Modes of mobilizing values for sustainability transformation
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There is broad agreement on the potential role of values to incite intentional transformative change toward sustainability. However, there is no proposed heuristic on how to mobilize values for sustainability transformation, especially in the context of multilevel decision-making. We aim to fill this gap based on a literature analysis conducted as part of Chapter 5 of the IPBES Values Assessment. We outline four modes of mobilizing values for sustainability transformation: enabling, including, shifting, and reflecting. They differ in terms of the mix of agency and conversely of outside steering needed for each value mobilization mode. We then explore key tensions and insights that emerge through this classification: interdependencies between the modes of mobilizing values, tensions between shifting versus enabling and including values, tensions between which values to shift and which values to enable, and tensions between levels of values intervention (individuals, community, and society).

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Introduction
The Values Assessment (VA) of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) makes a compelling case that if we want to bring about more profound progress toward sustainability (i.e. sustainability transformation), we need to address the set of values that shape decisions with impacts on nature [1] (see also [2–5]). The IPBES VA relies on the broader scientific literature on sustainability that has given increasing prominence to the potential role of values to incite transformative change. But how this can be done remains a big question, for which this article aims to provide some clarification and guidance. It might be partly achieved by enabling people to express and act on values they hold already, such as product labeling that allows one to choose a greener option. But it might also require changing the values that people hold, such as a shift toward valuing holistic well-being over economic growth and consumption. While changing values may be hard to initiate and guide, doing so would ultimately support profound and system-wide progress [6–8]. For example, widespread internalization of an ethic of care and responsibility toward nature might support the transformation of individual consumption choices [9].

This paper conceives values in the context of sustainability transformations. Sustainability transformations are “fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values, needed for the conservation and sustainable use of biodiversity, long-term human wellbeing and sustainable development” ([10]:1). With regard to values, different academic disciplines and theoretical traditions have conceptualized values in various ways [11,12]. One distinction can be made between values as people’s guiding principles or goals in life that transcend contexts (e.g. ideas about what rights of nature should always be recognized) and values as the importance attached to things in particular situations and contexts (e.g. the worth of a forest to particular humans due to ecosystem services) [13]. For this paper, we consider both conceptualizations. Values as principles correspond to interpretations in Western philosophy and
psychology. It is also in line with the most common use in the sustainability transformations literature and in systems thinking, with various representations of values as places of potentially deep interventions for system transformation [2,14,15]. For example, when considering the practical, political, and personal spheres for deliberate transformation, values are considered as part of the latter [4]. Values as importance mainly correspond to interpretations in economics, including work on environmental economics, ecosystem services and inclusive wealth, and to the ways valuation processes are performed in practices where different measurements allocate levels of importance to characteristics or states of the world [16]. In addition, the VA introduces the notion of ‘sustainability-aligned values’ (SAVs), which concern “those human-human relationships and human-nature relationships that are often associated with transformations to just and sustainable futures” [8]. While this notion remains relatively unexplored, it reflects a widespread assumption in scenarios literature that sustainable futures are associated with greater prominence for particular principles for how we should live together and with nature, and with a move away from purely economic and anthropocentric ways of attaching importance to nature [1,5,17].

Inspite of considerable research on values related to sustainability, most of the progress made to date has been on understanding, measuring, and describing values [11], rather than exploring how to intentionally engage with values in ways that mobilize them as a force for sustainability. Indeed, while both the IPBES Global Assessment [7] and VA [6] assert that values are part of the answer to how to reach a just and sustainable future, there is a knowledge gap in terms of how to purposefully unleash the transformative potential of values [7,14]. However, there is no proposed heuristic that considers how to mobilize values for sustainability transformation, especially in the context of very diverse decision-makers. Moreover, there are fractures in the literature linking values to sustainability transformation. Some emphasize the need to change people’s values [18], some emphasize the need for institutional change to enable pro-environmental values to be realized through market transactions, and others emphasize the need for political change or social movements to liberate values that are currently suppressed or marginalized [19].

The main contribution of this paper is to identify and classify different modes of mobilizing values that are present across the sustainability transformations literature. By clarifying these modes, and by structuring some of the key tensions that arise from their variation, we also hope to advance the agenda of actively incorporating values-based interventions into building pathways for sustainability. We use ‘mobilizing’ as the generic term to describe deliberate interventions to ‘unleash values’ [7] for sustainability transformations. We use the term ‘modes’ to describe conceptually distinct ways of mobilizing values. For describing these modes, we purposefully adopt a more functionalist vocabulary partly grounded in systems thinking. The modes of mobilizing values are alternatives to the dominant treatment of values as part of an underlying explanation or a causality, in the sense of a behavioral predictor, as in the majority of established theoretical traditions. By using a novel vocabulary, we emphasize the complementary perspective of values as a purpose, something that can be consciously engaged with, mobilized, activated, and leveraged for the sake of sustainability. To an extent, this vocabulary allows us to place values at the epicenter of an intervention, and to suggest and initiate a thinking whereby values are becoming more accessible and not just underlying.

We identify four modes: enabling (the removal of barriers to SAVs gaining traction in decision-making), including (affirmative actions to overcome the marginalization of some people’s values), shifting (change in the values held individually and socially toward alignment with sustainability), and reflecting (transparent and critical reflection and deliberation over the values underpinning decision-making). In the following sections, we establish an agenda for more rigorous analysis of ways of mobilizing values for sustainability, beginning with further description of the four modes of mobilization, and then by exploring key tensions and insights that emerge through this classification.

Modes of mobilizing values for sustainability transformation

Chapter 5 of the IPBES VA recognized based on a structured literature review that mobilizing values for sustainability contains two distinct (but related) modes of working [8]: Actions designed to mobilize latent or marginalized SAVs are referred to as enabling values and primarily involve changing social and economic contexts in ways that enhance the motivation, opportunity, and capability to act in accordance with such already-existing values. Actions that seek to weaken and replace values linked to unsustainability, or strengthen the SAVs, are referred to as shifting values. This may involve slower and ‘deeper’ changes to individual and social norms, principles, and goals. For this paper, we reanalyzed the data from the structured literature review of the VA to further elaborate the different modes of mobilizing values. Building on the main distinction between enabling and shifting values, we introduce two further modes of working with values: including values as a subcategory of enabling values that specifically addresses the marginalization of some people’s values through domination by others [20,21]; reflecting on values as a transversal set of actions that typically prefigure
enabling and shifting values by providing the movement toward individual and community consciousness of the values challenge, a necessary step for developing the agency to confront and disrupt the status quo [21,22]. Following this logic, we consider individuals to have the most agency, defined as deliberate exercise of will [23], when they reflect on their values, when they are able to express and act upon their values, and when their values are included and represented in collaborative decision-making. In comparison, shifting values might often be considered as a more top-down process of outside steering or engineering social values, for example, through state-led education campaigns. But also, here education is more likely to be transformational when it goes hand-in-hand with personal reflection involving critical consciousness of values [24,25].

When elaborating on the distinctive features of the four modes, we consider (a) the extent to which they relate to values as people’s guiding principles and/or values as the importance attached to things in specific contexts, (b) the mix of agency and conversely of outside steering needed for each mode of mobilization, and (c) how they apply at the level of individuals, community, and wider society. The individual level often links to inner worlds [26], internal transformations [22,27], personal attitudes, or actions that can be taken to express a certain value. The intermediate community level bridges between the individual and the societal and refers to any subgroup of individuals within society. The societal level refers to large territorial constituencies such as states, bounded by political, institutional, and cultural relations (Figure 1).

Enabling values
Enabling values refers to promoting conditions that enable SAVs to be expressed, acted upon, and institutionalized in decision-making, often by addressing social, economic, political, or physical constraints [8]. This assumes that people already hold values as guiding life principles that motivate sustainable behavior, but do not act upon them. Enabling values encompasses building capacity and agency, creating opportunities for behavior that is more aligned with existent values, and finally empowering people to demonstrate behavior that is consistent with their values [23]. Enabling mechanisms can come from both top-down steering (changing societal, system, or local conditions) and bottom-up initiatives. For example, a change in taxation can support individual consumers to express pro-environmental values by removing price conflicts; provision of infrastructure such as bike lanes and green infrastructure can enable people to act on pro-environmental values; or a shift toward participatory democracy might enable individuals to vote on environmental decisions. At community level, establishing a ‘triple-bottom-line’ sustainability mission can give companies the rationale to act upon SAVs in their operations. Within rural economies, enabling conditions such as the opportunity to set local rules to overcome a lack of resources support the enactment of members’ moral obligations toward their communities [28]. More indirectly, enabling values can involve acknowledging and tapping into existing community values of land-based identity, stewardship, and nature connectedness [29].

Including values
A subcategory of enabling values that is highlighted in the literature are ways of including values in the sense of recognizing inequalities in whose values currently gain voice and how this undermines the twin objectives of justice and sustainability. It refers to methods for opening decision-making to the values of people of diverse social strata, cultures, worldviews, knowledge systems, and positions of power, including marginalized groups of people. The VA [6] found that the dominance of a narrow set of (materialistic and individualistic) values in decision-making is a major obstacle toward sustainability and justice. Recognizing and incorporating the value plurality held across people, agencies, and cultures are therefore promoted as a key agenda for mobilizing values for transformation [30]. At societal level, this involves tackling power asymmetries, in order to include the values of under-represented groups of people. This might include assurance of the political freedoms necessary for a flourishing civil society, including the emergence of social movements that are critical for enabling under-represented values to gain voice. It can also involve more technical or steering interventions such as use of methods that incorporate a wider set of values into decision-making [31–34]. For example, sociocultural valuation can integrate relational and intrinsic values of nature in addition to methods for evaluating instrumental values [35–37]; the inclusion of a wider set of values in assessments may be relevant to building more inclusive institutions [38,39]. In parallel, place-based participatory and knowledge coproduction approaches are striving for a stronger representation of marginalized stakeholders and communities (e.g. indigenous peoples and local communities) in multi-actor decision-making processes [40]. Attempts to make knowledge production more inclusive have also been seen in the governance of global environmental policy, diplomacy, and science platforms [41,42], such as recent efforts to better represent indigenous peoples in negotiating the Global Biodiversity Framework.

Shifting values
Shifting values refers to changing the values that underpin people’s understandings and beliefs about how the world is and should be. Such broad principles shape the kind of knowledge about the world that people prioritize [43], and shifting these can therefore produce deep-rooted changes to decision-making processes. This mode of mobilizing values is often dependent on outside steering. It argues that a societal sustainability transformation needs to be
accompanied by fundamental shifts in values, including in development paradigms: “Shifts in paradigms, norms, worldviews, interests and values by decision makers and practitioners are needed to foster changes in societal rules relating to [...] the emergence of innovative governance systems for transformative adaptation” ([44]:90). Shifting values assume that currently dominant values in a given system or setting are not aligned with possible pathways to the achievement of Sustainable Development Goals [45]. It therefore becomes necessary to reduce the dominance of certain guiding principles such as individualism and of the importance attached to material and instrumental use, and to shift the balance of values toward SAVs such as stewardship [9,46], care [47], or relational values [48]. Often placed in a top-down context, the shifting of values is suggested to happen at individual level through formal and informal education, strategic messaging, or through the normative power of incentives over time. For example, taxes on plastic bags initially change behavior through sanction, but may ultimately, under certain conditions, shift values in relation to waste and pollution [9]. Shifting values may also be directed through message framing, whereby strategic communication is used to influence values toward, for example, conservation [49]. Societal-level shifts may be engineered through high-level policy, such as changes to educational curricula or to environmental agendas. The transformations literature sometimes accompanies this mode of mobilizing values with debates about the stability of values and the permanence of values change [50]. A less top-down approach is to shift values through reflection, deliberation, and contestation at a societal level. This requires empowered individuals aware of and capable of exercising their agency through, for example, social movements often rooted in communities or collectives where those who seek alternatives to dominant ways of living and thinking struggle to gain a place in society for their valued ways of living. For many indigenous peoples, pervasive forms of coloniality and modernization have eroded cultures in complex ways. In such cases, agendas for ‘shifting’ values are often articulated as
restoring and revitalizing values as a foundation for decolonizing and living well [51].

**Reflecting on values**

*Reflecting on values* refers to engaging in active awareness, contemplation, and examination of the values that underpin our understandings of how the world is and should be, and makes them transparent in decision-making processes and beyond. Some authors problematize how values inform (scientific) understandings of the world in order to disclose implicit values and unveil the values that are currently influencing or missing from key decisions at different scales and contexts [41,52]. Explicitly revealing the values embedded in knowledge production, problem framings, and solution advocacy enables greater transparency about the role of power asymmetries in determining what kinds of knowledge gain traction in decision-making. This may be a basis for more constructive dialog and helps overcome conflicts between advocates for different sustainability pathways [53]. At societal level, this way invites a reflexive examination of the values embodied in different formal and informal institutions, including the economic, political, legal, cultural, and scientific institutions that shape everyday decisions around issues such as land-use planning, mobility, or community development. At the community level, undertaking specific activities within civil society groups or businesses, such as ‘participatory power analysis’ workshops, can be effective at raising consciousness and agency relating to enabling and including values [54]. At an individual level, this way of engagement is often coupled to the importance of personal development. Conscious and deliberate surfacing of one’s own values, through, for example, self-reflection practices such as mindfulness and psychotherapy, is seen as part of inner transformations [27]. Personal transformation can then be sourced to incite desirable change. Both at an individual and community level, such reflections on the kind of values that are foregrounded or rendered invisible, if applied regularly, have the potential to become transformative [27]. This might involve efforts to enhance ‘value literacy’, a term used to describe the ability to verbalize the different ways in which nature matters [55]. Spaces for reflection to increase value literacy can happen on the individual level, but also be institutionalized in community or societal settings.

**Discussion: tensions and ways forward**

Several tensions and insights became evident when looking at the literature discussing values and sustainability transformation, which affect the ways values are mobilized for transformative change. Below, we reflect on these tensions to help outline ways forward for science and practice.

**Interdependencies between enabling, shifting, and reflecting on values**

A key observation derived from our analysis is that transformations to sustainability require all modes of values mobilization, often operating in tandem. Although not yet well-researched, mechanisms of enabling and shifting values can be mutually constituting. For example, enabling people to express pro-environmental values can over time foster a change in values, for example, where rules against littering have, gradually, instilled strong social norms against it. Conversely, shifting dominant values that determine societal goals can provide the context in which marginalized groups are able to express and act according to their valued ways of living, for example, where emergent norms of care for future generations have empowered calls for divestment from fossil fuel industries. Moreover, both enabling and shifting values are facilitated by forms of agency supported by critical reflection on values.

**Tensions between shifting versus enabling and including values**

The VA [6] defines transformative change as systemic in scope. It elaborates that today’s societies tend to be dominated by a capitalist system within which people have internalized values aligned with profit-seeking and growth. A fundamental transformative action would be to create opportunities so that people’s values can change, away from such materialism, in a direction that aligns with biodiversity conservation and sustainability (i.e., *shifting*). At the same time, the assessment highlights that different people and communities may already have SAVs (i.e., *enabling*) or hold multiple values that need to be better integrated into decision processes (i.e., *including*). In this sense, the modes of enabling or including values imply that the right values are already there, albeit latent, and need the right conditions to be expressed and/or to be included more prominently in societal decision-making. Although this may seem contradictory at first, shifting values and including/enabling values is not a question of ‘either-or’, but of recognizing that both modes need to happen for sustainability transformations to occur and may even overlap.

The tension between shifting and enabling/including values may be explained by different assumptions about human agency, in relation to external and structural constraints. The shifting mode assumes a weaker agency at the levels of individuals and communities and may imply the existence of outside steering from a central social planner or through social norms. The enabling mode adopts a more integral perspective where agency and power can reside within both external and internal worlds, that is, both within the policy sphere and within the interiorities and mindsets of people [56]. The internal capacity to care and effect change [22] often gets lost because of structural outside constraints [23,56]. To
encourage an untapped potential of individual and community agency for systems change, it is important to create enabling conditions. Sustainability science and education literature allude to the empowering of individual agency by removing structural and institutional barriers. Creating enabling conditions for SAVs is inherently linked to the dismantling of asymmetric power relationships, in ways that can foster individual agency to become the ‘building block’ of community action [57].

**Tensions between which values to shift and which values to enable**

One apparent contradiction in the literature discussing values and sustainability transformation arises from not distinguishing which values require shifting (values we want to change) and which require enabling. Although not explicitly stated in some of the reviewed literature, the shifting of values generally refers to moving away from values such as consumerism, profit-seeking, or short-termism, while the enabling mode targets SAVs such as solidarity, responsibility, and respect for nature.

In a review of 460 scenario studies [17], the VA confirmed that the sustainability transformations research community, who largely developed these scenarios, is in broad agreement about this implicit distinction between desirable and less-desirable values. Scenarios that depict worsening environmental crises are built on values such as individualism and materialism, while scenarios of just and sustainable futures are rooted in values of togetherness and nonmaterial values [4].

There seems to be a tension here between including a greater diversity of values on the one hand and being selective about which values to include on the other. It also poses important questions about the strength of evidence, the trade-off between diversity and selectivity, and to what extent desired values ought to displace less-desired ones (e.g. it would make no sense to say that all materialism is undesirable). We acknowledge this tension raises significant ethical and legitimacy concerns regarding a certain implied righteousness of SAVs and regarding who decides on the ‘right values’. It is here perhaps that the importance of the reflecting mode comes to the fore, as a means of revealing values intentions and assumptions to promote open dialog and thus foster social production of SAVs rather than a top-down process. These ethical dilemmas also point to the importance of emphasizing matters of individual and community consciousness and interiorities, and that all individuals can play a role in the weaving of shifting, enabling, including, and reflecting on values.

In practice, research into effective deliberative processes has found that diversifying values (‘opening up’) goes hand-in-hand with selecting values (‘closing down’). Striving to shift values too quickly in order to reach consensus can lead to premature exclusion of values, especially in contexts of asymmetric power, leading to homogenization of ideas and poor solutions [58]. It is therefore common to advocate and allow for interdependencies between enabling, shifting, and reflecting on values, without having consensus as the sole dominant goal. In order to permit shifting and enabling values to coexist, beyond open dialog and hearing diverse societal groups, as, for example, aspired by citizen assemblies, it is useful to organize a collaborative process that alternates between plurality and convergence toward consensus [39].

**Tensions between levels of values intervention**

There is no consensus on the best level to engage with or mobilize values for sustainability transformations. For example, leverage points models tend to identify societal and systems-level norms as the most powerful place of intervention [2]; behavioral sciences focus on the individual level and the interaction with societal structures; and multilevel transitions models are based on the importance of niche-level change [59] amenable to a community level. For future clarity, it will be helpful for research to distinguish whether engaging with values is meant at the individual, community, or societal level. For example, efforts to enable SAVs could target individuals (e.g. a subsidy for an ecologically produced product), communities (participatory process designed to engage the values of diverse stakeholders within governance decisions), or society as a whole (changing overarching societal goals away from material growth). Interventions rooted in all modes of mobilizing values can take place at multiple levels and could be, in fact, necessary for pathways toward sustainability due to possible cross-level synergies [9].

There is currently an individual–society disconnect threatening the transformative potential of values-based interventions. A first promising means to bridge this divide is focusing interventions at the community level, which allows for their contextualization or contestation [60]. A community level is also more likely to avoid the pitfalls of linear upscaling, such as obscuring inequalities and power imbalances, happening at higher levels of aggregation. For example, social–ecological systems research and practice allows to purposefully define a community level bounded to a real-world political, institutional, socio-economic, and ecological context or system (e.g. farmers in a cultural landscape) [61]. Consequently, interventions for mobilizing values as well as other intervention options are focused on specific conditions of sustainability problem constellations with less emphasis on geographies or administrative confines.

A second way to reconcile the individual and the societal level is examining and disclosing the goal of the relevant system. Being transparent about how intent and normative goals tacitly operate in a system makes it easier to
recognize the breadth of differences in intent between, for example, the individual versus the societal level. For example, a societal intent focused on a consumption growth-centered economy may discourage individual lifestyles and community choices aligned with sustainability. Pragmatic interventions designed within the bounds of such a societal intent may partly inform sustainability pathways, but their limitations need to be acknowledged [50]. On the one hand, individuals are influenced by what they perceive others (the community, the society) see as socially desirable, but on the other hand, individuals’ behavior can shape the social norm perceptions of others. By increasing the visibility of socially desired behaviors (e.g. recycling) and publicly reinforcing them, through, for example, an intentionally aligned economic system (e.g. circular economy), social norms can be modified to induce behavioral change on multiple levels [62].

Conclusion
There is growing agreement that values are important for sustainability transformation. There is considerably less knowledge about how to capitalize on the transformative potential of values as intervention points. Drawing on a relatively fragmented multidisciplinary knowledge base, we unpacked four modes to mobilize values: enabling, including, shifting, and reflecting on values, differentiated in terms of the mix of agency and conversely of outside steering needed for mobilizing values. We outline the four modes and how they can operate at different levels (individual, community, and societal), covering both the internal personal dimensions and the external political dimensions of transformation.

Through these modes, we would like to inspire academia and practice to go beyond seeing values as deterministic causes or predictors of behavior and instead recognize the different ways in which values can be mobilized to represent suitable intervention points for sustainability transformations. Further, we reflect on the interdependency and co-constituency between the four modes. We also highlight tensions between those modes that diversify values and modes that select values, by reflecting on the ethical aspects involved in selecting and steering ‘desirable’ SAVs. These tensions and interdependencies highlight a demand for more research on the role of SAVs as normative notion. The four modes can thus help understand how to mobilize values for sustainable futures, but also past and present situations where the enablement and shifting of values has led to unsustainable directions, where, for instance, capitalistic systems and mainstream discourses disable or undermine SAVs, promote values favoring unsustainable behaviors, or even exclude certain values from societal decision-making. Future research could assess how governance structures can both mobilize SAVs and prevent the mobilization of unsustainable values.

Data Availability
The research presented in this article partly relies on data made available here: 10.5281/zenodo.4363069.

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

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References and recommended reading
Papers of particular interest, published within the period of review, have been highlighted as:

• of special interest
• of outstanding interest.


8 IPBES Values Assessment


The author pushes the boundaries of how we are thinking about leverage points and values using a deep system thinking approach. It concentrates on the underconsidered and underinvestigated realm of human intent and inner worlds for sustainability transformation.


This is a useful classification of transformation approaches. We note certain parallels between the authors’ structural approaches and the shifting mode of mobilizing values, and the enabling approaches to transformation as highlighted by the authors and the enabling mode of mobilizing values.


The paper presents a framework that bridges transcendent and contextual values. This is significant because often transcendent values are left outside the scope of analysis in mainstream nature’s valuation studies.


40. Pereira LM, Davies KK, den Belder E, Ferrier S, Karlsson-...development of a multiscale and integrative nature-people scenarios using the Nature Futures Framework. People Nat 2020, 2:1172-1195, https://doi.org/10.1002/pan3.10146. This paper advances scenarios where SAVs are actively driving the future of nature–people relationships, underlying the importance of values for thinking about what is desirable. It provides an example for how to include considerations about values in participatory scenario building.


