

## RESEARCH ARTICLE

# How do stakeholder groups make sense of sustainability: Analysing differences in the complexity of their cognitive frames

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## Abstract

Characterizing major sustainability issues as ‘grand challenges’ has led to a call for collaboration among heterogeneous stakeholder groups, not least in multi-stakeholder initiatives (MSIs). Research into MSIs has made substantial progress in understanding their workings; yet, it is still criticized for remaining undertheorized, echoing a criticism of management studies generally as paying insufficient attention to the micro–macro divide. Hence, we examined differences between stakeholder groups in the complexity of their cognitive frames on the topic of sustainability. We analysed 265 cognitive frames across four stakeholder groups (business, government, NGO, education). Analysing these frames in terms of the two dimensions of cognitive complexity—differentiation and integration—we found statistically significant differences in frame complexity between stakeholder groups. These micro-level cognitive differences can explain macro-level problems in stakeholder engagement and communication. Hence, we conclude by discussing the implications of our findings for the enhancement of the effectiveness of MSIs.

## KEYWORDS

cognitive frames, multi-stakeholder initiatives, sense-making, stakeholder theory, sustainability

## 1 | INTRODUCTION

Many sustainability issues, such as climate change, biodiversity loss, poverty or gender inequality, have been identified as ‘grand challenges’ (George et al., 2016). These issues are complex and multidimensional problems that operate across different levels, from the individual through the organizational to the systemic one (Hahn et al., 2015). They are often characterized as ‘wicked problems’

(Reinecke & Ansari, 2016) for which readily available solutions do not exist. Addressing them requires collaboration among heterogeneous organizations over a sustained period of time (George et al., 2023). One particular form of such collaborative endeavours are multi-stakeholder initiatives (MSIs) which seek to create regulatory mechanisms for sustainability issues, ranging from labour standards in supply chains to environmentally friendlier resource utilization (for a literature review see de Bakker et al., 2019). Typically, MSIs bring together businesses and NGOs, but at times they can involve other stakeholders too, such as government or educators (Stott, 2023).

Stakeholder engagement has often been approached from a starting point in the ideals of transparent and agenda-free stakeholder

**Abbreviations:** ANOVA, analysis of variance; CEO, chief executive officer; CSR, corporate social responsibility; FAO, UN Food and Agriculture Organization; ILO, International Labour Organization; MSI, multi-stakeholder initiative; NGO, non-governmental organization; OECD, Organisation for Economic Co-operation and Development.

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dialogue (Boersma, 2018), whereas the complexities of collaboration have received comparatively less attention. Some recent work has begun to examine technical aspects of successful collaboration, like using collaboration platforms (Elia et al., 2020), as well as some of the capabilities needed, such as learning in terms of both technical and relational learning (Baranova, 2022). Overall, however, there still is a ‘tension between an idealization of CSR dialogue versus a realistic execution’ (Høvring et al., 2018, p. 643). As a result, scholars have recently called for approaches to studying stakeholder engagement that offer room for contestation, that allow for disputed values, beliefs and preferences to co-exist (Arenas et al., 2020; Brand et al., 2020). Such calls demand a person-centric conceptualization—rather than an organizational or institutional one—to draw out how MSI action is actually created and enacted by individuals (Easter et al., 2023).

Pushing the emphasis on the person further, we argue that the effectiveness of MSIs crucially depends on stakeholder cognition, that is, on how different stakeholders make sense of the sustainability issue at hand. When faced with ambiguities, as the ones surrounding sustainability challenges, humans tend to use cognitive frames to filter out information that may be relevant to the decision at hand (Daft & Weick, 1984; Hodgkinson et al., 2023). Different individuals are likely to develop cognitive frames that differ in the amount of information they hold, and these differences in information then feed into differences in the evaluation of the issue (Suedfeld & Tetlock, 1977). In turn, differences in evaluation lead to very different decisions and hence different consequences for companies, their stakeholders and society in general (Hahn et al., 2014).

In drawing attention to the role of cognitive complexity in MSIs, we also respond to calls for greater attention to the micro–macro divide in management studies, the gap between research on individual-level phenomena or micro-foundations, and macro-level organizational outcomes (Eckardt et al., 2019). This applies in particular to inherently complex topics like corporate sustainability (Whiteman et al., 2013), which require managers in business—as well as decision-makers in other sectors—to simultaneously deal with a wide range of social, environmental and economic aspects that operate at different spatial levels and in different temporal spheres (Grewatsch et al., 2023; Hahn et al., 2015). Crucially, sustainability entails the danger that a solution is optimized at a local level and—when seen from a higher, systemic level—turns out to be unsustainable after all (Bansal et al., 2021).

We therefore argue for a need to pay greater attention to the micro-level of stakeholder cognition and to examine how different stakeholders make sense of sustainability. In order to make a contribution to such research, we build on the one hand on a growing research stream on managerial cognition (Acciarini et al., 2021), on how managers make sense of the multiple factors that affect their companies at the industry level (Malhotra & Harrison, 2022; Snihur & Eisenhardt, 2022). On the other hand, we engage with literature on the microfoundations of sustainability (Gond et al., 2017; Shea & Hawn, 2019). However, despite increasing attention on how corporate managers make sense of the radical uncertainty surrounding grand challenges (Grimes & Vogus, 2021; Grimm, 2022), sense-making by

other stakeholders has been examined less often, in particular not that of decision-makers in NGOs (Lucea, 2010). Therefore, we pose the following research question for this paper: How do decision-makers from different sectors—business, NGO, government and education – differ in the complexity of their cognitive frames on sustainability?

As our contributions to the development of literature, we are, firstly, able to show that the complexity of cognitive frames on sustainability indeed varies between stakeholder groups. More specifically, we found business leaders to display the least complex cognitive frames, representatives from government and the NGO sector to have more complexity and educators to demonstrate the greatest complexity. Secondly, we engage with the argument that cognition has so far been overlooked among the theoretical bases of stakeholder engagement (de Bakker et al., 2019) and demonstrate the implications of our findings on cognitive complexity for a more finely grained understanding of the challenges and success factors surrounding MSIs. Our arguments thus contribute to a better understanding of the conditions under which MSIs can evolve beyond being a fig-leaf for powerful corporations (Banerjee, 2018) to playing a genuine role in the democratization of local and transnational governance.

Our paper is structured as follows. The next section reviews relevant literature on tensions between dimensions of sustainability, multi-stakeholder initiatives and cognitive frames. This literature lets us develop a number of hypotheses that guide our study. Thereafter, we explain the data collection and analysis processes that we undertook. Next, we present our findings regarding differences between stakeholders regarding the complexity of their cognitive frames on sustainability. The discussion section then links these cognitive differences to salient challenges that have been found to hamper the success of MSIs. After having drawn out implications for practitioners and avenues for future research, we conclude with a review of the main points that our paper seeks to make.

## 2 | LITERATURE REVIEW

### 2.1 | Sustainability tensions and multi-stakeholder initiatives

Describing major sustainability issues as ‘grand challenges’ (George et al., 2016) hones in on the wide range of tensions that surround sustainability at several inter-related levels (Hahn et al., 2015). Not only are there tensions between economic, social and environmental aspects; these issues also differ in their temporal nature, where short-term financial pressures compete with intergenerational concerns. Furthermore, sustainability challenges may be addressed at various levels, from the individual through the organization to the system level (Ferraro et al., 2015). This leads to the danger that sustainability initiatives may be ‘solved’ at the wrong level, that ‘solutions’ are optimized for a local level when they actually require attention at a higher, more systemic level (Bansal et al., 2021).

Given their complex nature, one mechanism that has been put forward as an effective solution to ‘grand challenges’ is collaboration

by a range of stakeholders in multi-stakeholder initiatives (MSIs) (de Bakker et al., 2019). MSIs can be defined as 'initiatives governing social and/or environmental standards of production that have participants from both business and societal interest groups as members and governance structures allowing for an equal possibility of input among the different partners in steering the initiative' (Fransen, 2012, p. 166). This parity not only sets the MSI apart from other forms of private regulation, such as firm-specific codes of conduct (Loughran et al., 2023), but it also differs from rules set by governments and intergovernmental organizations (Dentchev et al., 2017), like the OECD. In particular, MSIs seem to hold the potential for interactive learning between societal groups with distinct identities and interests (de Bakker et al., 2019) as well as for effective consensus-building between them, thus being able to offer solutions that are likely to be accepted and implemented by all the parties involved (Sebhatu & Enquist, 2022).

The aims of MSIs vary widely, from creating rules for corporate behaviour, in particular in settings where important gaps in global governance exist (Boersma, 2018) through selecting and implementing more sustainable technologies (Block et al., 2023) to developing the technical and relational skills needed to address sustainability challenges (Baranova, 2022). In terms of size, MSIs range from global initiatives, such as the International Partnership for Co-Operation on Child Labour in Agriculture, which brings together farmers' organizations, agricultural producers, agricultural worker unions, research institutes as well as major intergovernmental organizations, like the International Labour Organization (ILO) and the UN Food and Agriculture Organization (FAO) (Boersma, 2018), to small projects where stakeholders collaborate on local issues (e.g., Isaacs, 2016). In terms of composition, MSIs involve at least the business and NGO sectors, but they can include a wider range, not least government and at times also educators (Stott, 2023). Stakeholder collaboration in MSIs has thus been described as a move from one-way corporate communication towards a more responsive, two-way one that allows stakeholders to co-create meaning in the process (de Lange et al., 2016).

## 2.2 | Stakeholder engagement: from consensus to contestation

However, the characterization of sustainability issues as 'wicked problems' (Reinecke & Ansari, 2016) highlights another key challenge: Since 'wicked problems' cannot be objectively defined and have no 'optimal solutions' (Rittel & Webber, 1973), different stakeholder groups are likely to differ in their assessment of the causes of the problem and in the solutions they put forward. In practice, many MSIs have managed to generate some improvement with regard to the issue at hand, although more often not on the scale they aimed for (Gray & Purdy, 2018). In particular, MSIs have been found to struggle with differences between stakeholders in how they cope with knowledge uncertainty, in how they value conflicting aims or outcomes and in how they engage with the dynamic complexity of the collaboration (Dentoni et al., 2018). For example, Boersma (2018) reported a

tension in multistakeholder initiatives on child labour in global supply chains between normative-ethical and political-strategic aspects. Thus, Easter et al. (2023, p. 33) conclude: 'For multi-stakeholder partnerships to function effectively, it is necessary for actors to negotiate the multiple viewpoints regarding the grand challenge' and yet 'there is a dearth of studies focused on how partners negotiate different viewpoints about the grand challenge'.

At the same time, prior research has shown that the interests, in particular of large businesses, are often over-represented relative to those of other stakeholders, not least to those of local communities (Eikelenboom & Long, 2023). Hence, recent work on stakeholder engagement has brought a greater recognition of the role of contestation (Bitzer & Schouten, 2023). For example, Arenas et al. (2020) build on work by political scientist John Dryzek (e.g. Dryzek & Niemeyer, 2006) and propose a 'contestatory deliberative' approach that places emphasis on both contestation and consensus (see also Brand et al., 2020). Building on the argument by Dryzek and Niemeyer that pluralism ought to be accepted at the level of values and beliefs, Arenas et al. (2020) empirically identify a number of types of internal contestation that can surface in stakeholder engagement, including procedural contestation, inclusiveness contestation and ultimate-goal contestation.

In sum, scholarly research into MSIs has made good progress in terms of understanding the workings of MSIs, that is, the input required for creating and governing an MSI, the processes of institutionalization of MSIs as well as their impacts (de Bakker et al., 2019). At the same time, scholars have suggested that this literature has remained undertheorized (Fougère & Solitander, 2020). One avenue that could help strengthen the theoretical foundations of literature on MSIs is cognition, 'how, when, and why individual and collective decision biases influence the development and execution of MSI's policies' (de Bakker et al., 2019, p. 375).

## 2.3 | Cognition and cognitive frames

Organizational strategy and action—including strategy and action by an MSI—are, in the final analysis, designed and implemented by people (Aguinis & Glavas, 2019; Hodgkinson et al., 2023). Hence, we focus in this paper on how individuals—as decision-makers in organizations from various stakeholder sectors make sense of the concept of sustainability. An emphasis on cognition is important to ensure that MSIs do not just reproduce or only minimally improve upon existing ideas (Grimes & Vogus, 2021). Our paper builds on recent interest in the psychological microfoundations of sustainability and corporate social responsibility (for recent literature reviews see Gond et al., 2017; Rupp & Mallory, 2015; Wade & Griffiths, 2022). Conceptually, Basu and Palazzo (2008) advocate a sense-making perspective of CSR and suggest that how managers think, talk and act with respect to key stakeholders is shaped by a set of cognitive, linguistic and conative cues. Mazutis and Eckardt (2017) explain how a range of cognitive biases prevent managers from accurately identifying the dangers of climate change.

In terms of empirical studies, Crilly et al. (2008) showed how managerial cognition acts as an antecedent to socially responsible behaviour. Whereas they found economic reasoning by managers to be negatively related to CSR, legal reasoning showed no link to CSR, but moral reasoning and reputation reasoning were strongly and positively related to a manager's propensity to engage in CSR. Similarly, Hockerts (2015) compared the cognitive complexity of managers from firms with different levels of commitment to corporate sustainability; he found that managers from follower firms had least complex mental models, those of managers from runner-up companies were both more differentiated and more integrated, while those of managers from leading firms were most complex. Undertaking a longitudinal study into the coevolution of CEO cognitive complexity and corporate action on sustainability at Puma, Gröschl et al. (2019) furthermore showed how the CEO developing more complex cognitive patterns went hand-in-hand with the company displaying an understanding of sustainability that increasingly went beyond narrow business imperatives. A cognitive approach to sustainability thus offers one potential explanation for the often-observed gap between rhetoric and reality in corporate sustainability generally and in MSIs specifically, as it highlights the difficulties decision-makers often have in making sense of sustainability and the complexities associated with its operationalization.

## 2.4 | Cognitive frames of stakeholders

Bringing these strands of the literature together, we arrive at our argument: stakeholders from different sectors are likely to hold cognitive frames on sustainability that differ in their complexity and, in turn, these differences will have implications for the effectiveness of stakeholder engagement.

A small number of empirical studies have confirmed the existence of different cognitive frames across stakeholder sectors, usually employing qualitative methods. For example, Grimm (2022) examined how founders and managers of bottom-of-the pyramid businesses make sense of the tensions between poverty reduction and profitability and how differences in the cognitive frames with which corporate actors approach poverty lead to differences in their business models (chiefly in terms of proactive or defensive approaches to poverty). Similarly, Easter et al. (2023) investigated how differences in 'meaning systems' between members of an MSI that exist at individual, organizational and sectoral levels can turn into a negotiated culture. It is our argument, however, that this work needs to be complemented with a focus specifically on differences between stakeholder groups in terms of decision-maker cognition.

For example, Lucea (2010) undertook a study of decision-maker cognition in businesses and NGOs involved in an MSI. His study draws out the different objectives that the decision-makers from the two sectors sought to achieve, for the NGOs to access funds and to be perceived as legitimate actor, for the companies to achieve social stability so that their organizations can operate undisturbedly. Thus, the same reality led to considerably dissimilar mental representations.

Sharma and Jaiswal (2018) investigated how corporate and NGO decision-makers in a bottom-of-the-pyramid project differ in their understanding of the sustainability tensions in the project. Corporate managers started out with a business case frame and NGO decision-makers with a paradoxical one. Over time, their cognitive frames converged—interestingly on a business case frame, a development that was likely influenced by a move towards a shorter decision-making horizon within the MSI.

In sum, we develop this work on interpretative and sense-making processes around sustainability by adopting a 'person-centric' perspective (Gond et al., 2017) that goes beyond managers in the private sector to examine sense-making by decision-makers from various sectors, as they might come together in an MSI (Easter et al., 2023). More specifically, we build on work that has examined the structure and operations of cognitive frames (Cornelissen & Werner, 2014; Hockerts, 2015). We adopt Walsh's (1995 p. 286) definition of a cognitive frame as 'a mental template consisting of organized knowledge about an information environment that enables interpretation and action in that environment'. Suedfeld and Tetlock (1977) suggest that their complexity can be captured in terms of two dimensions, namely (1) differentiation, the number of cognitive elements or units of information in the frame and (2) integration, the connections between these units (see also Hayes-Roth, 1977; Hockerts, 2015). Smith and colleagues (Smith & Lewis, 2011; Smith & Tushman, 2005) distinguish between two different ideal types of cognitive frames, one frame that follows an alignment logic, a "belief in a unitary truth [which] means inconsistencies cannot fundamentally coexist" (Smith & Tushman, 2005, p. 525) and a paradoxical frame that accommodates conflicting yet interrelated concerns. Hahn et al. (2014) extend this work to sustainability and develop two ideal types of cognitive frames for corporate sustainability, a business case frame, in which ecological and social aspects are perceived only when they are clearly in line with economic objectives, and a paradoxical frame with which decision-makers are able to hold multiple interpretations of sustainability issues in their minds without rushing to closure (see also Grimm, 2022).

## 3 | DEVELOPMENT OF HYPOTHESES

At the centre of our paper is the argument that the sector, or type of organization, a person works in has a strong impact on the complexity of their cognition with regard to sustainability. As cognitive frames concern the fit between a specific problem and a specific solution (Benford & Snow, 2000), they do not develop in an arbitrary manner. Rather, they represent 'the encoding of a variety of previous experiences [...] including the firm, the industry and the prevailing technological paradigm' (Kaplan, 2008, p. 738). While we acknowledge that an individual's cognitive frame is not just shaped by the sector the person works in, we do suggest that the sector exercises a strong influence on individual-level cognition, not least through the socialization into particular organizational cultures and prevailing logics (Kozhevnikov et al., 2014; Walsh, 1995). Furthermore, we adopted a wide approach to the composition of an MSI. Typically, MSIs tended

to include business and NGO representatives but increasingly have members from other sectors too, such as government or education (Stott, 2023).

As outlined above, sustainability consists of multiple dimensions that operate at different levels and often stand in tension to each other (Hahn et al., 2015). Organizations of all sectors are increasingly expected to integrate the multiplicity of these dimensions into their strategy and operations; yet differences persist in the degree to which their overarching logic addresses these. Contrast, for example, a primary focus of the private sector on the economic dimension of sustainability (Eikelenboom & Long, 2023; Hockerts, 2015), with attention in NGOs to a much wider range of dimensions (Arenas et al., 2009). These differences in strategic and operational preferences, we suggest, translate into greater or smaller opportunities for decision-makers to develop cognitive complexity on sustainability. Furthermore, organizational strategies become reflected in individual understandings by social actors as to why their organization engages in a particular behaviour. A key distinction here is that between self-regarding or other-regarding values. Several studies have established that other-regarding values are positively associated with pro-sustainability behaviour (Dietz et al., 2005; Heinz & Koessler, 2021). Extending these findings, we suggest that decision-makers who perceive their organization to engage in sustainability for other-regarding rather than self-regarding reasons develop greater cognitive complexity. In sum, we expect there to be clear differences between decision-makers from business, government, NGOs and education. In other words, we suggest:

**H1.** There will be differences between decision-makers from different sectors in terms of the complexity of their cognitive frames on sustainability.

In the private sector, much engagement with sustainability has been driven by business-case thinking (Barnett, 2019; Halme et al., 2020). In cognitive terms, the business case has the consequence that decision-makers notice social and environmental issues only if and to the extent that they align with economic gain for their firm (Hahn et al., 2014). This alignment logic is likely to lead to a loss of cognitive complexity as other constellations of sustainability dimensions than subordination to the economic dimension are not reflected upon. Relatedly, there is a long-standing concern in the private sector with self-regarding behaviour (Margolis & Walsh, 2003; Prömpeler et al., 2023). As a consequence, many private sector managers exhibit a reluctance to describe their work in moral terms, not least for fear of being seen as utopian (Bird & Waters, 1989). As Carroll (1987, p. 11) noted, treatment of management as amoral has cognitive connotations: “Amoral management pursues profitability as its goal, but it does not cognitively attend to moral issues that may be intertwined with that pursuit” (see also Quade et al., 2022). We suggest that this pressure for separation between economic success and moral evaluation will lead to private sector managers holding cognitive frames on sustainability issues that are of low complexity. This leads us to the following hypothesis:

**H2a.** Decision-makers from business will have the lowest complexity in their cognitive frames on sustainability.

With regard to its overarching logic, the public sector has seen several attempts recently to define its role in terms of a ‘public service logic’ (Osborne, 2021). Central to this logic are an emphasis on service rather than products as well as on co-creation of services by public bodies and their users (Osborne, 2018). While it is not our aim here to contribute to the debate to what extent a public service logic is distinct from private sector logics, the concept does have noteworthy consequences in terms of cognitive complexity. As decision-makers now engage with at least two dimensions of sustainability on equal terms, they are much more likely to become aware of tensions between them. In other words, their cognitive complexity is likely to be higher than that of their colleagues in business who follow an alignment logic. Relatedly, Perry and Wise (1990) argue that public employees are different from employees in other sectors as they tend to display values that coalesce around a desire to act in the common good; they coined the term ‘public service motivation’ to capture this phenomenon (see also Christensen et al., 2017; Farrell et al., 2022). A number of studies have indeed found that public-sector employees are motivated by different values and have different expectations to private sector ones, for example, that public sector employees were found to be more guided by a service orientation than by economic values (Stazyk & Davis, 2015). Hence, we suggest that the wider range of motives and of organizational goals will lead to decision-makers in government developing more complex cognitive frames of sustainability. More formally:

**H2b.** Decision-makers from government will have greater complexity in their cognitive frames on sustainability than those from business.

NGOs constitute of a colourful array of organizations that represent communities, social and political movements or special interests of various ideological persuasions, which operate at all spatial levels from the local to the global (Salamon, 2010). In terms of their logic, some NGOs predominantly see themselves as service providers, whether providing humanitarian relief, health care or education services, while others engage in advocacy, in attempts to influence policy and resource-allocation decisions by public and increasingly private sector actors (Lambell et al., 2008). At the same time, NGOs need to pay attention to the narrower concern of securing funding to enable their continued existence (Davis & Swiss, 2020). The resulting complexity of their operational context—from an awareness of service user needs through capabilities to influence public and private sector decision-makers to the need to secure funding from donors (see, e.g. Chatterjee et al., 2023)—translates, we suggest, into a cognitive complexity that is greater than that of their colleagues in the private and public sectors. Relatedly, NGO employees are likely to be more idealistic than employees in government or business; indeed, many NGOs have been found to have a sincere moral background and to pursue a genuine moral motivation (Fassin, 2009). Part of this outlook

might be an ability to see a greater range of points and identify with a wider range of perspectives that can be taken on an issue (Bridoux & Stoelhorst, 2014; Hahn & Albert, 2017). We suggest that this ability to attend to multiple interests and viewpoints is likely to result in NGO decision-makers holding more complex cognitive frames on sustainability. We thus hypothesize:

**H2c.** Decision-makers from NGOs will have greater complexity in their cognitive frames on sustainability than those from business and government.

Educators frequently play multiple roles in addition to being teachers, e.g. researchers, mentors, journal editors, as well as managers and leaders (Macfarlane, 2011). This might lead to more adaptive behaviour, requiring a trade-off between cognitive stability, a focus on the current task-set, and cognitive flexibility, changing that task-set when the environment changes (Siqi-Liu & Egner, 2020). In addition, the length of formal education undertaken by an individual has been found to be positively correlated with their cognitive functioning throughout adulthood. Notably, this concerns not only early formal education but also educational experiences throughout one's lifespan (Lövdén et al., 2020). By the very nature of their role, educators are exposed to ongoing educational experiences, an experience that encourages ongoing reflection and critical thinking (Helyer, 2015). Furthermore, prior literature suggests that uncertainty and the presence of ill-structured problems are an inherent feature of teaching, which creates a cognitive challenge for the profession (Helsing, 2007). In a related vein, the profession is beset by multiple and competing role expectations, such as a degree of structural isolation in the self-contained classroom or a feeling of uncertainty regarding the effectiveness of one's teaching (Labaree, 2000). On the basis of these arguments we suggest that decision-makers in education should be able to identify more tensions and therefore be the stakeholder group with the most complex cognitive frames on sustainability. Hence, we suggest:

**H2d.** Decision-makers from education will have the greatest complexity in their cognitive frames on sustainability.

## 4 | RESEARCH METHODS

### 4.1 | Study design

In line with our literature review, we sought to capture the complexity of cognitive frames in terms of elements and links (Hayes-Roth, 1977; Suedfeld & Tetlock, 1977). Differentiation captures the number of elements or dimensions of an issue that a person holds in their cognitive frame. For example, many decision-makers in business have recently become aware that biodiversity might be yet another issue that their firm impacts on (Panwar et al., 2023); we would expect such an emerging awareness to be reflected in a growth in the number of

elements in the person's cognitive frame. Integration captures the links, or connections the person makes between the elements. For example, one influential approach to sustainability is the business case, according to which a firm should address social and environmental issues if doing so promises economic gains (Barnett, 2019; Halme et al., 2020); in terms of a cognitive frame, such thinking would be reflected in a growing number of links between economic and social/environmental elements (Hahn et al., 2014).

Capturing the complexity of cognitive frames in terms of differentiation and integration is not only an established technique in psychology (e.g. Green & McManus, 1995; Kozhevnikov, 2007) as well as in management studies (Grimm, 2022; Miron-Spektor et al., 2011), it also delivers more reliable results than alternative approaches. We could, for example, have attempted to measure the complexity of cognitive maps through a content analysis (see e.g. Krippendorff, 2018) of the terms used. Consider, however, the presence of a term like 'business case for sustainability' in a cognitive map. In a content analysis, one may have counted the very presence of the term as evidence, although the person may see the business case just as a fashionable term that deserves being mentioned. By contrast, in the approach we adopted there would have to be evidence of integration, of links between economic and social and/or environmental aspects to indicate that the person indeed sees a business case-style relationship between economic and social and/or environmental aspects of the sustainability issue at hand.

### 4.2 | Data collection

Our data were collected at a major international sustainability conference in New Delhi, India, which took place from 20 to 22 November 2019. We asked conference attendees to draw a cognitive map<sup>1</sup> of sustainability. In total, 265 attendees agreed to draw such a cognitive map (119 female and 146 male participants). We used non-probability purposive sampling to identify potential respondents (Creswell & Clark, 2017). Participants were selected for being experts in their field and members of distinct stakeholder groups (Watts & Stenner, 2012). To verify their suitability, respondents were asked to state which sector they work in, in addition to further demographic information, such as age, gender, nationality and education level. This information was collected anonymously. Potential respondents were informed that participation in the project is voluntary and that they could withdraw from the study at any point.

The data were collected with the help of a group of 20 research assistants, students from higher education institutions in New Delhi who had all taken at least one course on sustainability. The research assistants attended a half-day training session prior to data collection. In addition, briefings for research assistants were held every morning for the 3 days of the conference, followed by de-briefing sessions at the end of each day. The research assistants worked with each

<sup>1</sup>For the purposes of this paper, we distinguish analytically between a cognitive frame as mental construct and a cognitive map as its physical representation, drawn by our respondents.

participant on an individual basis, with participants using A3 paper and pens to allow for creativity without technological constraints. Immediately after collection by the research assistants, the map data were entered into spreadsheets for subsequent analysis.

Two of the authors of this article were available throughout the conference to respond to inquiries from research assistants and research participants. Based on feedback from research assistants and observations by the project leadership during the conference, minor adjustments to the data collection procedure were made. For example, we had initially included a measurement of force strength as recommended by Markoczy and Goldberg (1995), but this turned out difficult for respondents to estimate and hence was dropped at the end of the first day.

### 4.3 | Data analysis

A cognitive map consists of a number of elements relating to a problem, which are linked by associations determined by the person drawing the map. The analysis of these maps is then guided by the aggregation of individual maps to find similarities and identify patterns (Somers et al., 2014). Following Suedfeld and Tetlock (1977), we analysed cognitive maps by measuring both differentiation and integration. We operationalized these concepts as follows:

#### 1. Differentiation:

- a. count of the number of words at the first level of the cognitive map compared to the total number of words in the cognitive map; the lower the number of words at the first level compared to the total number of words per map, that is, the *lower* the percentage of words at the first level compared to words overall, the more complex is the respondent's cognition as there are more words at subsequent levels;
- b. count of the number of words at fourth level and above compared to the total number of words; the *higher* the percentage, the more complex is the respondent's cognition.

#### 2. Integration:

- a. count of the number of levels used in the cognitive map; the *more levels*, the more complex is the respondent's cognition;
- b. count of the number of cross-connections; the *more cross-connections*, the more complex is the respondent's cognition.

Appendix A gives an example of a cognitive map. The number of words radiating from the central word 'Sustainability' is four. From the central word 'Sustainability' (in the black box in the middle), there is an arrow to the word 'Business', level 1 (in a grey box), and from there to the words 'Sustainability Vision', level 2 (no box, bold type), and then to 'Planet', level 3 (no box, italics); from there to 'Balance' level 4 (no box, regular type). We counted compound terms, such as 'Sustainability Vision', as one word.

We analysed map complexity by linking the maps to the participants' demographics, including employment/stakeholder group, gender, age, education level and nationality. Using statistical tools, we performed correlation analyses to identify statistically significant differences and calculated the effect sizes of the statistical differences. Statistical significance is defined here at a confidence level higher than 95% with a probability that a null hypothesis will be rejected if the  $p$ -value is less than .05. We calculated statistical significance by performing single factor ANOVA analyses. As part of the ANOVA analyses, we calculated the ratio of between and within group variances. Statistical significance means that the intergroup variance is relatively larger than the intragroup variance (Kim, 2017).

To test that the intergroup variance is not solely statistically significant but also substantively different we calculated effect sizes. An effect size is a quantitative measure to explain the size of the difference regardless of the sample size. We measured effect sizes using Cohen's  $d$  and Hedges'  $g$ . Cohen's  $d$  and Hedges'  $g$  compare the difference in means between two groups divided by the combined standard deviation. Hedges'  $g$  effect size is recommended for samples of different sizes (Stangroom, 2019). For both Cohen's  $d$  and Hedges'  $g$  an effect size between 0.2 and 0.5 is considered small, between 0.5 and 0.8 is considered medium, and an effect size of 0.8 and greater is considered to be a significant effect (Harris et al., 2021).

### 4.4 | Limitations

Our study has a number of limitations. To start with, any cognitive map is only a representation of the person's cognitive structure, it is not the real 'thing' as might be captured by a brain scan (McDonald, 2018). Although we applied a uniform data collection method to all participants, there is a possibility that we captured respondents' cognitive structures in more or less comprehensive ways. Secondly, the findings may have been influenced by a respondent's motivation for attending the conference; for an NGO employee attending a major international conference may be seen as part of the job, whereas a government employee may have had to reach a relatively higher level of seniority to secure funding for conference attendance. Thirdly, time constraint may have affected the number of responses and the depth of these responses as we collected data during days of busy conference schedules. The research team ensured that the responses were filled in as completely as possible; yet, we are cognizant of the fact that more time may have allowed for greater complexity in the responses in all their nuances. Having said this, since time pressure affected all respondents in comparable ways, this factor is unlikely to have systematically affected the quality of the responses. Fourthly, although the research assistants who collected the data were given training prior to the data collection process, there may have been differences in the instructions and explanations they gave to delegates about the nature of the task. To limit the impact of the research assistant's approach on the quality of the data collection utmost attention was given to frequently reviewing the research assistants' style of approach. Finally, the setting of the conference

may also have influenced responses. Days before the conference, smog in New Delhi garnered national and international media attention. The visibly low quality of the environment, and resulting potential health hazards, were a frequent topic of conversation among participants, which might have contributed to participants selecting specific keywords. In sum, we acknowledge that our data collection and analysis processes suffered from a number of limitations; however, these typically apply to all academic research.

#### 4.5 | Reliability and validity of the research process

Throughout our research project we have taken a number of steps to reduce research biases, to ensure the validity and reliability of our research. In particular, we followed the verification strategies proposed by Morse et al. (2002). To start with, our research team consists of scholars of different gender, ethnicity and nationality. All three authors engage in research on sustainability, often in different co-author teams. One researcher is familiar with the research environment, and the other two researchers are subject-matter experts on the research methodology. This composition created a balance in the research process between paying attention to the research context and maintaining objectivity.

To help maintain focus and reduce the chances of introducing biases during the study, we clearly defined the research question and hypotheses before starting the study. We conducted a thorough literature review to understand previous research and potential biases associated with the topic. In terms of working with research assistants, we organized a training session that all research assistants had to attend; they were also asked to maintain standardised procedures. In sampling, we paid attention to the selection of research participants to ensure they are representative of a particular sector and have sufficient knowledge of the research topic. Study participants came from diverse backgrounds and work environments. Our sample size was larger than comparable studies, which also helps mitigate biases and increase the statistical power of the study.

With regard to data entry quality, the authors of the paper undertook a sample check for one quarter of the entries for each research assistant and compared the entered data against the initial paper-based drawings of the participants. In one case, this sample check uncovered a number of errors; for this research assistant the complete data was re-entered by the authors of the article. To further reduce biases, we created an audit trail system for the data analysis process to maintain objectivity.

## 5 | FINDINGS

### 5.1 | Results regarding map complexity

As a first result, we did find clear differences between respondents in the complexity of their cognitive maps on sustainability (see Tables 1

and 2). For example, the total number of words ranged from an average of 11.4 words per map for private sector respondents through 12.8 for public sector and 13.6 for NGO to 16.1 words for the education sector.

Using the total number of links and an alpha level of .05, we found that the difference between stakeholder groups, compared to the difference within stakeholder groups, is statistically significant.

As explained in the methods section, to verify that the differences were not solely statistically significant but also substantive, we calculated the effect size between 'Business' on the one hand and 'Education' on the other hand. Because of the difference in sample size between the stakeholder groups, we checked for Hedges' *g* effect size in addition to Cohen's *d* effect size. Both effect sizes indicated a moderate effect size.<sup>2</sup> Hypothesis 1 is therefore supported.

With regard to Hypotheses 2a to 2d, that is, the differences between sectors, participants who worked in education ( $n = 56$ ) were found to have more words, use more levels and more crosslinks than others. Employees from the private sector ( $n = 84$ ) were at the other end of the spectrum, as they had the least words, used the least number of levels and the least number of crosslinks. The number of words at level 1, that is, the first 'circle' moving outwards from the central word 'Sustainability' is substantially and statistically significantly higher than other sectors. For private sector respondents, over 50% of the words were on average connected directly with the central word 'Sustainability' and only 3% of the words were at level 4 or higher. By contrast, for participants from the education sector this figure was 39% for words at level 1 and 7% at level 4 and above. On average, participants from the private sector had two levels and 0.6 crosslinks in their cognitive maps. In contrast, participants from the education sector had on average 2.7 levels and 1.3 crosslinks. Participants from the public sector ( $n = 18$ ) and from NGOs ( $n = 78$ ) were quite similar, with the complexity of their cognitive maps being in-between the two other sectors. Public sector respondents demonstrated on average more complex thinking than NGO respondents by having fewer of the total words at level 1 and on average slightly more levels, but also used relatively fewer words at level 4 and above, as well as fewer crosslinks.

The differences between the number of words at the first level compared to the total number of words in a cognitive map, as well as the differences in the total number of levels drawn by the different stakeholder groups, were also statistically significant. The number of words at level 4 and above, compared to the total number of words, were statistically significant when comparing the business sector participants with the education sector participants. While the average number of cross-connections were different per stakeholder group, this difference was not statistically significant. Overall, our Hypotheses H2a-2d are supported by the data.

<sup>2</sup>Cohen's  $d = (17.39285 - 12.33333) / 9.113542 = 0.555165$ .  
Hedges'  $g = (17.39285 - 12.33333) / 8.929686 = 0.566596$ .



**TABLE 1** The complexity of decision-makers' cognitive maps of sustainability.

Sector	Count	Words 1	Words 2	Words 3	Words 4+	Total words	Words 1/ Total words	Words 4+/ Total words	Levels	X-links
Business/Private sector	84	5.9	4.1	1.0	0.4	11.4	52%	3%	2.0	0.6
Public/Government	18	5.7	4.8	1.8	0.5	12.8	44%	4%	2.4	0.8
NGO	78	6.6	4.5	1.6	0.8	13.6	49%	6%	2.3	0.9
Education	56	6.3	6.3	2.3	1.2	16.1	39%	7%	2.7	1.3
<b>Mean Average All (1)</b>	<b>265</b>	<b>6.2</b>	<b>5.02</b>	<b>1.6</b>	<b>0.7</b>	<b>13.4</b>	<b>46%</b>	<b>5%</b>	<b>2.3</b>	<b>0.8</b>
F (all)							3.650	1.290	3.110	1.229
p-value (all)							0.013*	0.278	0.027*	0.300
F (2)							10.646	5.104	10.115	0.194
p-value (2)							0.0014**	0.025*	0.0018**	0.660
Hedges' g (2)							0.41	0.45	0.54	0.33

Note: (1) Participants from other sectors/no information are included in 'all' but not listed as a line item ( $n = 29$ ). (2) The two groups are the Business/Private Sector on one end of the spectrum and Education on the other end. Asterisks denote levels of significance as commonly used in statistics. The grey shaded areas are the main findings to look at to understand the data.

**TABLE 2** ANOVA single factor analysis—Total links by sector.

Summary						
Group	Count	Sum	Average	Variance		
Private sector	84	1036	12.333	66.707		
Public sector	18	241	13.389	43.428		
NGO	78	1156	14.821	77.032		
Education	56	974	17.393	99.406		
ANOVA						
Source of variation	SS	df	MS	F	P-value	F crit
Between groups	892.26	3	297.42	3.9042	0.0095	2.6435
Within group	17,674	232	76.18			
Total	18,566	235				

Note: SS = sum of squares; df = degrees of freedom; MS = mean sum of squares (SS/df); F: F-value (MS between/MS within groups); P-value needs to be less than an alpha of 0.05 to be significant. F crit (critical) needs to be smaller than the F-value for the differences between groups to be statistically significantly different.

## 5.2 | Post hoc tests

We carried out further analyses to investigate additional factors that might have influenced our results, namely concerning respondent gender and work experience (see Tables 3 and 4). Firstly, although the potential effect of gender on intellectual ability remains controversial, there is some evidence that such differences do indeed exist (Ardila et al., 2011). In particular, prior studies found that women score higher on the affective dimension of social cognition (Adenzato et al., 2017). Furthermore, there is evidence that women have in recent years begun to outperform men in educational attainment in most Western societies (Buchmann & DiPrete, 2006; OECD, 2023).

Secondly, the length of work experience is likely to influence decision-makers' cognitive processes (Wade & Griffiths, 2022). In

human resource management, significant attention has been paid to the link between work experience, as expressed through concepts like tenure and seniority, and managers' cognitive processes (Graf-Vlachy et al., 2020). Greater organizational tenure has been found to lead to higher complexity of mental models and superior problem-solving skills as it provides more experience of and exposure to a variety of organizational challenges (Gagliardi et al., 2023; Mom et al., 2015). Building on these insights from prior literature, we would thus expect decision-makers with longer work experience to have more complex mental models of sustainability.

Our post hoc test showed that female respondents with fewer than 5 years of work experience and with over 20 years of work experience have more complex maps of sustainability (see Table 3). We also found that men with over 20 years of work experience

**TABLE 3** The impact of work experience and gender on map complexity.

Length of work experience	Gender	Count	Words 1	Words 2	Words 3	Words4+	Total words	Words1/ Total words	Words 4+/ Total words	Levels	X-links
0–5	All	47	6.06	7.11	1.87	0.91	30.53	23%	2.8%	2.43	0.38
5–10	All	32	5.44	4.75	1.72	0.38	23.69	29%	1.1%	2.13	0.69
10–15	All	15	5.93	5.93	1.67	0.40	28.80	26%	0.6%	1.93	0.47
15–20	All	20	6.10	5.50	1.40	0.10	25.60	27%	0.4%	2.20	1.05
20+	All	32	7.06	4.84	1.91	0.81	29.50	26%	2.5%	2.44	0.63
	All	146	6.12	5.63	1.71	0.52	27.62	26%	1.5%	2.22	0.64
0–5	F	28	6.04	8.29	2.36	0.79	34.89	20%	1.9%	2.61	0.61
5–10	F	13	5.23	4.69	1.54	-	23.38	28%	0.0%	1.77	-
10–15	F	8	6.13	4.50	0.25	-	23.63	28%	0.0%	1.75	0.88
15–20	F	9	6.89	6.00	0.67	0.22	27.22	28%	0.8%	2.33	0.44
20+	F	9	8.56	6.11	2.11	0.44	35.78	25%	1.1%	2.44	0.89
	F	69	6.57	5.92	1.38	0.29	28.98	26%	0.8%	2.18	0.56
0–5	M	19	6.11	5.37	1.16	1.11	24.11	29%	4.1%	2.16	0.05
5–10	M	19	5.58	4.79	1.84	0.63	23.89	29%	1.9%	2.37	1.16
10–15	M	7	5.71	7.57	3.29	0.86	34.71	23%	1.2%	2.14	-
15–20	M	11	5.45	5.09	2.00	-	24.27	26%	0.0%	2.09	1.55
20+	M	23	6.48	4.35	1.83	0.96	27.04	26%	3.0%	2.43	0.52
	M	83	5.87	5.43	2.02	0.71	26.81	26%	2.1%	2.24	0.66

**TABLE 4** ANOVA single factor analysis—Total links by gender.

Summary						
Group	Count	Sum	Average	Variance		
F	119	1828	15.36134454	68.16493377		
M	146	2022	13.84931507	83.93575815		
ANOVA						
Source of variation	SS	df	MS	F	P-value	F crit
Between groups	149.8906195	1	149.8906195	1.950180371	0.163744842	3.877059348
Within groups	20214.14712	263	76.85987497			
Total	20364.03774	264				

Note: For an explanation of the acronyms of Table 4, see Table 2. Please note that in Table 4 the number of participants were larger as some participants did not provide any employment sector information; however, they did provide information on gender. Please note further that in contrast to the analysis by employment sector (Table 2), the analysis by gender did not show any statistical significance.

have more links and use more words when compared with other male respondents, although their complexity is still lower than that of a comparable group of female respondents. These results are possibly influenced by extensive work experience, generating in both female and male respondents a greater confidence to express more complex cognitive representations of the challenges surrounding sustainability, combined with drive by young female employees at the start of their career. However, the results here are not significant, neither for gender nor for work experience. Indirectly, this finding further supports our argument that stakeholder group membership explains variability in the complexity of cognitive frames

more than the other characteristics that we captured as part of our research.

## 6 | DISCUSSION

### 6.1 | Challenges in stakeholder engagement: a cognitive basis

Our data analysis shows clear differences between stakeholders in the complexity of their cognitive maps on sustainability, where the

private sector has the least complex maps, followed by government and NGOs, and education having the most complex maps. These differences in cognitive complexity can shed light on some of the challenges to stakeholder engagement we discussed above.

Consider, for example, the typology by Arenas et al. (2020) of procedural contestation, inclusiveness contestation and ultimate-goal contestation.<sup>3</sup> Procedural contestation—‘no agreement on the procedures by which the MSI should govern itself, make decisions, and conduct operations’ (Arenas et al., 2020, p. 177)—seems to require the least cognitive effort, as any solution here is not affected by the cognitive complexity with which the individuals approach the underlying issue. Inclusiveness contestation<sup>4</sup>—‘the acceptance within the MSI of critical and disputed discourses’ (Arenas et al., 2020, p. 180)—already entails a cognitive dimension that links well to our data: the greater the differentiation in an individual’s cognitive frame, the easier it would be to engage with this type of disagreement. Finally, ultimate-goal contestation—where ‘different stakeholders do [...] have clearly differentiated value priorities [...] despite their interest in solving a social or environmental challenge’ (Arenas et al., 2020, p. 184)—is an even greater challenge from a cognitive perspective: here integrative complexity, in addition to greater differentiation, would be required to allow individuals to engage with each other’s value priorities. A similar argument can be made with regard to differences in ‘meaning systems’ that Easter et al. (2023) identified between different members of an MSI. Here too, differences in sensemaking are likely to be a result of differences in underlying cognitive complexity.

Furthermore, building on the distinction between a linear, causal approach to sensemaking and a cyclical, recursive one (Glynn & Watkiss, 2020), we noted that our respondents predominantly treat sustainability in a linear, rather than interconnected fashion. This is most obvious in the very small number of cross-connections, which range from 0.6 per respondent for business to 1.3 for education. This finding documents that participants conceptualize different aspects of sustainability as unconnected silos. Our finding of linearity thus points to an important tension as ‘wicked problems’, like sustainability, are more likely to be solved through interdisciplinarity rather than linearity. In terms of implications for sustainability, our findings reveal a danger of local optimization if the solutions advocated in stakeholder dialogue turn out to be not complex enough to fully take account of the complexity of sustainability.

These findings invite the questions whether complexity is good in itself, whether one should foster greater cognitive complexity in all MSI participants? Such greater complexity could perhaps be achieved through additional training for MSI members. One pointer here is

offered by Malhotra and Harrison (2022) who found that greater cognitive complexity of CEOs aids firm performance under more complex industry conditions and in a munificent environment, whereas it hurts firm performance under simpler, more dynamic and more constrained industry conditions. Extending these findings to MSI performance, we would expect greater complexity of MSI participants to aid MSI performance under some conditions—in particular where the task environment is particularly complex—but not under others. This proposition tallies with the argument by Klitsie et al. (2018) that a multi-stakeholder partnership does not have to be based on unanimous agreement, on a single or dominant frame regarding the sustainability issue at hand. Rather, it is an ‘optimal’ frame plurality—neither full agreement nor excessive frame variety—that seems to aid successful collaboration between diverse partners.

Our findings regarding differences between stakeholders in the complexity of their cognitive frames on sustainability thus allow us to offer an explanation of the origins of some of the challenges to stakeholder engagement that go beyond discussions in prior literature. In turn, a better understanding of the origin of these differences can aid scholars in developing better targeted solutions for these challenges.

## 6.2 | Implications for practitioners

Our findings have implications for communication processes in the context of stakeholder engagement (Brunton et al., 2017). In general terms, effective communication requires adaptation to the audience; otherwise, a message can backfire and even cause growth in the attitude or behaviour the MSI seeks to reduce (Byrne & Hart, 2009; Hine et al., 2016). It is thus important to structure communication in an audience-centric way. Our research has shown that participants working for NGOs and educational institutions have more complex cognitive frames than participants working for government and business. If the former two stakeholder groups want to influence the latter two, then audience adaptation for effective communication might require some simplification in the presentation of ideas. This argument tallies with a longitudinal study by Whelan et al. (2019) into contestation at the UN Global Compact where the UNGC office responded to external criticism not by raising but by downwards adjusting its statutory procedures and objectives.

Yet, there are limits to such reduction in complexity. The process of stakeholder engagement involves two capabilities that are crucial to establishing and maintaining cooperation, the capability of actors to engage in communication and the ongoing accountability of actors in problematic situations (Norton, 2007; Schultz et al., 2013). Even if non-profit organizations engage in simplification of their arguments to suit the main target of their action, that is, business, they are likely to be pulled in the opposite direction by the ongoing need to discharge accountability. In particular, their main constituents, i.e. members and donors, may accuse the non-profit of mission drift or even claim that it has become ill-suited to achieving its stated objectives (Esposito et al., 2023). As our findings indicate, the underlying reason for such criticism may lie in the greater cognitive complexity of

<sup>3</sup>The typology by Arenas et al. (2020, p. 182) also contains a fourth category, epistemic contestation, defined as: “Questioning, disputing, and arguing about facts and about the consequences and costs of different alternatives.” For the purposes of our discussion, we merge this with inclusiveness contestation. For example, their example of epistemic contestation, a disagreement between Fairtrade International and Fairtrade USA whether Fairtrade should remain the prerogative of small farmer cooperatives or be extended to large farms and independent small holders, can equally be framed as a question of inclusiveness.

<sup>4</sup>Another form of contestation refers to choices as to which stakeholders should be allowed to participate in the dialogue (Arenas et al., 2020). To keep our discussion focussed, we focus on inclusiveness in terms of dialogue content only.

members and donors vis-à-vis cognitive adjustment by the non-profit to suit its business partners.

### 6.3 | Avenues for future research

Our research points to a number of avenues for future scholarship. To start with, we collected data specifically on the cognitive complexity of individuals from different sectors but not on stakeholder engagement as such. Hence, future studies could research the link between cognitive complexity and specific roles in a concrete MSI. Important questions here would be how individuals with the most (or the least) cognitive complexity actually behave in the MSI or whether the interaction has an impact on the complexity of their cognitive frames as it develops.

Secondly, given the statistical significance of inter-stakeholder group differences and the lack of statistical significance when reviewing the data in terms other characteristics, we treated members of any stakeholder group as being homogenous. Future research could nonetheless hone in on intra-group differences. For example, West et al. (2016) showed that members of one and the same stakeholder group can nonetheless evaluate a firm's sustainability reputation differently. In particular, we would expect there to be differences between middle managers and organizational leaders in any of the sectors (Miller et al., 2022). While the former may engage in 'issue selling' (Dutton et al., 1997; Dutton & Ashford, 1993), the latter have greater opportunities to influence strategic change through 'sense-giving' (Gioia & Chittipeddi, 1991; Kroeger et al., 2022). Not least, leaders are able to influence sense-making processes of organizational members through making use of key resources that go with their position (Maitlis, 2005).

Thirdly, organizations within one and the same sector have been found to differ in their approach to sustainability (Bager & Lambin, 2020). For example, literature on corporate involvement in MSIs has distinguished between progressive firms, which 'understand themselves as co-responsible governance actors that proactively seek long-term solutions to global CSR challenges', and conservative firms, which see stakeholder engagement primarily in economic terms (Huber & Schormair, 2021, p. 457). Such differences in beliefs, values and goals that are deeply embedded in the organization are likely to influence managerial cognition. As progressive firms are more open to engaging with the complexities of sustainability, we would expect managers here to have more complex cognitive frames.

## 7 | CONCLUSIONS

The starting points of our paper were, empirically, the characterization of many sustainability issues as 'wicked problems' for which ready-made solutions do not exist (Reinecke & Ansari, 2016) and, theoretically, a call for greater attention to the micro-macro divide in management studies (Eckardt et al., 2019). As contribution to examining this divide in the context of corporate sustainability, we examined

the complexity of cognitive frames with which different stakeholder groups approach the concept of sustainability. We were able to show that there are indeed clear differences between stakeholders in the complexity of their cognitive maps, where the private sector showed least complexity, followed by the government and NGO sectors, and education having the most complex cognitive maps. Furthermore, we found that all stakeholders tend to engage cognitively with the complexities of sustainability in a linear, self-contained, rather than interconnected fashion.

These differences at the micro-level are likely to have explanatory power at the macro-level of stakeholder engagement (George et al., 2023). We were able to show that some of the challenges to MSI success that prior literature has uncovered, actually, have a cognitive basis. Prior literature had pointed here, for example, to disagreements among MSI members over which discourses should be relevant to the MSI (Arenas et al., 2020) or disagreements arising from different 'meaning systems' that operate in different sectors (Easter et al., 2023). Such disagreements, we argue, point to underlying cognitive differences in the individuals' cognitive frames and should therefore be included in the contemporary MSI debate.

Finally, our work speaks to criticism that the literature on stakeholder engagement has remained undertheorized (de Bakker et al., 2019). Our emphasis on stakeholder cognition may go some way to offer explanations for some of the challenges in stakeholder engagement that recent scholarship observed. Thus, we have the hope that our work can contribute both to enhancing the democratic quality of multi-stakeholder initiatives and to developing participatory solutions to challenges in sustainability more generally.

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### CONFLICT OF INTEREST STATEMENT

None of the authors of this paper has any conflict of interest to declare.

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APPENDIX A: EXAMPLE OF A COGNITIVE MAP

