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Pro-environmental enterprise support: Developing a framework to unlock the potential of SMEs in sustainability transitions

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Abstract
Although entrepreneurship is well recognised as a crucial element in fostering economic development and growth, it is yet to be viewed as a significant force in sustainability transitions. Public policy related to the performance and growth of small businesses has, to date, paid little attention to the support mechanisms that help SMEs build capacity towards sustainable development. This paper offers a framework of pro-environmental enterprise support developed through a two-round e-Delphi study, followed by a 2.5-h virtual focus group involving 21 experts across the spectrum of business support agencies, local authorities, and EU-funded projects delivering pro-environmental enterprise support in England. The findings indicate that support for pro-environmental SME capacity building includes attention to eco-innovation, environmental strategy, environmental capability development, responsible leadership, sustainable value proposition, greening of supply chains, and clean growth skills. The study also concludes that support programmes and interventions need to be more attuned to the specifics of entrepreneurial learning; the challenges small business face in accessing, capturing, and utilising resources; and that broadening the scope and reach of pro-environmental support programmes needs to be matched by the competences of business support professionals.

Keywords
Delphi study, enterprise support, entrepreneurial learning, sustainability transition, small- and medium-sized enterprises

Introduction

Small- and medium-sized enterprises (SMEs) play a significant role in global economies, despite their historical underappreciation in addressing environmental challenges. In Europe, SMEs employ 66% of the total workforce and produce about 75% of the total industrial output (Chatzistamoulou and Tyllianakis, 2022; Fresner, 2010; Rotar et al., 2019).

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Moreover, SMEs contribute substantially to global greenhouse gas emissions, industrial pollution, and total industrial waste, accounting for 50% of global greenhouse gas emissions and 64% of industrial pollution (International Trade Centre, 2021; OECD, 2018; Mitchell et al., 2011). In the United Kingdom, SMEs contribute to 50% of business emissions, and one-third of SME expenditure on energy is wasted through inefficient practices (Blundel et al., 2021; British Business Bank, 2021). However, recent studies recognise that despite their environmental footprint, SMEs can drive environmental solutions by pioneering new green industries and generating eco-innovations, particularly in local and emerging market contexts (Koirala, 2018; Paterson et al., 2022).

A low carbon future needs to include SMEs given their crucial role in the economy (Chatzistamoulou and Tyllianakis, 2022; Fresner, 2010; Rotar et al., 2019), their environmental impacts (OECD, 2017; Koirala, 2019), and their capability to generate and employ clean technologies (Chatzistamoulou and Tyllianakis, 2022; OECD, 2017; Paterson et al., 2022). In this sense, many SMEs already play an active role in minimising environmental impact whilst at the same time taking advantage of clean growth. This transition has been facilitated by the various entities offering enterprise support for SMEs. Koirala (2019) identified 230 technical assistance programs in the EU, including programmes that provide access to information, case studies linked to resource efficiency measures, and tailored face-to-face services.

However, there is a meagre enterprise support literature that provides little by way of conceptualising the nature, characteristics, operationalisation, and challenges of pro-environmental enterprise support programmes. This study sets out to address the following research questions: 1: what is the scope of pro-environmental enterprise support? And 2: what are the characteristics of pro-environmental support interventions beneficial for the effective engagement of SMEs in sustainability transitions? This paper is based on two rounds of e-Delphi and a focus group exercise with enterprise support professionals. It goes on to develop a framework that conceptualises pro-environmental enterprise support and explores the challenges of its implementation.

The paper begins by setting out the theoretical framing of business support interventions that contribute to improved environmental performance in SMEs. The state of business support is reviewed with a particular focus on support interventions targeting environmental performance in SMEs in England. We then outline an initial conceptual view of the framework for pro-environmental business support. The methodological framing of our study is based on deploying the Delphi technique to test and refine the framework. A more refined view of the business support framework toward environmental outcomes is then proposed. We conclude by summarising contributions to theory and practice as well as providing recommendations to business support, policy, and scholar communities.

Enterprise support toward sustainability transitions

The literature in sustainability transition emphasises the need for a tailored and robust support for enterprise to fulfil its pivotal role in sustainable development (Keijzers, 2002). The emergence of the net zero agenda, as a manifestation of sustainability transition policies, is garnering increasing attention from scholars in both sustainability and enterprise development. Fenna and Marix-Evants (2023) highlight the urgency of building the place leadership and capacity at a local government level to support place-led and inclusive net zero transition. Innovation ecosystems that support open green innovation are argued to be of importance in supporting smaller businesses in sustainability transitions (Nylund et al., 2021). There is a

growing literature on the role of digital (Mazumdar et al., 2023), data-sharing, and open-source performance measurement technology for enabling sustainability transitions (Tan, 2023).

In relation to pro-environmental enterprise support, studies confirm financial as well as environmental benefits of energy efficiency programmes as the most wide-spread form of pro-environmental business support (Baranova and Paterson, 2017; Hampton et al., 2019) and the role of revolving funding mechanisms for simulating investment in EE programmes (Goudson et al., 2015) and SME behaviours, constraints, and attitudes towards the programmes (Bradford and Fraser, 2008). External environmental pressure supported by the programmes providing opportunities for green exploratory learning and radical green innovation are positively linked (Cui and Wang, 2022) Increasingly, place-based business support towards net zero transition is argued as a mechanism for bridging place-policy-practice nexus gaps in supporting pro-environmental businesses (Baranova, 2023).

Although business support programmes were delivered by local government and or LEP, university settings are recognised as important arenas for the development of low carbon and pro-environmental goods and services (LCEGS), access to green supply chains, and growth in renewables energy technology markets (Fichter and Tiemann, 2018; Prochorskaite, 2014). However, Baranova et al. (2020) report a lack of coordination of pro-environmental support at a regional level and deficiencies in the design of support interventions. Holt and Howard (2000) argue for a closer focus on sector-specific, local provision, and integrated environmental business support services at a regional level. Nevertheless, pro-environmental enterprise support often lacks a place-based focus and relevance to local and regional sustainability transitions (Baranova et al., 2020). This is compounded by a dearth of both conceptual and empirical basis for the configuration of pro-environmental enterprise support as a necessary lever for sustainability transition.

Support interventions facilitating pro-environmental enterprise practices in SMEs

The authors began to design their own EU-funded regional support programme (ERDF) for pro-environmental SMEs in 2015 (The D2*N*2 Low Carbon Project 2016 – 2022, Green 2019). To successfully address this, the research team reviewed existing academic research in enterprise support for pro-environmental SMEs but quickly agreed with Conway (2014), who notes the lack of attention paid to the nature of SME support provision focused on sustainable business improvement. Whilst reviewing the literature on interventions supporting pro-environmental practices and improvements in the environmental performance of SMEs, we identified eight areas which informed the development of the framework:

1. Sustainable value proposition
2. Environmental capabilities
3. Greening supply chains
4. Eco-innovation
5. Environmental strategy and leadership
6. Multi-stakeholder engagement
7. Clean growth skills
8. Entrepreneurial learning

We discuss these areas briefly below, mindful that each has Generawell-developed literature.

Sustainable value proposition

Following the ‘triple bottom line approach’, Patala et al. (2016) define sustainable value propositions as a ‘promise on the economic, environmental, and social benefits that a firm’s offering delivers to customers and society at large, considering both short-term profits and

long-term sustainability'. Further, Romero and Molina (2011) argue that 'value creation is a collaborative process with partners, suppliers and customers that come together in close relationships within collaborative networks that aggregate knowledge, resources, and activities in "value constellations" to co-produce value' (2011, p.450). Therefore, the development of a sustainable value proposition requires continuous attempts from owners/managers to align value creation with emerging economic, environmental, and social demands of the communities they serve.

Environmental capabilities

Environmental capabilities are those that allow a firm to reduce its ecological footprint (Baranova and Meadows, 2017) and are crucial to the success of its environmental strategy (Rugman and Verbeke, 2008; Klassen and Whybark, 1999; Aragon-Correa and Sharma, 2003; Buysse and Verbeke, 2003a). Examples of environmental capabilities include resource efficiency skills, carbon foot printing, and circular economy practices.

Green supply chains

Supply chain pressure offers a valuable means of influencing the environmental behaviour of SMEs. Environmental awareness in global supply chains also affects which suppliers a firm is willing to use, so suppliers receive pressure from buyers to reduce impact (OECD, 2018). In this perspective, green supply chains (GSCs) aim to minimise their environmental impact and maximise resource efficiency related to material acquisition, processing, packaging, storage, transportation, product use, and final scrapping (Srivastava, 2007). GSCs specifically focus on designing environmentally friendly supply chains by reducing waste, reducing costs, and guaranteeing the achievement of sustainability benefits and competitive advantages (Tumpa et al., 2019).

Eco-innovation

Eco-innovation relates to environmental aspects of product and service design, and the marketing strategies (Achmad et al., 2023) to reduce environmental impact or enhance firms' sustainability. In this perspective, SMEs can contribute to the low carbon transition through various other means beyond eco-innovation alone. SMEs hold great potential to create innovative solutions for green products, services, and sustainable business models but often require external support to address their eco-innovation challenges (Kanda et al., 2019; Klewitz et al., 2012).

Pro-environmental business support projects can play a crucial role in bringing together key players, promoting the exchange of experiences and knowledge, and facilitating collective action necessary to drive innovation processes (Matschoss and Heiskanen, 2017). Apart from eco-innovation, SMEs can influence supply chains, advocate for policy changes, adopt sustainable practices in their operations, and facilitate the adoption of low carbon technologies among their peers. Therefore, it is crucial to broaden the perspective on SME involvement in the low carbon transition beyond eco-innovation to fully harness their potential for sustainability.

Environmental strategy and leadership

Environmental strategy (ES) is understood as a set of activities that mitigate a firm's impact on the natural environment (Walls et al., 2011). From a business perspective, ES comprises environmental measures for energy efficiency and resource conservation that can lead to lower costs and better profit margins (Nejati et al., 2014). The ES has a direct link with responsible leadership (Kerr, 2006).

The United Nations define responsible leadership as '... the global exercise of ethical, value-based leadership in the pursuit of economic and societal progress and sustainable development (and ...), the art of motivating,

communicating, empowering, and convincing people to engage with a new vision of sustainable development and the necessary change that this implies' (Szczepańska-Woszczyna et al., 2015). In an enterprise context, responsible leadership is about the integration of social, environmental, and ethical interests with human rights and consumer concerns with business operations driven by core strategy in close collaboration with key stakeholders (EC, 2011).

Multi-stakeholder engagement

The role of the multiple stakeholders in the success of environmental strategies has been considered by several studies (Buysse and Verbeke, 2003b; Fineman and Clarke, 1996; Sharma and Henriques, 2004). As discussed earlier, stakeholder networks are argued to be even more important for SMEs than for larger firms in enhancing environmental practices and supporting innovation (Halila, 2007). Multi-stakeholder initiatives (MSIs) are also seen as important mechanisms for achieving sustainable development goals (SDGs) (UN, 2015). Typically, MSIs involve stakeholders from business, government, and civil society (Selsky and Parker, 2005) and hold the promise of reconciling these groups' divergent interests and perspectives to achieve solutions that are accepted and supported by all (Tengö et al., 2017).

Glean growth skills

Clean growth or green skills are those needed to adapt products, services, and processes to climate change and related environmental requirements and regulations that will be needed by all sectors and at all levels of the workforce. Cedefop (2015) defines green skills as 'the knowledge, abilities, values, and attitudes needed to live in, develop, and support a sustainable and resource-efficient society'. They argue the identification, assessment, and creation of those skills are essential in transitioning to a low carbon economy and being able to capitalise on all the social, environmental, and economic benefits that this brings.

Entrepreneurial learning

Entrepreneurial learning (EL) explores how business owners recognise and act upon business opportunities. Taking the definition of entrepreneurial learning as 'an experiential process of learning to recognise and act on opportunities and of shared value creation' (Rae, 2017:487), learning towards pro-environmental organisational practices involves action-based as well as formal learning approaches. From the business support perspective, EL offers a useful frame to understand how SMEs learn and, as noted by Paterson et al. (2022), in the arena of pro-environmental SMEs, enterprise learning can be an enabler of pro-environmental practices (Conway, 2014), eco-innovations (Brown, 2012), and has the potential to inspire other businesses to become more pro-environmental (Knight and Paterson, 2018).

Conceptual view

Paterson et al. (2022) illustrate our initial conceptual view for the design of enterprise support towards environmental outcomes (presented in Figure 1). It outlines the focus on skills development toward improving environmental performance as well as strengthening the growth potential SMEs towards cleaner growth.

The figure suggests a combination of support activities aimed at enhancing small businesses' preparedness for improved environmental performance. While these areas are individually well-discussed in entrepreneurial literature, their combined significance is not well-understood. The assumption that the development of a sustainable value proposition is central to business support guided the design of the e-Delphi questionnaire used to validate the framework's features and explore

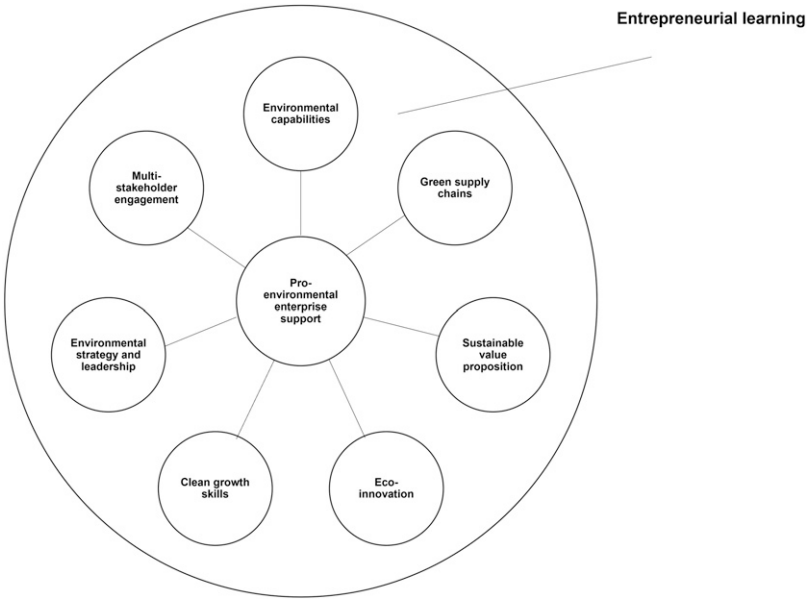

Figure 1. Pro-environmental enterprise support – key ingredients (an initial view) – Source: Paterson et al. (2022).

implementation challenges. Through expert input, the Delphi approach assesses the validity of design features of enterprise support aimed at achieving improved environmental outcomes.

Study design and methods

A two-round Delphi study was conducted between December 2019 and May 2020 with 12 experts from business support agencies. It was administered electronically and has been described as e-Delphi by Hasson and Keeney (2001). After results of two rounds of e-Delphi were analysed, a half-day focus group activity was undertaken in early June 2020. The 15 focus group participants included experts from support agencies and university-led business support programmes around low carbon sustainability. The purpose of the focus group was to validate the outcomes of the e-Delphi (Lincoln and Guba, 1985), as well as explore opportunities for operationalising the framework adaptation across enterprise support agencies regionally and nationally.

The overarching rationale for expert selection was grounded in Delphi methodology (Lincoln and Guba, 1985) and prompted the selection of experts from professional and academic backgrounds working in the arena of pro-environmental business support. The inclusion criteria were set as follows: area of expertise – provision of business support with an environmental focus including eco-innovation and social entrepreneurship; years of experience – 3 years upwards; location – United Kingdom and Ireland; and professional background – professional and academic. The breakdown of the experts is presented in Table 1.

The experts were asked to anonymously indicate their levels of agreement with a few statements. The questionnaire addressed the eight areas of pro-environmental enterprise support (Figure 1), plus the effectiveness of the visual representation of the framework. There were two rounds of online questionnaires,

followed by feedback to participants that included a statistical summary of the group's responses and adaptation of relevant sections.

The study involved experts with an average of nine years of experience in pro-environmental business support. Most of their projects were located in South England and the Midlands, with fewer projects in the North of England and one in Dublin. Participants were selected through professional networks involved in national and EU-funded projects, as well as connections with the policy community, including local councils and regional Local Enterprise Partnerships. Energy efficiency and business growth were the most common areas of expertise among the experts, while supply chain, eco-innovation, urban development, and environmental policy were less common. Most came from professional backgrounds. Six experts participated in both the e-Delphi and focus group, five participated only in the e-Delphi study, and nine participated only in the focus group.

The e-Delphi research process followed the main characteristics of the generic Delphi method, including iteration and multiple stages, expert panel anonymity, controlled feedback, and the opportunity for experts to revise their answers (Powell, 2003; Hsu and Standford, 2007). While the traditional Delphi method aims to achieve consensus for decision-making, variations like the 'Policy Delphi' focus on identifying and evaluating potential solutions for a selected issue, revealing arguments for and against each solution (Turoff, 1970, 2002). In our study, we deployed the Policy Delphi approach to gather opinions from a diverse group of experts working in various levels of business support, allowing for representation of pro-environmental support mechanisms across different funding programs, projects, and institutions. Each stage of the study will be detailed further.

E-Delphi round one

A total of 21 experts were approached to take part in the study in November 2019. Twelve agreed to participate and were sent the e-Delphi and necessary research ethics documentation in December 2019. The e-Delphi design had nine sections surveying areas of enterprise support provision including the visual representation of the relationships among the eight areas forming pro-environmental enterprise support (Figure 1). The experts were asked to return their views within 2 weeks, with most of them meeting the timing requirement. The results of the e-survey were analysed using Microsoft Forms functionality followed by statistical analysis of agreement levels and the qualitative answers provided throughout the e-Delphi in the category of 'other' responses where applicable. The analysis of data from round one informed the approach and design of the e-Delphi instrument in round two.

E-Delphi round two

In round one of the study, 12 respondents participated, but only six agreed to participate in round two. This 50% participation rate from the original selection is common in Delphi studies with two rounds (Keeney et al., 2001). In this round, experts were asked a focused set of questions about the areas that attracted the least agreement in round one. These areas included environmental strategy and leadership, greening of supply chains, and clean growth skills. In addition to these areas, a graphic representation was also explored in this round. Like the first round, experts were asked to return their responses within a period of 2 weeks. The response data were analysed and informed the final stage of the study; a focus group with a panel of experts exploring the outcomes of the study after two rounds of e-Delphi, applicability of the framework developed and future directions of research.

Focus Group: As a final stage of the study, the focus group fitted well with study aspirations to explore practical value of the framework and its operationalisation. The focus group was originally planned to take place on a university campus in March 2020. However,

Table 1. Experts in Delphi study.

Expert ID	Location of the project	Years of experience	Project Focus	Professional/ academic background	Participation: e-Delphi/focus group
Expert 1 (E1)	Birmingham	6	Energy efficiency	Academic	E-Delphi and focus group
Expert 2 (E2)	Dublin	3	Energy efficiency	Professional	E-Delphi and focus group
Expert 3 (E3)	Nottingham	5	Energy efficiency, eco-innovation, business growth, and supply chain	Professional	E-Delphi
Expert 4 (E4)	Derby	10	Energy efficiency and business growth	Professional	E-Delphi and focus group
Expert 5 (E5)	York	25	Energy efficiency, eco-innovation, and business growth	Academic	E-Delphi
Expert 6 (E6)	Oxford	4	Eco-innovation, business growth, and urban development	Professional and academic	E-Delphi
Expert 7 (E7)	Hull	10	Energy efficiency and business growth	Academic	E-Delphi and focus group
Expert 8 (E8)	Leicester	7	Energy efficiency, business growth, and supply chain	Professional	E-Delphi and focus group
Expert 9 (E9)	Maidstone	10	Energy efficiency, eco-innovation, business growth, supply chain, and resource efficiency	Professional	E-Delphi
Expert 10 (E10)	Portsmouth	8	Energy efficiency, eco-innovation, and business growth	Academic	E-Delphi
Expert 11 (E11)	Chesterfield	20	Business growth	Professional	E-Delphi and focus group
Expert 12 (E12)	London	4	Energy efficiency	Professional	E-Delphi
Expert 13 (E13)	Dublin	5	Energy efficiency	Professional	Focus group
Expert 14 (E14)	Brighton	10	Business growth and eco-innovation	Professional	Focus group
Expert 15 (E15)	Liverpool	5	Pro-environmental business support	Professional	Focus group
Expert 16 (E16)	Liverpool	5	Eco-innovation	Academic	Focus group

(continued)

Table 1. (continued)

Expert ID	Location of the project	Years of experience	Project Focus	Professional/ academic background	Participation: e-Delphi/focus group
Expert 17 (E17)	Liverpool	12	Eco-innovation and business growth	Professional	Focus group
Expert 18 (E18)	Portsmouth	8	Business growth	Professional	Focus group
Expert 19 (E19)	Liverpool	5	Eco-innovation	Academic	Focus group
Expert 20 (E20)	Brighton	7	Social justice and environmental policy	Academic	Focus group
Expert 21 (E21)	Brighton	7	Business growth	Academic	Focus group

due to the coronavirus outbreak and government guidance during the COVID-19 pandemic that included social distancing restrictions, the focus group was organised online. Being mindful of the possibility of a high attrition rate common in Delphi studies and the potential reduction in participation due to the coronavirus outbreak, the panel of experts was expanded thus broadening sectoral and regional representation of experts.

The recruitment of the focus group participants was based on opportunity sampling (Patton, 2002). We invited all the respondents from the first and second rounds of e-Delphi and we widened the expert panel by inviting experts from broader professional networks and newly established business support projects since the study began. The new participants allowed us to reflect on the findings from an outsider's perspective and to incorporate new viewpoints into the results.

A total of 15 experts participated in the focus group in June 2020, with nine experts not involved in the e-Delphi rounds and five participating in both the e-Delphi and the focus group. The focus group sessions were recorded with the participants' permission. Later, the recordings were transcribed verbatim and analysed to explore the theoretical and practical contributions of the framework. The research team presented the results of the study, including validation and correction of the results, and facilitated discussions among the experts regarding issues of transferability, implementation challenges, and adaptation of the framework (Lindstone and Turoff, 1975).

Analysis

In the first round of the survey, respondents were presented with nine sections exploring different areas of pro-environmental business support as well as the effectiveness of the visual presentation of the conceptual framework (Figure 1). The experts were asked to indicate levels of agreement utilising a five-point Likert scale. Table 2 shows the mean rating for each of nine areas explored. Five areas attracted a fair level of agreement with a mean rating above 4. Out of these five, a high level of agreement was reached in relation to two areas in particular – eco-innovation (mean rating of 4.75) and

environmental capability at 4.31 mean rating. Four areas out of nine surveyed attracted lower levels of agreement with the following mean ratings respectively: environmental strategy and leadership (3.94); visual representation of the framework (3. 92); greening of supply chains (3.86); and clean growth skills (3.83).

The qualitative comments after the first round of Delphi indicated the need to improve the visual representation of the framework as well as explore the agreement level in the categories that attracted lower mean ranking, namely, environmental strategy and leadership, greening of supply chains; and clean growth skills. The second round of e-Delphi also sought to confirm the value of eight elements of pro-environmental business support proposed in the first round of e-Delphi. The outcomes of the second round of e-Delphi (Table 3) show improved mean ratings for the areas surveyed.

In round two of the e-Delphi, increasing levels of agreement among experts were observed for the selected areas surveyed. While the first position remained unchanged, the visual representation of the framework garnered higher agreement levels. Environmental strategy and responsible leadership, as well as greening of supply chains, showed improved mean ratings and occupied positions four and five, respectively. Entrepreneurial learning, value proposition, and clean growth skills held lower positions, with multi-stakeholder engagement occupying the final position. The analysis now shifts to examining e-Delphi responses and focus group materials for each element of pro-environmental business support.

Position 1: Eco-innovation

The experts consistently showed a high level of agreement in relation to the eco-innovation element in both rounds of e-Delphi. There was a high level of agreement that SMEs need support with eco-innovation (mean rating <4.5) and this type of support is different from large organisations (mean rating <4.8). When exploring the aspects of business support for eco-innovation that needs most attention, the panel agreed that innovation management in SMEs and a collaborative approach to innovation development through internal and external partners are most important, each attracting mean ranking over 3.5. Whilst considering internal and external drives for eco-innovation, the panel demonstrated a high level of agreement towards internal drivers, with the most important being a company's Corporate Social Responsibility (CSR) stance and availability of technical competences for innovation. Among the external drivers for eco-innovation, competition was deemed the most important factor with an agreement mean rating over 4.0.

The experts were asked about the most effective channel for fostering eco-innovation in SMEs. The channel that attracted the highest

Table 2. Relative ranking of pro-environmental business support areas – round one e-Delphi.

Position	Area of business support	Mean rating
1	Eco-innovation	4.75
2	Environmental capability	4.31
3	Entrepreneurial learning	4.17
4	Value proposition	4.16
5	Multi-stakeholder engagement	4.05
6	Environmental strategy and leadership	3.94
7	Framework visual representation	3.92
8	Greening of supply chains	3.86
9	Clean growth skills	3.83

Table 3. Relative ranking of areas of pro-environmental business support – round two e-Delphi.

Position	Area of business support	Mean rating
1	Eco-innovation	4.75
2	Framework visual representation	4.36
3	Environmental capability	4.31
4	Environmental strategy and responsible leadership	4.25
5	Greening of supply chains	4.18
6	Entrepreneurial learning	4.17
7	Value proposition	4.16
8	Clean growth skills	4.08
9	Multi-stakeholder engagement	4.05

agreement mean rating was the supply chain (4.42) followed by science parks (4.17) and incubators (4.08), whilst universities attracted least agreement (2.08) from the panel. Expanding further on the role of supply chain in innovation, E1 highlighted the importance of non-competitive component supplies in driving product and service improvements, fostering innovation, and enhancing environmental outcomes across the supply chain and individual SMEs. This finding aligns with previous studies emphasising the role of supply chains in SME innovation (Al-Hakimi et al., 2021; Assumpção et al., 2022; Bag et al., 2022). Despite universities positioning themselves as innovation hubs, they have yet to gain substantial credibility as channels for eco-innovation. Additionally, regulatory pressures were identified as significant drivers for innovation, with emphasis on the importance of appropriate regulations, monitoring processes, and governance (E12).

The focus group evidence confirmed that a focus on eco-innovation is a strong aspect of pro-environmental business support. In this arena, universities emerge as strong players due to their subject expertise and availability of testing facilities 'to help SMEs innovate, particularly in the areas of engineering and science, but also across other disciplines' (E7). E20 noted that 'many SMEs are unsure about what "innovation" means, so using other ways of describing it can be helpful'. The experts talked about the link between eco-innovation and low carbon/green skills shortages which often limit the innovation potential of SMEs in the areas of low carbon technologies and renewables.

Position 2: Visual representation

The visual presentation scored more highly in the second round of e-Delphi, due to improvements made as a result of the feedback received in round one. Figure 2 represents the improvements included the re-positioning of environmental learning, removing numbering, and clarity in the visual re-presentation of the framework.

The focus group participants found the visual representation of the framework to be effective in two main ways. Firstly, it enhances the offering of business support in energy efficiency and environmental practices. Secondly, it helps business owners compartmentalise what is more important for them regarding the business support offer. The design of the framework received positive feedback regarding the clarity it provides for businesses looking to strengthen their capabilities and respond to emerging green market niches and the evolution of low carbon industries and sectors. E15 and E17 emphasised the importance of a sustainable value proposition in both business growth strategy and the operational makeup of the company for

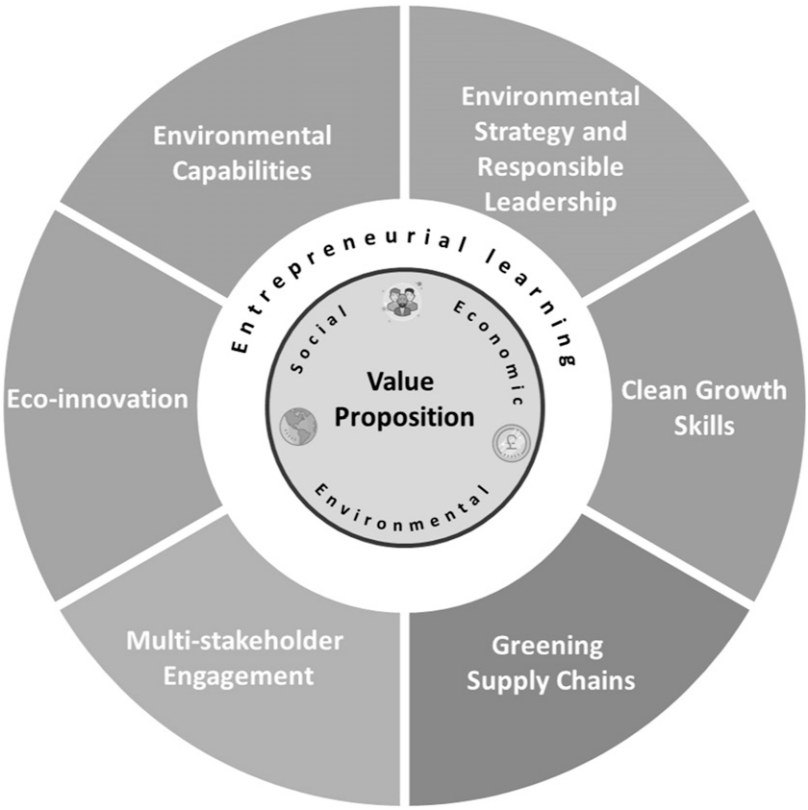

Figure 2. A framework for pro-environmental enterprise support: A refined view.

sustainable enterprise. The initial focus of enterprise support is on helping businesses articulate their sustainable value proposition, which can then inform the design and delivery of support interventions across various areas of business operations.

Position 3: Environmental capability

Environmental capability emerged as a significant element of pro-environmental business support, garnering the second-highest level of agreement from the expert panel across two rounds of e-Delphi. In identifying the most significant aspects of environmental capabilities for development in SMEs, three areas received similar levels of agreement: waste management, energy efficiency, and recycling and re-use, each with mean ratings of 4.83, followed closely by resource efficiency at 4.75. Sustainable procurement and sustainable supply chain management skills were rated slightly lower, with a mean rating of 4.5. Skills related to pollution prevention, circularity, and environmental management received mean ratings above 4, while skills in biodiversity preservation and regeneration attracted the least agreement among the participants. Experts from academic backgrounds expressed more scepticism about this aspect of environmental capabilities compared to those from professional backgrounds. One expert emphasised the importance of a holistic approach to environmental capability development, highlighting the need for a better understanding of the whole picture before breaking it down into individual

elements. This underscores the significance of a holistic assessment of environmental capabilities as a starting point for understanding the requirements for pro-environmental enterprise support, which, in turn, informs the design and delivery of support interventions.

Position 4: Environmental strategy and responsible leadership

This aspect of pro-environmental enterprise support attracted weaker agreement from the experts in the first round of e-Delphi. The overall mean rating for this area was just below four at 3.94. However, with further attention to this area, the mean rating improved to 4.25. The highest level of agreement in this area was around the role of business support in developing sustainable business models (4.8) and support with the development of business strategies which balance competitiveness and environmental aspirations (4.6). The experts also showed a high level of agreement about the role of pro-environmental enterprise support in the development of responsible leadership at a firm level. There was far less agreement about the role of enterprise support in responsible leadership development. Overall, this aspect of support attracted more agreement from the experts in the second round of e-Delphi when the questions were directed to a 'desired' state of the pro-environmental enterprise support rather than a present state. This is consistent with a narrow focus on pro-environmental support for energy efficiency (Baranova et al., 2020) and the lack of a leadership development dimension in most business support interventions.

Strengthening the environmental strategy and responsible leadership feature of the framework was confirmed as one of the priority areas for development in business support packages aimed at boosting the pro-environmental orientation in SMEs. E8 observed that this feature presents 'a great opportunity for collaborative action … and getting the people who need to be brought in to succeed with collaborative bids and enterprise support programmes'. Many commented that environmental strategy and responsible leadership development are largely omitted from business support programmes and that this feature requires stronger representation to ensure 'low hanging fruit' interventions, usually around energy efficiency, 'stick' and translate into long-term, and concerted and continuous efforts towards small business 'greening'.

Position 5: Greening of supply chains

In the first round of e-Delphi, this area did not receive strong agreement from the expert panel initially. Despite ample theoretical and empirical evidence supporting the role of supply chains (Fichter and Tiemann, 2018; Prochorskaite, 2014) in driving environmental improvement in SMEs, experts were initially not convinced about its role in pro-environmental enterprise support. While there was high agreement regarding the role of the supply chain in minimising waste and pollution, low levels of agreement were observed regarding its potential to improve SME performance in terms of quality and productivity. Experts indicated low levels of business support provision that actively connects SMEs with supply chains or supports the greening of local supply chains. However, when asked if these elements are desired in the configuration of pro-environmental enterprise support, experts showed high agreement, with a mean rating of 4.5 each. Experts also commented on the challenges of connecting SMEs with supply chains, noting that supply chain engagement is notoriously difficult to establish, and SMEs may feel they have limited control. Additionally, E8 highlighted the potential for behavioural changes as a side-effect of greening local supply chains, suggesting that committing to greening initiatives could lead to comprehensive changes in attitude but noting that the two do not necessarily follow automatically.

When discussing challenging areas of the framework for implementation, greening

supply chains attracted a lot of comments. E20 recalled that in the project they lead, the work to support the entry of SMEs into green supply chains included 'meet the buyer' events and making links between 'corporates' and SMEs to champion innovation. 'We found this area challenging and difficult because of how hard it is for SMEs to get into corporates and the level of disappointment because corporates take such a long time to make decisions and the SMEs get frustrated' (E20). Others commented that SMEs rarely feel 'empowered' to access unfamiliar supply chains either due to the level of competences required and/ or a lack of resources (most common time) to develop the required competences alongside the day-to-day running of their business. 'SMEs come to us for impartial knowledge/ advice; they want to engage but don't know how to do it' (E1).

Position 6: Entrepreneurial learning

This feature attracted a good level of agreement across the experts, with a mean ranking of 4.17. When exploring the present approach to learning as part of enterprise support provision, the experts indicated high levels of agreement across the following characteristics: Learning that is rooted in the experience of participants, practical and sector-specific, collaborative, and enhanced through knowledge sharing with peers. The aspects seen as problematic were tailoring learning to specific needs of SMEs; learning not always being problem-based; and learning taking place in formal settings. The last does not align with the literature on entrepreneurial learning, which suggests that informal settings are particularly beneficial to learning within entrepreneurial networks. (Foster and Brindley, 20).

When assessing the importance of various stakeholders for learning, as part of the enterprise support interventions, the experts agreed that learning benefits from the appropriate competences of business support staff (4.17 mean rating), working with universities (4.42), and NGOs (4.08). The least agreement was reached about the benefits of working with public sector organisations (3.75). This outcome was unexpected as a number of pro-environmental support programmes are delivered either solely by local councils or in partnership with universities and LEPs. The experts commented on the differences in quality of learning experience in generic support programmes and those focused on specific locations and/or technical assistance, for example, low carbon capacity building. E17 commented on the opportunity the framework offered in shifting the focus of business support interventions from transactional interfaces to more transformational business support with a focus on learning and capacity building.

Position 7: Sustainable value proposition

The experts demonstrated a high level of agreement, at mean rating of 4.3, about enterprise support interventions assisting the development of a sustainable value proposition that balances economic, social, and environmental value creation. Despite this response, the elements of enterprise support that drive economic value creation scored the highest agreement level in this category at 4.5 and above, confirming the importance of enterprise support in identifying potential cost saving and resource efficiencies for SMEs (4.6) and providing economic and financial incentives, for example, grants for energy and other forms of capital investment to SMEs (4.5). The other aspects of sustainable value creation, such as environmental performance and social value creation scored less, but still above a mean rating of 4.0. According to E8, the current state of enterprise support lacks a strong evidence-based approach and links to local industrial strategies:

> 'There is an element of enterprise support needing to inform Local Industrial and Clean Growth strategies. It is important to recognise

> that there won't always be an evidence-base or information around the local economic data regarding low carbon…Many of these elements seem like the traditional model (e.g. grants run by local authorities along with some basic advice leading to LED light replacement). While traditional models like grants and basic advice have shown efficacy, there's recognition of the need for complementary strategies to accelerate sustainability efforts' (E8).

The view that enterprise support should actively inform local industrial strategies is of note, as such an approach would support effective strategy formulation through access to information about small business needs and the support required as well as the readiness required to support regional and national low carbon infrastructure projects such as carbon reduction commitments.

Position 8: Clean growth skills

This aspect attracted the least level of agreement in the first round of e-Delphi. The experts indicated low levels of agreement about the role of enterprise support in supporting green skills agenda at regional and sectoral levels (mean ranking 3.6). Although a skills strategy is commonly part of local industrial strategies, the development of green skills as part of the broader skills agenda is often ill-defined and the role of business support mechanisms largely overlooked. The e-Delphi probed these links and potential to drive green skills development agenda through the enterprise support mechanisms.

The experts showed a low level of agreement that the identification of the current and future skills gaps is evidence-based, commenting that the approach to skills development in the arena of environmental sustainability is not always evidence-based. The openness towards 'creative thinking and trial methodologies' was identified as important for decision-making in complex and fast emerging scenarios of sustainability transitions (E12).

Position 9: Multi-stakeholder engagement

Although scoring the lowest agreement rating out of the nine areas surveyed, this area of business support attracted expert agreement with a mean ranking over 4.0 for the majority of questions surveyed. The experts demonstrated agreement about support mechanisms serving as platforms for collaboration towards sustainable enterprise growth, innovation, and problem-solving (4.0 mean ranking for each). In terms of the effectiveness of such platforms, the highest expert agreement level was for open calls for partnership working and sustainable supply chain forums (with a 4.42 mean ranking for each) followed by pro-environmental business networks and demand-side/end-user consultation forums (with a mean ranking of 4.33 for each). Eco problem-solving forums attracted the least level of agreement (4.08) with academic experts being more sceptical about the effectiveness of these forums when compared with professional experts.

When assessing the state of current pro-environmental enterprise support, the experts indicated low levels of open dialogue and information sharing amongst various regional stakeholders. The experts signalled moderate levels of stakeholder diversity in the design and implementation of enterprise support (3.75 mean ranking). They also assessed opportunities for SMEs to engage with other businesses from different sectors and sector agencies as moderate, with mean ranking of 3.92 of a blended approach to enterprise support provision, that is, combining face-to-face with digital delivery modes, the experts indicated much room for improvement (with a mean ranking of 3.75) in the current state of enterprise support interventions.

Stakeholder engagement was highlighted as the aspect that often requires substantial efforts from support agencies and projects. Success of

engagement is context specific and dependent on the degree of stakeholder readiness to engage. There is a need to design and encourage processes through which engagement is to take place and sometimes stakeholders 'need to be bought into the processes' (E8). This requires not only careful identification and selection of the stakeholders to engage with, as part of enterprise support programmes and interventions, but also designing effective processes and platforms for stakeholder engagement. This, in turn, relies on the competences of business support professionals in stakeholder management and facilitation of collaborative SME-stakeholder interfaces.

Discussion

Pro-environmental enterprise support: Scope and reach

The results suggest a need to broaden the scope of enterprise support programmes and interventions to strengthen the role of SMEs in sustainability transitions. As suggested by Paterson et al. (2022) and Ridha et al. (2020), there is a need for targeted support for pro-environmental SMEs, with Paterson et al. (2022) proposing a framework for such support and Ridha et al. (2020) highlighting the potential of pro-environmental behaviour in reducing environmental impact.

This implies a paradigm shift from the prevailing focus on resource efficiency towards sustainable development where the role of the enterprise is seen as one that contributes towards Sustainable Development Goal (SDG) 8 'inclusive and sustainable economic growth, employment and decent work for all' (SDGs, 2015). In this role, an enterprise not only needs to carefully observe its utilisation of resources but also strive to be a contributor to sustainable development by innovating, collaborating, learning, and sustainable value generation. To achieve this, enterprise support must ensure businesses are equipped to deliver sustained economic growth, job creation, inclusivity, and successful enterprise growth and development whilst also fulfilling pro-environmental and pro-social ambitions.

The proposed framework confirms that enterprise support should focus on building the environmental capabilities of SMEs, enhancing their potential for eco-innovation, and becoming a platform for clean growth skills development whilst advocating that businesses widen their value proposition beyond economic aims, to include environmental and social dimensions. In addition, whilst responsible leadership development has often been considered beyond the scope of traditional enterprise support interventions, increasingly it is coming to the forefront of developing enterprise owners/managers into change-agents for sustainability transformations (Piwowar-Sulej and Iqbal, 2022, Cooper, 2020). Multi-stakeholder engagement, as a vehicle for shared value creation (Porter and Kramer, 2011), also offers opportunities for identifying stakeholder relationships, exchanges, and interactions for greater collaborative and mutually beneficial value creation in the context of environmental sustainability.

The analysis suggests that the reach of pro-environmental enterprise support programmes needs to extend to include a stronger representation from the following environmental stakeholder groups (a) policy community; (b) other enterprise support agencies; and (c) supply chains. The experts commented that local enterprise strategies only weakly articulated business support mechanisms and environmental sustainability targets were often overpowered by a focus on economic growth (Baranova et al., 2020) and lacked articulation of place-based specifics in strategy formulation and implementation mechanisms. However, as Koirala (2018) demonstrates, business support programmes across the EU can be a rich source of data about the barriers SMEs face when attempting to improve their environmental performance and/or engaging in the clean growth agenda. Programmes can also report on what works well and signpost organisations to

showcase the best practice in various sectoral and local contexts. However, a sustainability focused approach to developing environmental ecosystems in regions requires a well-coordinated and collaborative approach across the various business support agencies. Whilst developing such relationships takes time, the literature reports the positive outcomes of ensuring small businesses are effectively supported in the regions (Einiö and Overman, 2020). Support interventions that encourage SMEs' access to local supply chains also have strong potential for encouraging SMEs to adopt a more pro-environmental stance and driving environmental performance improvements (Koirala, 2018), whilst on the other hand, diffusing eco-innovation across supply chains can accelerate sustainability transitions by supplying LCEGS[1] and low carbon and renewable technologies.

Pro-environmental enterprise support: Interventions

The analysis of study data confirms the preference towards business-focused interventions when supporting businesses towards environmental sustainability. In terms of the focus of interventions, the experts distinguished between the initial interventions that often target 'low hanging fruit' and then progressing to more specialised, more focused, and more time-consuming interventions:

> 'Businesses needed a lot of hand holding at the initial stage as they didn't want to spend money on consultancy for that initial direction of travel. You can identify where the low hanging fruit is and when the business started to save money by making improvements in different areas, they are a bit more attuned to putting a little bit of money here and there …' (E17).

Energy efficiency measures are frequently referred to as 'low hanging fruit' due to their accessibility and effectiveness (Bergmann et al., 2017) As it is suggested by the European Commission (2011), energy efficiency and its further increase represent one of the pathways to mitigate climate change. Oyewole et al. (2024) compares the current state of energy efficiency across advanced, emerging, and developing economies, pointing out that energy efficiency's impact varies, being strongest in advanced economies and weakest in developing ones.

Regardless of the economic state, energy efficiency measures are often related to investment costs (Brunke et al., 2014). Hence, it is vital in improving accessibility to financial resources. In this perspective, grants were considered important stimuli for businesses to invest in energy efficiency. UK grant schemes typically provided cost savings for SMEs of up to 40% on heating. This made business think 'I'll do it now whilst the grants are there'. Commonly, the grant was a tipping point for putting into action advice we have given them (E17). This highlights the rationale behind the prevailing paradigm of pro-environmental business support. It emphasises that energy efficiency grants serve as mechanisms for upgrading business infrastructure, reducing costs, and achieving tangible outcomes such as cuts in energy consumption, reductions in carbon footprint, and improvements in productivity.

E15 commented on the importance of trust and a 'holistic' approach in providing business support. Relationship building is important from the business perspective, hence 'when businesses read "ERDF and 12 h" – this puts them off straight away'. Having a business support adviser 'who they trust and can work holistically – this is actually a very good way of working'. By working holistically, the expert understood the role of business advice being a 'one-stop' referral system where advisers can refer a business to other projects and business support mechanisms in a designated locality. This ethos of relationship building, trust, and holistic referrals is considered characteristic of effective pro-environmental support interventions.

The experts commented on other examples of effective pro-environmental enterprise support. In relation to decarbonisation interventions, they stated that a format of 'intensive specialist support on a one-to-one basis with SMEs' supported by 'group workshops where an action plan is developed to help them [SMEs] decarbonise and share best practice' was effective (E5). They also stated that enterprise support providers should be 'an honest broker' providing opportunities for networking and collaboration (E6).

The focus group participants spoke about the benefits of adopting a more 'learning-based' and capacity building approach to the design and delivery of business support interventions: 'the smart way will be to approach it [business support interventions] as training and train their staff to undertake the activities they required under our oversight' (E17). The framework introduces an entrepreneurial learning element to the design of business support interventions, recognising the significance of the learning ethos in enterprise support where the specifics of learning in the context of small business are recognised and embedded in the design and implementation of the interventions. This approach was deemed to be important for 'businesses to learn that sustainability is not just about energy management. The business support intervention is offered not as bits, but as a jointed package'. The theme of interlinked elements providing a more holistic view of the sustainability agenda has gained support throughout the study and echoes similar empirical studies in the United Kingdom and internationally (Bocken and Geradts, 2019; Einiö and Overman, 2020).

Pro-environmental enterprise support: Professional competences

A reoccurring theme in the data analysis is the professional competences of the business support professionals and their role in supporting the pro-environmental orientation. E15 argued that 'the problem with Growth Hubs is that they are often run by people who have been in business for a long time. So, in many ways, it is 'teaching old dogs new tricks'. In terms of the green agenda, it is about raising awareness and upskilling the staff' (E15). This echoes comments from the e-Delphi, where experts expressed concerns over the competences of the business support professionals in supporting the green initiatives of small business. Take-up of pro-environmental business support can be improved by hiring 'specific carbon reduction advisers who bring expertise and instil confidence with small businesses' (E11).

As the framework for pro-environmental business support advocates the broadening of the enterprise support remit, so does the expertise of business support professionals need to be broadened. Apart from technical expertise, the business advisers will need to be attuned to relationship building, collaborative working, and stakeholder management. Alongside the traditional areas of enterprise support focused on growth, marketing and sales, and innovation which should all now incorporate sustainability, skills in the areas of environmental management, systems thinking, responsible leadership development, and sustainable development are becoming increasingly relevant to the business support offer (Paterson et al., 2022).

The development of a sustainability mindset of SME owners/mangers (Raby, 2017), as well as continuous improvement and action learning philosophy (Segovia, 2010) requires business support programmes with longer-term horizons, flexible and agile support interventions, and a wealth of expertise around environmental sustainability.

Conclusion and recommendations

The study confirmed several aspects of pro-environmental business support that expand the

current focus beyond resource efficiency and eco-innovation. The proposed framework outlines eight areas of capacity building in small businesses linked with a greater focus on entrepreneurial learning. These features form a menu of choices for the design and implementation of business support interventions that aim to strengthen SMEs' contribution towards Sustainable Development Goal 8 by promoting entrepreneurship that is ready to engage with the opportunities presented by sustainability transitions (UN, 2015).

Drawing on the study findings, we offer the following set of recommendations aimed at enhancing regional pro-environmental support provision.

For business support agencies and projects:

- Design and deliver business support programmes that are focused on capacity building towards sustainability transitions in SMEs. This requires broadening the remit of business support programmes from traditional areas to include interventions that help businesses to develop a sustainable value proposition, effective environmental strategy, and capabilities; responsible leadership; and reach out to support the greening of supply chains.
- Greater recognition of the specifics of entrepreneurial learning is required in the design and delivery of business support programmes and interventions.
- Creation of collaborative platforms for shared value creation as an opportunity to inspire and connect the SME community. This could support learning, exchange of ideas, eco-innovation, collaboration, and partnership working in tackling the challenges of sustainability transitions.
- Enhancement of the professional competences of business support professionals to equip SMEs with skills and knowledge to successfully engage with sustainability transitions.

For the policy community

- Engage with and foster collaborative links with the business support community in order to be abreast of the latest trends in small business demands for pro-environmental support packages, skills, and resources shortages and how they can be effectively addressed depending on the make-up of specific SME communities in the regions and nationally.
- Design policy instruments that are practice-relevant and support improvements in the environmental performance of SMEs as well as accelerate SME engagement with the opportunities presented by clean growth.

For scholars

- The authors plan to design a maturity evaluation tool based on the proposed framework that support the review and improvement of pro-environmental enterprise support across various projects and business support institutions. This maturity tool will be pilot tested in the United Kingdom before application in other international contexts.
- We aim to explore the impact of pro-environmental support interventions by type, mode, and frequency of interventions. This study, in turn, aims to inform the practice of pro-environmental enterprise support as a significant leaver for enabling businesses to lead sustainability transitions.

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Note

1. LCEGS – Low Carbon and Environmental Goods and Services (ONS, 2017)

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