclosure Standards Board and the Task Force on Climate-Related Financial Disclosure have been identified as the best and top six frameworks for quality sustainability impact disclosure (see [KPMG, 2020](#)). However, while the participants provide mixed views about their awareness of the various frameworks (particularly the GRI), the majority submitted that they do not know how these frameworks could be used for meaningful and complete sustainable impact disclosure. Further, a few of the businesses that had issued sustainability reports in the past emphasised that they regularly find it difficult to understand the impact disclosure metrics, hence overlooking this part. This reinforces the call made in previous studies and reports that are pertinent to urgent simplicities of sustainability reporting frameworks and standards for SMEs ([GRI, 2018, 2020](#); [EFAA, 2018](#)):

At start of business we lacked and [now] still lack expertise . . . lacks of insight and understanding of the impact [SR] could make to our businesses (P8).

Unsure how we would do this in a cost effective and time effective fashion (P10).

We don't report on it simply due to time and resource constraints. We target our energy in actually doing the emissions reduction/strategy (P2).

We do not know (unaware) of how to track this activity (P13).

Moreover, our discussions with the participants repeatedly revealed the 'voluntary nature of sustainability reporting (regulation)' impact on SMEs' actions and attitudes towards the disclosure of their sustainability impact. First, the core argument raised unanimously by the participants is that they do not see the urgency for them to report when it is not compulsory. In fact, two business owners considered their business to be small, thus, they argue that sustainability reporting is mainly for larger businesses, because their activities affect the environment more (P2 and P6).

The government norms and pressure does play an important role, as it becomes mandatory to follow and once something is a rule-it is done and followed to avoid penalties (P16).

If government made laws that have to be adhered to, I would (P12)

If we are not required to do this reporting then we do not have the skills or manpower to do this activity (P13).

Clearly government can make policy decisions that encourage/force change (P10).

Further, the participants revealed that the efforts of SMEs towards sustainability practices often go unnoticed, which extends the evidence of lack of perceived benefits among SMEs in prior studies ([Brammer et al., 2012](#)).

5.1.2 Motivational factors. First, the argument participants often used is that without any "perceived force and pressure" from stakeholders that significantly matter (such as customers and banks) to their business, sustainability practices (and sustainability reporting) will continue to remain irrelevant and secondary to SMEs. Therefore, while there is a substantial argument that the voluntary nature of sustainability practices hampers their

attitudes, most participants suggest that consistent demand and pressure from banks, especially their customers will force them to engage more critically with better sustainability impact disclosure (and practices). Table 3 presents the compelling arguments raised by the participants about the key individuals and pressure groups that can drive their engagement with better sustainability practices (including the main rationale for their claims). There is no clear evidence of these insights in prior literature, which thus represents one of the contributions of this study.

Given the participants' response overview, our interest shifted to the possible implications of the suggested factors on the transition to net zero carbon emissions. Therefore, we argue that while there is diversity in the participants' suggestions, banks/finance companies and customers can be regarded as of high significance considering the number of participants that opined on these factors. Their emphasis remains that banks and customers have more power to influence their commitment and improve their consciousness with environmental protection and sustainability impact disclosure. One of the participants noted that:

I suspect some of our larger customers will request this information in the next 1–3years (P10).

Other participants explained that:

Often my clients come to my sustainability courses because their clients are asking them for sustainability information or there are applying for government bids that require this information- this very effectively generates interest and action in sustainable reporting (P9).

Public and customer awareness is increasing and they increasingly want to work with businesses that “do their bit” (P4).

Clients may be more happy to use our services if they know we are compliant (P5).

It is a great way to engage with clients and helps our reputation. It is also a way to minimise both reputational and operational risks (P9).

We also contract for Government project-when raising finance, showing sustainability saving demonstrates lean operations and good business practices (P12).

Consequently, these patterns of reasoning amongst the participants raise some critical questions and suggestions: should there be an enforced policy mandating both government agencies and banks to require sustainability reports (particularly impact disclosure) from SMEs before awarding the contract and granting a loan respectively; and how customers can be used as an instrument to drive SMEs commitment towards better sustainability practices (and reporting). However, other than this, the participants are highly critical of the urgent need for social networking and collaboration among stakeholders to improve SMEs attitudes in this context. Their premise remains that without external support from stakeholders

Individuals/Pressure groups	Number of participants	Common argument raised as rationale in the interviews
Banks/finance companies	21	If it becomes a serious requirement for getting a loan and financial support
Customers	20	If it becomes customers' priority, then it becomes business priority. No business wants to lose any of its customers
Government/Policy makers	8	It is important to win a government project (contract) and bidding
Suppliers	5	It can form part of supply chain reports
General Public	8	General public awareness is increasing, and it is important to show we are doing our part

Table 3.
Individuals and pressure groups identified by the participants as the key motivators and driving force for their engagement with better sustainability practices and reporting

involved in SMEs and their sustainability reporting practices, SMEs would continuously feel isolated and unmotivated in the processes involved.

Everyone in our business communities and the local communities we support can help improve our sustainability performance-if we work together and collaborate (P2)

Government could help with more clear guidance for small businesses (P9).

The government needs to put policies in place to help with the issues of the planet . . . With policies and guidelines in place not only would it up my sales, but the price and availability of the natural products should be better, and so cheaper to produce. This meaning more people would opt for an environmentally friendly product (P10).

Suppliers can help by sourcing sustainably and using sustainable packaging, or using innovative new products-Customers should be willing to pay more where necessary for a more sustainable and eco-friendly product-Banks can support by providing loans e.g. loans for solar panels or green technology (P4).

Therefore, participants' arguments often revealed the inadequacies of the sustainability policies for SMEs and reinforced the urgent need for the government to explore various external pressures as critical elements to optimise the conditions of SMEs sustainability practices.

5.2 SMEs' actions and attitudes toward EMS and transition to net zero carbon emissions

This section provides insights into SMEs' actions and actionable strategies towards EMS and carbon emissions management. It explores the extent this can contribute specifically to the UK transition to net zero carbon emissions. Therefore, following the UK government's appeal for SMEs to adopt certain actions in fighting against climate change and carbon footprints (see [Table 1](#) above), we explore the participants' understanding, behaviour and actions in this context. Moreover, following the evidence that EMS is a significant tool for reducing carbon emissions (see [Qian et al., 2018](#)), we argue that the extent of SMEs engagement with EMS has a potential influence in achieving net zero carbon emissions within the SMEs context.

First, over 80% of the participants are aware of the UK net zero emissions bill passed in 2019. However, they have mixed views regarding the potential benefits of this initiative, particularly in terms of their business growth and are critical that the policies surrounding the initiative remain unclear. In exploring the rationale for this condition, our discussion concentrates more specifically on their application of EMS and carbon emission management. Also, we explore their perceptions of the net zero carbon emissions target taking into consideration the seven aspects of EMS as identified in [Ferenhof et al.'s \(2014, p. 45\)](#) study and the key actions demanded from SMEs in fighting carbon footprints as provided in [Table 1](#).

5.2.1 SMEs' attitude and perspectives towards net zero carbon emissions. This section captures SMEs' understanding and perspectives towards pursuing a greener economy in the UK (and its enshrinement in law) and unravels their views on the possible ways to expedite the process. First, there are mixed views when we ask the participants how long their business may take to go greener and have zero emissions. However, the majority answers 2050. Following this, we draw on the constructive notions harnessed in prior studies (see [Section 2.1](#)) that EMS can assist the business in achieving better carbon emission management and improve their consciousness regarding their impact on the environment ([Gonzalez et al., 2008](#)). This reinforces our motivation to explore the extent of EMS adoption among SMEs, their behaviour towards carbon emission management, and how this may impact their ability to go greener.

Consequently, despite the EMS being portrayed as an important tool, we find that SMEs' owners and managers have a very limited understanding of EMS. For example, out of the

twenty-six participants we interviewed, only 45% knew what an EMS meant, and only five have EMS within their operational setting. This is surprising considering the suggestions that EMS implementation is growing among SMEs (Ferenhof *et al.*, 2014; Campos, 2012). Importantly, one of the participants believes that since her business has environmental policies, she does not see the need to have EMS. Thus, several reasons identified for the SMEs not engaging with EMS include a knowledge gap, lack of perceived benefits and lack of government intervention and support:

Not a priority for us considering skeletal staffing (P8).

We genuinely never thought of it. Our attitude now is to do better by reporting on sustainability which will better translate what we do because it might not be so obvious to other (P8).

Small company (has) minimal environmental impact although we are fully aware we will need to implement this (P6)

Not yet fully addressed but on our agenda (P19).

We do not have the specialist knowledge for this (P6).

Don't know how to [implement an EMS]. Time, cost, support needed (P5).

Unsure how we would do this in a cost effective/time effective fashion (P10).

Moreover, most participants signal that they are prioritising some environmental and social issues within their operations. Table 4 presents their responses when we ask about the core ESG issues they prioritise most within their operations and their reasons. Their emphasis points to the direction that the issue (s) they prioritise most is/are primarily related to their business industry.

With the above in mind and considering that most participants do not have proper EMS or impact measurement mechanisms in place, this motivates us to question how they intend to go greener and have zero emissions before 2050, including how the process can be expedited. This, therefore, stimulates deeper insights as most participants express their discontent towards the government policy in this context. First, the common reasoning and argument raised include - "government lack knowledge of sustainability practices (and reporting); there are poor government leadership and maintenance structure; and policies diversity across the UK (Wales differs to England and Scotland). Second, we find that there is a lack of trust in the government agenda and a lack of perceived benefit, as the majority of the participants emphasised that the agenda is more political rather than service to humanity:

Environmental and social issues	Number of participants
Food waste	14
Air pollution	18
Deforestation	5
Hunger and poverty	8
Biodiversity loss	7
Plastic pollution	8
Women empowerment	19
Child and labour abuse	18
Racism and religion discrimination	12
Ocean acidification	7

Table 4.
Environmental and
social issues prioritised

Waste of time-Government interference not welcome. They should put their own house in order first———Massive waste, fraud and incompetence (P21).

Government do not understand the logical reasoning behind sustainability-only they know is having figures and forecast without understanding what is indeed happening in reality (P24)

The government should not focus on making money always. The policies, the rules should be right and just. There be no corruption and harassment whatsoever (P16).

There is no leadership to follow and good maintenance structure (P25)

A moral compass is an important thing, one sadly missing is Government (P21)

In addition, four participants (e.g. P1 and P4) suggest possible ways, other than the UK- SME Climate Hub, that government can facilitate SMEs' ease of commitment and transition to complete green and sustainable business practices. These include-funding policies and subsidised EMS infrastructure for SMEs:

The government can consolidate the EMS mission into an achievable working process for both the general public and businesses. [XXX] business would benefit from sharing its EMS reporting with its customers and suppliers to promote better EMS Best Practice (P1).

Government needs to provide support and funding-policies should be well thought through (P4).

The participants' responses demonstrate their views regarding the ongoing pursuit of net zero carbon emission in the UK, including the intricacies bothering their involvement with carbon emissions management.

5.2.2 Application of EMS and carbon emissions management. To have a deeper understanding of how the SMEs' carbon emissions management and EMS are shaped and correspond to the technical architecture and requirement of sustainability practices and a greener economy, we engage more critically with the five participants that have EMS (P4, P16, P20, P25 and P26). In doing this, we explore how SMEs manage the complexity involved in EMS and carbon emission management and the strategies and intricacies surrounding the EMS system adopted by the five participants. Following this, we question the participants about the shape of their EMS system based on the seven key steps involved in EMS as discussed in [Section 2.2](#). We present their responses when we investigate the extent of their adaptation and engagement with the key steps involved in EMS in [Table 5](#).

From [Table 5](#), we find that all the participants have a corporate environmental policy within their system, which remains the primary basis of EMS adaptation. However, there are

Table 5.
Participants' extent of
adoption and
application of the EMS
and carbon emission
management^a

EMS key steps	P4	P16	P20	P25	P26
Corporate environmental policy and planning sets	✓	✓	✓	✓	✓
Resource availability	×	×	×	×	✓
Environmental management training	✓	×	✓	✓	✓
Planning, documentation, measurement, monitoring and evaluation of implementation goals for environmental responsibility	×	×	✓	×	×
Certification and compliance with ISO standards	✓	✓	×	✓	✓
Failure analysis, course corrections and improvements to environmental policy	×	×	×	×	×
Minimising environmental impact and improving environmental performance	×	×	×	×	×

Note(s): ^a The symbol (✓) is used to represent the existence of each of the EMS system in the participants operational setting and (×) represents the unavailability and lack of the SMEs engagement with the EMS key steps

contestations about the environmental management training provided to their employees. Although four of the participants thus have periodic environmental training for their staff, but the motivational factor is to secure the relevant certification only, such as certification with ISO standards:

We know how important having ISO certification can have on our business outlook . . . so to have that we have to try and do sort of environmental training (P25).

We have one who trains our staff about environmental hazard but the cost involve seems to outweigh the benefits . . . Personally it is hard to see the benefits because either we measure our impact or not no one cares (P26).

Further, their EMS significantly lacks documentation, measurement and monitoring, particularly evaluation of implementation goals for environmental responsibility, failure analysis and improvement to environmental policy to minimise environmental impact. This raises concerns about the reliability of their carbon emission management, especially in terms of their investment in greener infrastructures, measuring and analysing their greenhouse gas emissions accurately and reducing their energy consumption. In exploring this case, the argument raised by the participants remains that they are reluctant to invest in EMS because their property (building) is either on rent or on lease, thus, any heavy investment (installation of carbon emission management tools) will be wasted in the long run.

Investing in green energy and green office equipment is secondary for us and can only be considered only if there is certainty it will increase our profit and number of customers (P20)

We do not own the building and installing different carbon emission tools will be capital intensive for us which we may not be able to remove when we are leaving the building (P26).

In addition, another justification raised by the participants is that there is no monitoring (audit) from the government, thus, they only need to demonstrate they have an element of EMS in place and acquire relevant certifications for a better business outlook. This, therefore, signals the idea of “greenwashing” in implementing EMS and carbon emission management among SMEs, due to the lack of an effective evaluation and supervision from the government. With this, we question the participants about the complexities involved in their carbon emission management and the strategies adopted to manage the process. Consequently, the common evidence that dominates the participants’ reasoning is the complication surrounding their supply chain (end-to-end emissions). This is because the complexities within their supply chain aggravate the volume of their emission and makes it more difficult to document and measure their climate impact:

Getting sustainability information from suppliers can be incredibly hard and time consuming, and some don’t see why it is necessary, or make claims in a way that is difficult to measure/unify (P16).

The suppliers of our packaging should continue to offer us sustainable packaging to ensure we are doing the right thing for the environment (P20).

Hence, drawing from the “mirroring” concept, there is a premise that challenges push organisation into innovation to overcome the obstacle by ensuring that different organisation’s component mirrors each other to achieve the innovative outcome (Mendy, 2020). With this, the participants’ emphasis points to the direction that EMS and carbon emission management are not yet considered as challenges that can bother their productivity outcome and development. This is reflected in the shape of their EMS as the inadequacies in their carbon emission management mirror their perception of the pursuit of a greener economy. Thus, different indications point to a misalignment between SMEs’ actions and the technical architecture required to achieve net zero carbon emissions.

6. Discussion and conclusion

This study explores the actions of SMEs towards sustainability practices and EMS, and their perceptions in pursuing a greener economy and more sustainable planet, including what it could mean for the achievement of the UK net zero carbon emissions target. Literature on SMEs' sustainability practices has documented diverse constraints undermining SMEs sustainability performance (e.g. [Caldera *et al.*, 2019](#); [Girella *et al.*, 2019](#)). However, this study provides a different lens by engaging more critically with the internal behaviour and reasoning of SMEs' owners concerning EMS and carbon emissions management and its implications for achieving net zero carbon emissions in the UK.

The application of the "mirroring" concept provides the opportunity to investigate the misalignment between the management system, knowledge, culture and reasoning among SMEs and the technical requirement to achieve net zero carbon emission. This, therefore, helps to make more sense of better ways SMEs' behaviour and reasoning toward sustainability practices can be improved, and how the government's policies can be more aligned with SMEs' interest in achieving net zero carbon emissions target. Thus, there is a misalignment between SMEs' carbon emission management system, EMS, knowledge and reasoning and government policies and strategies in achieving net zero carbon emissions.

We find that the complexities surrounding the supply chain of SMEs are the key constraints hindering their environmental impact documentation, measurement and disclosure within their EMS and carbon emission management. Our interviews reveal that a lack of support system and enthusiasm within the supply chain hampers SMEs' behaviour towards engaging with better EMS and carbon management system. In turn, this hinders their contribution towards the pursuit of net zero carbon emissions. For example, our findings indicate that SMEs supply chain is often fragmented, thus making it rather difficult for SMEs to source the data required to set appropriate targets to manage their carbon emissions. Further, the lack of effective supervision and proper audit of EMS within SMEs operational systems suggests the possible greenwashing of its implementation in this context. This, however, signals that SMEs' action towards carbon emission management and reduction cannot be executed in isolation by SMEs, but instead require the support and effective steering mechanisms to decarbonise their supply chains.

Contrary to the evidence in prior studies that SMEs lack policy awareness compared to large companies (e.g. [Mangla *et al.*, 2017](#); [Ghazilla *et al.*, 2015](#)), this study shows that the level of awareness of sustainability practices among SMEs is growing. Our findings show that even micro businesses are undertaking measures that help improve the sustainability performance of the business. However, the problem remains that since these businesses do not have appropriate technologies such as EMS resources and tools, they cannot see the benefits derived from it or quantify the magnitude of improvement in their sustainability and carbon emission performance. This can also be connected to their reluctance to invest in EMS and carbon emissions management tools.

Our findings show that the voluntary nature of sustainability reporting regulation and lack of perceived benefits among SMEs, particularly the micro and small businesses affect their reasoning and actions towards the significance of having a greener economy and a more sustainable planet. This is also reinforced by their scepticism about the government's net zero agenda. This, therefore, extends the findings in [Brammer *et al.* \(2012\)](#) that SMEs fail to see the economic benefits of engaging in sustainability reporting practices and EMS. We identify these factors as problematic because the analysis reveals that SMEs' owners lack confidence and trust in the government agenda and the government's willingness to protect SMEs interests. The small and micro businesses in particular felt that their needs are often ignored, which signals the need for more open dialogue between the government and SMEs owners (and not only via the UK-SME Climate Hub) to echo their importance and the need for their involvement in achieving the net zero emissions target. In turn, this could improve their

willingness to invest time and resources in appropriate sustainable practices. Such changes in the attitude and behaviour of SMEs have significant potential to generate sustainable economic benefits in the UK.

Finally, we find that pressure from external stakeholders, such as banks and consumers can be regarded as strong mechanisms to drive the interests of SMEs towards EMS and carbon emissions management. Our findings show that SMEs are more concerned about attracting funding for their operation and maintaining a good relationship with their customers. Consequently, this demonstrates that there is a greater need for more structural changes within SMEs business, so that its products and services are designed and produced in a sustainable way which will help to bring out profound changes much quickly. This could also benefit from policies that foster banks and customers to work as agents for driving SMEs towards regular impact documentation, measurement and disclosure. Therefore, the findings show how the mirroring concept would be used to assess the new challenges faced by SMEs and to understand how to better tie their strategies with the government policies in achieving the net zero-carbon target. Further, the findings give a clear indication to the government about the initiative that should be taken to educate SMEs, particularly micro and small businesses to reinforce the trust they have in their agenda. SMEs should be more widely represented in developing regulatory policies around sustainability so that they can get a chance to voice their concerns and needs.

The findings of this study can be extended to provide useful evidence to the policymakers in other countries who signed up for net zero emissions target, for instance, China by 2060 and India by 2070. Therefore, future studies could also explore whether the sustainability reports produced by SMEs are useful for different user groups' decision making. Further, the lack of perceived benefits among SMEs remains a focal issue harnessed in literature. Thus, future studies may consider industry-specific external partnerships, networking and programs to be facilitated by policymakers and local actors to overcome the absence of perceived economic benefits among SMEs' owner-managers. Finally, while SMEs operate in various industries and contribute to the environmental footprint in various ways, this study only focuses on the selected industries and limited perceptions of 26 owner-managers. Thus, it can be identified that their perspectives may exclude other important insights from other SME's owners-managers in different industries. As a result, future research can continue this line of investigation through a different lens, such as a case study of SMEs in diverse industries and explore their behaviours more critically.

Notes

1. For this study, SMEs are defined as entities with less than 250 employees and an annual turnover under € 50 million (DIT, 2021).
2. Relative to 1990 levels.
3. COP26 was a major United Nations climate change conference held in Glasgow in November 2021 to discuss how the issue of climate change can be tackled and to agree on national and global targets.
4. The independent climate change committee is a statutory body, set up under the climate change Act 2008 and saddled with the responsibility to advise the UK and devolve government on the UK's progress in tackling climate change (Climate Change Committee, 2022).
5. SME climate Hub is an initiative founded by the WE Mean Business Coalition, Exponential Roadmap Initiative and the United Nations Race to Zero campaign in collaboration with Oxford University and Normative (SME Climate Hub, 2022)
6. SME encompasses micro-entities (less than 10 employees and an annual turnover under €2million), small entities (less than 50 employees and an annual turnover under €10million) and medium-sized entities (less than 250 employees and an annual turnover under €50million) businesses (DIT, 2021).

7. The age represents the number of years the SMEs have been in business.
8. P is used to represent the participants in the order they are interviewed.

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Appendix 1

List of interview questions

Implications
for a greener
economy

Section A: Extent of adoption and application of sustainability practices (and reporting)

1. How long have you been in business?
 - ☐ 1-5years
 - ☐ 5-10years
 - ☐ 10years and above
2. How would you classify your business?
 - ☐ Micro- less than 10employees and annual turnover under €2million
 - ☐ Small-less than 50employees and an annual turnover under €10million
 - ☐ Medium-sized-less than 250employees and an annual turnover under €50million
 - ☐ Wish not to disclose
3. How would you classify your sector?
4. How would you classify yourself in your organisation?
5. How long have you been aware of the idea of sustainability reporting?
 - ☐ 1-5years
 - ☐ 5-10years
 - ☐ 10years and above
6. What is a sustainability report/reporting in your opinion?
7. Have you issued any sustainability report in the past?
 - ☐ Yes
 - ☐ No
 - a. If yes, for how many years?
 - ☐ 1-5years
 - ☐ 5-10years
 - ☐ 10years and above
 - b. If no, why? Please identify 3-5 reasons
8. Which of the Sustainability Reporting frameworks below are you aware of and used in the past?
 - ☐ Global Reporting Initiative Frameworks/Standards
 - ☐ Integrated Reporting Framework
 - ☐ United Nation Global Compact
 - ☐ Sustainability Accounting Standards Board Conceptual Framework/Standards
 - ☐ Climate Disclosure Standards Board
 - ☐ Task Force on Climate-Related Financial Disclosures (TCFD)
 - ☐ None of the above
9.
 - a. Are there any pressure groups or individuals who regularly demand for your sustainability report and the impact of your business activities, particularly on the environment and people?
 - b. How does this impact the extent of environmental and social (impact) disclosure in your sustainability report
 - c. Are there any individuals or pressure groups that can affect and improve your extent of engagement with sustainability reporting practices and why?

Section B: Attitudes and Perspectives towards the UK net zero emission targets (organisational systems, and shape, challenges and a way forward)

10.
 - a. Are you aware of the UK net zero emission law passed in June 2019?
 - b. If yes. In what ways has this impact your plan and strategy towards sustainability reporting practices and environmental (planet) protection?
 - c. Please explain the process of managing and limiting the impacts of your business activities on the environment and people
 11. Please explain in what ways you think the achievement of the UK net zero emission target would benefit your business.
 12. How long do you think it will take your business to go greener and have zero emissions and why?
 13. What is environmental management system (EMS) in your opinion?
 - ☐ EMS is a system that integrates the procedures of managing the business' environmental impact only.
 - ☐ EMS is a system developed internally within a business settings or created externally, which encompasses elements of planning, policy making, implementation strategy and innovative means of controlling environmental implications and socio-ethical actions of a business.
 14.
 - a. Do you have EMS within your operational setting, including environmental policy statement, guiding your operation, and the activities of your staff and customers?
 - b. If yes, please explain how you use EMS in your operational setting and its impact on your sustainability reporting and performance and carbon emissions management.
 - c. If no, why? Please give reason(s).
 16.
 - a. Which of the environmental and social issues below you prioritised most in your sustainability performance? You can select more than one option if applicable.
 - Environmental issues
 - ☐ Food waste
 - ☐ Biodiversity loss
 - ☐ Air Pollution
 - ☐ Plastic Pollution
 - ☐ Deforestation
 - ☐ Ocean Acidification
 - ☐ None
 - None of the above, but we prioritise other issues. Please mention the issue(s)
 - Social Issues
 - ☐ Hunger and Poverty
 - ☐ Women Empowerment
 - ☐ Racism and Religious Discrimination
 - ☐ Child and labour abuse
 - ☐ None
 - None of the above, but we prioritise other issues. Please mention the issue(s)
 - b. Please explain why you prioritise your selection(s) above
17. Please explain whether and how frequent disclosure of your business impact on the environment and people (sustainability reporting) benefit your business?
18.
 - a. Which of the options below gives you challenges that affect your sustainability performance and commitment to sustainability reporting?
 - ☐ Government/Policy makers
 - ☐ Clients/Customers
 - ☐ Suppliers
 - ☐ Banks/Finance companies
 - ☐ General Public
 - ☐ None of the above
 - b. Please explain the reason(s) for your selection above.
19.
 - a. Who do you think could help you better to enhance your sustainability performance?
 - ☐ Government/Policy makers
 - ☐ Suppliers
 - ☐ Customers
 - ☐ Banks/Finance companies
 - ☐ General Public
 - b. Please explain the reason(s) and the roles your selection above could play.

No	Size	Age	Sector	Issued SR	Has EMS in place
Business 1	Micro	1–5 years	Health and Safety	No	No
Business 2	Micro	1–5 years	Construction	No	No
Business 3	Micro	10 years +	Construction	Yes	Yes
Business 4	Medium	10 years +	Construction	No	No
Business 5	Micro	10 years +	Health and Safety	No	No
Business 6	Micro	10 years +	Pharmaceutical	No	No
Business 7	Micro	5–10 years	IT and technology	No	No
Business 8	Micro	10 years +	Health and Safety	No	No
Business 9	Micro	1–5 years	IT and technology	Yes	No
Business 10	Micro	10 years +	IT and technology	No	No
Business 11	Micro	1–5 years	Health and beauty	No	No
Business 12	Micro	5–10 years	Health and beauty	No	No
Business 13	Micro	5–10 years	IT and technology	No	No
Business 14	Micro	1–5 years	Foods and Beverages	No	No
Business 15	Small	10 years +	IT and technology	No	No
Business 16	Medium	10 years +	IT and technology	Yes	Yes
Business 17	Small	5–10 years	Foods and Beverages	Yes	No
Business 18	Micro	10 years +	Other	No	No
Business 19	Small	10 years +	IT and technology	Yes	No
Business 20	Micro	10 years+	Tourism	Yes	Yes
Business 21	Small	10 years +	IT and technology	No	No
Business 22	Micro	10 years +	Other	No	No
Business 23	Micro	10 years+	Health and Safety	No	No
Business 24	Micro	1–5 years	Other	No	No
Business 25	Small	10 years+	Construction	yes	Yes
Business 26	medium	1–5 years	Other	No	Yes

Table A1.
Overview of the
businesses that
participated in
this study

Corresponding author

Khaled Hussainey can be contacted at: khaled.hussainey@port.ac.uk