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The strategic role of systemic transition intermediaries: A cross-sector perspective on voluntary standards for net zero

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ABSTRACT

The transition to net zero requires coordination across public, private and civil-society sectors. Systemic transition intermediaries play a central role in this process by connecting diverse actors while also seeking to accelerate system-level change. This dual objective creates inherent tensions: Intermediaries must mobilise actors especially from the private sector while simultaneously pushing them towards ambitious transformation.

This paper examines these tensions through an in-depth case study of the Science-Based Targets Initiative (SBTi) and the controversy surrounding proposed changes to its corporate net-zero standard. We conceptualise SBTi as a systemic transition intermediary whose authority rests on scientific credibility and procedural rigour, but whose influence depends on voluntary corporate participation. This dual positioning exposes the organization to competing pressures and political dynamics.

Our findings illustrate the challenges associated with the strategic and political role of the SBTi. We show that the key tension with the private sector involves an ongoing balance between pushing ambition on the one hand, and at the same time relying on voluntary participation of corporations. This tension shapes the ability for SBTi to influence policy and to collaborate with other intermediaries. We contribute to the literature on systemic transition intermediaries by highlighting that this is an ongoing tension to be addressed rather than resolved. We advance a cross-sector view of systemic transition intermediaries, and we call for further research that focuses on the ecosystem of intermediaries who can support and guide the net-zero transition.

1. Introduction

Sustainability transitions require coordination across multiple sectors, actors and regimes. The transition to net zero is unique because it is a meta-transition that requires transitions across multiple systems of production and consumption that support the needs of society across scales [1,2]. Net zero is defined by the UK's Climate Change Committee as the process of reducing all greenhouse gas (GHG) emissions as close to zero as possible, with any remaining, unavoidable emissions balanced by an equivalent amount of GHGs being removed from the atmosphere, essentially meaning total emissions equal total removals [3]. Achieving this balance requires emissions reductions across the entire economy as well as the scaling of multiple carbon removal methods – a broad range of activities involving highly diverse stakeholders and corresponding

interests. It also requires careful alignment with broader sustainable development objectives [4]. The key challenge is to harness the diversity of perspectives and knowledge without unduly slowing down progress towards the net-zero transition. Diversity is required in developing innovative solutions but at the same time is a challenge when it comes to implementing these solutions in practice [5]. This challenge is compounded by the distributed nature of the transition. Although governments have considerable power, it is difficult to steer system transitions top-down in ways that are aligned with diverse interests [1]. Actors from across the public, private and civil society sectors all have roles to play in negotiating and co-creating net-zero transitions at national, regional and global scales [6].

And yet the conceptual foundations for collaborative approaches that can support the complexity of the net-zero transition and the extent

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of diverse and competing interests at play among stakeholders are still evolving, especially at the evidence-policy interface and in navigating new approaches to public-private collaboration [7,8]. One promising avenue in the sustainability transitions literature is the focus on transition intermediaries. These are actors who can help to connect diverse stakeholders, for example across the public and private sectors, in ways these actors might struggle to do independently [9]. Due to the nature of the net-zero transition, there is a particularly strong need for systemic transition intermediaries to connect and accelerate change at the level of entire systems and even across systems. Systemic transition intermediaries depart from intermediaries in the innovation studies literature [10], where their role has often been portrayed as neutral facilitators connecting knowledge and aligning interests [11,12]. Instead, the work of systemic transition intermediaries requires non-neutrality [11,13]. These actors do not only connect, they also work towards influencing and accelerating change both formally and informally. As such, there is a danger that they become yet another actor with vested interests [11]. This is a core tension: their influence depends on voluntary engagement from the very actors they seek to guide, corporations, which exposes them to dependency and to the risk of capture. The result is that these intermediaries must appear impartial to be credible yet cannot remain entirely neutral if they are to drive ambitious change.

In this paper, we examine the tensions that arise between pushing the private sector to act and relying on private-sector cooperation through a recent controversy over a highly influential, voluntary standard for net zero developed by the Science Based Targets Initiative (SBTi). SBTi's authority rests on its scientific credibility and procedural rigour, but its dependence on voluntary corporate participation exposes it to the influence of those it seeks to govern. We use the controversy to explore how this prominent systemic transition intermediary navigates the tensions associated with its role in steering the net-zero transition. The controversy erupted when SBTi proposed allowing companies to use carbon offset credits from the voluntary carbon market (VCM) to meet Scope 3 emissions targets, creating backlash over fears of greenwashing and weakened climate standards. This episode offers a unique moment to examine how systemic transition intermediaries navigate the tensions at the heart of their role [13]. We focus on two related questions. First, how do transition intermediaries navigate their role as strategic actors in shaping the net-zero transition? And second, what tensions emerge from their cross-sector positioning? In answering these questions, we draw from the literature on cross-sector partnerships which has a long-standing conceptual focus on the balancing act associated with the work of connecting diverse actors in pursuit of collective societal goals [14,15].

Our findings illustrate how the positionality of SBTi is both critical to its ability to influence and a key source of tensions. We show that these tensions are cross-sector in nature. They stem from the role of the SBTi in both pushing the private sector to act and at the same time relying on private-sector voluntary participation. The intersection with the public sector and other intermediaries is affected by the ability of SBTi to navigate tensions with the private sector. First, we contribute to the literature on systemic transition intermediaries for net zero by outlining the implications of the political nature of these important actors and the need to develop approaches that can accommodate the interplay between neutrality and non-neutrality over time. Second, we advance a cross-sector view of systemic transition intermediaries that advances the conceptual understanding of the tensions these intermediaries face. By doing so we provide a pathway for engaging with, rather than battling against, the non-neutrality of systemic transition intermediaries for net zero.

2. The net-zero transition and the role of systemic intermediaries

The net-zero transition is a meta-transition that will require multiple

simultaneous transitions across systems, scales and over extended periods of time [1,16,17]. This will need to take place across infrastructure systems that make up the underlying fabric of modern society, ensuring public services and welfare, economic prosperity and national security. The transition includes industrial processes, buildings, energy generation, agricultural and land-use systems, waste management, transport and most recently engineered removals [18]. Any one of these socio-technical transitions, for example the energy system transition, will be interdependent with other systems involving economy-wide change with a complex interplay between technical, economic, cultural and socio-political dimensions [19]. While there is an important guiding role for governments in shaping the direction of these transitions, it is difficult for change of this nature to be exclusively steered top-down in ways that are effective and inclusive [1]. In addition, there are many heterogeneous actors involved in creating the conditions for transitions to emerge and evolve in distributed ways over time. These heterogeneous actors are essential in creating a diverse knowledge foundation that can support innovations to progress from the level of niches to becoming dominant across entire markets and geographies [20].

Due to the multi-system nature of the net-zero transition, innovation involves a wide range of technologies supported by a diverse set of organizations and institutions. Start-ups with limited resource endowments and limited political influence, seek rapid change to allow their technologies to be integrated into technological, regulatory and policy systems [21]. Resource-endowed incumbents, on the other hand, with their substantive lobbying power and political influence often struggle to adapt to new technologies and at the same time are critical to scaling these very same technologies [22,23]. Beyond the private sector, there are a range of broader political, social and cultural factors at play in shaping transitions at multiple levels [16]. The role of societal imagination and 'buy-in' to the development of aspirational transition futures is critical and requires actors who can stimulate the narrative around net zero [24]. And within the public sector, there is additional complexity both horizontally in terms of the departments involved in developing and implementing policies for the net-zero transition and vertically in terms of levels of governance from local to regional, national and global [25,26].

The complexity of interests of these diverse actors shaping the net-zero transition suggests that there is strong potential for path dependence, as has been seen for example in the case of energy transitions of the past [27]. Even with the imposition of new policies and regulations, the political nature of the intersecting interests can dramatically slow progress towards transition [24,28,29]. At the same time, the diversity of actors is required to unlock the potential for innovative solutions to be developed and for actors across the economy and society to feel they are part of the overall transition to net zero. By its very nature, however, the transition will involve a set of conflicting vested interests with actors of different kinds using their resource and influence endowments to contest or propose standards and other rules which will benefit them the most. Acknowledging the political nature of the net-zero transition and other sustainability transitions is critical to ensuring that tensions can drive rather than hinder collective progress [1,30]. A key challenge is therefore to acknowledge the diversity of interests across stakeholders but at the same time to develop approaches that can support the implementation of effective solutions.

2.1. The role of systemic transition intermediaries

Recent work has highlighted the importance of transition intermediaries - actors who connect diverse stakeholders and their "skills, resources and expectations" [31] with a view to speeding up change [11]- as critical in addressing this challenge. This work builds on and extends the concept of intermediaries and intermediation in innovation studies [32]. Within this literature, there is a broad range of intermediary functions. The overall purpose of these diverse intermediaries is to bridge knowledge between diverse actors who struggle to connect

directly with each other [9]. One clear distinction that emerges is between intermediaries that are passive providers of knowledge, compared to intermediaries that take a more proactive role in combining knowledge and as a result more directly shaping innovation trajectories [11].

This proactive role is particularly important when we consider the emergence of the concept of transition intermediaries which started to gain traction in the transitions literature from 2009 [11]. Transformation across different systems as part of sustainability transitions, and specifically the transition to net zero, requires redrawing relationships between different actors, between technologies, and between systems as part of changing the way goods and services are provided [33]. This relational work expands on the concept of innovation intermediary because of the pursuit of a collective goal of transition that includes but is not limited to innovation. In fact, recent typologies of transition intermediaries connect intermediary functions with transition theories to categorize intermediary types that are associated with the work of accelerating transitions. Kivimaa et al. 2019 [11], for example, identify five intermediary types. The first three – systemic, regime-based and niche – correspond with the different levels of transition drawing on the multi-level perspective, and they involve a clear connection to a transition-related agenda. Systemic intermediaries engage in activities that focus on the whole system; regime-based intermediaries engage in activities that are related to a prevailing socio-technical regime; and niche intermediaries have a focus instead on a specific niche, for example a specific technology such as wave energy [11]. The last two types – process and user – are less directly connected to an explicit agenda. The activities of these intermediaries support change processes, the translation of new technologies to users, and they often perform a facilitatory function.

Systemic intermediaries work to connect actors as a means of accelerating systemic change. Network organizations, for example, connect actors from government, the private sector and civil society to encourage the development of different solutions. As such, they can act as catalysts for innovation within or across systems [34] and often develop connections between niche and regime actors or connect actors across geographies [35]. By doing this work, they enable solutions to develop from niches into broader systemic change [36], bringing together niche and regime actors in the process [37]. This type of intermediation is particularly important in accelerating and embedding initiatives within systems. Systemic intermediaries such as universities and NGOs, provide spaces through their work for actors associated with existing regimes to engage with those at the forefront of developing novel technologies or approaches [37]. Kanda et al. (2020) [38] suggest that intermediation can occur at three system levels: within a network; between networks; and between actors, networks and institutions. The work of systemic intermediaries at all three levels involves aligning diverse actors and interests. As the level of the system extends to connecting actors, networks and institutions, this work moves beyond aligning and aggregating and into the direction of influencing both formal and informal institutions such as policies, regulations and norms. This institutional influence becomes the basis for ensuring that niche solutions can accelerate in ways that contribute to systemic change.

The key feature that distinguishes systemic intermediaries from other intermediaries is the strategic nature of their work [39]. Niche intermediaries by contrast typically operate as trusted mediators who can align diverse interests without becoming entangled in them. Intermediation of this kind is primarily technical and relational, drawing from the traditional view of intermediaries as neutral brokers or actors that facilitate connections, share information, and coordinate collective action without advancing a particular agenda [11,34]. As the scope of intermediation expands to the system, the nature of activities becomes more strategic and political. The very purpose of systemic intermediaries hinges on advancing a collective agenda [40]. In fact, a key activity of systemic intermediaries identified in the growing recent empirical literature involves developing a collective vision or approach, often mediating between niche and regime actors to translate what this

approach might mean in practice [37,41,42]. These activities evolve over time, moving from a focus on a collective vision towards creating the basis for new institutional arrangements as interactions between actors and initiatives mature [41].

Systemic intermediaries therefore make various strategic and political decisions, including which actors to connect and involve, and how to move forward when it is not possible to align all interests. In fact, they become organizations with their own vested interests [11]. This positionality enables systemic intermediaries to drive ambition, accelerate change and focus on implementing solutions, but also exposes them to accusations of bias and risks to their legitimacy. The tensions and trade-offs involved in the work of systemic intermediaries have become a new area of inquiry, challenging pre-existing assumptions that intermediation is based on cooperative, neutral, conflict-free interactions [43]. In fact, systemic intermediation by definition imposes constraints on the ability of intermediaries to remain neutral [36], and requires intermediaries to adopt certain positions and agendas [11,38]. Tensions emerge due to the hybrid position of intermediaries operating in between the state and the market [36], and in between regime and niche actors [42,44]. Tensions also arise due to the potential for conflict between intermediaries [45].

These tensions are in fact critical to the ability of systemic intermediaries to effect change. The emerging literature has focused on mapping intermediary activities, across time and identifying key challenges and tensions that emerge [36,37,39–41]. A recurring theme is the need for systemic intermediaries to balance closeness and distance to the actors they connect [36,39,45,46]. For example, intermediaries affiliated with governments or incumbent market actors rely on independence from day-to-day incumbent activities to facilitate safe spaces for experimentation. But they benefit from closeness when it comes to the ability to influence action including policymaking and the development of standards [36,46].

The development of standards is an important focus for systemic intermediaries and requires close interaction between both state and market actors. One example that is critical to the net-zero transition is the development of standards related to the voluntary carbon market. Mechanisms that allow organizations and countries to achieve net zero through purchasing carbon offsets in theory provide a pathway for residual emissions to be addressed [47]. Using carbon credits to reach net-zero targets is only credible if they allow for a balancing of residual emissions with removals and are not used for interim targets [4,47]. This presents a governance challenge that extends beyond any specific niche, and in fact creates the market architecture for multiple niche technologies and solutions to emerge, depending on how norms are established [12,47,48]. Systemic intermediaries in this setting and others often present themselves as impartial despite the need for non-neutrality [36]. For example, [12,33,37,49] the Science Based Targets initiative (SBTI) which is involved in the development of net-zero standards explicitly grounds its authority in a claim to scientific objectivity and impartiality [48]. And yet as we know from the literature on systemic intermediation, the active and strategic positioning of intermediaries is a key feature enabling intermediaries to shape the direction, pace, and design of transitions [13,39,49].

2.2. Cross-sector tensions and the strategic role of systemic intermediaries

Systemic transition intermediaries occupy a delicate position at the intersection of public, private, and civil-society sectors. Their legitimacy depends on performing a certain degree of neutrality: maintaining scientific rigour, procedural transparency, and inclusivity. Yet they also rely on voluntary engagement from corporate actors for their participation. This creates a balancing act at the heart of intermediation: intermediaries must appear impartial and evidence-based, yet their effectiveness depends on relationships that inevitably compromise this neutrality. They walk a tightrope between credibility and dependency, between enforcing ambition and maintaining participation. This

balancing act is at the root of the tension systemic intermediaries face in their work, tensions that have repeatedly surfaced in the literature [36,39]. Despite evidence of these tensions, the sustainability transitions literature has to date focused mostly on the traditional facilitation roles of these intermediaries at the expense of their strategic role [45].

We build on recent literature that highlights the importance of the strategic nature of systemic intermediaries [42,45]. We adopt a cross-sector lens to advance understanding of the balancing act systemic intermediaries perform. This balancing act becomes particularly visible when intermediaries broker among conflicting sectoral actors and their logics. The net-zero transition brings together actors from across business, government and civil society sectors with economic, political and normative imperatives that rarely align [14,15]. Intermediaries may thus struggle to sustain engagement of these heterogeneous actors in ways that lead to transformation at the level of systems [15,50–52]. The heterogeneity of actors is required and at the same time presents barriers to collaboration [53]. Actors from across sectors have their own vested interests, priorities and resource endowments. Corporations seek flexibility and continuity of operations; governments pursue policy coherence; while civil-society actors demand accountability and ambition. Public-private partnerships for example frequently involve frictions between the pursuit of public objectives and at the same time the pursuit of opportunities for private actors to create and capture value [54,55]. Managing these differences is where the work of intermediaries comes in, typically focused on pursuing alignment between the various interests at play [56]. Intermediaries may be organizations from the public sector or an NGO with a mandate to protect public value, i.e. value that extends beyond the interests of any individual actor. Often, they are created by the very stakeholders whose interests they are asked to intermediate, which also creates dependencies and power asymmetries. In voluntary sustainability standard initiatives, for example, agreements often emerge from efforts to align industry actors, but they fall short of delivering transformative shifts in industry practices [57]. Consensus might be reached among various actors involved in the process, but this consensus often hides power imbalances [58].

Neutrality may in fact limit the ability of intermediaries to support transformative change. And non-neutrality bestows power on intermediaries in ways that might not be immediately apparent to those involved or affected by the process. To unpack this tension in more detail, we suggest that there is a need to understand how transition intermediaries navigate their role as strategic actors shaping the net-zero transition. We then focus on the diversity of interests involved in these initiatives and tensions emerging from their cross-sector positioning by examining the challenges intermediaries face in navigating cross-sector tensions.

3. Methods

To understand the positionality of systemic transition intermediaries for net zero and the cross-sector tensions they navigate as part of this role, we chose a single case methodology. The case we chose is particularly useful in illustrating the tensions that surface for systemic transition intermediaries because it is a unique case of the organization in question experiencing a crisis that led to the resignation of the CEO. Although single cases limit the ability to generalize, they are particularly helpful methodologically in instances where they allow for unusual insights to be generated on an area of emerging theory development [59,60]. The use of a single case in this instance allows us to explore events and relationships in-depth and to surface complex dynamics at play that can be used as a basis for challenging patterns in the broader setting of voluntary standards for net zero [61].

3.1. Case selection: SBTi's role in the net-zero transition

Our setting is voluntary standard-setting for net zero and specifically the role of the Science-based Targets initiative (SBTi) in developing

corporate net-zero standards. The SBTi explicitly grounds its authority in a claim to neutrality via science. It presents its aim as “setting ambitious, science-based emissions reduction targets” and its guidance and standards as being “grounded in climate science,” positioning itself as a technical, evidence-based intermediary rather than a political or market-driven actor [62]. This framing of scientific objectivity and impartiality allows SBTi to occupy a unique space between public, private, and civil-society stakeholders while avoiding the appearance of advocacy or bias. We focus on a recent proposed change in the guidance for net-zero standards, which questioned this neutral, science-based positionality. It involved the SBTi allowing environmental attribute certificates (EACs) including carbon credits¹ to be used by companies to meet their scope 3 emissions targets. Previously, SBTi only allowed companies to meet these targets by reducing their emissions. The change was seen by many as a “watering down” of standards, effectively allowing companies to claim progress towards climate targets without making changes to their operations [63].

SBTi introduced the Corporate Net-Zero Standard in 2021, which provides organizations with guidance on setting and meeting net-zero targets and interim emissions reduction goals aligned with a 1.5° warming scenario, emphasizing reducing emissions by at least 90%, with residual emissions to be neutralized through durable carbon dioxide removals (CDR) [64]. Established in 2015, SBTi is one of the most influential standard setters for voluntary corporate climate targets, shaping corporate climate strategies and standards [65,66]. By 2024, SBTi had validated net-zero targets for over 6000 organizations [67]. Over the course of late 2023 to mid-2024, the SBTi gathered and assessed evidence on the effectiveness of EACs and started the process of revising its Corporate Net-Zero Standard, with the intent of allowing offset credits to meet scope 3 emissions targets. Critics accused SBTi's board of bypassing proper governance and enabling corporate interests, leading to internal staff revolt and the CEO's resignation. The developments during this period drew heavy media coverage and spurred heated public debate [68,69], offering an opportunity to understand the tensions facing SBTi and intersections with a diversity of stakeholders.

3.2. Data collection and analysis

We collected participant observations, interviews, and archival data related to our case. Firstly, we attended four events related to voluntary standard-setting for net zero in June and July 2024 that allowed us to observe and document interactions between stakeholders, explore stakeholder perspectives on our research question and identify potential interview participants. Two of these events were conferences that brought together stakeholders engaged in voluntary carbon markets with a specific focus on carbon dioxide removal technologies and governance. The other two events were workshops facilitated by university researchers to include a mix of stakeholders from the public, private and civil-society sectors in response to the SBTi controversy. The workshops, the first with 18 and the second with 19 participants, were organized to explore the role of standards within the scope 3 policy landscape, prompted by ongoing discussions around SBTi's review of its Corporate Net-Zero Standard. Each workshop produced a synthesis report summarizing key insights and policy recommendations, which was circulated among participants and relevant institutions. These workshops were partially recorded, i.e. the plenary sessions but not the breakout discussions, and transcribed verbatim, with detailed fieldnotes taken on the remaining portions. In documenting fieldnotes, we used a clear structure for each of the events that allowed us to capture discussion points and the field researcher's reflections across different sessions of both the workshops and conferences.

Secondly, we conducted 11 semi-structured interviews in July and August of 2024 with various Voluntary Carbon Market (VCM) actors and

¹ From here on, EACs will be referred to as credits.

stakeholders, including academics with expertise in emissions reductions and the VCM, environmental NGOs, climate action standard setters, a funder, and corporate actors.² Participants were identified via university network contacts, contacts met at events, the authors' professional networks, and snowballing contacts from early interviews. The interviews were held virtually via video conferencing software and recorded, then transcribed verbatim. The interviews were semi-structured based loosely on the interview guide in [Appendix](#), with additional questions asked based on the subject's role and to build on previous responses. The semi-structured approach allowed the authors to adapt the interviews based on insights shared by the participants, while still ensuring that key themes were addressed [70].

Thirdly, we collected archival materials (64 documents in total) including open letters, organizational press releases and blog posts, organizational reports and white papers, news articles, and LinkedIn posts. The process for collecting these materials involved a combination of general internet searches for recent mentions of the SBTi and specific searches for SBTi on LinkedIn. We kept these searches focused on the period from September 2023 when the SBTi announced a call for evidence on the use of carbon credits until launch of the revised corporate net-zero standard. In addition, some of our interviewees referred to or shared specific documents and email correspondence. These archival materials were used to understand the context for the controversy and to construct the timeline of events surrounding the SBTi controversy. They also allowed us to understand official organizational positions across stakeholders on various issues.

The analysis followed two main stages. The first was to use the archival materials and insights from the interviews to construct a timeline of events surrounding the SBTi controversy. Process-based theorization was leveraged to understand the events and patterns over time. Specifically, a temporal bracketing strategy was used to segment activities, events and stakeholder perspectives before, during, and after the primary public controversy in April 2024 [71]. The second stage involved analyzing the interview and workshop data to assess the cross-sector tensions that emerged during the height of the controversy. The coding of our data was informed iteratively by our literature review and our interest in unpacking the key tensions facing the SBTi as a transition intermediary. These tensions became apparent when we constructed the timeline of events. We then used the interview and workshop data to understand the nature of tensions between the SBTi and different actors identifying any instances where a connection between the SBTi and other actors was mentioned. These tensions started to cluster into three main themes of public, private and intermediaries.

3.3. Limitations

There are three key limitations of our study that provide opportunities for future work. First, the issues we focus on in the VCM are ongoing and will continue beyond the study period. Many of the outcomes are yet to be seen and many questions remain unresolved. We address this limitation by including an interim outcome, the revised standard for consultation, in our analysis. Future work could extend our analysis by exploring the finalised standard when it emerges. At the same time, the period of our study provided a unique window for certain tensions to be seen that may otherwise have stayed hidden. Second, given the highly politicized nature of the debate surrounding SBTi and the VCM, some interview participants may have self-censored to avoid expressing inflammatory opinions. Indeed, several expressed hesitations to share confidential information about their organizations' relationships with other stakeholders even under conditions of anonymity. We focus not on any specific stakeholder perspectives but on the tensions identified to leverage the strengths of our data and to minimize the impact of self-censorship. Third, we acknowledge our role as academic

researchers involved in supporting the transition to net zero. As a result, we bring our own understandings to the assessment of the controversy. We have challenged these understandings within our author team by zooming in and out of focusing on specific and general issues, and by having some authors more involved in data collection and interaction with stakeholders than others. This gives us an ability as a research team to combine insider and outsider perspectives [72].

4. Results

4.1. The positionality of SBTi as a transition intermediary

The controversy surrounding SBTi's proposed change in policy on the use of carbon credits, specifically allowing the use of EACs to meet scope 3 targets, provides a revealing moment to examine the positionality of the SBTi as an intermediary in the net-zero transition. [Fig. 1](#) provides an overview of the timeline of key events, which we divide into three broad phases, each exposing how SBTi's authority depends simultaneously on maintaining scientific rigour and neutrality while relying on voluntary engagement from powerful corporate actors. In the first phase, SBTi gathered input on the use of credits and faced mounting pressure from some stakeholders to expand credit use, countered by expressions of concern from others. The second phase, which was the height of the controversy, began with an announcement by SBTi's Board of Trustees that the organization intended to change its policy on the use of credits, followed by swift backlash and heightened public debate. In the third phase, SBTi adjusted in the aftermath of the controversy and began longer-term formal processes to revise standards. The outcome was the development of the corporate net-zero standard V2 for consultation released in March 2025, with a view to being launched in late 2025/early 2026. The new version of the standard created space for the clear differentiation of CDR, through the use of carbon removal targets, as part of addressing residual scope 1 and potentially also scope 3 emissions.

The phases in the unfolding of the controversy illustrate two key features of SBTi as a transition intermediary that are in tension with each other. The first is that SBTi's legitimacy rests on its claim to neutrality: that its standards are derived from science rather than politics, and that its processes are transparent and inclusive. Yet the controversy shows how neutrality, in practice, must be continually performed and defended. Second, as an intermediary, the decisions of SBTi are practically shaped by a variety of competing stakeholder interests. In the first and second phases, this led to a change in the standard that was interpreted by some stakeholders as a watering down of guidance for companies. The episode demonstrates the vulnerability of SBTi to powerful interests and the importance of upholding clear internal processes to ensure that the credibility of SBTi as an intermediary is not undermined. SBTi as a transition intermediary is expected to create and hold space for a variety of stakeholders to interact and engage with each other. Although ultimately SBTi has a final say in terms of the details of the revised corporate net-zero standard, the process of including these stakeholders as part of consultations is key to protecting SBTi's role as a transition intermediary.

In fact, the controversy which centred around a shift towards allowing companies to offset their scope 3 emissions with credits, threatened the credibility of SBTi. Concerns over the role of SBTi in the current and future standards landscape began to emerge. Those who opposed the Board's announcement pointed to the breakdown in SBTi's established technical process and accused the board of succumbing to corporate interests. The documents SBTi released on 30 July at the end of the third phase, summarizing the evidence received on credits and the path forward for scope 3, were generally met with a positive response from those critical of the original announcement on the use of credits. Those who had supported the announcement on the other hand began calling into question SBTi's authority. NGO, academics and coalition representatives interviewed after the 30 July document release

² [Table 2](#) in the Appendix provides the full list of interviewees.

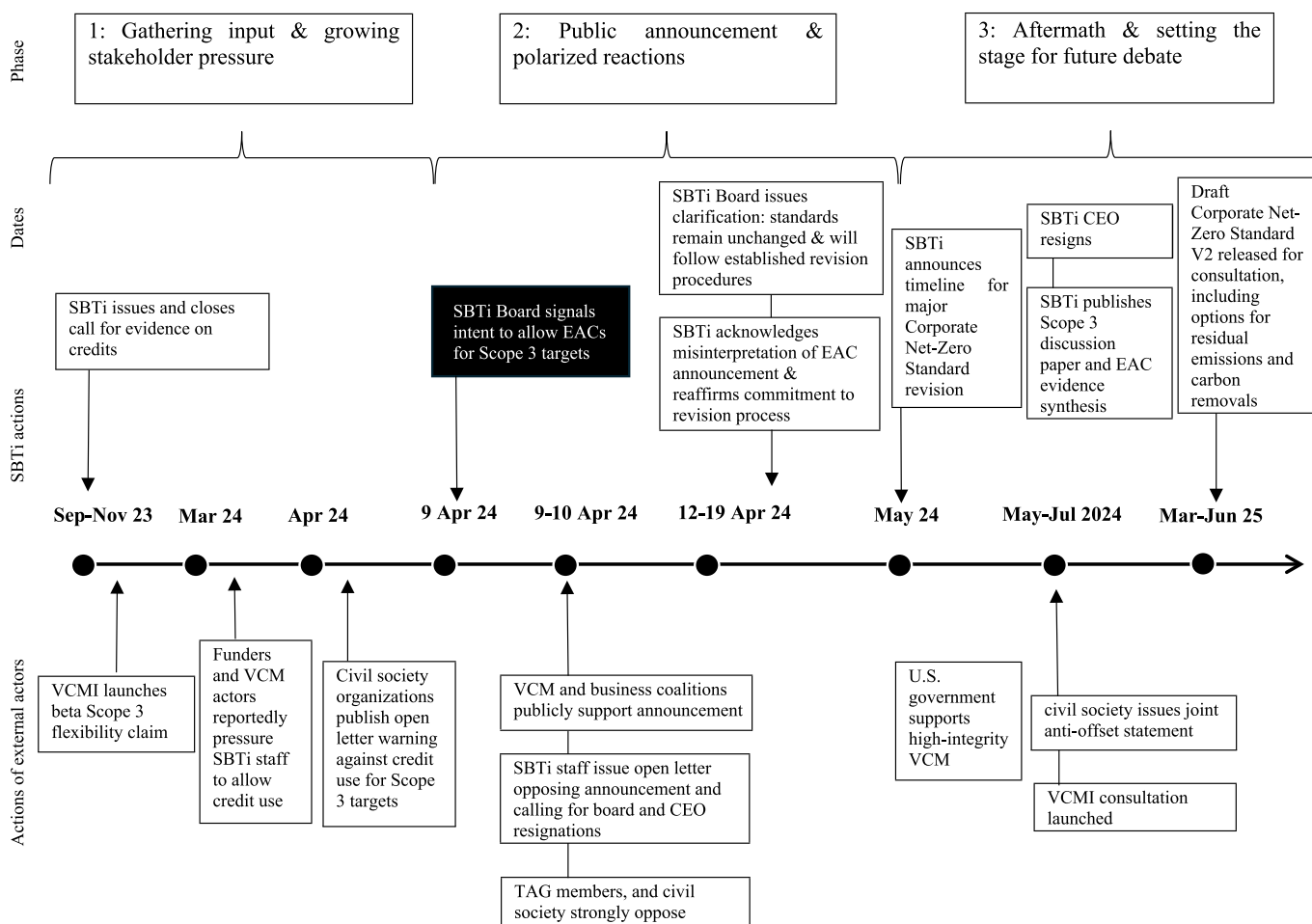


Fig. 1. Timeline of key events in the SBTi controversy, including SBTi actions and external responses.

predicted that the rift may lead to fragmentation in the voluntary standards landscape and deferral by some corporates to alternative standards that allow more flexibility in credit use. At the same time, there have been commitments from many of these organizations to “work together in order to not confuse the market” (I7).

The controversy thus illustrates how SBTi's positionality operates as both a condition of influence and a source of tensions. Its ability to steer corporate climate ambition depends on its scientific credibility, but its ability to drive the net-zero transition can only be maintained through ongoing corporate participation. SBTi's role in the net-zero transition is therefore that of a political actor navigating dependency and authority at once. It must appear neutral to remain legitimate yet cannot be neutral to remain effective.

4.2. Navigating cross-sector tensions

The workshops and interviews in phase 3 provided a detailed overview of perspectives on the role of SBTi, made visible through the controversy and associated opportunity to reflect on what is required to continue to make progress towards net zero. From these perspectives, we identify three key types of bridging that SBTi is involved in across sectors: bridging to the private sector, to the public sector and to other intermediaries. Table 1 provides an overview of the key tensions that emerge as part of this bridging. We also integrate key quotes throughout this section to illustrate these tensions in more detail.

In being a bridge to the private sector, SBTi as a transition intermediary must balance tensions between bringing companies on board and at the same time pushing them to demonstrate “high ambition” or

“best practice”. Because the targets are voluntary, they need to be in some way “beneficial for that specific company”. And yet the role of SBTi in terms of pushing the transition towards net zero requires a focus on high ambition. At the same time, SBTi and the targets that companies are setting have become synonymous in some ways. As one participant reflects, “I’m hearing that SBTi is something that companies do when I think it’s very clearly to me an NGO initiative and came out of an NGO trying to make companies do something different than what government was forcing them to do at the time” (W2). This suggests a challenge for intermediaries to keep a balance between connecting with the private sector and at the same time staying somewhat separate. This has been a key concern in the recent controversy. Academic and NGO stakeholders have highlighted a pattern of powerful actors influencing the standards to support their own vested interests. There are two interrelated aspects to this concern. The first is related to corporate influence and a “race to the bottom” (W2) to provide companies with cheap pathways to “say, oh, I reached net zero” (I8). Pressure on SBTi came in part from this “industry pressure” (I9), which has the potential to aggravate uncertainty in the standards landscape even further. There are concerns that alternative initiatives may emerge if these actors are not kept engaged and actively involved in the SBTi process. The second aspect is the role of funder influence, where there have been concerted efforts of several foundations pushing for the inclusion of credits “to force a change according to their agendas” (I11). Some of these foundations are close to corporate interests in various ways, and some also have connections to the fossil fuel industry through, for example, board connections. These funders have been observed to exert pressure on standard-setting bodies through both funding leverage and board placement, shaping the long-

Table 1
Illustrative quotes and codes on cross-sector tensions.

Cross-sector tensions	Illustrative quote
Private sector Pushing for ambition	<p>“SBTi...came out of an NGO trying to make companies do something different than what government was forcing them to do at the time” (W2)¹</p> <p>“the role of SBTi is to create this high-ambition coalition for the top 10%, 5% of companies that really want to demonstrate they're doing best practice” (W2), “if SBTi places itself as being a high ambition coalition, it has to aggressively include this lobbying for market-wide regulation” (W2)</p>
Bringing companies and funders on board	<p>“There is basically a race to the bottom. They keep on focusing on very cheap carbon credits, and they think they can use this to say, oh, I reached net zero” (I8).</p> <p>“I mean, they all sort of publicly claim that they don't have a view because they're supposed to be funders. But they do have a view “(I1).</p> <p>“need to put a number on it because it's a target” (W1)</p>
Public sector Creating space for emerging issues to be identified	<p>“we have this role for standards to demonstrate best practice” (W2)</p> <p>“I think carbon credits for reduction and avoidance are trash, and are also, in my opinion, impeding carbon removal to scale” (I8).</p>
Maintaining separation	<p>“we're [SBTi] not regulators but sort of standard setters” (W2)</p> <p>“I think SBTi kind of operates and views themselves as this kind of quasi regulator” (I6).</p>
Intermediaries Creating space for collaboration with others	<p>“In COP28 last year, VCMi, ICVCM, SBTi, CDP came out to say that we're all going to be, these institutions, these organizations will be working together very closely in the coming years to ensure that we provide clear and consistent guidance on corporate climate action” (I7).</p>
Differentiating role compared to others	<p>“I think that there are others and ISO is coming out with its net zero standard. There are a number of more industry or sectoral specific standards” (I10).</p> <p>“There's a distinction between giving guidance on the way, on the targets that companies are setting versus giving guidance on the way that they meet those targets... because I think presently VCMi has much more focused on the meeting piece and has deferred to SBTi on the setting of targets” (I5).</p>

¹ W1 and W2 refer to workshops 1 and 2 respectively where we pooled the quotes from across participants to preserve anonymity. The table in the appendix provides an overview of interviewee numbers (I1 to I11).

term governance trajectory of SBTi (I1).

With the public sector, the key tension is to acknowledge that the main role for SBTi is one of demonstrating best practice. They are “not regulators” but at the same time there is an opportunity through the work of SBTi and other voluntary initiatives to shape what becomes possible in terms of regulation, and what ends up not being possible. As one of the workshop participants warns “it's important that voluntary efforts...don't undermine or have a policy deterrence effect on the development of regulation” (W2). The mission of SBTi is not to support the role of policy and yet there are expectations from some stakeholders that the mission will shift in this direction or at least that there will be some intersection between SBTi and regulation. Again, like the intersection with the private sector, the key challenge is to stay connected while at the same time maintaining distance. The strategy of a transition intermediary therefore involves a “a parallel approach of what am I getting companies to do? What am I getting governments to do?” (W2). The ‘what am I getting governments to do’, however, is often more indirect. Episodes such as the recent one on the role of credits, illustrate a

key opportunity for this indirect influence to operate as a direct function of the tensions the SBTi navigates at the intersection between the private and public sectors.

For example, the decision to allow companies to use credits in meeting their climate targets triggered a discussion among a broad range of stakeholders on the underlying purpose of credits. This is an issue that foreshadows conversations relevant to the development of mandatory carbon markets, and it represents a key mechanism for transition intermediaries to indirectly influence regulation by allowing space for emerging issues to be identified. One of the key arguments for those in support of the use of credits is the need to provide flexibility in pathways for decarbonization to ensure that corporate actors remain motivated to meet climate goals. Critics staunchly oppose this approach, citing concerns around mitigation deterrence and warning against any claims that equivocate external credit purchases with internal value chain emissions reductions. These opposing views created a space for discussions to emerge on what credible credits might look like. Up to that point for example, the discussion of credits and scope 3 had evolved without explicit discussion of the role for removals (I10). The controversy over credits has led to “some progress” in “SBTi's thinking around removal. Specifically, they're looking at ways to ensure a degree of equivalence between different types of carbon removal” (I10). Stakeholders also questioned the additionality, permanence, lifecycle emissions, and biodiversity impacts of removal methodologies such as biochar, biomass sinking, and BECCS, and some questioned whether CDR credits might face similar methodological issues to other credit types in the future.

SBTi's Corporate Net-Zero Standard first released in 2021 included a requirement for companies to use permanent CDR to neutralize any residual emissions at the target date (typically 2050). Buyer and coalition representatives reference this SBTi guidance, as well as policy such as the EU Green Claims Directive that also differentiates CDR from other credit types, as contributing to a shift in demand towards removals beginning in 2021. One interviewee noted a concern among buyers that this shift towards a removals-only market may be premature given that funding is still needed for avoidance and reduction projects, a perspective that is shared by other buyer and standard-setter representatives. Even where stakeholders agree that CDR credits should be used differently than other credits to neutralize residual emissions, tensions remain as to what proportion of emissions should be allowed to be considered residual and therefore eligible for neutralization. Some CDR advocates argue that assuming credit quality and permanence is ensured, there is no need to limit residual emissions to 10% of an organization's baseline arbitrarily, as the cost of permanent CDR credits will naturally dictate which emissions are more efficient to abate versus neutralize. NGO stakeholders critical of the VCM take a different position, maintaining that the need for CDR should be minimized and deemphasized in corporate strategies, seen as the “cherry on top” (I4), in favor of emissions reduction.

Finally, the work of SBTi as transition intermediary intersects with other intermediaries including standards organizations and research groups. In this work the key tension is in ensuring that there is clarity on the role of SBTi standards in relation to other standards. For example, the International Standards Organization already has an existing approach for product standards that could incorporate net zero. There could be a role for SBTi in giving ISO “a push...to develop good product standards” (W2). This opens space for SBTi and other transition intermediaries to be working collaboratively on key issues and for transition intermediaries to be influencing each other, and potentially also collaboratively influencing the private and public sectors.

The cross-sector tensions thus expand beyond the intersection between the SBTi and the private sector. The tensions with the private sector are fundamental to the legitimacy of SBTi as a systemic transition intermediary. They identify a key and necessary ongoing balance between pushing ambition on the one hand and at the same time relying on voluntary participation. This is core to purpose of the SBTi and is something that cannot be resolved. The extent to which this tension can

be addressed over time has implications for the ability of the SBTi to navigate the intersection with the public sector and other intermediaries, i.e. in positioning its role as part of a wider network of actors supporting the net-zero transition.

5. Discussion

Our results unpack the tensions that emanate from the political nature of SBTi's role in the net-zero transition. These tensions emerge from the purpose of SBTi to push ambition but through voluntary participation of the private sector. Managing these tensions has a knock-on effect on SBTi's role in supporting other actors in the public sector and civil society. As such, our results have implications for the specific setting of net zero and for the literature on systemic intermediaries supporting sustainability transitions more broadly.

1. Systemic transition intermediaries for net zero

First, our results empirically demonstrate the tensions in the work of systemic transition intermediaries. The nature of the transition to net zero as a meta-transition with multiple simultaneous transitions across systems, expands the role of systemic transition intermediaries. Although the key activities of these intermediaries have been identified and tensions have surfaced as part of their role in shaping transitions, the implications of these tensions are not yet well understood [42,45]. In fact particularly in the area of standards, much empirical work has focused on intermediation at the level of niches [11], which is less prone to tensions than broader systemic work that brings niches into conflict with regime actors [45]. The need for a wide range of net-zero standards that intersect across industries and technologies opens a new space for systemic transition intermediaries to drive transformation, as long as they have the tools to navigate the tensions associated with the strategic and political nature of their roles.

There is a danger, however, that the strategic and political role of systemic intermediaries stays hidden with implications for the ability of these initiatives to support their purported transformative aims. In fact, our work underscores recent calls to focus more on the politics specifically of the Science-based Targets Initiative which “by invoking the authority of science” [73] distracts from the non-neutrality that is in fact a critical feature of this kind of intermediary. The perspectives of various stakeholders on the role of the SBTi during the recent controversy allow us to shed light on the different aspects of non-neutrality at play at the intersection with private and public sectors, and with other intermediaries. The key tension at the heart of the SBTi and other similar initiatives is the combination of a goal to push private-sector ambition and at the same time to bring companies and funders on board. This creates an inherent difficulty in viewing the SBTi as an intermediary like other types of systemic transition intermediaries with an expected mandate to shape rules and norms. Closeness to the private sector is key but at the same time limits the potential for influence on other sectors, suggesting the need for an ecology of connected intermediaries [41]. Assessing the ecology of intermediaries in terms of intersections with public and private sectors could provide a practical lens to map and leverage the strengths of intermediaries individually and collectively.

The political nature of the work of systemic transition intermediaries for net zero has two implications. First, where possible, it is important to find ways of bringing transparency to the nature of the relationship between intermediaries and both private and public sectors. This is not just relevant for the SBTi but also for the standards landscape shaping the voluntary carbon market more broadly. To date, there has been a focus on the need for both voluntary and compliance carbon markets, with the voluntary market catalyzing innovation in a frontier market instrument, and the compliance market subsequently building on this innovation to allow convergence in standards and fungibility of credits [74,75]. Acknowledging the potential for path dependence is key, particularly given the nature of power dynamics in the voluntary

landscape. These power dynamics are likely to be exacerbated in future iterations of voluntary standards and their translation into the compliance markets as stakeholders with a legacy involvement tend to be over-represented [76]. What this means in practice is that there are structural challenges hindering the ability of the VCM to function efficiently and transparently. The SBTi-VCM framework is insufficient to address these issues considering the extent of politicization and diversity of economically important actors involved in the contestation. In contrast to prior literature that views the voluntary market leading sequentially to compliance market mechanisms [75], we suggest the need for direct government intervention already in the experimental phase of market design given the extent of structural challenges and the high stakes involved. Rather than compliance markets building on whatever has emerged in the voluntary market, there is a need to govern the development of the voluntary market if it is to serve as breeding ground for a future compliance market. A relevant precedent can be found in ESG standard-setting in France, where similar fragmentation and contestation were present. Giamporcaro and Gond (2016) demonstrate how the French government played a formative role in structuring the ESG evaluation ecosystem—both indirectly by supporting selected intermediaries through the CDC, and directly by mandating ESG data disclosure [77]. These interventions contributed to balancing the proliferation of ESG intermediaries and reduced uncertainty around evaluations, ultimately supporting market credibility, lessons that are highly relevant for the development of carbon markets as well.

Second, in the context of net zero where there is extreme diversity of perspectives and interests at play across systems and technologies, there is an opportunity to examine and unpack the intersection between intermediaries and to challenge the underlying assumption that the focus of the work of intermediaries is, or should be, based on finding alignment. In fact, voluntary standards often struggle to fundamentally shift industry practices precisely because they are predicated on finding alignment across different actors [78,79]. Approaches that can instead accommodate continued contestation and dialogue, keeping multiple options open, are required [15,40]. Further research could focus on how such an approach can be developed for different emerging issues, such as discussions on the role of carbon removals in the voluntary and compliance markets. In addition, there is an opportunity to expand the focus of empirical work on systemic intermediaries to consider the intersection between an ecosystem or ecology of intermediaries rather than focusing on the function and activities of intermediaries in isolation [38,41].

2. A cross-sector view of systemic transition intermediaries

The second main contribution of our work is to advance a cross-sector perspective on systemic transition intermediaries. This perspective allows for a conceptual understanding of the key tensions that result from intersections between intermediaries and actors from private, public and civil-society sectors, providing a foundation for analyzing and understanding non-neutrality rather than shying away from it. Our results draw attention to the complex nature of the tensions intermediaries are grappling with. Although typically the focus of the literature on cross-sector collaborations is on the work that intermediaries do to navigate the tensions between the public and private sectors, we find that intermediaries themselves are balancing tensions with actors in different sectors. These tensions if left hidden and/or unmanaged have the potential to challenge the legitimacy of intermediaries in being able to contribute to transitions.

For systemic transition intermediaries, this presents key strategic questions. Closeness to the private sector is required to generate momentum and ambition, but the same closeness creates opportunities for ambition to be diluted. Closeness to the public sector is important in terms of influencing the translation of voluntary norms into mandatory rules and regulation, but the same closeness could delay policymaking. Rather than trying to resolve these tensions, intermediaries will need to

learn how to navigate tensions in ways that can unlock pathways for productive dialogue. This will require a shift away from the traditional focus on aligning diverse interests and reaching consensus and towards approaches that can hold multiple perspectives simultaneously. In the case of standards, while agreement is necessary to update new versions over time, it may be worthwhile bracketing out elements to signal areas of ongoing disagreement that need to be revisited later. Since diversity of perspectives is required to address complex challenges, preserving acknowledgement of disagreements can be highly valuable. For instance, a requirement to make consultation responses public, as is the case for consultations around public regulations, would create transparency and allow for the diversity of viewpoints to be sustained over time.

A related issue for intermediaries to consider carefully is who to involve as part of the bridging work that is central to their mandate. This is also a political decision and has implications for the legitimacy of the standards landscape and the broader narratives related to the net-zero transition. There is much to learn from the literature on cross-sector collaboration on the question of who to include and how. In fact, the Roundtable on Sustainable Palm Oil initiative (RSPO) struggled with legitimacy among Indonesian stakeholders involved in palm oil, to the extent that they left the RSPO to establish another competing initiative [80]. This speaks to the danger of fragmentation if stakeholders do not consider existing processes to be moving in a certain direction, or if they perceive a lack of fairness in the decision-making process. Many examples of cross-sector collaborations, however, focus on a single industry such as the food or garment industries [79–81]. In contrast, our setting is unique because the standard affects so many industries both existing and emerging. A new challenge surfaces in such a setting for standards organizations to keep track of newly relevant stakeholders, and to provide opportunities for these stakeholders to join consultation processes that feed into revising standards. Collaborating with others, such as universities and other potential intermediaries, can help to ensure there are opportunities to regularly reflect on the stakeholders included. For new stakeholders wishing to be involved in the standards process, building alliances with others in academia and NGOs is also critical [82]. The political nature of systemic transition intermediaries highlights one of the important functions of a network of intermediaries which helps to reduce the power of any single intermediary, and thereby reduces the potential for vested interests to impede transition goals. This underlines the importance of adopting an ecosystem focus which could help to moderate the power of any one intermediary, especially those that develop their own vested interests in the system [11].

6. Conclusion

The work of systemic transition intermediaries is central to the net-zero and other related sustainability transitions. This work requires intermediaries to move beyond being neutral brokers or facilitators, connecting and aligning the interests of others. Our study of a prominent systemic transition intermediary in the net-zero transition illustrates how positionality is both a key condition of influence and at the same

Appendix. Standard interview questions

1. Can you tell me a bit about your role and background?
2. We're exploring the emergence of the market for carbon removals and how that's being impacted by the ongoing debate around the role of the voluntary carbon market. Can you tell me about your view on the role of carbon credits?
 - a. How do you see removals fitting in into the broader voluntary carbon market?
 - b. How have you seen collective understanding of these solutions evolve?
 - c. Where are the main areas of contestation?
3. We're interested in SBTi's April board announcement regarding a change to its policies on carbon credits to address Scope 3 emissions – what do you think contributed to that change?
 - a. What was your initial response when you heard the announcement?

time a source of tensions. These tensions stem from the reliance of voluntary initiatives on the very same actors in the private sector they are aiming to influence. Tensions between systemic transition intermediaries and the private sector have consequences for the intersection with the public sector and with other intermediaries. Instead of viewing these tensions as a problem to be resolved, we suggest a reframing that accepts and acknowledges these tensions as core to the purpose of systemic transition intermediaries. In fact, once they are visible, these tensions become an opportunity to engage in ongoing, innovative dialogue across sectors. This ongoing dialogue is central to developing and adapting approaches to complex challenges such as net zero. Viewing systemic transition intermediaries in this way provides pathways for understanding the interplay between neutrality and non-neutrality as an engine for innovation and experimentation, and for ensuring that the mandate of any single systemic transition intermediary is kept constrained as part of an ecosystem of actors guiding the transition.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of the manuscript, the authors used ChatGPT (OpenAI) to improve readability of the abstract. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

CRedit authorship contribution statement

Aoife Brophy: Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Funding acquisition, Formal analysis, Conceptualization. **Jordan Calverley:** Writing – original draft, Methodology, Formal analysis, Data curation. **Astha Wagle:** Writing – review & editing, Project administration, Formal analysis. **Juliane Reinecke:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Mark Workman:** Writing – review & editing, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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- b. How have you seen the conversation around offsetting evolve since then?
- c. What impact has the SBTi announcement had on the outlook for removals?
4. How does your organization engage with others in this space?
 - a. How do you see your organization's role as a market leader?
 - b. Which market stakeholders do you see as key players in shaping the sector?
5. Is there anyone else you would recommend speaking to?

Table 2
Summary of interviews conducted.

No	Date	Duration (Minutes)	Organization Type
1	03-Jul-24	40	Academic
2	04-Jul-24	56	Academic
3	10-Jul-24	56	Corporate
4	16-Jul-24	33	NGO
5	26-Jul-24	45	Funder
6	01-Aug-24	44	Corporate
7	02-Aug-24	48	NGO
8	02-Aug-24	45	NGO
9	02-Aug-24	32	Academic
10	07-Aug-24	29	Corporate
11	13-Aug-24	28	NGO

Data availability

Data will be made available on request.

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