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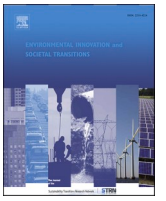

Missions and mission-oriented innovation policy for sustainability: A review and critical reflection

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ABSTRACT

The concept of 'sustainability missions' has recently received increasing attention in the academic literature. Broadly defined as a collective ambition to strengthen systemic preparedness and adaptive capacity for various policy challenges, the concept of sustainability missions invites critical reflection due to its rise in usage and popularity. In this spirit, we discuss five challenges that limit the ability of the missions concept to guide progress on meaningful change. First, much of the academic literature takes the concept for granted by using it as a descriptor or normative goal, without the skeptical perspective that would challenge the perpetuation of old ways of thinking about societal problems. Second, the concept is policy-centric and thus tends to endorse a top-down approach to complex problems that otherwise elude centralization. Third, scholarly treatment of the concept often undervalues the role of non-government stakeholders like businesses and communities. Fourth, the literature often fails to acknowledge that sustainability missions involve picking industrial 'winners' – a strategy with historically mixed results. Finally, scholars frequently neglect the unpredictability of sustainability mission implementation, a risk magnified in the case of totalizing goals like economic or social-systemic transformation. These five limitations, among others, work against the stated goals of sustainability missions and hinder theoretical development. This article describes a way forward for research and practice utilizing the concept.

1. Introduction

In the context of public policy, a 'mission' can be defined as a vision for society-wide action on broad structural challenges like human and state security, socioeconomic inequality, and climate change. In ideal practice, missions entail the establishment by governments of progress targets and timelines, while the apparent novelty of the concept is a strategic shift "from picking winners to picking the willing" (Mazzucato, 2018; p. 805). Governments orchestrate pathways for willing partners to implement policies in pursuit of a collective goal. This approach is said by Hekkert et al. (2020, p. 76) to herald "a new era of innovation policy." The concept

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of sustainability missions in particular originates with the work of Weber et al. (2015) and Lamy et al., (2017) in reports that foregrounded the salience of innovation in structural economic transformation for sustainability. After being later integrated into studies about industrial innovation (Mazzucato, 2021; 2018; 2016), the concept of missions is now common in the sustainability policy and transitions literature (Elzinga et al., 2021; Hekkert et al., 2020; Klerkx and Begemann, 2020; Pel et al., 2020; Wanzenböck et al., 2020).

Sustainability transitions are increasingly framed as mission-oriented policies. Pursuant to this point, we define 'sustainability missions' as a collective ambition to enhance systemic preparedness and adaptive capacity for crises determined to be within the realm of sustainability policy concerns.[1] Given the numerous ways of understanding sustainability challenges, it is appropriate to consider what value the concept of sustainability missions adds. Is it a useful discursive tool for galvanizing political support and framing policy interventions, or does it obscure the practical specificity needed to identify pathways for implementation? In this article we critically reflect on the sustainability missions discourse and argue that a sharper and more meaningful discourse would benefit scholarship and practice. As the academic literature on sustainability missions is growing, we argue that this early stage is the right time for critical reflection.

Our argument about the sustainability missions discourse draws principally from examples in the circular economy (CE) literature, for three reasons. First, one of the most ambitious policy missions in the European Union (EU) was formulated around CE transition, with the Dutch government aiming to reach 50 percent circularity by 2050 (Milios, 2021; Circle Economy, 2020; Hartley et al., 2020). Second, this Dutch policy has been used as an example in CE-related studies about sustainability missions (e.g., Hekkert et al., 2020) and is thus likely to resonate within the growing strand of missions literature. Third, we maintain that our observations and critiques of sustainability missions, as outlined in this article, are appropriately informed by our years of research about and practical engagement with CE issues. In making this critique, we aim to bring the type of rigorous analytical attention to the concept of sustainability missions that has – or in some cases should have – been brought to other sustainability-related terms. For example, concepts like sustainable consumption and production (Tukker et al., 2008; United Nations, 2002) and circular economy (Henry et al., 2021; Kirchherr et al., 2017) have arguably ended up as 'sustainababble' (Engelman, 2013). A proactive critical discourse on sustainability missions can help the concept avoid a similar fate.

This article continues with a brief overview of how sustainability missions have been examined in the academic literature. Thereafter we present our argument in the form of five critiques concerning the concept's use and broader context. The conclusion discusses how a more robust understanding of ideas underlying the concept can strengthen its meaningfulness in both theory and practice.

2. Sustainability missions in the academic literature

The academic literature has recently begun to engage with the concept of sustainability missions, and the handful of early articles indicate where the scholarly narrative might be headed. A common early application of the 'missions' concept concerns corporate missions, vision statements, and strategies (Bastons et al., 2020; Galpin et al., 2015; Mysen, 2012), including how organizations externally present themselves and align activities internally. In this context, the sustainability missions concept has been applied by scholars as a loose descriptor for corporate missions that mention sustainability and related activities (Aldieri et al., 2021; Niessen and Bocken, 2021; Schönborn et al., 2019; Süßbauer and Schäfer, 2019). While there is value in understanding the mechanics behind corporate mission statements, our discussion about the discursive aspects of sustainability missions draws us into the realm of narrative-building across sustainability policy efforts.

Early literature adopted a relatively ambiguous conceptualization of sustainability missions, including mentions in studies of water management in China (Wang and Li, 2008), environmental policy implementation in Australia (Sutton, 2004), and cross-organizational networks for sustainability visions (Timmermans et al., 2014). These mentions, however, were incidental and not reflective of an emerging consensus or conceptual coherence at the time. The turning point in the regularized use of the concept came with Mazzucato's (2018; 2017) work in innovation studies. While the origin of sustainability missions in literature about mission-oriented innovation policies (MOIPs) was practically oriented (Ghosh et al., 2021; Hekkert et al., 2020; Fisher et al., 2018; Georghiou et al., 2018; Mazzucato, 2017), the concept also became the subject of more critical reflections; see, for example, Davies and Chambers (2018) on 'hybrid tensions' in the creation of pro-social, environmental, and economic value within firms. Other mentions of sustainability missions appear in studies about the UN Sustainable Development Goals (Robinson, 2021; Messerli et al., 2019), alignment of university curricula with sustainability concepts (Shephard, 2020), and incorporation of democratic approaches and leadership accountability into mission-oriented initiatives for low-carbon transformation (Busch et al., 2018).

Also notable is a transition in the literature's focus from 'technical missions' to 'transformative missions,' with the latter taking a more systemic view of transitions beyond incidental technological interventions (Roth et al., 2021) and top-down models of planning and implementation. For example, in the context of MOIPs, Wittmann et al. (2021) addresses the importance of governance and implementation – ideas applicable also to sustainability missions. Relatedly, Kuittinen et al. (2018) highlight the importance of flexibility, multi-level coordination, and public connection. The broader conceptual reach of transformative missions is revealed by the multiple enabling policy capacities for such missions, identified by McLaren and Kattel (2022): management of strategic direction and policy mixes, coordination among networks, and learning-based information feedback. Regulatory factors, operational standards, and

[1] The concept of sustainability originally centered on climate change, environmental degradation, and related issues. However, the concept has more recently taken on a broader scope, now including social justice and equity, economic growth ('development'), and a variety of other policy issues outlined in the 17 United Nations Sustainable Development Goals (https://sdgs.un.org/goals).

Table 1
Selected studies relevant to mission-oriented innovation and sustainability transition.

#	Study	Focus
1	Kivimaa, 2022	MOIP and Transformative Innovation Policies in the context of global security; importance of multi-domain perspective, anticipation, and reflection
2	Reike et al., 2022	Dutch government's mission-framed ambition to circularize the textiles industry
3	Ghosh et al., 2021	Implementation of Transformative Innovation Policy; methods to orient and channel efforts of policy actors in science, technology, and innovation towards transformative outcomes
4	Janssen et al., 2020	Overview of mission concept and definition; framework for mission-oriented systemic change; activities undertaken by Copernicus Institute
5	Biegelbauer et al., 2020	Overview of OECD Austria-based action on MOIP
6	Hekkert et al., 2020	Framework proposed for MOIP; connection of concept to sustainability transitions concept
7	Wanzenböck et al., 2020	Process-oriented examination of MOIP; pathways for connecting wicked problems to actionable solutions
8	Robinson and Mazzucato, 2019	Mission-oriented policies in the space sector as illustrative of narrative reframing towards market-creating innovation policy
9	Georghiou et al., 2018	Examination of feasibility of MOIP implemented at the EU scale
10	Fisher et al., 2018	Overview of MOIP action in EU member states; factors include governance, management, and implementation
11	Schot and Steinmueller, 2018	Introduction of three frames for innovation policy: addition of transformative innovation policy to R&D and national innovation systems; importance of anticipation, experimentation, participation, directionality
12	ESIR, 2017	Expert reflections about economic rationale of mission-oriented research and innovation policy
13	Mazzucato, 2017	Overview of concept, opportunities, and challenges regarding MOIP

acceptance by direct users and society more broadly are identified by Fisher et al. (2018) as crucial factors enabling transformative missions. Taking a similarly analytical approach, Haddad and Bergek (2020) identify changes in actor-networks and institutions across both 'niche processes' and 'regime processes' that support transformative missions. These factors reflect those proposed for transformative missions by (Lindner et al., 2021; p. 19), who emphasize "fundamental changes in economic value creation processes, institutional arrangements and individual behaviors." Overall, the literature is increasingly recognizing the upstream determinants of sustainability transitions and missions as part of a broader 'interactive ecosystem' that often leverages bottom-up mechanisms and experimentation (see Schot and Steinmueller (2018) for an example). Table 1 provides an overview of selected foundational studies relevant to mission-oriented innovation and sustainability transition, including studies about policy innovations for sustainability transition that take a broader approach than that of MOIP alone.

The concept of sustainability missions has gained salience also in the sphere of practice. For example, the EU 'Horizon Europe' Framework Programme for Research and Innovation (European Parliament, 2022) uses the term 'mission' in reference to five "long-term, cross-cutting research priorities" (p. 1) – three of which pertain directly to sustainability (adaptation to climate change, restoration of oceans and waters, and climate-neutral 'smart cities'). Other Commission priorities include programs labeled 'Mission Climate,' 'Mission Soil,' and the 'European Green Deal.'[2] Additionally, numerous cities and municipalities use the term 'sustainability mission' (independent of the term 'statement') as a framing device for overarching environmental policy initiatives; examples are Richland County, South Carolina (USA),[3] Leeds, UK,[4] and Fort Lauderdale, Florida (USA).[5] For a review of mission-oriented policies in Europe and OECD countries, see Kuittinen et al. (2018).

3. Five critiques of sustainability missions

3.1. Normativity bias

Scholarship has often engaged with the concept of sustainability missions in a way that does not critically evaluate underlying assumptions and normative orientations. This argument has been made against the sustainability and transitions literature (Bening et al., 2015; Markard et al., 2015) and is applicable now to the growing field of sustainability missions. As the term 'mission' is oriented towards results and outcomes, the scholarship accordingly focuses on how a mission can be achieved. Nevertheless, this focus overlooks upstream factors that influence how sustainability challenges are named and framed – including their complex nature and contestation around problem definitions. Viewing sustainability challenges as 'wicked' suggests that there is neither a single problem to be solved nor a single solution to be implemented (Head, 2022; Koen et al., 2001; Reinertsen, 1999; Rittel and Webber, 1973). This acknowledgement appears only incidentally amidst the literature's common focus on progress measurement (e.g., Ecer et al., 2019; Shmelev and Shmeleva, 2018) and goal-achievement (e.g., Jassem et al., 2021; Vrchota et al., 2020).

As an illustration, the Netherlands government's target of achieving 50 percent systemic circularity faces some potentially negative trade-offs, but the target itself is scarcely questioned by scholars – including those examining the intersection of CE and sustainability missions (where the Netherlands claims a global leadership position). Studies have shown that CE activities like industrial reuse and

[2] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en
[3] https://www.richlandcountysc.gov/Government/Departments/Planning-Development/Sustainability-Planning
[4] https://www.eumayors.eu/component/attachments/?task=download&id=807
[5] https://gyr.fortlauderdale.gov/home/showpublisheddocument/9892/635679050201670000

repair, while increasing employment rates and GDP in consumer countries, can reduce demand for primary products typically produced in emerging economies (de Boer et al., 2021; Kirchherr, 2021; Repp et al., 2021; Donati et al., 2020; Schroeder et al., 2018). Thus, an action taken on one dimension of sustainability (environment) can have undesired consequences for another (human well-being) by denying emerging economies a pathway for economic catch-up. The embrace of sustainability missions as a normative goal must occasionally be tempered, but this critical perspective is often missing in the current discourse.

3.2. Support for top-down governance

Top-down governance refers to a strategy of developing and implementing policy initiatives in a centralized setting. It often carries an element of public participation but is driven typically by the visions of powerful actors. According to van Ostaijen and Scholten (2018, p. 7), top-down governance is characterized by "a hierarchical relationship in which the highest level involved steers the overall governance response for actors from all other involved layers." While top-down governance is by no means uniformly promoted by the sustainability literature, it is a leitmotif running through decades of thinking about the types of aggressive policy approaches said to be necessary for addressing climate change (Holcombe, 2012; Gilson and Milhaupt, 2011).

Much research about energy transition emerges from social sciences and policy studies (Sovacool et al., 2020) and thus has a normative orientation towards policy intervention and top-down coordination – as exemplified in the opening sentence of Hartley's (2015) *Can Government Think?*: "Government is back, for now" (p. 1). In reference to government's role in fostering industrial innovation specifically, Hekkert et al. (2020, p. 78) state that mission-oriented systems require a "much stronger role of the nation state, and more advanced policy capabilities." With the literature largely sanguine about the role of government in catalyzing action on sustainability missions, top-down governance has become an often unquestioned approach that is said to match the grand scale of societal challenges.

Nevertheless, consensus within government about how to pursue missions is not always assured. Furthermore, the idea of government does not imply a monolithic entity, as there are multiple and often overlapping levels – agencies, jurisdictions, and special purpose vehicles, among others – that can clash in broad policy efforts like sustainability missions. At the same time, the capacities of government, particularly for challenges calling for broad and deep intervention, are often limited. Indeed, government may not always 'know best' or 'act best' in understanding problems and proposing solutions.

From a political economy perspective, top-down governance has been proposed as a way to discipline the actions of non-government actors. According to Köhler et al. (2019, p. 3), "since sustainability transitions may threaten the economic positions and business models of some of the largest and most powerful industries (…), such incumbents are likely to protect their vested interests and contest the need for and speed of transitions." As an illustration, in the early 2000s Dutch scientists were among the first to propose and help implement 'transition management' within the Dutch government, aiming to foster low-carbon transition (Rotmans and Kemp, 2000). By 2017, however, only six percent of energy used in the Netherlands was originating from renewable sources, ranking second-to-last in the EU. Oxenaar and Bosman (2020) argue that the Dutch government is tightly connected to the fossil fuel industry and receives significant revenues from it. This relationship reflects how incumbent interests, including those of governments, can delegitimize the urgency of low-carbon transition (see Oreskes and Conway (2010) for a description of this process). In such situations, government bias compromises the 'constant urgency and directionality' that Hekkert et al. (2020) deem essential for a successful mission.

The sustainability and transitions literature is relatively quiet on these types of government pathologies and stakeholder stalemates (Tukker and Ekins, 2019), even as the public policy literature elsewhere has addressed them (Howlett, 2022; Leong and Howlett, 2022). The literature on sustainability missions can fill this gap. For example, Borrás and Edler (2020) describe a governance model in which "the state acts as an arbitrator or negotiator between different social and political positions among agents regarding the direction of transformation of a sociotechnical system" (p. 7). This idea has a deep history in the public administration literature through the notion of governments 'steering' rather than 'rowing' (Osborne and Gaebler, 1992); for sustainability challenges, the 'steering' can be seen as more collaborative or, in the words of Denhardt and Denhardt (2000), a 'serving' activity. The notion of government catalyzing actions on 'directions for growth' rather than imposing a top-down vision is referenced also by Mazzucato et al. (2020) and Hausmann and Rodrik (2006). Even in a discursive setting that seems amenable to collaborative and participatory approaches, the strong role of top-down governance in addressing grand societal challenges remains theoretically alluring and therefore deserves critical scholarly evaluation.

3.3. Stakeholder monotony

The sustainability missions literature is not focused exclusively on government as the only actor. For example, Hekkert et al. (2020, p. 77) argue that (Dutch) government officials engage "a wide range of civil servants and representatives from science, industry and NGOs." However, the literature's frequent support for top-down governance and policy-first approaches risks trivializing the role and value of non-government stakeholders (e.g., businesses and communities) in driving sustainability transition (Kohler et al., 2019). As the Hekkert quote illustrates, scholarly thinking about missions still tends to consider government as the central actor or first mover.

Meanwhile, much of the sustainability and transitions literature, including research about CE, emphasizes sustainability action independent of government intervention, including how businesses drive change (Vecchio et al., 2022; Urbinati et al., 2021) and how citizens organize into cooperatives (Bauwens et al., 2022; Walker and Devine-Wright, 2008). This citizen-centered focus is consistent with ideas about how collective action can fill governance capacity gaps (Ostrom, 1990). Transitions scholars have also highlighted the effectiveness of network governance and learning-by-doing among diverse actors (Köhler et al., 2019; Roberts and Geels, 2019) –

concepts applicable to research on sustainability missions. Indeed, the idea that innovation emerges endogenously from a complex interactive ecosystem is underscored by Schot and Steinmueller (2018, p. 1560): "rather than being a linear flow from science to applied R&D to commercialization, knowledge is generated through interaction among the (more diverse) actors in national, sectoral and regional information systems." These elements should be more robustly considered in the sustainability missions literature, where a focus on the need for effective coordination can unduly prioritize government intervention.

3.4. Picking winners

Industrial policy (Rodrik, 2004) has a long history of promoting 'winners' – sectors, industries, or individual firms that have privileged status in policymaking and public financial support (Chang, 1996). For example, governments may identify a globally dynamic industry and foster development of domestic firms within that industry through subsidies and trade protectionism. However, the method by which winners are selected in sustainability policy can be more subtle, as government begins with a broader systemic policy vision and thereafter channels resources towards predetermined pathways of achievement. Mazzucato (2018) and Hekkert et al. (2020) argue that MOIP does not force specific solutions and is instead 'management by outcomes.' Nevertheless, it is important to consider that policy action is often embedded in a political economy defined by symbiotic cross-sector relationships. Narratives and progress metrics can become screening devices that elevate the status of stakeholders demonstrating support for a given sustainability mission.

As an example, the European Commission's (EC) MOIP regarding CE is structured around the 'reduce, reuse, recycle' framework (Geissdoerfer et al., 2017; Kirchherr et al., 2017), which promotes a specific solution *ex ante* and thus discursively steers corrective action. Policymakers may pick winners that adhere to this framework even as alternative ideas and actors are better suited. The consequences can be significant given the level of resourcing involved. The EC committed to spending EUR 120 billion on its missions, including CE promotion, from 2022 to 2027 (EC, 2022). However, little was known at the outset about how these funds would be distributed (Akcomak and Overvest, 2019). It is plausible that resources would be allocated to 'winners' picked by EC committees, in many cases creating markets that benefit these winners. This approach contravenes cautionary lessons from decades of research showing that such committees rarely pick risky ideas and prefer ideas with existing momentum (Uyarra et al., 2020; Edquist and Zabala-Iturriagagoitia, 2012; Aschhoff and Sofka, 2009; Edler and Georghiou, 2007). A critical analytical approach to the sustainability missions concept suggests the need for more robust acknowledgement of these embedded power dynamics.

3.5. Unintended effects

Our final critique is that accomplishing sustainability missions can precipitate unintended consequences. With a mission identified and implementation pathways selected, policymakers often quantify needed actions and progress measures to guide and evaluate resource distribution (e.g., the Netherlands' target of 50 percent economy-wide circularity by 2050; Circle Economy, 2020). Such targets are accompanied by numerous sub-targets (e.g., recycling rates), providing a set of clearly metricized dimensions on which firms can optimize performance. Despite the seeming omniscience of this rule-by-data, the wickedness of sustainability and circularity challenges can elude quantification – particularly as inconvenient realities emerge through multi-dimensionality, co-evolution, multi-actor processes, open-endedness, and uncertainty (Köhler et al., 2019; Rittel and Webber, 1973; Wynne, 1992). As such, the eventualities of implementation cannot be fully predicted and unintended consequences may be expected. For example, Blum et al. (2020) show that the process of recycling certain polymers can release environmentally harmful agents. Policymakers have the authority to establish varying quantitative ('working') targets and special dispensation for each material, but this approach can be operationally impractical, confusing for producers, and difficult to monitor. Further, monitoring is itself a political process that entails deciding what to measure. Adopting only reliably achievable metrics and targets helps policymakers claim success without evidence to the contrary. These are the politics of choosing what to see and what not to see.

The unintended consequences of reaching quantified targets may also be difficult or impossible to project *ex ante*. For example, Makov and Vivanco (2018) identify rebound effects that directly offset sustainability gains. In an illustration of what Zink and Geyer (2017) label 'circular rebound,' Warmington-Lundström and Laurenti (2020) find that 20 percent of potential reductions in emissions through peer-to-peer boat sharing were lost through additional consumption enabled by cost savings. Even the action itself of setting a target can unleash new dynamics in a complex system, with actors focusing only on the target instead of the underlying objective. Targets should not be wholly avoided, but emphasis of missions narratives on quantification reflects an unduly simplistic problem conceptualization. At the level of empirical analysis, 'transformational' research should embrace concepts like emergence, flexibility, and the social and network aspects of knowledge construction (see Goyeneche et al., 2022). The need for a broader perspective extends to policymakers as well; Hartley and Kuecker (2022) state that "remaining flexible, resourceful, and open minded is the only way policymakers can assume the posture needed for this epistemic shift" (p. 61).

4. Discussion and conclusion

The five critiques presented in this article not only highlight the pitfalls of legacy thinking in the sustainability missions discourse but also suggest why there are relatively few studies about the success of sustainability missions. As an illustration, Mazzucato's (2021) study of the 1969 Apollo space program is a common example of successful missions. Facing a substantial technological challenge, the United States government leveraged legitimacy and capacity to overcome it – a case of top-down governance for a specific mission. Other examples of missions-framing are the Swedish Mission Zero Initiative to reduce traffic accidents (Hekkert et al., 2020) and policy

responses to the Covid-19 pandemic (e.g., development of vaccines; Reale, 2021; Sharun and Dhama, 2021). While broad-reaching in its impacts, the pandemic does not carry the type of long-term existential threat that climate change does – nor does it exist on the same scale. Missions focused on pandemic management, traffic accident reduction, space exploration, and other ring-fenced issues are necessarily narrow but also difficult to apply as models for addressing the 'grand challenges' of sustainability missions. The transition to sustainability and circularity is systemic and 'wicked' (Mazzucato, 2018), requiring a transformative and potentially unprecedented approach to governance (Ghosh et al., 2021; Roberts and Geels, 2019; Schot and Steinmueller, 2018; Tukker and Butter, 2007). Implying this complexity and the need for novel approaches, the EC claims that "missions are a new way to bring concrete solutions to some of our greatest challenges" (EC, 2022).

In seeking to understand such solutions, the discourse around sustainability missions should identify lessons and applications beyond incidental successes in narrow policy domains. The pathway forward lies in understanding differences in how sustainability transitions are viewed across differing audiences and scales. For example, high-level rhetoric concerning sustainability missions – which can be found in regional or multi-lateral program statements that tend to be heavy on ambition and light on technical specifics – focus more on the systemic context and 'wickedness' of transitions. That is, these types of visions are fairly adept at acknowledging that a complex convergence of factors determines the success of such initiatives; accordingly, they frame transitions efforts within the context of broader social, economic, and policymaking factors (as mentioned by Schot and Steinmueller, 2018). At the same time, rhetoric around operational initiatives, including government strategies and specific policy tools, tend to be more technocratic and managerialist in their narrow and simplistic focus. The tension in tone between these two types of narratives can be a source of confusion when attempting to ascribe a particular epistemic approach to sustainability missions efforts.

At a broader level, there remains in scholarship and practice a lingering belief that technological progress, coupled with marginal tweaks to regulatory and governance systems, will be enough to excuse humanity from the inconvenient task of altering economic systems, wholly and painfully, in averting climate disaster (Hartley and Kuecker, 2022). This mindset is perpetuated by a near-century-long commitment to policy quantification, which is itself dependent on epistemically biased framing devices and can be manipulated to show progress for political and economic reasons. This epistemic pattern partly explains why missions, as a narrative device, have thus far not appeared to precipitate transformational solutions to grand societal challenges. Indeed, a technology-centric and managerialist[6] ethos has been imparted on mainstream missions narratives, valorizing top-down rather than open governance and time-bound targets rather than iterative and learning-based approaches.

There is some indication that the focus of businesses and governments on quantifiable and bold progress targets has softened in recent decades (Kirchherr, 2021b; van den Bergh, 2011). To extend this evolution in thinking, the promotion of growth-based economic models (e.g., investment and market provision) can be critically questioned and considered only one among many ways of approaching the sustainability challenge. This transformation in thinking requires a revisitation of fundamental beliefs and an openness to alternative futures (Bauwens et al., 2020; Hartley et al., 2019). However, current applications of concepts like missions emerge from a legacy epistemic frame laden with the same biases and preferences that generated the sustainability crisis to begin with. Breaking free of these terminological shackles – a task that is timely and urgent given the emerging literature on sustainability missions – is a crucial step in transforming underlying policy thinking.

There are several pathways for addressing these scholarly puzzles and practical challenges. Recent thinking on MOIP frameworks provides some guidance – including the importance of recognizing various types of missions, refining implementation processes (Wittmann et al., 2021), adopting directionality and intentionality enabled by "a substantial overhaul of governance and policy capacities" (Polt and Weber, 2019; p. 15), and pursuing both vertical and horizontal coordination while remaining flexible and engaging the public (Kuittinen et al., 2018). Furthermore, it may be helpful, for analytical purposes, to work towards a consensus conceptualization and even definition of missions – particularly one that has as much value in application as in theory. The task for scholars is to consider how a rigorous and specific operationalization of the concept, beyond vague notions of 'goals' and 'visions,' can lend analytical value in understanding sustainability challenges.

Moreover, in recognizing unique opportunities to extend the concept of missions through dialogues on sustainability, we maintain that more robust emphasis is needed on scale-based factors connecting global strategy with local innovation (see the emerging concept of SDG localization; Hartley, 2022; ElMassah and Mohieldin, 2020; Patole, 2018). The impacts of sustainability crises are felt locally and in acute ways, with cities absorbing firsthand the confluence of often interwoven challenges (e.g., severe weather, sea-level rise, migration, socioeconomic inequality, and security and public health threats). As much as sustainability missions matter at the local level, so too is this the level where creative ideas originate (see Bocken et al. (2021) for a discussion of business model experimentation in circular transition). At the same time, simply up-scaling the ideas and experiences of champion or 'benchmark' local cases promotes a naïve uniformity that strips bottom-up perspectives of their uniqueness and enables more of the same top-down thinking. Recognizing the value in a diversity of ground-level approaches – sustainability missions in their multitudes – can foster a worldwide policy environment that is strategically harmonized while remaining adaptable to unique locational and temporal circumstances.

While this article has provided a critical reflection on the narrative use of missions in the academic literature, we consider the term to be a promising avenue for the sustainability and transitions community of practice if it reflects sufficiently open and transitionary thinking. Overall, missions as a framing device can encourage actors to be more proactive than reactive – a needed approach as crisis-weary governments are jostled from one existential predicament to the next. Maintaining a healthy scepticism about the term,

[6] Klikauer (2015) provides an overview of definitions and theories about managerialism, stating that "managerialism justifies the application of its one-dimensional managerial techniques to all areas of work, society, and capitalism on the grounds of superior ideology, expert training, and the exclusiveness of managerial knowledge necessary to run public institutions and society as corporations" (p. 1105).

Table 2
Summary critiques of the sustainability missions literature.

Critique	Details
Normativity bias	Tendency to study how to accomplish a certain mission instead of acknowledging at the outset its 'wickedness' and contestability
Top-down governance	Unexamined belief that top-down governance is possible and desirable ('government knows best')
Stakeholder monotony	Insufficient consideration of the role of additional stakeholders (e.g., businesses and communities) in driving a mission
Picking winners	Focus on selecting specific solutions to accomplish a mission instead of managing by outcomes
Unintended effects	Insufficient consideration of unplanned, unpredictable, and possibly adverse direct and indirect effects attending mission implementation and accomplishment

including its use in perpetuating existing narrative and ideological power dynamics (whether a commitment to top-down governance or to market- and pseudo-market-based models), is crucial for avoiding the degradation of sustainability terminology. Such work falls primarily to academia, where scholars have the freedom to ask such questions and challenge popular narratives. Aware that more conceptual development on missions is now being undertaken, we have sought to enliven critical discussions at this formative stage. Table 2

Declaration of Competing Interest

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

Data availability

No data was used for the research described in the article.

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