A new perspective on the work of boundary organisations: Bridging knowledge between marine conservation actors in Pacific Small Island Developing States

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ARTICLE INFO

ABSTRACT

In the face of growing pressures on the marine environment, evidence-based decision-making in the realm of marine conservation policies is of utmost importance. Through their boundary work, comprising the transfer of knowledge through the production of boundary objects and the facilitation of knowledge exchange, boundary organisations stand out as highly promising in bridging the gap between science and policymaking. However, so far, the research on knowledge exchange between marine scientists and policymakers as well as on boundary organisations in general is largely based on case studies in the Global North. This imbalance highlights the need to conduct studies on knowledge uptake in different geographical and political settings, with an increased focus on the Global South. By exploring the applicability of the current conceptual view on boundary organisations to the specific empirical reality of marine conservation in Pacific Small Island Developing States (SIDS), our research seeks to improve knowledge uptake in SIDS by identifying factors and strategies for successful boundary work in this context and to enrich the generic understanding of the role of boundary organisations with perspectives from the Global South. We conducted ten interviews with representatives from boundary organisations working on marine conservation in Pacific SIDS. Based on the findings, we developed a new framework for successful boundary work that is better adapted to realities in the Global South and reconceptualised the understanding of boundary work towards science-policy-community interfaces, emphasising that the gap between marine science and policymaking can only be bridged by engaging local communities and their knowledge.

1. Introduction

With mounting pressures on the marine environment, evidence-based decision-making is becoming increasingly important (Karcher et al., 2022). Despite the wealth of knowledge gained on marine ecosystems and the anthropogenic threats to their conservation, the integration and transformation of this knowledge into effective policies to protect the oceans remains a significant challenge (Cvitanovic et al., 2015, 2014; Karcher et al., 2022). Organisations that operate at the interface between science and policy – often labelled as *boundary organisations* (Guston, 2001) – are considered particularly effective in addressing the challenge of fuelling policymaking with a scientific evidence base. Boundary organisations are usually not embedded in research teams or government agencies but form a separate entity to represent different actors more effectively while maintaining credibility

through a certain degree of independence (Cvitanovic et al., 2015; Guston, 2001). The activities and outputs that boundary organisations realise to achieve the goal of research uptake (e.g., Trouwloon et al., 2024) are referred to as *boundary work* (Shaw et al., 2013). Boundary work can include the translation of research findings, the facilitation of stakeholder meetings and mediation between different actors (Shaw et al., 2013). Some successful examples of boundary organisations contributing to *research uptake* have also already been documented for marine environments (Crona and Parker, 2012; Cvitanovic et al., 2024, 2018, 2015, 2014; Karcher et al., 2022; Meyer et al., 2015).

It appears that many of the general claims about boundary work are based on case studies from the Global North. We argue that it is not a given that such claims can be applied to a context in the Global South without question. For example, regarding the science sphere, Mormina and Istratii (2021) note that research capacity development in the

Global South appears to perpetuate "*approaches that are likely to be narrow, technocratic and unreflexive of colonial legacies*" (p.1). Regarding the policy sphere, arguably, in the Global South governments may suffer from lack of capacity more so than in the Global North. For example, White et al. (2022) observe how the lack of capacity of the Indonesian government led to the creation of top-down, centralised "paper" MPAs. In another example, Francolini et al. (2023) find that in South Africa the lack of government capacity translates in insufficient law enforcement, poor physical infrastructure, and corruption, factors that they find add to the under-performance of the Aliwal Shoal Marine Protected Area.

Especially in the area of knowledge exchange between marine scientists and decision makers, there is a lack of empirical data from more diverse settings (Cvitanovic et al., 2015). Several authors recognise a need for complementary studies on boundary organisations and boundary work from more diverse geographical and political settings, with an increased focus on the Global South, in order to understand how the relationship between science and decision-making varies in different places and under different conditions (Clark et al., 2011; Cvitanovic et al., 2015; Karcher et al., 2022; Koch, 2018; Mahon and Fanning, 2021; Wagner et al., 2023).

Small Island Developing States (SIDS) play a special role in the context of marine conservation, as they are often surrounded by hotspots of biodiverse marine ecosystems and rely heavily on the ecosystem services they provide, but usually have limited capacities to protect their marine ecosystems effectively (Barnett, 2011; Burt et al., 2020; Kushner et al., 2012; Mahon and Fanning, 2021; Shiiba et al., 2023). SIDS that are located in the Pacific in particular, are home to a unique abundance of marine life but also suffer from overfishing, habitat destruction, marine pollution and several other marine related challenges (Vince et al., 2017). Several scholars see a need to improve evidence-based decision-making in order to enhance the development and effective implementation of marine conservation measures in this region (Schwarz et al., 2021; Vince et al., 2017).

By exploring the applicability of the current conceptual view on boundary organisations and the boundary work they engage in to the specific empirical reality of marine conservation in Pacific SIDS, we aim to contribute to the improvement of knowledge uptake in Pacific SIDS by identifying factors and strategies for successful boundary work in this particular context. We also hope to contribute to the more generic understanding of the role of boundary organisations with insights from a subset of cases from a particular sector (i.e., marine conservation) and particular geographic setting in the Global South (i.e., Pacific SIDS). We ask which factors influence the success of boundary organisations in bridging the gap between marine scientists and policymakers in Pacific Small Island Developing States?

2. Theoretical background

The successful uptake of scientific knowledge by policymakers is often claimed to depend on its perceived salience, credibility, and legitimacy (Cash et al., 2003; Clark et al., 2011; Wagner et al., 2023), where *salience* refers to the usefulness, *credibility* to the scientific adequacy and *legitimacy* to the acceptability of scientific knowledge. *Boundary organisations* are seen as particularly effective in supporting scientific knowledge creation, dissemination and use (Cvitanovic et al., 2015). Their *boundary work* can contribute to the improvement of the perceived salience, credibility and legitimacy of scientific knowledge by those that are supposed to use this knowledge for their decisions.

Current conceptualisations of boundary organisations have them operating at the so-called *science-policy interface* (e.g., Cvitanovic et al., 2024; Cvitanovic et al., 2021; Guston, 2001; Jensen-Ryan and German, 2019; van Enst et al., 2016; Wagner et al., 2023). From the interface, boundary organisations can transfer knowledge between the science and the policy sphere, by producing so-called *boundary objects* (Cash et al., 2002; Cvitanovic et al., 2024; Dinesh et al., 2021; Guston, 2001), and by facilitating knowledge exchange (Bednarek et al., 2018; Guston, 2001) (Fig. 1).

Our literature review leads us to list the following set of factors that have been tied with boundary organisation success (Table 1). In terms of structure and content, our literature review built on Cash et al.'s (2002) seminal framework in this particular field, which has often been used as a basis for exploring the work of boundary organisations. Its factors for successful boundary work were thereby regularly reinterpreted in relation to different thematic contexts and supplemented by new factors (Daly and Dilling, 2019; Graham and Mitchell, 2016; Ibarra et al., 2022; Sarkki et al., 2013; Spence, 2017). In the following, we define Cash et al.'s (2002) factors based on the work of several authors and supplement it by three additional factors – *Expertise, Trust building and Capacity building* - as these have been repeatedly mentioned in analyses relating to the Global South and could therefore also play a role in the
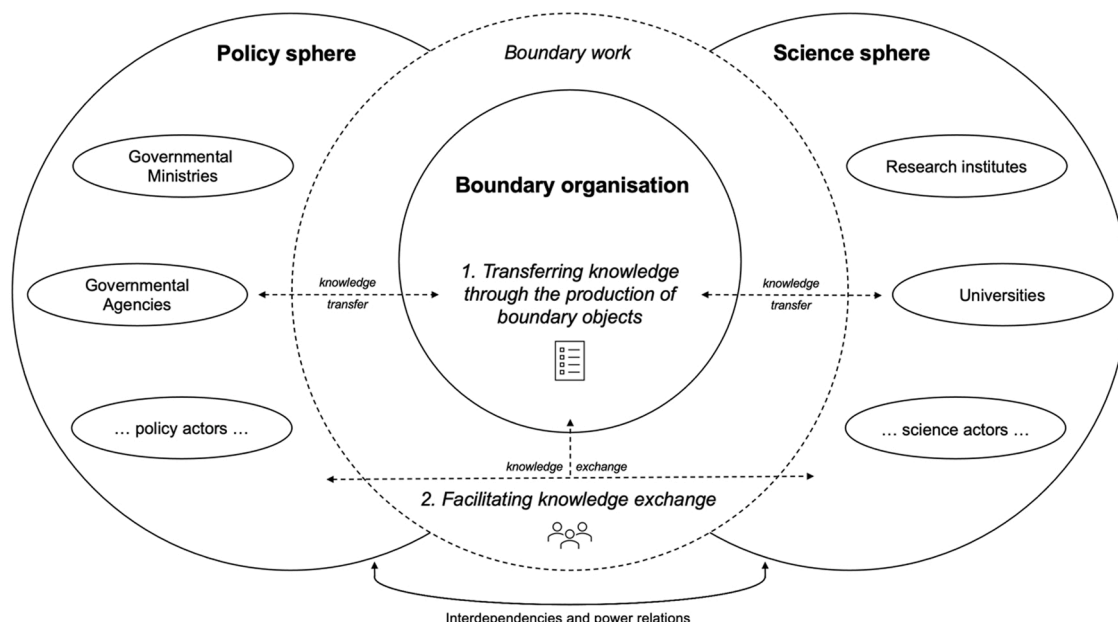

Fig. 1. Current view on boundary organisations, (based on Cvitanovic et al. 2015).

Table 1

Current view on factors contributing to boundary organisation success (based on literature review).

Boundary work types	Success factors	Strategies for successful boundary work	Examples of how strategies are implemented
Transferring knowledge through the production of boundary objects	*Accountability*	Establishing accountability to the political sphere	Mandate, MoU, early involvement of policymakers
		Establishing accountability to the science sphere	Expert consultation, transparency, peer-review processes
	Expertise	Ensuring expertise in policy and marine science	Diverse professional backgrounds, knowledge brokers
		Hiring local expertise	Local staff
	Translation	Translating knowledge to make it more comprehensible	Policy briefs, reports, presentations, workshops
		Linking different fields of knowledge	Assessment reports, data combination tools
		Translating between different governance levels	Environmental monitoring tools, reports
Facilitating knowledge exchange	*Participation*	Creating settings for knowledge exchange and participation	Workshops, conferences, events
		Ensuring participation of local communities	Actively support local actors in their participation
	Mediation	Offering conflict resolution approaches	Local consultations, meetings, workshops
		Balancing power asymmetries	Transparency, support marginalised actors
	Coordination	Institutionalising transboundary networks and programmes	Partnerships, memberships, websites, networks
		Strengthening exchange between governance actors	Meetings, conferences, workshops with multiple governance actors
		Scanning the horizon for new information and developments	Search for new partners, access to latest policy/ science developments
	Trust building	Investing in long-term partnerships	Long-term projects and partnerships, reliable funding
		Creating informal settings for building personal relationships	Workshops, parties, events
	Capacity building	Providing financial and material support	Funding research and co-production projects
		Improving data availability and accessibility	Maintaining and creating databases
		Investing in transdisciplinary and professional training	Workshops, seminars

context of Pacific SIDS.

2.1. Transferring knowledge through the production of boundary objects

Boundary objects come in various forms such as policy briefs, assessment reports, environmental models, maps or presentations (Cvitanovic et al., 2024; Dinesh et al., 2021). The following factors are found to be of particular importance for the production of boundary objects.

2.1.1. Accountability

Cash et al. (2002) find that the institutionalisation of accountability ensures that the perspectives, interests and concerns of both policymakers and scientists are considered for in the production of boundary objects. Accountability is shown to be important for legitimacy (Spence, 2017), and the salience and credibility (Cash et al., 2002) of boundary objects. Regarding the policy sphere, a clear political mandate can establish accountability (van Enst et al., 2016; Koch, 2018; Sarkki et al., 2012). Accountability to the scientific sphere has been shown to result from transparent knowledge creation processes, long-term partnerships, consultation of external scientific adviser, peer-review processes or a formal member status of a scientific institution within the organisation (Cash et al., 2003; Clark et al., 2011; Dinesh et al., 2021; Ibarra et al., 2022). Accountability is found to have been served by the early involvement in boundary object development of both policymakers and scientists (Blythe and Cvitanovic, 2020; Graham and Mitchell, 2016; Koch, 2018).

2.1.2. Expertise

Sarkki et al. (2012) and Wagner et al. (2023) conclude that the fundamental basis for the development of effective boundary objects is a genuine understanding of marine sciences, and of political processes and policy development. A staff with a diverse set of scientific expertise enhances the salience and credibility of the boundary objects. Furthermore, to ensure legitimacy of the boundary objects, it proves important for a boundary organisation to have a staff that is familiar with the local context (Dinesh et al., 2021). Local expertise also increases the salience and credibility of boundary objects (Wagner et al., 2023).

2.1.3. Translation

The making of boundary objects requires dealing with different jargons, languages and interpretations (Dinesh et al., 2021; Koch, 2018; van Enst et al., 2016). Appropriate translation when making boundary objects is found to help emphasising the salience of scientific knowledge as it is better adapted to the needs and expertise of the users and the context in which it is to be used (Dinesh et al., 2021).

2.2. Facilitation of knowledge exchange

Boundary organisations can also facilitate the exchange of knowledge between different actors. We derived the following factors that are associated with the successful facilitation of knowledge exchange by boundary organisations.

2.2.1. Participation

Cash et al. (2003) find that boundary organisations can increase the credibility of the knowledge exchanged by involving different sets of expertise, its salience by enabling end-users to express their information needs, and its legitimacy by enabling different stakeholders to access the knowledge exchange process. The iterative, interactive, and face-to-face exchange of knowledge is seen as crucial (Cash et al., 2003; Franks, 2014; Sarkki et al., 2013; Wagner et al., 2023). Boundary organisations need to consider the limited time and budgets most stakeholders have (Graham and Mitchell, 2016; Koch, 2018; Mahon and Fanning, 2021).

2.2.2. Mediation

When stakeholders with different interests, knowledge and perspectives come together, conflicts can arise. Therefore, Cash et al. (2002) refer to the role of boundary organisations as mediators and conflict managers. Graham and Mitchell (2016) warn for the politicisation of scientific processes. Power asymmetries between different stakeholders call for a need for boundary organisations to pay special attention to marginalised and disadvantaged actors (Clark et al., 2011; Cvitanovic et al., 2024; Daly and Dilling, 2019; Ibarra et al., 2022).

2.2.3. Coordination

Boundary organisations must prevent different actors from developing divergent or incompatible courses of action. The institutionalisation of the coordinated exchange of knowledge through the establishment of (transboundary) networks and partnerships is one strategy that has proven to be helpful, as has a constant strategic horizon scanning and access to the latest policy and research developments in order to identify potential cooperation partners, opportunities and risks (Bednarek et al., 2018; Karcher et al., 2022; Leith et al., 2016; Sarkki et al., 2012; Vince et al., 2017).

2.2.4. Trust building

Trust between actors increases the effectiveness of communication and thus contributes to the salience of the knowledge for policymakers (Cvitanovic and Hobday, 2018; Karcher et al., 2022; van Enst et al., 2016). Furthermore, it serves as the basis for legitimate and credible knowledge exchange and production (Bednarek et al., 2018; Cvitanovic et al., 2024). The continuity of partnerships increases trust between stakeholders (Bednarek et al., 2018; Blythe and Cvitanovic, 2020; Daly and Dilling, 2019; Graham and Mitchell, 2016). Informal meetings can be a way to strengthen personal relationships (Cvitanovic et al., 2024; Jensen-Ryan and German, 2019; Sarkki et al., 2012).

2.2.5. Capacity building

Investing in capacity (financial and material capacity, the capacity to access information, to work transdisciplinary and to give training) is recognised as an effective way for boundary organisations to improve knowledge exchange between different actors (Bednarek et al., 2018; Clark et al., 2011; Dinesh et al., 2021; Graham and Mitchell, 2016; Karcher et al., 2022; Koch, 2018; Mahon and Fanning, 2021; Sarkki et al., 2012; Spence, 2017; van Enst et al., 2016).

3. Methods

Our aim is to explore the applicability of the current conceptual view on boundary organisations and the boundary work they engage in (that resulted from our literature review presented in the section above) to the specific empirical reality of marine conservation in Pacific SIDS. We do this because we had reason to believe that much of our conceptualisation is based on a rather narrow empirical basis, a basis that is likely to diverge from the reality of Pacific SIDS. We think that by broadening the empirical basis for research on boundary organisations we can contribute to the improvement of boundary work in a wider range of contexts, and to theory-building regarding the use of scientific knowledge in decision-making, more generally defined. Our method consisted of interviewing a sample of ten representatives, each from a different Pacific SIDS boundary organisation. Eight of the interviewees held senior management positions in their organisation and two worked in mid-level management. The components presented in Table 1 served as basis for the interview guide, which is presented in Appendix 1.

To a large extent, the term "boundary organisation" is an academic construct that doesn't necessarily resonate with the organisations, themselves, arguably more so in the Global South than in the Global North. In order to identify relevant organisations, search terms such as "marine conservation organisation", "marine NGO", "marine policy", "marine protection" and "marine research" were entered into Google in combination with the name of each one of the Pacific SIDS. In addition, the word "marine" was replaced once with "ocean" for each combination. We also did a round of searches where we used the term "boundary organisation" in combination with the marine- and ocean-related search terms mentioned above, plus the name of each one of the respective Pacific SIDS. We ran all searches using both English and American spelling. When a relevant organisation had been found, its website was additionally used to identify other organisations in the region. Subsequently, the resulting hits were scrutinised using the following selection criteria. Firstly, the organisations had to be active in the field of marine conservation. Secondly, the organisation had to operate in at least one Pacific SIDS. Thirdly, there had to be an indication that the organisation works with policymakers. Fourthly, organisations that could be clearly assigned to science, such as universities, research centres, and research associations, or to politics, such as governmental ministries and governmental committees, were excluded. Science-driven organisations whose core function includes providing scientific advice to policymakers were also considered in case they constitute a formal organisation. In total, 30 organisations were identified. All were contacted, and a total of ten representatives, each from a different organisation, agreed to cooperate. The diversity of the organisations represented is illustrated in the following Table 2 based on the characteristics of *mandate*, *geographical area of operation* and *size of the organisation*.

The interviews were designed in a semi-structured manner, consisting of open and closed questions. The interview topic list we used followed the content and structure of Table 1, and thus allowed us to inquire about the presence of the success factors that are mentioned in the literature. An acknowledged limitation of this approach is that it may prompt interviewees to focus on too narrowly on our particular interpretation of the existing literature. Therefore, we also encouraged interviewees to question our conceptualisation and to reflect on additions and adaptions by means of a number of open questions about what they deem important for the success of their efforts (see Appendix 1). The interviews were conducted online and recorded with the permission of the interviewees. The recordings were transcribed using the automatic transcription function in Microsoft Word. The analysis of the collected data was carried out with the help of the NVivo software, which is suitable for coding interview content and has also been used in similar research projects (Karcher et al., 2022). The results were coded into different themes, whereby on the one hand the presence of the success factors of the assessment framework was recorded and on the other hand gaps in the framework and corresponding new success factors and strategies were identified. Furthermore, potential suggestions for improvement of boundary work in the context of SIDS were compiled based on the statements and articulated experiences of the interviewees.

Prior to the interviews, all participants signed a consent form, in which they were informed about the research's purpose, the information collected, and their right to withdraw from the study at any time. Additionally, it was agreed that in our reporting we would guarantee that data could not be traced back to neither persons nor organisations.

The aspects of the authors' positionality that may have influenced their approach to setting up and carrying out their study and that therefore should be revealed include the following. They are from Northwestern Europe where they lived and worked during the execution of the research. They are both academically trained at Universities in the Global North. They have professional experience – as practitioner and as academic researcher, respectively – working with boundary organizations in the Global South, although not in Pacific Small Island Developing States.

Table 2

Diversity of the represented boundary organisations.

Characteristics	Features	Number of represented boundary organisations per feature
Mandate	Intergovernmental	4
	Non-governmental	5
	Foreign governmental agency	1
Geographical area of operation	Worldwide	8
	Oceania	2
Size of the organisation (number of employees)	10.000 – 15.000	2
	1.000 – 5.000	1
	50 – 200	2
	< 50	5

4. Results

4.1. Transferring knowledge through the production of boundary objects

The notion that boundary objects are an important instrument for boundary organisations resonated with the participants in our study. When contrasting the details of our findings from the literature review with the empirical realities of Pacific SIDS, we encountered input for a new perspective on the work of boundary organisations.

4.1.1. Accountability

The results of the interviews demonstrate that boundary organisations involved in marine conservation in Pacific SIDS have various approaches to establishing accountability. Accountability in the policy sphere was reported to take shape as guidelines, mandates, reporting obligations, cooperative agreements, or memorandums of understanding. Regarding the science sphere, data sharing agreements and peer reviewing processes were used to control and monitor the use and exchange of knowledge with other organisations, and thus support its credibility. However, some respondents (3 out of 10) also argued that peer reviewing processes are often too resource-intensive. The (scientific) validation of boundary objects by external experts was mentioned by five of our respondents.

The interviews raised the importance of demonstrating accountability in local communities. In many Pacific SIDS, local communities are strongly linked to and dependent on the marine ecosystems. Most of our respondents (9 out of 10) were of the opinion that local communities should also be able to hold them accountable, for example when boundary objects leaned on or referred to traditional and indigenous knowledge. Examples of how that is accomplished include the use of apps for the creation of participatory maps that visualise the value and function of various marine resources for local communities, and the establishment of community committees to institutionalise regular interaction. We would argue that the usefulness of such approaches is not limited to marine resource management, alone. They may also be applicable in situations where communities depend on other types of natural resources.

4.1.2. Expertise

All participants indicated to possess some degree of expertise on both marine science and policy within their organisations, but there were significant differences in extent, scope, and focus of the expertise. Especially, organisations only operating in the Pacific often do not have sufficient in-house expertise for the development of effective boundary objects. All interviewees in our sample reported that especially staff representing local, context-specific expertise is important for the creation of boundary objects that are considered legitimate, salient, and credible. However, the proportion of local staff varies greatly within our sample. Organisations with a permanent presence in the region have a higher level of local expertise than organisations with a more ad hoc presence. The latter are seen to team up with local individuals or NGOs on a project basis to make up for this omission. We would assume that whereas our finding here regards expertise on marine science and policy, boundary organisations that focus on other types of natural resources would need to meet this challenge, as well.

4.1.3. Translation

The interviews confirm that translation (broadly defined) is important when developing boundary objects. One challenge that was highlighted is the translation of scientific evidence (that is surrounded by uncertainties and caveats) for an audience that needs clear guidance on how to protect marine resources. One particular strategy, we learnt from our interviews, centres on translating science for the creation of boundary objects that demonstrate the importance of ecosystems to policymakers with arguments beyond the intrinsic protection of nature. Particular emphasis was placed on arguments relating to the protection

and well-being of local communities, for example, the importance of coral reefs for local food security and the protection against coastal hazards. Another strategy we heard about regards the translation of scientific knowledge (that is often general) into practical examples that resonate in the context that the boundary object is made for. However, it was mentioned that this strategy may jeopardise the legitimacy of the boundary organisation in the eyes of policymakers, as the latter may not accept the narrowing down of policy options. Literal translations (from one language to another) was reported to be complicated by the use of multiple languages and dialects in many Pacific SIDS. We found evidence of organisations collaborating with local partners particularly of translation purposes. A very practical measure raised by one participant is the creation of an online library coupled to an automatic translation system. It was mentioned in one of our interviews that many translation efforts go into the making of boundary objects that favour knowledge exchange between international and national levels, respectively. The respondent was concerned about the lack of translation efforts resulting in boundary objects meant for local communities. Again, we would expect that these particular findings regarding the translation of science into boundary objects are not limited to marine science, alone.

4.2. Facilitation of knowledge exchange

Our literature review shows that bringing different stakeholders together to exchange knowledge and needs is a fundamental role of boundary organisations. Although the participants in our research agreed with this depiction of their role, they also provided us with insights and experiences regarding how they fill this role that sometimes deviates from the framings found in the literature.

4.2.1. Participation

The most frequently mentioned way of involving different actors was through workshops or webinars (10 out of 10), but also the organisation of conferences and smaller side events at conferences were common approaches. Especially smaller-sized events were seen as particularly valuable for informal knowledge exchange and relationship building. Many interviewees stressed the importance of particularly local community participation, as it can strengthen the legitimacy and salience by ensuring that the perspectives and needs of the affected communities are accounted for, and improve credibility by including different types of knowledge. Although the participation of local community representatives in conferences and workshops was generally valued, two respondents were critical of the actual effect. An additional strategy for successful boundary work that emerged in the interviews is the move towards engaging industry and private sector actors. In the context of marine conservation, two important sectors are tourism and fisheries, as they can play a major role in the degradation of marine ecosystems and are therefore often affected by conservation measures. However, while involving local communities in knowledge exchange processes seems to be important for most organisations, involving private actors is still highly contested. Most respondents (7 out of 10) stated that they occasionally involve private sector actors in knowledge exchange processes and recognised that their transparent involvement can have potential for effective conservation action, however, four respondents also stated that they have experienced that private sector involvement has undermined conservation objectives and their implementation. Although this observation appears more particularly associated with marine resources, we recognise an equivalent in other types of natural resources that are subject to (eco) tourism, also.

4.2.2. Mediation

Five interviewees indicated they tend to focus on conflict prevention rather than conflict mediation. Facilitating the development of positive relationships between actors from science, local communities and policymakers and providing platforms for input (such as multiple rounds of consultations or focus group sessions) were some of the practical

examples that were mentioned. It was emphasised that having transparent, participatory practices in place is fundamental for dealing with conflict.

The interviews revealed various areas of tension between different actors, some of which are closely linked to underlying power asymmetries. In this context, different strategies of the boundary organisations to deal with potential conflicts by balancing power asymmetries were mentioned. The first area of tension regards the boundary organisation's relation with local communities, as the objective of marine conservation may be at odds with communities' use of natural resources, which can also be observed in other environmental areas such as reforestation or the protection and rewilding of endangered animals. To avoid conflicts, four participants stressed the importance of clarifying conservation objectives and consequences very clearly and precisely at the start of an engagement with a community. As approaches to solve conflicts with local communities, the introduction of a trusted moderator and community-specific traditional conflict resolution styles were mentioned. Another area of tension arises from the power asymmetries between other organisations and local communities where two participants reported that their organisations take on the role of 'gatekeeper,' managing access to the community.

Conflict mediation and balancing power asymmetries seem to become more difficult for boundary organisations when the conflict involves state actors. Often conflicts seem to arise when government actors interfere with the lives of local communities through political decisions. Boundary organisations' primary attempt to fuel government policies with a scientific evidence-base, hinders the carrying out of mediation efforts of this particular kind. Three participants described that mediation and environmental or social activism efforts by boundary organisations can even have negative consequences in terms of perceived legitimacy and credibility of the science that they are trying to get adopted, both in the policy and in the community sphere. Two participants reported that their organisations might help with documenting consultation shortfalls or pass information to the press but cannot confront the government directly. Another way to circumvent this dilemma in conflict situations has been to engage with the government as a collective of civil society organisations rather than as an individual organisation. Another interviewee mentioned how they highlight and disseminate positive examples of collaborations between local communities and different actors.

4.2.3. Coordination

Our Pacific SIDS interviewees confirmed that as boundary organisations they can take a central role in the coordination of knowledge exchange. They mentioned coordination efforts that target stakeholders both from within and across different spheres (i.e., science, policy, and community).

A strategy often mentioned by the participants in our sample is the building of partnerships between different stakeholders and the establishment of formal networks or programmes, that can serve as platforms from which knowledge exchange can be coordinated in an institutionalised manner. Facilitating and encouraging the formation of task forces or cross sectoral working groups are also cited as effective examples of strengthening knowledge exchange between different policymakers and other stakeholders. An integral part of this extensive coordination work is not only connecting the various actors so that they can share their knowledge with each other, but also gathering of information by actively scanning for new knowledge and developments. Many participants said that they mainly obtain new information through verbal and informal interactions, but also that a lot is communicated and picked up via social media platforms.

The coordination of the exchange of knowledge and experiences between different island states - for example to share best practices between islands or to find joint solutions to similar problems – was frequently mentioned by our interviewees. Also the coordination of policymaking efforts across different agencies in a country was

highlighted as an important objective. As most countries do not have overarching and integrated ocean governance infrastructures and policies, this type of coordination aims to help avoiding the issuing of incompatible policies and to address cross-cutting issues, such as marine biodiversity loss. Furthermore, seven participants also stated that their organisations coordinate knowledge exchange at the local level, for example by bringing fishers together to share their experiences with community-based fisheries management or about other forms of marine conservation and resource management. A final form of coordination observed takes place between the Pacific SIDS boundary organisations themselves to align their projects and goals. The kinds of coordination challenges that we heard about would in our view also apply to boundary organisations targeting the conservation of other types of natural resources.

4.2.4. Trust building

The basic strategy for building trust followed by the interviewed organisations' representatives is to create settings, such as workshops, trainings, or conference side events, where the different actors can meet face-to-face, get to know each other, and ultimately build relationships and mutual trust. Building personal relations was perceived by many interviewees (7 out of 10) as a very effective means to establish trust and facilitating an honest exchange of knowledge. We observed that some of the interviewees knew each other personally and had already worked in different positions in the policy sphere as well as in the science sphere. Through their professional experience, reputation and strong networks, these individuals were able to act as knowledge brokers and help the organisation to build trust and partnerships with different actors.

Four boundary organisations seem to invest in their own reputation, that in turn they use to act as external validator that can signal that certain actors and their activities are trustworthy. This helps to lay the foundation for new partnerships and networks, where trust between the involved actors might build up independently over time. Building one's own reputation and gaining trust from partners in policy and community spheres is said to be done by being accountable, but also by acting as a neutral science broker and build a status as an unbiased organisation. The reputation of a boundary organisation vis-à-vis non-scientific partners is also said to be helped by many years of cooperation with scientific institutions.

Long-term partnerships and projects that involve scientists, policymakers and local communities were univocally seen as a prerequisite for establishing trust. However, it was pointed out at the same time, that funding dynamics often stand in the way of maintaining long-term partnerships. Therefore, two interviewees mentioned that long-term planning should also be accompanied by a certain flexibility, especially in financial terms, so that all partners can be confident that the partnership or project will last, even in case of delays or unplanned developments. For example, marine spatial planning projects that failed because they ran out of funding were mentioned during one interview. In this case, the particular respondent therefore emphasised that they usually start projects with a five-year window in mind but make sure that they have enough financial capacity to extend the project if necessary.

In addition, clear expectation management and creating a shared understanding of the goals and content of projects between the different actors sharing and receiving knowledge were also mentioned as important aspects for maintaining and building trust in the organisation. Furthermore, when working internationally, actively preparing for cultural differences before engaging with new partners and actors and maintaining sensitivity to cultural differences was seen as crucial for building trust. In this context, one participant mentioned that employees receive cultural awareness training before they start working in foreign countries or specific local contexts.

4.2.5. Capacity building

Many interviewees (8 out of 10) stressed that capacity constraints

with both science and governance partners hinder the exchange and uptake of knowledge. The interviews show that boundary organisations are taking various measures to close these capacity gaps. Some participants from larger boundary organisations described how they support and partly take over tasks that are normally carried out by government agencies or carry out a large part of the data collection for scientific partners. Apart from direct administrative and research support in science and government processes, the provision of direct financial and material support, was also mentioned. In this respect, there are clear differences between boundary organisations, depending on their size and available funding resources. To facilitate knowledge exchange, one participant described that they would fund accommodation, utilities and travel expenses for conferences and workshops, which especially becomes important for balancing inequalities between well-funded institutions from the Global North and policymakers, scientists, or community members from countries with less funding capacities. Three participants from international organisations in our sample mentioned that they (i) support local researchers financially and materially, (ii) make sure they have access and the ability to use data, or (iii) promote co-design and co-implementation of science between Global North and Pacific SIDS partners. Several participants highlighted the importance of reducing capacity gaps between wealthy organisations and research institutions from the Global North on the one hand and local small-country equivalents on the other, as it can help scientists and representatives from SIDS to make their voices heard, thus enriching knowledge exchange and informed decision-making processes with more diverse perspectives and knowledge.

Most organisations we spoke with (8 out of 10) give training to government and science partners to increase capacities and empower SIDS to succeed in marine conservation without depending too much on foreign assistance. In order to tailor the training to the needs and the language of the regions emphasis was placed on partnering with local institutions to lead those trainings, rather than having those run experts from the Global North. Instead of conducting trainings, some boundary organisations also simply bring together people from similar positions so that they can exchange knowledge and learn from each other or supported mentorship programmes. The organisation of trainings involving people with different professional backgrounds was mentioned as manner to provide participants with insights into each other's work which was seen as contributing to the building of transdisciplinary understanding and skills. Since there is a shortage of skilled personnel to fill both science and government jobs, some boundary organisations target young professionals when they are coming out of college with fellowships and internships, while others also already partner with students during their studies, which was seen to benefit both sides the students and the organisations.

4.3. The work of boundary organisations in SIDS: a new framework

The interviews reveal that the factors that according to the existing literature contribute in general terms to the success of boundary organisations in bridging the gap between marine sciences and policymaking also seem to apply to the work of boundary organisations working on marine conservation in Pacific SIDS, in particular. However, the range and the details of the strategies that can be associated with each factor vary. We also find variation in the range of factors and strategies that the boundary organisations in our sample employ. While some organisations demonstrated a comprehensive adoption of all success factors, others focused primarily on specific areas within the field of boundary work, such as *coordination of knowledge dissemination* or *capacity development*. This restriction to parts of the boundary work was not exclusively related to the objective or the specific mandate of an organisation but was often also attributable to limited capacities which did not allow for the realisation of all success factors.

The most crucial strategy for successful boundary work on marine conservation in Pacific SIDS that emerged from the interviews is the need to establish accountability to local communities. We lean on the work of for example Agrawal and Gibson (1999) and Van Laerhoven and Barnes (2014) for conceptualising the communities that boundary organisations working on marine conservation engage with. These authors note that "*people are not any longer only seen as the cause of resource collapse, but treated as possible allies in or even initiators of solution strategies*" (Van Laerhoven and Barnes, 2014, p.22–3), but stress the fact that community members may have diverging interests. As many local communities in SIDS are reported in our interviews to possess (sometimes informal or traditional) tenure rights over large part of the marine coastal areas, are intimately connected to the marine environment and rely on the ecosystems for their livelihoods, cultural practices, and overall well-being, their role in marine conservation in SIDS is of utmost importance. Examples of communities that organisations in our sample mentioned to engage with include ward communities in Papua New Guinea, communities of formal land- and marine tenure right holders on the Solomon Islands and Vanuatu, and communities with recognised decision-making rights regarding access and use of marine resources in Fiji.

The relations between partners from the science, policy, and community spheres, respectively, are shaped by (often) asymmetric power and (inter)dependency, we were told in our interviews. Policy actors influence local communities through the policies they adopt, which may limit local communities' use of marine resources or threaten the existence of these resources through permitting extractive activities carried out by other actors. Local communities, meanwhile, can to some extent also exert influence on the policy sphere through elections, protests, or lawsuits. In addition, they can partially act independently as decision-makers in the areas under their stewardship, meaning that their independent decisions also influence the achievement of policy goals such as the protection of marine ecosystems. Furthermore, asymmetric power and (inter)dependencies are also the relation between partners from the science and the community sphere, respectively. On the one hand, the interviews indicated that scientific research is often strongly influenced by scientists and perspectives from the Global North, making scientific perceptions and political recommendations for addressing local communities potentially biased and inadequate. On the other hand, part of the scientific sphere consists of people from local communities who work in science and can thus enrich the scientific discourse with their perspectives and knowledge.

Respondents mentioned how this affects boundary work. For example, they see themselves aiming some of their activities on marginalised community actors whose voice might otherwise be ignored when decisions are made at the science-policy interface. Specifically, interviewees suggested that boundary organisations should pursue strategies to establish accountability to the community sphere, gain the trust of local communities, involve people with expertise in the local context of the respective communities in the development of boundary objects, and take into account the languages and capacities of local communities in knowledge translation and communication processes. Furthermore, when facilitating knowledge exchange, the role of boundary organisations in ensuring the participation of affected communities, addressing possible conflicts and power asymmetries that involve local communities, and developing their capacities to engage in knowledge exchange was emphasised.

With specific regard to trust building the interviews highlight the importance of the reputation of the boundary organisation itself. Respondents pointed at the importance of their own reputation as crucial for efforts to build the kind of trust among partners that is deemed necessary of knowledge exchange and uptake. Being trusted helps them to act as a neutral science broker, which in turn may help building the boundary organisation's reputations, and subsequently their own trustworthiness. As trusted partners they can grow their capacity of so-called external validator that can signal the trustworthiness of others. Strategies mentioned in relation with the factor trust include investing in personal relations, valuing long-term partnerships (helped by flexible

arrangements and good expectation management), and having an eye for cultural differences.

Based on the new findings, we present and propose a revised framework for successful boundary work (Table 3). While our reinterpretation of success factors and corresponding strategies often relate to specific challenges faced by boundary organisations in Pacific SIDS, they may also hold significant relevance for boundary organisations operating in other regions with similar challenges.

5. Discussion

The boundary organisations in our sample report encounter fundamental challenges when it comes to supporting evidence-based policy decision-making, thus confirming our assumption that the current conceptualisation of boundary work might fall short, especially in instances that deviate from the empirical basis for much of this conceptualisation. Limited scientific capacity, difficulties in obtaining funding for conservation research, and dealing with small, financially constrained government agencies that suffer from policy overload are some of the described challenges additionally faced by boundary organisations in SIDS. Furthermore, as funding is mainly provided by external actors and working in a regional framework to pool the resources is plausible due to the many SIDS in the Pacific, boundary organisations need to address an intricate stakeholder network. Taken together, these challenges add a layer of complexity to the work of boundary organisations working on marine conservation in Pacific SIDS, requiring them to navigate complicated interdependencies, unite across country borders, and engage in knowledge generation and compilation to carry out their work effectively.

By seeking to explore the applicability of the current theoretical view of boundary organisations to the particular and so far unaddressed reality in Pacific SIDS, our work, on the one hand, seeks to contribute to an expansion and reinterpretation of successful boundary work and, on the other hand, offers a reconceptualisation of the current theoretical understanding of the role of boundary organisations. While the results overall confirmed the success factors identified in the literature, underscoring their significance for boundary organisations, they also revealed additional aspects that play a significant role in the context of marine conservation in Pacific SIDS.

The most striking finding of this study is the crucial role local communities play in knowledge exchange processes for marine conservation, which is so far poorly addressed in the current literature on boundary organisations, as it has primarily focused on the interaction between the policy sphere and the science sphere, highlighting the need for effective knowledge transfer and exchange between these two domains (Bednarek et al., 2018; Cash et al., 2003; Cvitanovic et al., 2024, 2021, 2015; Graham and Mitchell, 2016; Gustafsson and Lidskog, 2018; Guston, 2001; Jensen-Ryan and German, 2019; Kamelarczyk and Gamborg, 2014; Karcher et al., 2021; Leith et al., 2016; van Enst et al., 2016; Wagner et al., 2023). The fact that local communities are closely connected to the natural environment, hold (traditional) tenure rights over ecosystems and possess valuable knowledge, may not be unique to the sector and geographic setting we studied. Therefore, based on our study we suggest that boundary organisations beyond the ones of the type that we have studied may also need to be accountable to communities and facilitate their contributions in the development of conservation policies to ensure the production and dissemination of salient, credible, and legitimate knowledge.

A progressive step towards a stronger focus on engaging local communities in policymaking can be seen in the organisational structure of the Arctic Council, which includes indigenous organisations in its internal knowledge exchange and creation processes, as shown in Spence (2017). Moreover, there has also been a general increase in literature on the participation of local and indigenous communities and the inclusion of their knowledge in the development of conservation measures (e.g., Urzedo and Robinson, 2023; Vierros et al., 2020; Yanou et al., 2023).

Table 3

New assessment framework for successful boundary work (based on our interviews).

Boundary work types	Success factors	Strategies for successful boundary work	Examples of how strategies are implemented, mentioned in our interviews
Transferring knowledge through the production of boundary objects	Accountability	Establishing accountability to the political sphere	Mandates, MoU, guidelines, reporting obligations, cooperative agreements, early involvement of policymakers
		Establishing accountability to the science sphere	Data sharing agreements, peer-review processes, expert consultations
		Establishing accountability to the community sphere	Consultations via participatory mapping tools, community committees
	Expertise	Ensuring expertise in policy and marine science	Diverse professional backgrounds, knowledge brokers
		Hiring local expertise	Local staff, collaboration with local individuals/ NGOs on project basis
	Translation	Translating knowledge to make it more comprehensible	Focus on clear and context specific policy recommendations and instructions
		Linking different fields of knowledge	Highlighting benefits and importance of marine ecosystem services
		Translating between different governance levels	Translation of general marine conservation knowledge into the specific policy context
		Translating in local languages	Native speaking staff, collaboration with local partners, automatic translation systems for web content
Facilitating knowledge exchange	Participation	Creating settings for knowledge exchange and participation	Workshops, webinars, conferences, events
		Ensuring participation of local communities	Actively support local actors in their participation
		Engaging with private sector actors	Transparent involvement of fisheries and tourism representatives
	Mediation	Offering conflict resolution approaches	Trusted moderator, community-specific traditional conflict resolution approaches
		Balancing power asymmetries	Managing access to communities, documenting consultation shortfalls, pass information to the press, (financially) support marginalised actors
		Focusing on conflict prevention	Early clarification of conservation objectives and consequences, transparent and participatory processes, promoting

Table 3 (*continued*)

Boundary work types	Success factors	Strategies for successful boundary work	Examples of how strategies are implemented, mentioned in our interviews
	Coordination	Institutionalising transboundary networks and programmes	positive relationships between stakeholders Partnerships, memberships, websites, networks
		Strengthening exchange between governance actors	Task forces, cross sectoral working groups, meetings, conferences, workshops
		Scanning the horizon for new information and developments	Verbal and informal interactions, social media platforms
	Trust building	Investing in long-term partnerships	Long-term vision, planning and project setup
		Creating informal settings for building personal relationships	Workshops, trainings, conference side events
		Building the organisation's trust and reputation	Being accountable, acting as neutral science broker, maintaining partnerships with scientific institutions
		Ensuring flexibility of projects	Sufficient (financial) capacity to deal with delays and unplanned developments
		Managing expectations	Creating a shared understanding of the goals and content of projects
		Acknowledging cultural differences	Preparing for cultural differences before engaging with new partners, maintaining sensitivity to cultural differences
	Capacity building	Providing financial and material support	Funding accommodation, utilities and travel expenses for conferences and workshops
		Improving data availability and accessibility	Providing (public) access to technologies, infrastructure and data, maintaining and creating databases
		Investing in transdisciplinary and professional training	(Transdisciplinary) workshops and seminars, mentorship programmes
		Taking on governance and research functions	Data collection and processing, administrative functions
		Supporting young professionals	Fellowships, internships, partnerships with students on project basis

However, the generic literature on boundary organisations has not yet kept pace with this development and still focuses mainly on knowledge exchanges between scientists and policymakers, only marginally considering the role of local communities and their knowledge for informed decision-making. To underscore the importance of local communities for conservation efforts by boundary organisations, this study builds up on the work of Spence (2017) and puts forth a new concept of boundary work that expands the existing framework of the policy and science spheres by incorporating the *community sphere*, as depicted in Fig. 2. By establishing a separate sphere for local communities in the work of boundary organisations, the described power relations, and interdependencies between the different spheres, illustrated by the arrows in Fig. 2, can be further accentuated, creating a more accurate view on the contextual setting in which boundary organisations have to navigate.

The new concept of a *science-policy-community interface* in which boundary organisations operate and try to bridge the gaps between the three spheres therefore recognises the importance of being accountable to local communities, actively engaging and collaborating with them and ensuring their perspectives, knowledge, and needs are integrated into policymaking processes and conservation strategies.

In addition to this fundamental expansion of the conceptual understanding of boundary work, we were able to add several new aspects to the assessment framework for successful boundary work making it better suited to the work of boundary organisations in SIDS and enriching the current literature with insights from the Global South. Consequently, the enhanced assessment framework (Table 3) can be used by individual boundary organisations to identify unrealised potential by comparing the success factors and strategies with their practices, thereby contributing to the improvement of their boundary work and informed decision-making in their respective context. To encourage the incorporation of the findings into the boundary work related to the specific context of this study, the assessment framework and a summary of the findings were shared with the representatives of the participating boundary organisations. As several of the observed strategies for successful boundary work relate specifically to challenges found in many countries in the Global South, the value of this work could hold particular societal relevance for boundary organisations there. However, the results may also be relevant for boundary organisations operating in the Global North, as the stronger involvement of local communities and societal actors in knowledge exchange processes between policymakers and scientists could also be considered there. By exploring the applicability of the Global North-centred theory on the work of boundary organisations to Global South realities, specifically those in Pacific SIDS, it might therefore not only be possible to broaden the conceptual perspective in the literature towards science-policy-community interfaces but also to potentially provide implications for the improvement of boundary work in Global North settings.

As indicated in the introduction, we start from the observation that there is a growing recognition of the fact that what we know about boundary work is disproportionally based on cases from the Global North. We have sought to contribute to diversifying the empirical basis of research on boundary organisations, by analysing one particular sector (marine conservation) in one particular geographic setting in the Global South (Pacific SIDS). This means that first and foremost we are able to speak to that particular sector and geographical setting. Here, we propose a new perspective on the work of boundary organisations that is based on the generalisation of our sector and geographical setting specific findings. We encourage future research to substantiate the validity of that perspective.

Some of the newly identified strategies for successful boundary work, can also be found in recent publications in the field of boundary work. One example of this is the increased attention placed on the role of trust and reputation, which we observed in our interviews but can also be seen in the recent publication by Cvitanovic et al. (2024). This strengthens our findings and may provide an impetus to delve deeper into specific strategies for successful boundary work in different contexts of science-policy-community interfaces.

Our expansion and detailing of the conceptualisation of boundary work (in Pacific SIDS in particular, and arguably in the Global South,
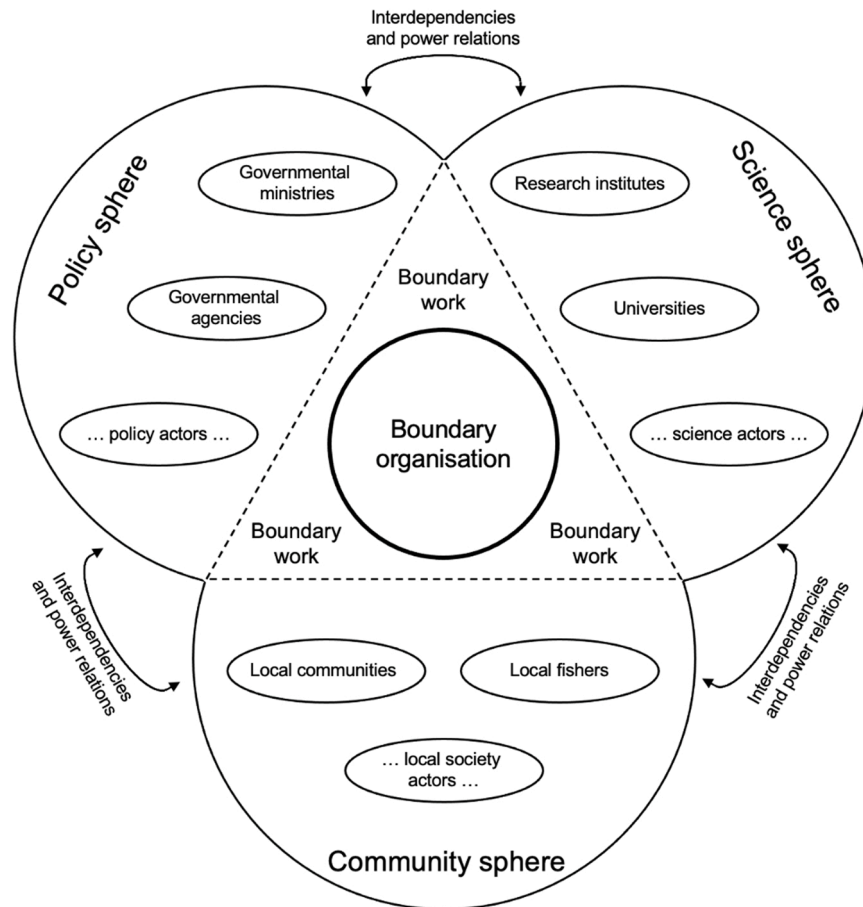
Fig. 2. New perspective on boundary organisations in Pacific SIDS (based on our research).

more generally speaking) is congruent with recent developments in other literatures that call for greater involvement of society in innovation and knowledge processes. In the policy context of food systems, for example, a recommendation by a High-Level Expert Group of the EU Commission (Webb et al., 2022) stating that the transformation of food systems needs to be better supported by more ambitious, interlinked interfaces between science, policy and society has led to several recent papers addressing this issue (Cammarano et al., 2023; Clapp et al., 2023; Singh et al., 2023). Our work contributes to the further development of the notion of science-policy-community interfaces in the particular context of environmental conservation and boundary work in the Global South.

The limitations of the research that resulted in the framework we propose regard (i) the narrow scope of the empirical basis in terms of sector and geographic setting, (ii) the nature of our sample in terms of size, types of respondents, and types of organisations and (iii) the exclusive focus on boundary organisations, disregarding insights from science, policy and community spheres, respectively. Therefore, we invite future research to consider the following. To further strengthen the scientific foundation of the conceptual understanding of science-policy-community interfaces, future research could explore boundary organisations and their role in bridging knowledge between policy-makers, scientists, and local communities in different geographic contexts, especially in the still underrepresented Global South, or in specific sectors, such as agriculture or forestry. Since we suspect that our search strategy was arguably biased by Global-North-dominated conceptualisations – potentially keeping some relevant organisations under the radar – we advise future researchers to fuel their approach to sampling with even more scrutiny (e.g. adding search terms specifically targeting science-advice organisations). As only representatives of

boundary organisations were interviewed in the scope of this study, incorporating the views of actors addressed by boundary organisations could offer further validation of the established framework from the perspective of policymakers, scientists, and local community members. In addition, by interviewing several representatives in different positions within the same boundary organisation, a deeper understanding of the complexity of boundary work could be developed and differences within boundary organisations regarding experiences and application of strategies for successful boundary work could be identified. Furthermore, a distinction between boundary organisations that operate internationally and have solid capacities and boundary organisations that operate mainly in smaller geographical settings and have fewer resources could provide more distinctive insights into differences in their work and help to further sharpen the factors and recommendations for successful boundary work. By exploring these research avenues, further studies could continue to deepen our understanding of boundary organisations and their impact on knowledge uptake in different thematic and geographical areas.

6. Conclusion

The conducted research aimed to improve knowledge uptake by identifying factors and strategies for successful boundary work in the specific context of marine conservation in Pacific SIDS. Thus, we also sought to enrich the generic understanding of the role of boundary organisations with insights from the Global South. We developed a new assessment framework that we feel is better adapted to realities in the Global South. Subsequently, we propose to reconceptualise the understanding of boundary work towards *science-policy-community interfaces*. In our work, we emphasise that the gap between science and policy can

only be bridged by incorporating local communities and their knowledge. This incorporation is essential for the production and dissemination of salient, credible and legitimate knowledge. Particularly in the context of boundary work for marine conservation, the predominant focus on science-policy interfaces in the literature is highly concerning, as local communities often hold formal and informal tenure rights over large parts of vital marine ecosystems, interact with them in various ways, and ultimately depend on the persistence of the ecosystem services provided. By exploring the applicability of the current conceptual view on boundary organisations to the specific empirical reality of marine conservation in Pacific SIDS, our research shed light on the so far largely unrecognised sphere of local communities in the work of boundary organisations and identified several new strategies for successful boundary work that can enrich the existing literature with perspectives from the Global South and help bridge the gaps between policymakers, marine scientists and local communities, in order to contribute to marine conservation policies that can better address the growing pressures on marine ecosystems through informed decision-making.

CRediT authorship contribution statement

Frank van Laerhoven: Writing – review & editing, Methodology, Conceptualization. **Moritz Latour:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, 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.

Data availability

The data that has been used is confidential.

Acknowledgements

Appendix 1. Interview guide[1]

Introduction and interview overview

The first questions relate to the ways your organisation provides knowledge to policymakers through, for example, assessment reports and the second set of questions relate to the ways in which your organisation facilitates knowledge exchange between scientific actors and policymakers. In the end, there will be more open questions where you can tell me if we missed something important or what do you think is most relevant in the process of connecting science and policy.

We would be very grateful if you could give concrete examples when answering the questions and briefly explain whether you find the aspect mentioned in the question important for your work.

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[1] Whereas the question are formulated as closed-questions, they in fact served as prompts to have an open conservation about the topic in question.

Transferring knowledge through the production of boundary objects

Boundary objects

- Does your organisation produce environmental assessment reports, tools, presentations, or something similar, to communicate scientific knowledge to policymakers?

Accountability

- To what extent is your organisation connected to policymakers in Small Island Developing States and is there any form of accountability to the political sphere, e.g. through a political mandate, project agreements or funding?
  - Do you think that a formal connection to the policy sphere makes it easier to communicate scientific knowledge to policymakers?

- When you produce knowledge for policymakers, for example policy briefs or monitoring tools, is there early consultation with policymakers about their information needs?
  o If so, do you think that kind of co-production is helpful when you want to impact the policy sphere with the produced knowledge?

- From where do you obtain your scientific knowledge and to what extent are you linked to scientific actors such as universities or research centres in Pacific SIDS?

- Do you have means in place to ensure accountability for the scientific knowledge you communicate, for example through transparent knowledge creation, peer review processes or scientific partners?

Expertise

- Do you have people in your team who have expertise in policy issues as well as people who have expertise in marine science, or does your team mainly consist of marine biologists, for example?

- Do you have people working on your team who grew up or live in Pacific SIDS?

- Does your organisation have hiring policies in place to ensure that local people are recruited into the organisation?
  o If not, how do you ensure that local perspectives are represented in the outputs your organisation produces?

Translation

- Do you actively translate scientific knowledge for policymakers to make it more understandable, for example through policy briefs, reports, presentations, or workshops?

- Does your organisation combine knowledge from different sectors to illustrate the relevance of an issue to policymakers (e.g. biodiversity – food security or climate adaptation)?

- Does your organisation transfer scientific knowledge between different governance levels, for example from a national to a local context?

Facilitating knowledge exchange

Participation

- Does your organisation create spaces for knowledge exchange between marine scientists and policymakers, for example through conferences or workshops?

- Does your organisation facilitate the inclusion of local citizens' perspectives in knowledge exchange processes?

Mediation

- Have you experienced conflicts between different stakeholders over conservation efforts?

- Does your organisation offer conflict resolution approaches such as meetings with stakeholders or conferences on marine conservation issues?
  o If so, do you think this role as mediator is important in the context of marine conservation in SIDS?

- How does your organisation deal with power asymmetries between different actors, e.g. between local citizens and policymakers?

Coordination

- Does your organisation actively work on building knowledge exchange networks with partners in the field of marine conservation?

- Does your organisation promote the exchange of knowledge between these partners, for example, through newsletters or conferences?

- Does your organisation actively seek to involve stakeholders from different sectors, e.g. from the tourism industry, in knowledge exchange and cooperation?

- Do you think it is helpful to include stakeholders whose main objective is not the protection of the marine ecosystems in the knowledge exchange?

- Does your organisation involve Pacific actors from different levels of governance in knowledge exchange?

- How does your organisation receive news about new developments in politics and science?

- Is your organisation actively scanning the horizon for new partners, opportunities, and risks for the promotion of marine conservation?

Trust building

- Does your organisation pursue strategies to increase trust between actors, for example by setting up long-term projects with reliable funding?

- Does your organisation facilitate informal meetings or events for stakeholders with the aim of strengthening personal relationships and increasing trust between different actors?

Capacity development

- Does your organisation provide funding for research and collaborative projects?

- Does your organisation build capacity for the knowledge exchange between scientists and policymakers, e.g. by maintaining databases or improving data availability through tools or websites?

- Does your organisation offer trainings or seminars for policymakers to better understand and deal with scientific knowledge?

- Does your organisation offer trainings or seminars for marine scientists to gain a better understanding of policy processes?

Open questions

- Would you like to add any factors that I have not mentioned so far, but based on your experience are important for the work of your organisation?

- Do you see factors that are specific to the regional context in the Pacific or Small Island States that I haven't considered so far?

- If there were one lesson you would like other organisations to learn from your experience in Pacific SIDS in terms of supporting evidence-informed decision-making, what would it be?

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