Sustainable Business Models: Researchers as Design Thinkers for Problem-Driven Research

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Abstract

In this article, which has an exploratory, conceptual nature, we discuss the challenges for sustainable business model (SBM) practitioners to include a broader range of stakeholders in developing value-creation logic. This is of relevance as it is not clear how the process of enrolling stakeholders to create value unfolds for SBMs. We argue that researchers should be included as key stakeholders and propose using design thinking as an approach for engagement to co-create sustainable business solutions. By incorporating design thinking, researchers and practitioners can collaborate on addressing sustainable problems in their business model to improve mutual understanding about the problem-solution evolution. Including researchers also helps contextualize and align sustainable business model research to design practical testing of solutions. We illustrate this with a model representing the cognitive process of co-creation between researchers and practitioners in SBM design.

Keywords: Sustainable business models, stakeholder enrolment, design thinking, problem-driven research, cognition, research-practice gap

JEL Classification: D7, D8

Key Points:

- Sustainable Business Model design is defined to enroll a wider range of stakeholders
    - Researchers may serve as key stakeholders in SBM design
    - Including researchers as design thinkers narrows research gaps for SBM
- Researchers support problem definition and solutions for societal impact

Studies on the connection between company strategies and sustainable practices have proliferated recently (Bocken & Geradts, 2020; Geissdoerfer et al., 2018; Ringvold et al., 2022; Zhang et al., 2021). To support objectives such as the Sustainable Development Goals (Günzel-Jensen et al., 2020), there is a significant need to rethink the economic and business models of firms. However, the changeover is a challenging process (Pizzi et al., 2020).

Adapting business models is an evident way to make system changes to address problems and reduce negative externalities toward sustainability (Bocken et al., 2015; Hall, 2019). Sustainable business models (SBMs) constitute a distinct field of study, characterized by their potential to significantly influence environmental and societal outcomes. They aim to amplify positive and/or minimize negative impacts through innovative shifts in how an organization and its value network create, deliver, and capture value (Bocken et al., 2014; Geissdoerfer et al., 2016). The so-called 'SBM approach' predicates the pursuit of economic performance by integrating the preservation and renewal of all resources that allow the business to take place, and by nurturing relationships and interactions between stakeholders (Rosato et al., 2021; Schaltegger et al., 2016).

Some scholars recognize, nevertheless, that to solve sustainable problems, it is not sufficient to build the firm around sustainable value because no sustainable value can be created if a wider range of stakeholders – e.g. employees, management, customers, suppliers, competitors, governments, local communities, NGO's - are not included in the value-creation logic (Attanasio et al. 2022; Schaltegger et al., 2016; Stubbs & Cocklin, 2008). Our point is that organizations cannot solve complex sustainability issues in isolation, and need to go

beyond solely focusing on balancing and managing stakeholder needs, and interact with stakeholders (see Fobbe and Hilletofth, 2021). Considering a broader range of stakeholders is essential to integrate sustainable objectives with stakeholders' priorities in order to avoid market failure (Baldassarre et al., 2017). SBM design requires practitioners to look beyond the organization to create sustainable values for all stakeholders. However, including a wider range of stakeholders brings forward at least two essential problems. First, what does a wider range of perspectives to address sustainable problems imply for how stakeholders give *meaning* to sustainable business model schemas? This is of relevance because business model research points out that "business models stand as cognitive structures" (Doz & Kosonen, 2010, p.371) and rely on heuristic tools (Dimov, 2020), but perspectives on how cognitive structures progress, change, or disrupt business model development is less well understood (Marzi et al., 2023; Shepherd et al., 2023), especially for SBMs (Ringvold et al., 2022). A lack of cognitive research on sustainable business models is problematic as it prevents researchers from identifying how these cognitive structures are co-constructed between stakeholders. Second, *which actors* should be included in this wider range? (Sarooghi et al., 2021). One obstacle in viewing business models as cognitive schemas is determining the appropriate unit(s) of analysis since simplifying business models to individual mental models may be deceptive (Massa et al., 2017). Nevertheless, sustainable problems, too, are subjective mental models (Björkdahl et al., 2022; Simon, 1959), and may evolve from individual toward collective solutions when different stakeholders provide different perspectives (Shams & Kaufman, 2016), thus, mitigating the possible adverse effects of individual mental models.

To answer these problems, recent scholarly conversations about which stakeholders are key to include in a wider spectrum within this process point to the role crucial of researchers (e.g. Bastian & Zucchella, 2023; Sharma et al., 2020). This is because collaborating researchers and practitioners may co-create and align propositions (Shams &

Kaufman, 2016) to improve joint knowledge creation (Rynes et al., 2001). Including researchers in SBM design specifically is important since only a small proportion of business and management scholars currently believe that they successfully influence real-world applications because of a predominant focus on policymaking rather than scholarly analysis (Rosato et al., 2021; Rynes et al., 2018; Sharma & Bansal, 2020). However, it is unclear how SBM design and enrolment and/or engagement with multi-stakeholders unfold (Hofmann et al., 2017). This implies a gap in the impact SBM research has on practice.

We propose that this perceived research-practice gap may decrease when researchers and practitioners align more concretely on how they frame, interpret, and refine their knowledge to sustainable solutions jointly (Berglund et al., 2018). While the SBM literature more recently started to address how challenges for sustainable business model ideas to reach the market and achieve impact can be overcome (e.g. Baldassarre et al., 2017; Ritala et al., 2018), little consideration has been given to how researchers specifically may address shared sustainable problems (Berglund, 2021; Bianchi & Verganti, 2021; Hyytinen, 2021).

Consequently, we ask the following research question: *How can sustainable business model design incorporate researchers to create and capture value?* We incorporate *design* as it helps formulate shared understandings between different stakeholders (Tyl et al., 2015). By incorporating researchers, we underline its recently acknowledged role "in helping entrepreneurship researchers contribute to both entrepreneurship theory and practice" (Dimov et al., 2023, p. 1560). We argue, as a first step, that researchers studying SBMs should be included as key stakeholders as they have a crucial role in conducting problem-driven research that has an environmental impact to co-create answers with practitioners for society (Chen et al., 2022; Sharma et al., 2022; Wickert et al., 2021). By capitalizing on their interactions, practitioners and researchers can generate knowledge and understanding that is relevant to bridging gaps between research and practice (Bansal et al., 2012; Rynes et al.,

2001). Specifically, while practitioners may help researchers to contextualize the problems they are solving to bridge the research-practice gap (Bansal et al., 2012), researchers may assist practitioners with their knowledge to decompose and reframe problems (Ho, 2011; Sharma & Bansal, 2020).

In this article, we present *cognitive incorporation* and *academic inclusion* to answer the research question and propose a central role for design thinking (Geissdoerfer et al., 2016; He & Ortiz, 2021). Through its abductive problem-solving approach to addressing complex problems, design thinking improves understanding of the needs and motivations of stakeholders affected by the problem and designing solutions (Dorst, 2011; Schön, 1984). We argue that integrating design thinking supports the engagement of a diverse range of stakeholders to conduct research and practically test solutions to understand better the needs and experiences of those impacted by the problem (Berglund et al., 2018; Dell'Era et al., 2020). This helps researchers and practitioners jointly to reframe problems to the benefit of a wider range of stakeholders (Dimov, 2020). In doing so, we contribute to calls to provide more evidence for cognitive factors influencing the design of new business models (Demil et al., 2015; Foss & Saebi, 2017). We also contribute to problem-driven research by including researchers within the process of sustainable business model transformation (Hyytinen, 2021; Ringvold et al., 2022).

The remainder of this article is structured as follows. Firstly, we present theoretical perspectives about sustainable business models and draw on design thinking insights to propose a problem formulation approach to generate co-creation between researchers and practitioners. Then, we provide a model that represents this cognitive process of co-creation. The final section of this article contains propositions and discusses future research opportunities and challenges for future SBM research.

THEORETICAL PERSPECTIVES

Sustainable Business Models (SBMs)

Recent remerging empirical and theoretical perspectives on SBMs indicate that the area is promising and emerging in their field of studies (e.g. Bocken et al., 2019; Geissdoerfer et al., 2018; Ringvold et al., 2022; Rosato et al., 2021). Among the many definitions proposed for SBMs (e.g. Bocken et al., 2014; Breuer & Lüdeke-Freund, 2014; Schaltegger et al., 2016), we rely on Geissdoerfer et al., 2016 as their definition represents a design context for sustainable business models. In particular, Geissdoerfer et al. (2016, p.2) define a sustainable business model as a "simplified representation of the elements, the interrelationship between these elements, and the interactions with its stakeholders that an organizational unit uses to create, deliver, capture, and exchange sustainable value." One premise for SBMs stems from the idea that business contributions are fundamental to achieving sustainability objectives, such as the Sustainable Development Goals (SDGs) from the UN 2030 Agenda (Pizzi et al., 2020). A great deal of work has already been done on regulations and social or customer pressures for businesses to change (e.g. Bocken et al., 2019). However, a realistic transition to a more sustainable economy entails most businesses and industries reconsidering and redesigning their business models in a way that allows for economic value to be created while respecting, preserving, and renewing resources (Montiel et al., 2020). The SDGs constitute the predominant global framework to guide these sustainable development policies. They include ambitious targets such as eradicating poverty in all its forms, ensuring good health and well-being for everyone at all stages of life, and promoting sustainable consumption and production patterns (United Nations, 2023).

Research on the execution of SDGs points to a necessity to include the direct involvement of a wider range of stakeholders to conduct evidence-based studies (Rosato et

al., 2021). However, although “an increasing number of business and management scholars have started to consider the SDGs in their research”, these goals have “typically been analyzed from a policymaking perspective rather than a scholarly one” (ibid, p. 11). Although many researchers aspire to influence practical applications, only a few believe they have succeeded (Rynes et al., 2018; Sharma & Bansal, 2020). This implies a research-practice gap between those who address and solve sustainable problems and those who analyze these practices as part of their research (e.g. Simsek et al., 2018).

Sustainable business models can help address long-standing sustainability issues while potentially increasing profits (Bocken et al., 2014; Hall, 2019). Specifically, SBMs can create new and innovative opportunities, leading to direct revenue and indirect benefits such as improved reputation, attractiveness, and community spirit (Homburg et al., 2013). At the same time, sustainable value through SBMs requires collaboration and can be strengthened if the whole network of stakeholders is included (Bocken et al., 2014; Ringvold et al., 2022; Schaltegger et al., 2016). Thus, stakeholder interaction is necessary for sustainable business model innovation (Roome & Louche, 2016). As the individual level (Strauss et al., 2017) is our focus, we are interested in how different individuals (stakeholders) with different cognitive structures interact on sustainable business model problems and solutions.

The inclusion of a broader range of stakeholders improves understanding of the collective interests (Saebi et al., 2019). It enhances the development of value-creating tools (Bocken et al., 2014) to create, deliver, and exchange sustainable value as a team over time (Doz & Kosonen, 2010; Geissdoerfer et al., 2016). It may also lead to the co-creation of research and knowledge or reveal epistemic differences when stakeholders provide different perspectives on the defined problem (e.g. Alvesson & Sandberg, 2020; Shams & Kaufman, 2016; Sharma & Bansal, 2020). Understanding these underlying cognitive processes matter as they may positively impact the quality of idea-generation processes (Frederiks et al., 2019).

However, including a broader range of stakeholders may simultaneously create novel challenges. When stakeholders have different expectations, developing a common pathway becomes more complicated (Scheyvens et al., 2016). This may happen when stakeholders do not see a clear direction in the future (Aldrich & Fiol, 1994) or question the plausibility that problems are addressed correctly (Suchman, 1995). Thus, it is evident that collaborations should be aligned, with stakeholders committed and motivated to common goals that represent shared values (Bastian & Zucchella, 2023; Lindenberg & Foss, 2011). This also involves a mutual understanding of roles and potential perceptual differences between stakeholders and what they know (Huber & Lewis, 2010).

Sustainable problem-solution design

Sustainable business challenges are commonly driven by a problem formulation and a potential solution (Dorst, 2011). A rich literature on different problem typologies and structures in decision situations exists (e.g. well-structured, ill-structured, complex, wicked, paradigmatic, see Bammer, 2019; Brønn, & Brønn, 2019; Foss & Saebi, 2018; Ho, 2001; Lyles & Thomas, 1988; Pham et al., 2023). Commonly, 'real-life' sustainable problems are (at least) ill-defined representations since they symbolize self-created, indefinite frames of the problem in an uncertain environment (Dorst, 2011; Mumford et al., 1994), but need to be pragmatic as well (Foss & Saebi, 2018), hence, fit more properly with our argumentation.

Formulating sustainable problems and solutions involves understanding the needs and motivations of those impacted to create value for a broad range of stakeholders (Schaltegger et al., 2016). Nevertheless, business model designs received critique for not adequately addressing what *drives* entrepreneurs (Komisar & Lineback, 2001). For business model design, practitioners ideally look beyond the organization to create sustainable values for all stakeholders. Recognizing the value of stakeholders in the business model implies considering

the shared perceptions that jointly lead to value-creation processes (Alvarez et al., 2020). This is because business models represent cognitive schemas (Bohnsack et al., 2014; Denoo et al., 2018; Martins et al., 2015), and cognitive change has a direct impact on business model change (Aspara et al., 2013; Chesbrough, 2010; Roessler et al., 2022) and innovation (Snihur & Zott, 2019). Nevertheless, research on the development of business models as cognitive structures (Doz & Kosonen, 2010; Shepherd et al., 2023) for sustainable business models and their challenges to understand multiple stakeholder interests and their cognitions are less well understood (Ringvold et al., 2022; Saebi et al., 2019). Indeed, business models in the management literature have often been interpreted as attributes of real firms, as functional conceptual representations, and as a schema/representation of interrelationship for model change (see Massa et al., 2017; Shepherd et al., 2023). A lack of attention on the cognitive side of sustainable business models prevents researchers from understanding how different stakeholders co-construct cognitive structures to achieve so-called business model coherence. Business model coherence refers to how shared cognitive structures between stakeholders organize co-created understanding and knowledge to capture value (Shepherd et al., 2023). At the same time, sustainable business models may represent high complexity as environmental, social, and financial problems, and solutions need to be cognitively aligned (Hahn et al., 2015; Ringvold et al., 2022; Weissbrod & Bocken, 2017). Problems, too, are subjective mental models based on whether "a search should be backward-looking or forward-looking" by stakeholders (Björkdahl et al., 2022, p.234; Simon, 1959). This approach implies problem-decomposing – breaking a problem into smaller, manageable pieces (i.e., sub-problems) – a strategy typically used in design thinking settings (Ho, 2001; Lu, 2015).

The design thinking approach for sustainable business models, particularly research on how design thinking may enhance sustainable business modeling, is emerging (e.g. Balsassarre et al., 2020; He & Ortiz, 2021; Santa-Maria et al., 2022). Foundational research

on design thinking has expressed different theoretical perspectives, such as creating artifacts (Simon, 1969), reflexivity (Schön, 1983), problem-solution (Buchanan, 1992), sensemaking (Cross, 2011), and creating meaning (Krippendorff, 2006). Looking at problem-solution, design thinking represents a set of cognitive processes and seeks to understand stakeholders, challenge assumptions, redefine problems, and create innovative solutions to complex problems (Buchanan, 1992; Dorst, 2011). Design(erly) thinking helps to formulate a shared understanding of the created value propositions between different stakeholders (Tyl et al., 2015) through the detection of potential conflicts, the inclusion of multiple perspectives, understanding of a shared value, and the development of positive consequences for the stakeholders, aspects all relevant for sustainable business model design (Geissdoerfer et al., 2016). Thus, it stimulates an understanding of the needs and motivations of the people and the community who will be impacted by the problem and designing effective and user-friendly solutions to gain a deeper understanding of the needs of all stakeholders (Brown, 2009). Behavioral design thinking may be instrumental here, as it represents human-centered, diversity-embracing practices to visualize, experiment, and (re)frame problems and solutions (Dell'Era et al., 2020; Klenner et al., 2022). This approach encourages sustainable problem-solution designers to collaborate with various stakeholders to integrate different cognitive perspectives (Dunne & Martin, 2006).

Academics and problem-based research

Lately, new perspectives on identifying which essential stakeholders to involve in a comprehensive problem-solving process point to the significant role of researchers (e.g. Bastian & Zucchella, 2023; Sharma et al., 2020), as researchers and practitioners may jointly co-create and align propositions (Shams & Kaufman, 2016) to enhance the collective generation of knowledge (Rynes et al., 2001). For example, building on engaged scholarship (Van de Ven, 2007), “researchers and practitioners can investigate complex social problems

by collaborating across the basic stages of the research process, including formulating problems, building theory, designing research, and solving problems" (Bansal et al., 2012, p. 74; Lages et al., 2020). In this way, the so-called research-practice gap decreases because the problems and solutions that practitioners frame and how researchers interpret and refine this process are better aligned jointly (Berglund et al., 2018). This is of additional relevance as just a small fraction of business and management scholars currently feel they effectively impact real-world applications (Rosato et al., 2021; Rynes et al., 2018; Sharma & Bansal, 2020), but little consideration has been given to how researchers may contribute to addressing and solving sustainable problems and solutions (Berglund, 2021; Bianchi & Verganti, 2021; Hyytinen, 2021).

For sustainable business models and the problem-oriented approach (Buchanan, 1992), design thinking may offer a way to address problems represented and shared by all stakeholders, including researchers (Romme & Reymen, 2018). We point out that researchers studying SBMs have a key role as stakeholders in conducting problem-driven research and co-creating problems and solutions (Chen et al., 2022; Sharma et al., 2022). Design practice can help researchers studying SBMs to approach sustainable problems with a human-centered focus to gain a deeper understanding of the needs of their stakeholders to co-create problems and solutions that are more effective and relevant, both for theory and practice (Baldassarre et al., 2020; Berglund et al., 2018; He & Ortiz, 2021). In doing so, researchers and practitioners can jointly, deliberately, and intuitively shape design problems and solutions (Johansson-Sköldberg et al., 2013). Additionally, by adopting an iterative approach to solution development, researchers can test and refine their ideas, ensuring they are adequate and relevant for addressing sustainable problems. Practitioners and researchers can leverage interactions to generate more applicable knowledge to facilitate research for practice (Bansal et al., 2012; Rynes et al., 2001) and uncover variations in problem and contextual perceptions

(Savage et al., 2010; Sharma & Bansal, 2020). This process involves identifying and re-evaluating assumptions about the problem (Alvesson & Sandberg, 2020) which may lead to the development of aligned solutions between all stakeholders (Sharma et al., 2022). In this way, researchers complement practitioners with their knowledge to decompose and reframe problems (Ho, 2011; Sharma & Bansal, 2020), while practitioners assist researchers in contextualizing problems to bridge the research-practice gap (Bansal et al., 2012).

MODEL DEVELOPMENT

Insert Figure 1 about here*

The proposed model (Figure 1) portrays a dynamic cognitive representation of SBM stakeholder co-creation between practitioners and academics. The horizontal axis represents the degree of stakeholder engagement, from informing stakeholders to eventual co-creation. In contrast, the vertical axis constitutes how a more expansive space of influence contributes to co-created understanding, knowledge, and research to create and capture value between academics and practitioners. The model's starting point represents an awareness and a temporary definition of a sustainable problem. In this stage, direct stakeholders that may be relevant to solve the sustainability problem are informed and are consequently included to work on developing the problem and the desired solution. Researchers as stakeholders progressively move from passive consultants to become involved participants. At this point, the development between the problem and the solution moves back and forth as a sequence in a problem space with researchers included. As we have argued in this article, we propose that including researchers specifically as stakeholders in the value-creation logic too is necessary to create sustainable value (Schaltegger et al., 2016; Stubbs & Cocklin, 2008). This sets our first baseline proposition:

> **Proposition 1**: *Including researchers within a wider range of stakeholders in the value-creation logic is necessary to understand the sustainable value creation process.*

When researchers as stakeholders participate in the problem-solution development, a process between problem framing and reframing emerges (Dell'Era et al., 2020; Foucault, 1985). While framing, "the ability to shape the meaning of a subject, to judge its character and significance" (Fairhurst & Sarr, 1996, p. 6), illustrates managing why one specific meaning is chosen over another, reframing helps to generate different perspectives about the problem to come to an improved mutual understanding of the problem. Framing and reframing problems assist in generating alternative "what-if" scenarios (Dorst, 2011). By reframing the sustainable problem between SBM practitioners and researchers, problems and solutions are redefined and improved, with the problem space increasingly dividing the initial problem into sub-problems (Berglund et al., 2018). This problem space, which is co-created, illustrates researchers as collaborators.

In our model, academics are included as crucial collaborators in this process. When sustainable business model owners include academics as contributing stakeholders in their design, they help decompose the problem into sub-problems in a problem space to improve precision about the problem-solution fit (Ho., 2001). Researchers can help here since they are generally more used to a scientific, systematic way of solving problems, from hypothesis framing (problem) to the desired testable solution to provide evidence-based insights (Camuffo et al., 2020). Specifically, researchers may assist the 'analysis-synthesis-evaluation' approach, a commonly discussed design method in design thinking literature (Ho, 2001). 'Analysis' involves breaking down the problem into smaller sub-problems, 'synthesis' entails reassembling the sub-problems in different configurations, and 'evaluation' focuses on testing the performance of the newly created structures (Jones, 1992). This may, for example, advance the problem-solution process to overcome narrow-minded assumptions that influence entrepreneurial reasoning in business model designs because of the generation of new understandings and interpretations of those understandings (Roessler et al., 2022). New

perspectives from researchers help separate noise and bias from the intended solution to find *cognitive incorporation* between academics and practitioners. We define cognitive incorporation as collective knowledge structures about sustainable business models between researchers and practitioners that find engagement in understanding the needs and experiences of those who are influenced by the problem. This process supports practitioners and academics to co-create meaningful, sustainable solutions and leads to the following proposition:

> **Proposition 2**: *Co-created problems and solutions between researchers and practitioners generate problem decomposition with new cognitive structures about the problem and solution.*

By enlarging the influence space between stakeholders, academics can identify the problem-solution evolution in new ways by combining practical and academic knowledge (Dorst, 2011; Sharma & Bansal, 2020). Expanding this space increases the mutual understanding of relationships to transition to co-creation, as illustrated by Mark Goyder, founder of the Tomorrow's Company: "You don't solve the problems of complex organizations by focusing on their ownership. The real task is first to understand and second to improve the relationships between organizations and those who influence their successful operation" (Scholes & Clutterbuck, 1998, p. 230). In this way, expansion generates new cognitive structures that help researchers and practitioners jointly to reframe problems and increase their commitment to collaboration.

The proposed model also contributes to mutual commitment and alignment of the problem and the designed sustainable solution to maintain coherence about the business model (Shepherd et al., 2023). Specifically, the framework explains how a sustainable problem reaches a mutually agreed solution through *academic inclusion* in the problem-solution development of reframing of the problem. Academic inclusion represents the necessity to engage with academics in a problem-solution process. Specifically, researchers

who study sustainable business models have a key role in this process and should be included as fundamental stakeholders (Sharma et al., 2022). This is beneficial in at least two ways. Firstly, academics may complement what practitioners already know about the problem, fill up knowledge gaps, point to new perspectives, and reveal epistemic differences (Savage et al., 2010; Sharma & Bansal, 2020), which are beneficial for providing sustainable solutions. On the other hand, practitioners may assist academics in spanning the so-called research-practice gap by interrogating their experience, contextualizing the sustainable problem, and co-creation solutions that are applicable in reality (Bansal et al., 2012). In so doing, our model (Figure 1) extends the role of stakeholders by including academics (Bastian & Zucchella, 2023; Sharma et al., 2020; Sharma & Bansal, 2020) and contributes with its novel application to the sustainable business model literature. It also leads to our following proposition:

> **Proposition 3**: *The inclusion of researchers in sustainable business model design improves co-created problem definition and problem solution to narrow the gap between research and practice.*

One of the challenges of stakeholder collaboration is to get the relevant actors on board (Mitchell et al., 2021) and preserve longstanding alliances. For example, Bastian and Zucchella (2023) found that academics during start-up competitions were mainly engaged with practitioners during their data collection process (e.g. observations, making field notes, conducting interviews) but lowered commitment as soon as the competition ended. Stakeholders may lower commitment when they miss incentives to co-create problem-solving activities (Lages et al., 2020), severely affecting collaborations (Foss et al., 2022). Thus, SBM practitioners and researchers need to find alignment between shared values about common goals (Lindenberg & Foss, 2011) to create a mutual understanding of their short and long-term objectives (Huber & Lewis, 2010). For researchers and practitioners, this implies that co-creation must go side by side with shared goals that all parties trust (Weber & Meyer, 2011). Of additional importance here is that the problem-solution cycle, as illustrated by the model

(Figure 1), is monitored between re-evaluation and co-evolution. This process should evaluate if the mutual goals of the problem-solution are aligned and identify potential collaboration frictions so that these can be solved.

> **Proposition 4**: *The process of co-created problems and solutions between researchers and practitioners needs analysis, synthesis, and evaluation of the collaboration goals.*

Finally, when the co-created solution is ready for market testing and implementation, it is crucial for academics to stay involved with practitioners. Too often, collaborators return to their business-as-usual approach when projects end, and pledges to 'keep in touch' do not abide. This, naturally, brings additional complexity because time and resource investments may be needed.

FUTURE RESEARCH DIRECTIONS, PRACTICAL IMPLICATIONS AND CONCLUDING WORDS

This exploratory article discussed how sustainable business model design may incorporate researchers to create and capture value. Several future research directions and implications for practitioners, managers and policy makers can be derived by our work. A limitation of our way of doing so is the conceptual nature of this paper. Future research could empirically test how practitioners and researchers benefit from sustainable business model co-creation. For example, workshops aimed at SBM co-creation could serve as experimentation stages to compare and test which factors of Figure 1 increase the quality of sustainable solutions for society (e.g. Bastian, 2022; Camuffo et al., 2020). Next, organizations should integrate academic expertise into their business model innovation endeavors, as it potentially leads to more robust and sustainable strategies. To empirically test and refine these models, businesses are encouraged to participate in collaborative projects with researchers. Such partnerships not only spur innovation but also ground academic theories in practical

scenarios, enhancing their relevance to real-world business challenges. These settings may additionally serve as opportunities for qualitative researchers to observe, engage, co-create, and contextualize research on SBM.

Drawing on the design thinking literature, we pointed to including academics as key stakeholders to co-create shared entrepreneurial problems. This process, however, is not without challenges. Design thinking is not a 'magic bullet'; it requires a significant investment of time, resources, and workspaces and may become more complex when various stakeholders participate (Geissdoerfer et al., 2016). Thus, researchers and practitioners using the proposed model (Figure 1) should use design thinking hand in hand with other research methods and approaches and in synthesis with their academic and practitioner community (De Figueiredo, 2021). Additionally, to effectively employ design thinking, organizations should adopt strategic approaches that harmonize research methodologies and collaborative practices, in order to ensure a more effective navigation through stakeholder-rich environments. As noted before, different problems require different solutions, and problems may differ in structure, framing, and typology among fields (Massa et al., 2017). Future SBM research needs to be clear about what problems it seeks to solve, with whom, and how this helps bridge the gap between research and practice, or no clear strategic insights might be provided (Foss & Saebi, 2018). SBM researchers may additionally focus on external factors such as economic conditions, natural disasters, and changes in consumer preferences. These factors, which represent different degrees of uncertainty, may generate interesting insights into how sustainable business models may respond, adapt and/or refine through experimentation (Sanasi, 2023; Zellweger & Zenger, 2022). Lastly, we see potential fruitful SBM research insights coming from the role of experimentation and cognitions (Frederiks et al., 2019) to understand which sub-problems entrepreneurs and researchers identify for a positive impact on the problem-solution co-evolution. Particularly interesting here may be investigating the

recent emergence of metacognition as it may be enhanced by design to increase understanding beliefs about entrepreneurial situations and other individuals as well to promote new venture creation activities (Christensen et al., 2023; Dimov & Pistrui, 2023; Shepherd et al., 2023). By understanding and utilizing metacognitive strategies, businesses can gain deeper insights into entrepreneurial scenarios and stakeholder dynamics Metacognitive insights in SBM research may also shine new light on the role of feedback during stakeholder interactions, as this may be essential to identify possible cognitive biases that may have emerged during critical phases of the venture design process (Bastian & Zucchella, 2022).

We conclude with a call for researchers to take on a proactive role in their research about sustainable business models; and for entrepreneurs, managers and policy-makers to seek collaborations with researchers. Although this article, with its conceptual nature, may appear paradoxical to point to a need to engage with practice, we believe that the future is exciting for researchers actively collaborating with practitioners to identify and solve relevant problems.

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Appendix

Figure 1: A cognitive representation of SBM stakeholder co-creation