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Accelerating small and medium sized tourism enterprises' engagement with climate change

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ABSTRACT

Small and medium sized enterprises (SMEs) within the tourism sector play crucial yet often underestimated roles in climate change mitigation, contributing to approximately half of the sector's greenhouse gas emissions. Although the existing literature has examined barriers to climate change action and potential drivers for the involvement of small firms, these aspects have not been comprehensively explored within the context of tourism. The article addresses this gap by conducting a narrative review that analyzes 78 papers and reports published on the topic. The results substantiate a differentiation among barriers, pressures, and incentives. Barriers encompass aspects related to knowledge and personality, understanding and perceptions, management, data, finances, technology, legislation, and community. Pressures originate from costs, customer expectations, and compliance. Incentives manifest in economic considerations, subsidies, marketing strategies, staff benefits, and community advantages. The findings are synthesized into a series of conceptualizations, offering pathways for progress on mitigation. Findings emphasize the significance of legislation and efforts of destination management organizations for accelerating SME engagement with climate change.

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Introduction

Global tourism is estimated to have been responsible for 8% of global CO₂-equivalent¹ emissions in 2013, or 3.6–4.5 Gt CO₂e (Lenzen et al., 2018). With expectations of continued growth, it is anticipated that tourism's contribution to global warming will increase throughout the period 2025–2050, unless collective and very significant measures for decarbonization are implemented. Mitigation also requires systematic action throughout sub-sectors. Lenzen et al. (2018) distinguish various transport modes (air, sea, road, rail), accommodation, food, services, as well as the value chain. Transport accounts for roughly half of all emissions from global tourism. Agriculture, food, and food & beverages are 17%; accommodation is 6% of emissions; and goods and services 20%. Many of these tourism services are provided by small and medium sized enterprises² (SMEs).

To reach net-zero is often considered an obligation of companies: over the next 30 years, all enterprises must fully decarbonize, if net-zero goals are to be achieved (IPCC 2022; UNFCCC, 2018). As the Organization for Economic Cooperation and Development (OECD, 2021, p. 7) underlines, the focus of emission reductions has historically been on large emitters, which are responsible

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for a large share of overall contributions to climate change (World Bank, 2023a). This is also true for tourism: A recent study of 43 large tourism firms concluded that these generated 365 Mt CO₂ in scope 1-2 emissions³ or about 10% of the sector's overall global total (Gössling et al., 2022). Yet, most emissions stem from SMEs, highlighting their central mitigation roles (OECD, 2021).

SMEs have often been overlooked in discussions of sustainability due to their heterogeneity (Threpsiadi et al., 2022). This has led to the paradox of SMEs: “[...] having small and limited economic, social and environmental impact as singular entities, but their potential influence on society is powerful when they are considered together.” (Smith et al., 2022, p. 112). A recent estimate of the International Trade Centre (ITC (International Trade Centre), 2021) puts SMEs share of greenhouse gas emissions at 50% globally. There is a corresponding estimate that 31% of their energy demand and 77% of their emissions could be reduced between 2010 and 2050 (Fais et al., 2016). Yet, SME energy use, potential savings (energy efficiency opportunities), and decision-making regarding energy are insufficiently understood (Fawcett & Hampton, 2020). It is generally acknowledged that SMEs are not under the same pressure to reduce emissions as large firms, and that they have specific structures of ownership and employment, financing and decision-making (Terziovski, 2010). SMEs deal more directly with their stakeholders, they are more aware of customer expectations, and, as family-owned businesses, they may be more embedded in local communities and characterized by deeper bonds with staff (Smith et al., 2022).

This points to important roles of SMEs in generating momentum for climate change mitigation, for which it is relevant to better understand barriers that prevent them from reducing emissions, as well as incentives that may accelerate engagement with global warming. SMEs are commonly defined as having fewer than 250 employees and up to €50 million in turnover; they represent 99% of businesses in the EU (EC, 2023). Worldwide, and for all economic sectors, the UN (2022) estimate that SMEs account for 90% of businesses, 60–70% of employment, and 50% of global GDP.

Very limited research is available on the role of SMEs in tourism, but these often appear to be small, including food and beverage services, recreation and entertainment, accommodation, transport and travel services (ISED Canada, 2020; OECD, 2022). More detailed information is not available at the global level. Eurostat (2023) suggests that there were more than 1.8 million enterprises in “accommodation and food service activities” in the EU in 2020 alone, pointing to tens of millions of tourism SMEs globally.

More than half (52%) of SMEs in the European Union already seek to reduce energy use (OECD, 2021), and net-zero goals are also increasingly relevant outside the EU (ITC (International Trade Centre), 2021). Yet, in tourism, difficulties in reducing emissions have been acknowledged by the UNWTO (2023), as the sector continues to grow rapidly in its emissions. Few tourism companies support declarations on climate change, and the number proactively monitoring and reducing emissions is even more limited (Scott & Gössling, 2021). The exact nature of the barriers encountered by SMEs remain insufficiently understood, however.

Against this background, the purpose of this article is threefold. Firstly, it conducts a narrative review of articles and reports examining the interplay between SMEs and climate change, applying insights to the tourism sector. Secondly, it identifies and structures individual factors acting as barriers or facilitators to mitigation action in tourism SMEs, distinguishing pressures, incentives, and barriers. Thirdly, findings are interpreted to formulate practice-oriented strategies for decarbonization in SMEs and conceptualized in a series of models. These summarize actionable advice and strategies, offering pathways for advancing net-zero goals in the tourism industry.

Method

This article provides a narrative review (Baumeister & Leary, 1997) of scholarly work and recent reports of supranational organizations within tourism-relevant contexts to identify barriers to the net-zero transition in tourism—defined here as obstacles to the engagement of SMEs with net-zero goals—, as well as to provide advice as to how owners or managers of tourism businesses can

move forward on mitigation. The reports from UNWTO, OECD, the World Bank and others are particularly relevant as these supranational organizations have dedicated their efforts to the intersection of SMEs and climate change, even though these have not necessarily focused on tourism. The scoping process for this research, conducted from February to April 2023, extends beyond the confines of the tourism sector, as many relevant insights have been published in more general economic contexts, while tourism has received much less attention. To ensure that relevant findings published outside the field of tourism are included, this literature has also been considered. As a narrative review, the purpose is to be comprehensive, not exhaustive (Bryman, 2016) and to provide an integrative synthesis of the work reviewed beyond a mere representation of existing work (Gond et al., 2023). In line with guidelines for such reviews (Ogbonnaya & Brown, 2023), the topic was chosen as an appropriate domain of inquiry (here: barriers to SME mitigation action), followed by the synthesis of the literature, the identification of knowledge gaps, the formulation of propositions, and the highlighting of future research directions.

The relevant body of literature included in this narrative review has been developed through a simplified PRISMA approach (Moher et al., 2009). The method involves the *identification* of recent records of scholarly work, here from the EBSCO Research Databases and Google Scholar. EBSCO is a database that caters to libraries and is inclusive of different publishers' journals (as, e.g., SCOPUS). Google Scholar is widely considered a very comprehensive database. Based on keyword searches for {'sme' AND 'climate change'} and {'small and medium sized enterpri*' AND 'climate change'} the initial search focused on recent, peer-reviewed journal articles published in English that might provide overviews of drivers and barriers. This search was restricted to publications from 2021 to 2023 to cover the more comprehensive papers considering recent advances regarding mitigation strategies, and to limit the material in this non-exhaustive narrative review approach. This resulted in a small set (Fan et al., 2022) of 28 journal articles with direct relevance for this research. Their contents were *screened* by reading the articles and their relevance for this research, and included if their content provided substantial information on barriers/drivers for SMEs. The 28 articles then served as a basis for iterative search considering key references within these articles, in what has been described as a snowballing approach (Fan et al., 2022). These key references, also including older sources, were downloaded, and analyzed for relevance. In total, the iterative search led to the identification of another 43 articles published prior to 2021 that substantially discussed different aspects of barriers and drivers to SME mitigation action. Finally, using the same keywords as above, specific Internet-searches with Google resulted in 7 reports published by supranational organizations by the European Commission (2020), OECD (2018, 2021) UN (2022), UNFCCC (2021), UNWTO (2023), and World Bank (2023b), as well as one academic report with relevance for tourism (Chan et al., 2022). Overall, this resulted in a total of 78 publications (71 articles and 7 reports) analyzed for this research.

The *evaluation*, also known as coding and analysis of the relevant body of literature, relies on a narrative synthesis of the material presented in the form of an interpretation (Bryman, 2016), a process through which key themes are distilled. This method is based on a systematic reading of the texts, and the grouping of similar narratives under overarching themes. It involves iterative reading that allows themes to emerge organically through flexible coding. More specifically, the analysis is embedded in a miner-pro prospector continuum as proposed by Breslin and Gatrell (2023). In what may be considered a "miner's" position, the content of the 78 publications was searched for 'barriers' and 'drivers' of SME mitigation action. Interpretation of the content in the 'driver' category revealed that it is meaningful to subdivide that category into 'pressures' and 'incentives', as these are fundamentally different in character. This structure—pressures, incentives, barriers—is also used in the Results section, preceded by an argument for the distinction. The findings were then further analyzed in terms of their theoretical and practical implications for SME action on climate change from a "prospector's" view, as new conceptualizations were developed. It is acknowledged that this 'construction work'—or in Alvesson and Sandberg (2020) favored image of an author's role as a 'detective'—, may take different forms

and have different outcomes, relying on a high degree of reflexivity (Alvesson & Sandberg, 2020). Great care has been taken to neither cite selectively nor in ways that would have reinforced specific understandings of interrelationships (Fan et al., 2022). As a general limitation, it is acknowledged that further insights might have been gained if the wider corporate social responsibility literature had been consulted; for reasons of scope and space, this article is limited to climate change.

Results: pressures, incentives, and barriers

General overview

Different types of barriers encountered by SMEs in adopting sustainable development goals have been discussed by international organizations and in the academic literature, and sometimes also in the context of ‘drivers’ (Dasanayaka et al., 2022). Barriers are commonly understood as obstacles to action, while drivers represent factors that increase the interest of SMEs to engage with an issue (for summaries see, e.g., Álvarez Jaramillo et al., 2019; Chan, 2021; Chien et al., 2022; Dasanayaka et al., 2022). Barriers have been further divided into industry-specific versus organizational barriers, and external versus internal barriers (Chan, 2021). This also applies to drivers (Dasanayaka et al., 2022).

The European Commission (2020, p. 41), for example, cites lack of information, difficulties in choosing the right course of action, lack of funds and resources, personnel, training, as well as technical lock-ins or uncertain returns on investment as barriers to eco-innovation. Key drivers for action are seen in the rising price of resources including energy and water, legislation and regulation, collaboration, technical solutions, and financial and non-financial support. A similar perspective on barriers and drivers is presented by the OECD (2021, p. 19). While reports and academic literature thus regularly refer to ‘drivers’, it seems useful to subdivide them by their coercive *versus* incentivizing nature as *pressures* and *incentives* to engage in mitigation action. The following sections discuss these pressures, incentives, as well as barriers.

Pressures for SMEs

As business environments constantly evolve, SMEs are exposed to pressures related to cost, consumers, and compliance. These refer, for instance, to market changes that increase the cost of resources; consumer expectations that put emphasis on sustainability; and laws and regulation that SMEs must follow. Supply chain pressure can also be relevant (Table 1).

Specifically, the OECD (2021, 2022) highlights that the cost of energy and other resources including food has increased significantly in member states and is now a major driver of resource efficiency in SMEs. A high and likely rising cost of energy should encourage business to strive for energy-efficiency, specifically where the cost of energy is associated with a carbon tax or other fees and duties (Sorin & Sivarajah, 2021). For example, the Aspen Skiing Company noted that the cost of energy increased by 218% between 2000 and 2008, and the cost of energy in restaurants and accommodations is up to 10% of turnover (Gössling, 2011). In businesses using large amounts of energy, changing costs translate directly into business risks. Price volatility can exacerbate these risks: the beginning of the Ukraine war in 2022 saw a major rise in the cost of gas and oil, for example. There is consequently a strong argument for investments in

Table 1. Pressures for SMEs to engage with climate change.

Cost	Consumers	Compliance
• Energy cost • CO₂ taxes • Cost of other resources	• Customer expectations and choices	• Voluntary policies • Market-based policies • Command-and-control • Supply chains

efficiency, electrification, solar power, and local power supplies, for instance in the form of energy cooperatives that produce and sell power in local networks. The cost argument equally applies for other resources, such as water and sewage, or waste (Chan, 2005; Martins & Cró, 2021).

There is evidence that consumers are increasingly aware of the environment, and that they seek to incorporate aspects of sustainability in their consumption-related decision making. One survey finds 77% of respondents in 20 countries to be worried about human damage to the environment (Glocalities, 2019). In the European Union, analysis by Golob and Kronegger (2019) categorizes 26% of EU consumers as “pro-environmentalist”, with a high level of environmental awareness and knowledge, and feelings of personal responsibility. Pro-environmentalists prefer local or eco-labelled products. This group is predominantly female, well educated, and has higher-level jobs. Given their purchasing power, pro-environmentalists have important roles in tourism and for tourism SMEs. Golob and Kronegger (2019) also find that even the least concerned group—sideline environmentalists, about half of the population—is critical of large companies and industries.

These findings are confirmed in other studies showing that environmental certifications or low-impact transport modes are relevant for large shares of the EU population (Falk & Hagsten, 2019). In some consumption areas, such as food, environmental, health or animal welfare concerns translate into measurable change. For example, in Switzerland, pork consumption declined from 31.3 kg per capita in 1990 to 22.3 kg in 2022 (OECD, 2023), and in Germany, meat consumption declined from 39 kg per capita in 1997 to 29 kg per capita in 2022. Notably, a 7.4% decline was observed between 2021 and 2022 alone (BMEL (Ministry of Food & Agriculture), 2023). These statistics reflect on fundamental shifts in preferences within short periods of time. This has implications for SMEs: Food services, for example, are confronted with new expectations of their customer base, such as to offer vegetarian and vegan alternatives.

Last, tourism public governance priorities in the OECD have been defined as to include a higher level of sustainability and inclusiveness; effective country and place marketing; digitalization and application of new technologies; and high-quality tourism that attracts investment (OECD, 2020). These and other objectives are supported by formal agreements, budgets, legislation, or the creation of fora and councils and require business compliance. While policy goals vary between countries as challenges and priorities vary, regulatory policies have considerable influence on SME engagement with sustainability (Caldera et al., 2019). Policies may include bans and minimum standards, taxes, as well as mandatory product declarations, climate labels, or ratings (e.g. OECD, 2018; OECD and UNEP, 2011). Digitalization is likely to have considerable impacts on SME operations, but it seems premature to project specific outcomes at this point (see however McKinsey, 2023).

Incentives for SMEs

The UNFCCC (2021) emphasizes that climate change represents a material risk, as it affects cash flows and economic growth because of changes in operating costs and shifts in demand. Climate change also disrupts supply chains. For these reasons, mitigation is considered a means to “future proof business plans, meet the climate change expectations of customers, retain market access and enhance their competitive edge and thereby make it a profitable business for them” (ibid.: no page).

While the rising cost of energy, food, and other resources essential for hospitality firms increases pressure to reduce resource intensities, this also leads to savings. For example, Chen et al. (2021) underscore that ‘green hotels’ are more profitable, also because they reduce cost (Table 2). The great potential of cost savings in tourism and hospitality has been highlighted in various studies (Betz et al., 2015; Gössling, 2011), and confirmed by the ITC (International Trade Centre) (2021), which concludes that the pay-off period for resource efficiency and circular production intervention measures is often shorter than three years. In this context, it is of interest to note that sound economic performance has been found to be associated with a

Table 2. Incentives for SMEs to engage with climate change.

<i>Economics</i>	<i>Subsidies & support</i>	<i>Marketing</i>
• Cost savings • Performance improvement (through environmental management) • Higher consumer willingness-to-pay	• Loan availability • Financial support mechanisms (government support, crowd funding)	• Visibility • Guest satisfaction & loyalty • Recommendations • Leadership recognition • Awards & prizes
<i>Staff</i>	<i>Community</i>	
• Higher motivation • Employee retention	• Common goals and cooperation	

higher degree of climate change innovation and investment (Alam et al., 2022). The relationship is consequently mutually self-reinforcing, as innovation seems to positively affect competitiveness with positive outcomes for financial performance (e.g. Le & Ikram, 2022). Firms engaging with sustainable practices will generally also perceive outcomes as positive (Khan et al., 2021).

A case has also been made for environmental management and certification schemes as a way of understanding resource use and cost-cutting, encouraging innovation and improving firm performance. Certifications as well as environmental management schemes such as ISO 14001 (Díaz de Junguitu & Allur, 2019) help identifying practices that are wasteful of resources (Graafland & Smid, 2016; Groen et al., 2012). In Norway, Eco-Lighthouse certification has been shown to improve cost-efficiency, organization profiles and legitimacy, specifically among very young micro firms (Djupdal & Westhead, 2015).

Consumer willingness to pay for more sustainable products and services is another aspect. Studies in various locations have found economic visitor support of measures that improve sustainability through conservation or the protection of ecosystems such as coral reefs (Casey et al., 2010; Casey & Schuhmann, 2019; Subade & Francisco, 2014), individual species (Estifanos et al., 2021; Van Tonder et al., 2013), sustainability in destinations (Dodds et al., 2010; Durán-Román et al., 2021; López-Sánchez & Pulido-Fernández, 2014), decarbonization of destinations or products (Araña et al., 2013; Choi & Ritchie, 2014; Raffaelli et al., 2022), or sustainability in restaurants and hotels (Dutta et al., 2008; González-Rodríguez et al., 2020; Kwok et al., 2016; Nicolau et al., 2020). Willingness to pay also includes specific forms of donations (Chilufya et al., 2019; Nelson et al., 2019), that is, “one-off” financial contributions made after an introduction to a project related to a Sustainable Development Goal including mitigation.

A related finding from willingness-to-pay studies is that many highlight secondary benefits that can be harnessed from the more environmentally aware “green customers” in accommodation and food services. Environmentally aware tourists show greater destination and business loyalty, intention to revisit, to recommend, to pay price premiums, to accept towels reuse, or to use recycled products (Hu et al., 2010; Kim & Han, 2010; Kucukusta et al., 2013; Martínez & Del Bosque, 2013). Sustainability practices also positively affect perceptions of service quality and brand image (Kucukusta et al., 2013).

There are various economic incentives available for businesses seeking to engage with mitigation. The Climate Investment Fund (CIF), for instance, is focused on “transformational climate innovation in 72 middle- and low-income countries” and has supported more than 390 projects for clean technology, energy access, climate resilience and sustainable forests, with a focus on “accelerating coal transitions, renewable energy integration and industry decarbonization” (CIF (Climate Investment Funds), 2023). Climate funding for SMEs in tourism includes the International Finance Corporation’s ‘Edge Buildings’ with investments of over US\$3.2 billion in 335 hotel projects across 95 countries (Edge Buildings, 2023). These, as well as many national initiatives, make it economically interesting for SMEs to engage with mitigation.

Marketing seeks to increase visibility and recognition to create competitive advantage (Smithson et al., 2011). Sustainability credentials increase profitability and competitive advantage, and they contribute to brand and image building (Bohdanowicz & Zientara, 2008; Merli et al., 2019;

Torres-Bagur et al., 2019). Environmentally friendly actions have been found to increase guest satisfaction, to positively influence intentions to revisit a specific accommodation (hotel loyalty) and to recommend the hotel to others, while also leading to a more favorable perception of environmentally friendly hotels that is likely to lead to ‘greener’ hotel choices in the future (Merli et al., 2019). Green credentials can be successfully communicated through certifications (Spenceley, 2019), and can open up new markets (OECD, 2021). Trends towards the mainstreaming of sustainability as a value proposition are also evident in dedicated booking platforms (e.g. Bookitgreen; Good travel; Bookidfferent, Holiabie, EcoHotels, Kind traveler), while established platforms such as Booking.com, Expedia, and AirBnB have started to identify and highlight more sustainable choices. Promotion, also through awards and prizes, can have considerable relevance for tourism businesses engaging with sustainability. There are now many award programs, such as the Tourism for Tomorrow Award (WTTC) or Sustainable Destinations (UNWTO).

The positive impact of sustainability initiatives on staff has been highlighted by human resource managers, including motivation linked to better working atmosphere, the striving for common ideals, and pride over one’s work (Sourvinou & Filimonau, 2018). These factors are considered to increase job satisfaction, commitment, company loyalty (Bohdanowicz & Zientara, 2008), and to ultimately influence employee retention (Aminudin, 2013).

Barriers

Table 3 lists barriers as identified in the literature. The list does not rank barriers by relative importance. Some barriers may be seen as fundamental; for example, business owners unaware of their role in climate change may not consider action in the first place. Only those owners wishing to reduce emissions would encounter secondary barriers, such as the realization that loans to finance new energy infrastructure are unavailable. This suggests that barriers are hierarchical, which has not been discussed in the literature so far and requires further evaluation.

At the most fundamental level, SMEs may not engage directly with the SDGs (including climate change), because the challenge is considered “too big”, creating feelings of powerlessness (Smith et al., 2022). SMEs may also lack awareness of their role in sustainable development

Table 3. Barriers for SMEs to engage with climate change.

<i>Knowledge, personality</i>	<i>Understanding and perception</i>	<i>Management</i>
- Awareness and knowledge (declarative, procedural, effectiveness) - Values, attitudes, beliefs	- No perceived urgency in contributing to climate change goals - No perceived pressure from markets - Uncertainty regarding implications of engagement - Confusion over best course of action - Perceived negative guest experience	- Roles and views of owners, managers, franchise takers - Financial risk perspectives - Socio-economic barriers - Confusion over environmental management systems/certifications - Consideration of legislation - Time-consuming and lengthy (approval) process - Need to involve consultants and mediators - Conflicting advice by consultants - Unwillingness to exert pressure on supply chain partners
<i>Data</i>	<i>Economics</i>	<i>Technology</i>
- No collection of data - Unwillingness to share data	- Cost of innovation - Return on investment - Loan availability - Risks affecting financial access - Informal planning - Misguided subsidies	- Availability - Ease of use - Perceived reliability
<i>Public governance</i>	<i>Community</i>	
- Insufficient legislation and regulation - Lack of enforcement and controls - Inadequate penalties in case of non-compliance	- Lack of peer-group and community support - Early adopter exposure	

(Graafland & Smid, 2016; Torres-Bagur et al., 2019), and consider large enterprises to be responsible (Mahmood et al., 2021). Awareness and knowledge are consequently relevant on different levels: owners/managers need to understand the problem (climate change), their role and importance in addressing the problem (agency), as well as the action that can be taken to resolve the problem (action on mitigation) (Chan et al., 2022; OECD, 2021). The ITC (International Trade Centre) (2021, p. xviii) concludes that “knowledge about climate risks [...] is scarce among SMEs”, and that “timely and well-defined information to plan [...] green transition[s]” is needed.

Values, attitudes, and beliefs also underlie (non)-action. *Values* may be described as stable constructs that are difficult to influence, as they are interlinked with personality and identity. *Attitudes and beliefs* are malleable, and influenced by social norms. These constructs interact in decision-making. For example, owners and managers with pro-environmental values, feelings of personal responsibility, and an understanding that their actions make a difference will more easily commit (e.g. Mahmood et al., 2021). This extends to the motivation of staff (Dasanayaka et al., 2022).

Knowledge and perceptions also have relevance, specifically in regard to perceived urgency to act (Chan, 2011). ‘Urgency’ may refer to the cost in question, with energy or water costs being perceived as insignificant operational costs; or of SMEs having minor roles in resolving climate change (and responsibilities being with large companies, supply chains, governments); or the lack of market pressure and legislation forcing businesses to engage. There is an associated perceived risk of engagement over uncertainty regarding the implications in terms of time investments, cost, savings, or guest responses (Álvarez Jaramillo et al., 2019; Caldera et al., 2019). Businesses, when considering action, may often also be uncertain where to start and how to best proceed, as there are a variety of options that differ in scale of the investment (time, money), specifically when more obvious options are exhausted. As highlighted by Lundberg et al. (2019), even simple trade-offs between behavioral and technical options are characterized by complexity. Notably, while there is considerable evidence that customers expect businesses to engage with sustainability, firms may have contradictory concerns of being called out for greenwashing their efforts, or to encounter potentially negative guest experiences associated with sustainability action (De Steur et al., 2020).

Various management-related barriers have been described in the literature (e.g. OECD, 2021). This is illustrated in UNWTO (2023, p. 18):

“For an independent hotel, the same entity may own and operate the hotel. In rare cases, a major hotel chain may own, operate, and brand the hotel. In more cases, the hotel chain will operate the hotel but not own it. In even more cases, the operator will franchise the hotel to a different operator, and the building is owned by an entirely different entity. In the majority of cases for the global hotel chains, they franchise the hotel to a different operator, and that operator is an SME, which also owns the hotel.”

Franchising structures in particular may represent a barrier to decarbonization efforts, as chain membership implies a focus on short-term profit maximization with more limited climate change mitigation interests (Mahmood et al., 2021). In such cases, financial goals and risks contradict longer-term planning, also because of a lack of longer-term stability in management structures that reduce the interest in technical innovation or retrofitting. For example, old age can be highly relevant as the prospect of retirement and/or expectations to sell the business act as a barrier to investments and engagement with climate change. Likewise, management rotation can also lead to a situation where known sustainability issues are ignored because these will soon be “someone else’s” problem. In some countries, investments are planned for short-periods of time, allowing companies to withdraw if socio-economic stability is in question (Gössling, 2002). Such processes can be reinforced in countries where foreign capital is attracted based on tax rebates granted during the first years of operation (Andergassen & Candela, 2013).

Most SMEs are family-owned (Fonseca & Carnicelli, 2021). For such firms, socio-economic barriers can become relevant. Owners planning to retire or to sell the business may not consider investments in building envelope or technology, while also being less interested in learning

about energy efficiency measures, environmental management systems or certifications. Owner age as well as education consequently affect investments (Danielson & Scott, 2007; Futouris, 2013).

Owners and managers in SMEs engaging with climate change report confusion over their role, responsibilities, and options (Smith et al., 2022). When decisions are made to advance the SDGs in more strategic ways, this will often involve adoption of an environmental management system (EMS) or a certification order. Here, options are confusing (Chan, 2011), as reporting tools include frameworks, standards, ratings, and indices (Siew, 2015) that are tailored to specific businesses, and demand engagement to develop an understanding. Translating the EMS or insights from the certification order into reductions in resource use then confronts SMEs with further complexity: there is legislation that needs to be followed, staff behaviour that should be addressed, and different options for energy efficiency measures and technology innovation (Warren, 2017).

Administrative burdens (Threpsiadi et al., 2022) include complex, costly, time-consuming, and often lengthy approval processes for infrastructure change (e.g. building permits) or for grant and loan applications. Net-zero planning is outside the capabilities of owners and managers, and SMEs often lack formal planning and innovation strategies (Terziovski, 2010). Management frameworks include elements of leadership and vision (necessary operational change); planning (performance reviews); delivery (change management and programs) and iterative monitoring, reviewing, and reporting cycles (tactical and strategic reviews, along with progress reports) (Siew, 2015). This requires family businesses to go through a “recurring spiral learning process of diagnosing, planning, acting, and evaluating” (Fonseca & Carnicelli, 2021, p. 1). This may only be possible through external consultation, also through mediators, who may represent hotel or owner associations. Yet, SMEs may not have the resources to pay advisors or be reluctant to invest in expertise with uncertain benefits. SMEs may also be unwilling to exert pressure on supply chain partners, as a way of increasing up- and downstream mitigation action, as this can affect collaboration (Chan, 2021).

Data is a precondition for a wide range of applications, from national down to destination or industry type statistical analyses, to understand energy intensities, employment, or economic output. Such data is often unavailable (OECD, 2022). Most SMEs do not even collect basic data on energy use, which is valuable as an indicator and benchmark (e.g. energy use or emissions per guest night). An associated problem is that data is often considered confidential and thus undisclosed.

For businesses seeking to engage with sustainability, economic barriers comprise the cost of innovation, the availability of capital to invest, and the willingness of financial institutions to provide loans. Even though mitigation measures often have short pay-back periods, the perceived high price of new technology investments is a barrier in comparison to a perceived lower cost of periodical payments (e.g. Qamar et al., 2022). More significant measures, such as building envelopes for better insulation can have long pay-back times. Returns on investments for such initiatives require upfront investments that SMEs cannot finance (ITC (International Trade Centre), 2021). Even where businesses wish to invest, they may not be able to access loans (Hao & Hill, 2022). Perceived risks by lenders are exacerbated where firms seek to engage in more fundamental changes, as discussed by de la Cuesta-González and Morales-García (2022) in the context of the circular economy, noting that risks may be operational (lack of tools, high cost), market-related (uncertainty of consumer responses), innovation-related (lack of knowledge and skills), or regulatory (complexity of regulations). This suggests that different forms of uncertainty create financial risks (Chan, 2021). Managers fear that large investments imply profitability losses (Chan, 2021).

Perceptions of unfavorable financial environments reflect on informal planning processes that often characterize SMEs. These are compounded by misguided policies such as support for fossil fuel-based technologies, or SMEs limited bargaining powers with suppliers that forces them to pay retail prices for new technologies (Smith et al., 2022). Availability of technologies can be an associated problem, along with their ease of use, requiring monitoring and new routines and “innovation capability” (Saunila, 2020; Zawislak et al., 2012). Perceived reliability of new

technologies can thus also be a major barrier to innovation, as illustrated by electric car “range anxiety” (Noel et al., 2019).

There is a consensus that legislation is instrumental for climate change mitigation. Dye (1992, p. 2) observed that policies are “whatever governments choose to do or not to do”, with observations that legislation is often insufficient, including a lack of enforcement and controls, and inadequate penalties in case of non-compliance. For example, Kasim and Ismail (2012) find weak enforcement of environmental regulation in food services in Malaysia, and restaurateur support of government interventions updating laws, and enacting and enforcing regulation. This is of interest, as legislation is not considered a competitiveness barrier. For example, an ITC (International Trade Centre) (2021) survey finds that 75% of micro, 68% of small and 69% of medium sized enterprises do not perceive environmental regulation to be an obstacle to post-COVID recovery (companies in Benin, Botswana, and Zambia). Hao and Hill (2022) conclude that “lack of” Destination Marketing Organization (DMO) support, financial incentives, and regulation are key barriers to action.

Views on innovation in communities are important, as they reflect on social struggles that prevent businesses from engaging with sustainability and climate change mitigation (Chan, 2021). Where important peer-groups have negative views of technology change such as solar voltaic installations, electric cars, or cycling, this can be a significant barrier to progress, as it leads to early adopter exposure. Communities are close-knit, and guarded regarding change (Shamai & Ilatov, 2005). Collaborative roles in change have been highlighted in various publications, as individual SMEs can enable attitude change regarding sustainable practice (Cantele & Zardini, 2020) also because they are important nodes in destination networks, as they cooperate with other companies, and are interlinked with residents and local government (Vrontis et al., 2020; Journeault et al., 2021).

Analysis and discussion

The above review of pressures, incentives, and barriers to SME climate action reveals considerable complexity in interrelated social, economic, technological, and political dimensions. Findings confirm the importance of barriers that has been outlined in earlier publications (e.g. Álvarez Jaramillo et al., 2019; Chan, 2021; Chien et al., 2022), but they also suggest that it is useful to distinguish pressures and incentives. Figure 1 conceptualizes this perspective in the form of a model for greater climate change action. In very general terms, interventions would seek to increase pressures, lower barriers, and boost incentives.

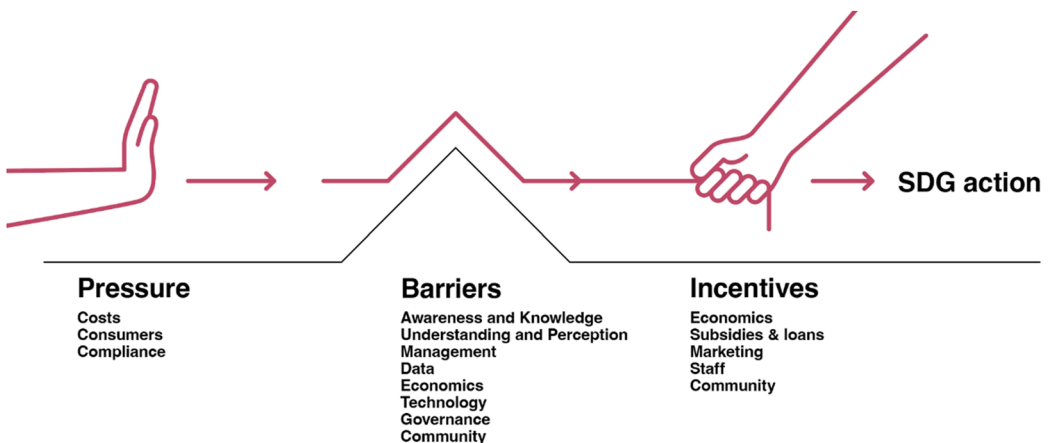


Figure 1. A conceptualization of SME pressures, incentives, and barriers.

Results also point to the role of interrelationships between stakeholders (SME owners, guests, and policy makers) as well as within the SME operational environment. SMEs, as emphasized by Smith et al. (2022, p. 119), view sustainable development as “neighbourliness, serving and empowering local communities in a response to social and environmental needs”. This provides a basis for net-zero transitions that involve co-operations between SMEs within the diverse geographical, social, and economic context of destinations (Beritelli et al., 2014). This would simultaneously expand on efforts on mitigation from the individual business to the destination. As destinations vary in scale, sometimes including networks of a few thousand residents and visitors, sometimes thousands of SMEs and tens of millions of visitors, differences need to be acknowledged. For example, smaller destinations are characterized by more limited, tightknit actor networks with more limited visitor numbers, as well as a high sense of place-identity. They may benefit from cooperation where climate change action can be defined as a common goal (the example of the German “climate island” Juist is discussed in Futouris, 2013).

Figure 2 provides a simplifying model illustrating interrelationships between key stakeholders: SMEs (within the wider destination context including residents), policy makers (local, regional, national), as well as guests. Policies are instrumental in increasing pressure or incentivizing business action. They can be implemented at different levels, i.e. nationally or at the community level (for trade-offs see, e.g., Reinhold et al., 2023), and they can be voluntary, market-based, regulatory, or offer financing mechanisms. Within this self-reinforcing process, SMEs implement climate action because of policy pressures.

Forward-looking businesses may then develop communication strategies to involve guests and customers in their work, emphasizing positive outcomes. Guest become more aware of SME ambitions and actions, and potentially turn into co-producers of climate action (e.g., by accepting fewer bed linen changes; Gössling et al., 2019). This reinforces support for mitigation among guests and businesses. In this model, policy makers, SMEs, and guests interact in self-reinforcing ways. This model can serve as a starting point for more complex causal loop diagrams exploring causal system dependencies (e.g. Crabolu et al., 2023).

Finally, these results lead to the question of system-level change, that is, the need to get a large number of SMEs invested in climate change action. This is conceptualized in Figure 3, which focuses on the destination as the social and physical environment in which SMEs are active. A central insight is that knowledge, policies, and financing mechanisms are instrumental

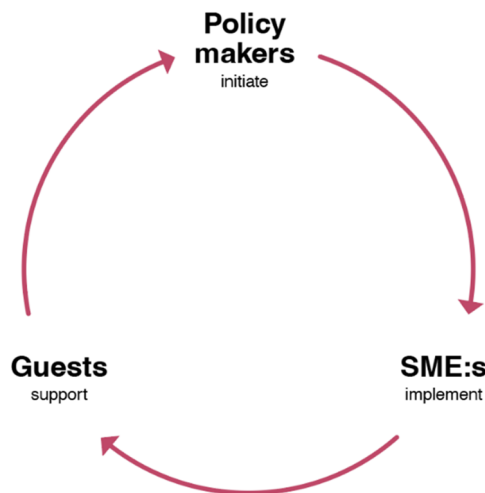


Figure 2. Support model of climate action.

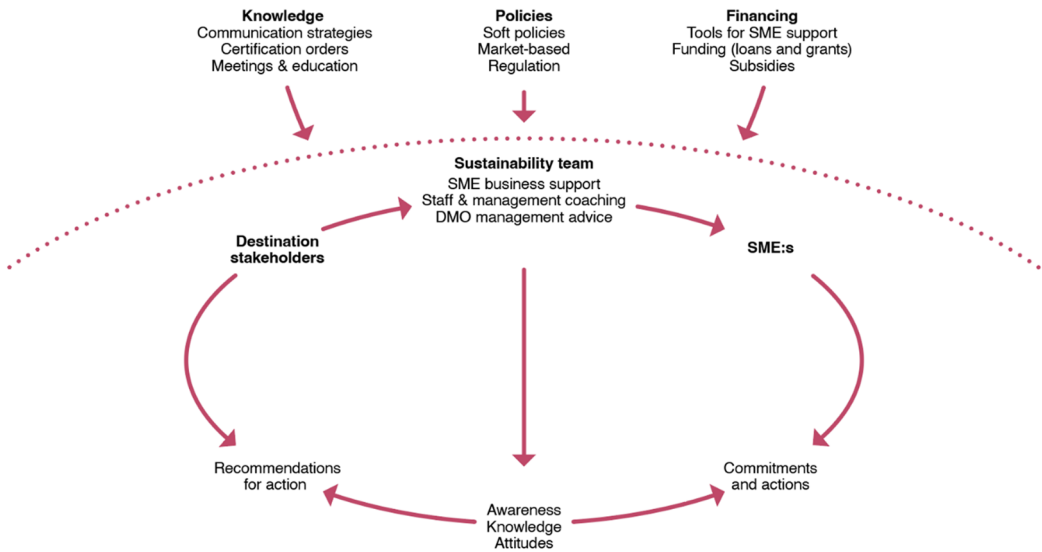


Figure 3. SME-destination activation model.

in supporting change. These represent an external enabling environment for destinations in which SMEs operate, and depend on mandatory or incentivizing policies. Translated into practice, there is an associated need to create momentum within SMEs towards climate action. Multiple barriers identified in this article suggest that an enabling entity in the form of a sustainability team is needed to coordinate, calculate, advise, communicate, convince, i.e. to adopt important mediating roles. An important practical precondition for systemic climate action at the destination level is thus for DMOs or comparable entities with system-level responsibility to establish such sustainability teams with specific capacities.

Sustainability teams, in this view, become co-producers who can lower awareness and knowledge barriers, advise, coach and educate destination stakeholders and SMEs. This leads to the definition of ‘recommendations for actions’ for destination stakeholders, defined with the DMO in cooperation with SMEs—and under consideration of unique destination attributes—and the development of ‘commitments and actions’ for SMEs. Processes may be initiated by defining first-stage action items that are easy to implement and do not require funding. Such items can be ‘ticked off’ and provide an inroad to further action. As an example, a restaurant may be advised to always offer non-meat alternatives and phase out problematic food items such as giant prawns; an accommodation business to source renewable power and to install solar power. Through such measures, SMEs engage with climate change mitigation, and expand their knowledge basis. More fundamental changes may then emerge out of these initial actions, such as the decision to develop local and climate-friendly menus, or to electrify a hotel’s energy system. As shown in Figure 3, these processes can then become mutually self-reinforcing.

Two examples can illustrate how this model works in practice. Turkey introduced legislation requiring mandatory certification for all accommodation businesses (<https://tga.gov.tr/sustainable-T&T-program>). This compels SMEs to engage with energy efficiency and broader sustainability concerns. Through the policy, sustainability engagement is mainstreamed nationally, forcing destination stakeholders and SMEs to engage with climate change mitigation. In Austria, the Climate and Energy Region scheme supports communities willing to engage with mitigation through financial incentives (www.klimaundenergiemodellregionen.at). Throughout the country, communities have applied for funds and developed plans to reduce energy use and emissions. These examples demonstrate that both coercive and incentivizing policies can drive climate

action, with the Austrian model perhaps involving more stakeholders and fostering more enduring momentum.

Conclusions

Individual contributions of SMEs to climate change are small, but their collective impact is considerable. The understanding how to involve SMEs in climate change mitigation is thus essential. This research finds that for each SME, there are boundedly rational reasons not to engage in mitigation action that ground in different barriers, and in a lack of pressures and incentives. This article highlights the need to enable, that is, to lower barriers, to heighten incentives and where pertinent require action through pressures. To achieve this, governance is of considerable importance, as is action at the destination level. As illustrated, governments may focus on coercive measures or incentive schemes; destinations are recommended to formally commit to climate action, and to hire sustainability managers. Ultimately, the most suitable set of policies and actions will however depend on the unique situation in the destination.

The analysis of the reviewed literature has led to the development of an SME activation model that can be adopted through DMOs and comparable entities. The analysis, however, also points to a series of non-exhaustive issues for future research in relation to challenges in the design of net-zero policies: A first challenge relates to the understanding of hierarchies among and dependencies between different measures to enable, coerce and incentivize SMEs. Future work could make use of causal loop diagrams and configurational methods to investigate how barriers, pressures *via* policies (and their regulatory, market-based or voluntary character), as well as incentives interact as necessary and/or sufficient to lead to SME mitigation. There is also a need to consider the balance between pressures and incentives, as pressures may, beyond thresholds, be perceived unfavorably by SMEs, while the scale of financial incentives may become a public financing issue. Time and scale open a second interesting area of consideration: Given hierarchies and relationships, how should different measures be used in sequence or in parallel to accelerate SME action? Incentives, pressures, and interventions to lower barriers also might operate at different overlapping timescales; yet decarbonization has to be complete by mid-century.

The design of policy interventions poses questions that relate to the locus of necessary resources and capacity to act from the (trans-)national to the local level. While [Figure 3](#) proposes a sustainability team to assist efforts, it is unclear what solutions these teams may develop, given the circumstances in specific destinations. Assigning these responsibilities to DMOs might seem like an easy answer. However, while those organizations in the best case take a systemic perspective as enablers and stewards of their destination, they are likely already burdened with a multiplicity of different mandates that surpass their resources. What complicates matters further is the distributed-network characteristic of community-type destinations in mature and emerging destinations in low to high income countries. More research is needed to consider the suitability of different contingent forms of SME support at the destination level.

Last, in the attempt to tailor SME-targeting interventions, future research may revisit assumptions. SMEs in different sub-sectors of the tourism industry operate under different business models, and will respond to interventions in different ways. Prospective classifications of SMEs and their decision-making will be helpful in identifying the best interventions (pressures/incentives). In this context, it is also of interest to better understand the role of lifestyles and pro-social motivations of managers that could provide inroads to action, including the role of gender and issues pertaining specifically to female owners. In the future, the dominating rationality of carbon constraints may lead to a situation in which it will be increasingly difficult for SMEs to stay on track to net-zero. Research should look into the implications in anticipatory ways to help avoiding disruptive low-carbon challenges. For this reason, there is also a need to trial the destination-focused SME engagement models developed in this article to better understand the contributions these can make to accelerating decarbonization efforts.

Notes

1. Equivalent: Includes CO₂ (carbon dioxide) and CH₄ (methane).
2. The literature sometimes also refers to micro-, small, and medium-sized enterprises.
3. A company is accountable for scope 1 and 2 emissions: "Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions." (GHG Protocol, 2023).

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