RESEARCH ARTICLE

When do threats mobilize managers for organizational change toward sustainability? An environmental belief model

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Abstract

In pursuit of counteracting today's environmental problems, corporate management will have to implement organizational changes factoring in sustainability, which is why it is important to understand exactly what leads managers to initiate these changes. It has been established that managers' personal values are critical for their behavior and that threats to these values can mobilize managers to change their actions. However, when confronted with environment-related threats, managers may face value conflicts and various tensions between their aim to implement sustainable changes and their desire to fulfill business requirements of their job positions. Only recently have researchers begun to investigate the underlying beliefs that may lead managers to initiate organizational change toward sustainability. Borrowing theoretical assumptions from the domain of health psychology (from the well-established health belief model), the present conceptual article develops an environmental belief model that specifies when exactly threats lead managers to initiate organizational change. The environmental belief model proposes that environment-related threats trigger change (i) when managers believe that their firms are susceptible to these threats, (ii) the threats are considered as serious for the company, (iii) the perceived benefits of the change outperform (iv) the perceived barriers, and when there is (v) an external cue (e.g., an information campaign). All these propositions are supported with empirical findings from business contexts. Besides theoretical advancement on the role of environmental threats as precipitators of organizational change, the model provides guidance on how to frame environment-related threats that will mobilize managers for organizational change toward sustainability.

KEYWORDS
change management, environmental belief model, environmental cognition, managerial beliefs, organizational change, threat

I want you to act as if our house is on fire. Because it is.Greta Thunberg, Speech at the World Economic Forum, Davos, 2019

1 | INTRODUCTION

To fight today's grand environmental threats such as climate change, loss of biodiversity, and pollution (Callaghan et al., 2020; Intergovernmental Panel on Climate Change, IPCC, 2013, 2018; Malm, 2016; National Aeronautics and Space Administration, NASA, 2020; Patenaude, 2010; Whiteman et al., 2013), many companies will have to change toward more environmentally sustainable practices long before corresponding regulations are in place (Howard-Grenville et al., 2019; Schönherr, & Martinuzzi, 2019; Wright & Nyberg, 2015). Such voluntary organizational change toward sustainability is a strategic issue (Hengst et al., 2020) that requires top managers' initiative and commitment (Colwell & Joshi, 2013; González-Benito & González-Benito, 2008; Wijethilake & Lama, 2019). It is widely accepted in the organizational change literature that the perception of a threat can fuel initiative and foster commitment to change (Kotter, 2008; Lewin, 1947, 1948). Similarly, the role of threat is well known in research on environmental action. That is, individuals will act when their values are threatened and when they believe that their actions can help protect those values (most prominently, Stern et al., 1999; Stern, 2000). It can thus be tempting to conclude that confronting managers with environmental threats (that matter for them) will lead them to initiate organizational change toward sustainability.

However, the relationship between managers' perception of environmental threats and the initiation of organizational change is more complex. First, only in a limited set of situations do threats to the environment coincide with threats to the business, with decisions therein leading to win–win solutions accordingly. In many other cases, mitigating environmental threats goes hand in hand with increased costs and short-term business risks and uncertainty (Slawinski et al., 2017). Second, although current research highlights threats to managers' personal values as a major driver behind behavioral change (Collins et al., 2010; Hemingway & Maclagan, 2004; Papagiannakis & Lioukas, 2012; Schaefer et al., 2020; Todaro et al., 2020; Williams & Schaefer, 2013), various tensions can arise when managers attempt to implement sustainable practices—even if the changes toward sustainability are seen as legitimate in the company (Hengst et al., 2020). Hence, managers confronted with environmental threats often face conflicts between fulfilling their job roles and reducing environmental harm. Moreover, a recent literature review (Arieli et al., 2020) concluded that managers tend to score above average on *self-enhancement* values (i.e., power and achievement) and below average on *self-transcendence* values (i.e., care for all other people and nature) compared with other professions. Given these value profiles and the aforementioned challenges of implementing change toward sustainability in a business context, the question remains as to when environmental threats do actually mobilize managers in pursuit of organizational change.

To answer this question, the paper develops an environmental belief model that takes an environmental cognition perspective (Henry & Dietz, 2012) and details the circumstances under which environmental threats lead managers to initiate organizational change toward sustainability. The environmental belief model borrows from the health belief model (Abraham & Sheeran, 2015; Janz & Becker, 1984; Rosenstock, 1974) that answers a similar question—how risks of diseases lead to changes in health-related behavior—in a different domain, namely, that of health psychology. Following the principles of horizontal theory borrowing (Whetten et al., 2009), empirical research from the organizational context is used to develop the model's premises for the organizational context.

As its main contribution, the environmental belief model specifies managers' *beliefs* that give rise to organizational change toward sustainability in the face of environmental threats. In short, it suggests that environment-related threats trigger change when managers believe that (i) their companies are susceptible to these threats; (ii) the threats are considered as serious for the company; (iii) the perceived benefits of the change outperform (iv) the perceived barriers; and (v) if there is an external cue that points to the need for change. This specification is in line with Stern et al.'s (1999) general theorizing on the role of beliefs in behavioral change but expands on earlier work by outlining the *concrete* beliefs that are necessary for bringing about *organizational* change toward sustainability.

The article is organized as follows. In Section 2, the stage is set by a brief review of the extant literature on threats as a means of mobilizing managers to initiate change. In Section 3, the main body of the article, the environmental belief model is developed that outlines what environmental beliefs may trigger managers to initiate organizational change. Finally, in Section 4, the model's main theoretical and practical implications are discussed.

2 | THREATS AS A MEANS OF MOBILIZING FOR ORGANIZATIONAL CHANGE

Organizational change is defined as managers' deliberate actions aimed at moving an organization from its present state to a desired (e.g., more environmentally sustainable) future state (Stouten et al., 2018). This section gives a brief overview of the role of threats as a means of mobilizing for change and introduces the related cognitive concepts of *values* and *beliefs*. Moreover, it outlines several tensions that managers face when considering implementation of sustainable practices in business organizations.

2.1 | Threats: Beliefs that valued objects are in danger

Broad agreement can be observed in the literature that threats play a crucial role in behavioral change. Established theories of both social (Lewin, 1947, 1948) and organizational change (Kotter, 2008), as well as empirical findings from social movements in many different

contexts (Berry, 2015, Cho et al., 2006; Maher, 2010; van Dyke & Soule, 2002), highlight the mobilizing potential of threats. However, although most of the prominent change management models (for a review, see Stouten et al., 2018) include a "diagnosis of the business problem" (Beer, 1980, 2009), an "awareness" (Hiatt, 2006) or "discovery" (Cooperrider & Srivasta, 1987) of a problematic situation, or the creation of a "sense of urgency" (Kotter, 2008), the change management literature fails to provide details on the nature of threats that have the potential to mobilize for organizational change.

In contrast, the organizational sustainability literature highlights the role of managers' personal *values* on changes in practices (Collins et al., 2010; Hemingway & Maclagan, 2004; Papagiannakis & Lioukas, 2012; Schaefer et al., 2020; Wijethilake & Lama, 2019; Williams & Schaefer, 2013). Personal values are defined as "broad, trans-situational, desirable goals that serve as guiding principles in people's lives" (Arieli et al., 2020, p. 232; Sagiv et al., 2017; Schwartz, 1994, 2012; Schwartz & Bilsky, 1987, 1990). Threats nevertheless likewise play a crucial role in this value-based approach. Individuals are assumed to take action to protect the environment when they "believe that valued objects are threatened, and believe that their actions can help restore those values" (Stern et al., 1999, p. 81; see also Stern, 2000). From this perspective, threats can be conceptualized as beliefs that a "valued object" is in danger.

Beliefs are "enduring, unquestioned ontological representations of the world [that] comprise primary convictions about events, causes, agency, and objects that subjects use and accept as veridical" (Connors & Halligan, 2015, p. 2, emphasis as original). In more simple terms, a belief is "the attitude we have [.] whenever we take something to be the case or regard it as true" (Schwitzgebel, 2019) or the "conviction of the truth of some statement or the reality of some being or phenomenon" (Merriam Webster, 2020), such as a climate-related risk. Beliefs are crucial prerequisites to action (Ajzen, 1991; Jiao et al., 2020).

2.2 | What values need to be threatened to precipitate change?

As outlined above, both sustainability research (Stern et al., 1999) and change management research (Kotter, 2008) highlight the potential of threats to mobilize for action. However, the extant perspectives differ regarding the underlying "valued objects" (business vs. environment). The following subsections summarize the state of the art on such "competing threats" and resulting tensions for managerial action.

2.2.1 | Tensions of threats to business versus environment

Companies vary regarding the degree of congruence between environmental and business values, depending on whether they adhere to an *integrative* or an *instrumental* logic (Gao & Bansal, 2013): those with an integrative logic see economic, social, and environmental issues as interconnected, such that all issues have to be pursued simultaneously to achieve true business success. In contrast, those with an instrumental logic pursue social and environmental goals only if they contribute to their economic goals.

Furthermore, in companies with an instrumental logic, fighting environmental threats sometimes coincides with fighting business risks. For example, adhering to strict voluntary compliance regulations may prevent both environmental harm and future costs due to changing regulations. In fact, risk prevention is one of the main reasons for engagement in corporate social responsibility (CSR) activities (Carroll & Shabana, 2010). However, in many other cases, organizational changes to reduce environmental harm do not bear immediate business benefits. On the contrary, sustainability initiatives can be costly in the short term and yield uncertain long-term outcomes (Slawinski et al., 2017; Todaro et al., 2020). When implementing changes toward sustainability, various tensions can arise, for example, between concrete organizational goals (compliance to sustainability vs. profit) and product features (sustainability vs. functionality; Hengst et al., 2020). If environmental values are at odds with business interests, managers can face value conflicts (Hengst et al., 2020; Williams et al., 2017). They may perceive competing risks and tend to favor short-term (business) goals over long-term (environmental) goals (Slawinski et al., 2017).

2.2.2 | Managers' personal values and managerial action in organizations

Studies on the role of values in environmental decision making in corporate settings have mainly focused on managers' personal values (e.g., Collins et al., 2010; Jansson et al., 2017; Papagiannakis & Lioukas, 2012). Applying Schwartz's (1994, 2012; Sagiv et al., 2017) typology of values, Arieli et al. (2020) concluded from a literature review that managers tend to score higher on self-enhancement values (power and achievement) and lower on self-transcendence values (universalism and benevolence) than other professions. Typically, the self-enhancement values are related to business interests and the self-transcendence values to environmental issues. Whereas Schwartz's typology considered these two value sets as contradictory, recent evidence draws a more nuanced picture of managers' personal values in the context of sustainability in small- and medium-sized enterprises (SMEs) (Schaefer et al., 2020), indicating that managers can have a strong desire for both self-enhancement *and* self-transcendence.

However, many managers simply cannot act as they please but have their hands tied by the necessity of fulfilling business goals (Arieli et al., 2020; Hemingway & Maclagan, 2004). After all, companies have their own particular *collective* values, defined as collective goals that its members are encouraged to pursue and that justify their actions in pursuit of these goals (Sagiv et al., 2017). Only recently have scholars begun to systematically research the relationship between (threats to) individual and collective values in the context of sustainability. For example, Joseph et al. (2019) studied whether

managers' views of sustainability have to be congruent with the company's overall sustainability logic—instrumental versus integrative—in order to lead to sustainability outcomes (Gao & Bansal, 2013). Their findings revealed that "instrumental" managers can produce equally sustainable outcomes as managers with an integrative viewpoint.

However, regarding environmental issues, managers often experience structural decoupling between their personal values and beliefs and legitimate actions in their job roles (for a review, see Hengst et al., 2020). The "greening" of an organization's culture can be a complex and difficult process (Harris & Crane, 2002), and even if sustainability is considered a legitimate goal, managers are beholden to application of numerous strategies (e.g., compromising on product features, reinterpreting product criteria, and valorizing moral decisions) for working through the various tensions that arise (Hengst et al., 2020).

Although threats to managers' values may be crucial for initiating organizational changes toward sustainability, little research exists on *which* threats actually mobilize them, given the array of obstacles they are likely to face. As one exception, Schaefer et al.'s (2020) qualitative study based on in-depth interviews with 26 SME managers came to interesting conclusions. Sustainability messages that exclusively highlight environmental protection tend only to appeal to a minority of SME managers who draw primarily on *universalism* (i.e., care for all other people and the environment); in contrast, SME managers drawing on *power* values (e.g., wealth and competitiveness) "are [...] unlikely to be strongly motivated by the 'saving the planet' element" but may rather respond to messages that emphasize the risks to security emanating from environmental problems (Schaefer et al., 2020, p. 668). Furthermore, in their view, SME managers striving for *achievement* (i.e., realizing personal ambitions) may be mobilized through benevolence values such as protection of others (friends, family, community, etc.) but have the need to be seen as efficient and competent managers.

These findings on the role of threats for change toward sustainability are important starting points. Nevertheless, there is no coherent model that we can currently point to that specifies what cognitive beliefs may lead managers—beyond those who draw primarily on universalism—to initiate organizational change toward sustainability when confronted with environment-related threats. This paper aims to develop such a model.

3 | AN ENVIRONMENTAL BELIEF MODEL

The development of the environmental belief model follows Whetten et al.'s (2009) principles of theory borrowing and transfers assumptions of the health belief model (Rosenstock, 1974) that addresses individual health-related threats in the overarching context of a manager confronted with environment-related threats. The subsequent sections give an overview of the health belief model, which is then translated piecemeal into propositions of the environmental belief model. At the end of the section, modifying factors are

discussed that can have an impact on managers' beliefs regarding environmental threats.

3.1 | Basic assumptions of the health belief model

The health belief model was developed during the early 1950s by a group of social psychologists (Codfrey M. Hochbaum, S. Stephen Kegeles, Howard Leuenthal, and Irwin M. Rosenstock; Rosenstock, 1974) to model factors that motivate or inhibit health behavior when confronted with asymptomatic illnesses, illnesses that have not yet set in, or that motivate or inhibit preventive measures such as vaccination, health-related diets, or medical check-ups. Since its introduction, it has been developed further, undergone extensive empirical testing (Abraham & Sheeran, 2015; Champion & Skinner, 2008; Janz & Becker, 1984), and is one of the most widely used models to explain reactions to health-related risks (Armitage & Conner, 2000; Nisbet & Gick, 2008).

The health belief model views risk-prevention behavior as a function of one's *beliefs* of the situation and one's possibility to change it for the better (Champion & Skinner, 2008). In short, the health belief model posits that people are more likely to engage in health behavior, (i) the more susceptible they feel to the threat, (ii) the more severe they think the consequences will be, (iii) the higher the perceived benefits of the preventive behavior are, and (iv) the lower the barriers are. Moreover, the model suggests that at some point, an (v) internal or external cue serves to spawn the preventive health-related behavior (Rosenstock, 1974). This is in line with but refines upon Stern et al.'s (1999) view of the role of individuals' beliefs in the context of sustainability. "Borrowing" from that model thus seems like a viable choice.

In fact, earlier research has transferred assumptions from the health belief model to individual environmental behavior, such as the adoption of a plant-based diet (Urbanovich & Bevan, 2020), water saving (Morowatisharifabad et al., 2012), or well water testing (Straub & Leahy, 2014). All these examples refer to individuals' actions in their *private lives*. The environmental belief model addresses managers' beliefs about climate-related risks in their *professional roles*.

3.2 | Components of the environmental belief model

The environmental belief model is rooted in environmental cognition (Henry & Dietz, 2012) and outlines the circumstances under which managers' beliefs will likely trigger them to initiate *organizational* change toward more sustainable practices (Figure 1).

Transferring a model from the domain of health psychology to the domain of organizational change is an instance of *horizontal theory borrowing* (Whetten et al., 2009), which is common in organizational research and feasible when specifics of the organizational context are taken into account. To that extent, in the subsequent sections, each aspect of the model from individual health-related behavior will be
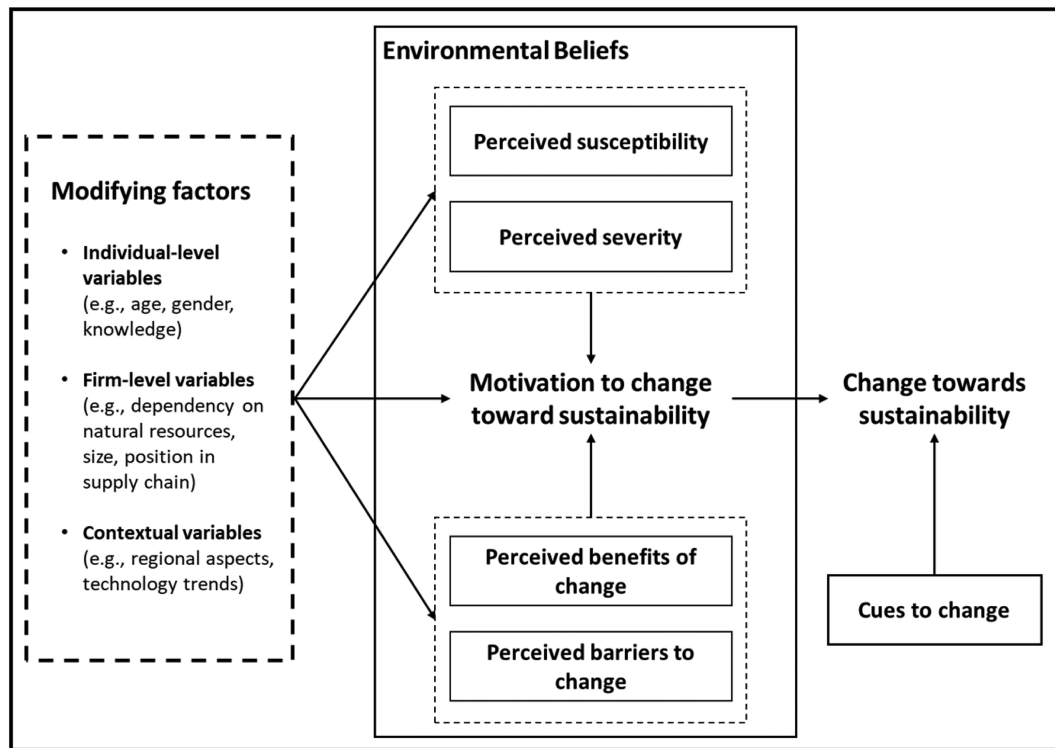
FIGURE 1 Components of an environmental belief model for understanding reasons for organizational change toward environmental sustainability

made explicit and translated into propositions for the organizational context. Each premise will then be discussed against the backdrop of empirical findings.

Although the main part of the economy may not yet be confronted with immediate environmental problems, certain industry sectors such as agriculture (Arbuckle et al., 2014; Canevari-Luzardo et al., 2020; Haden et al., 2012; Li et al., 2017; Mase et al., 2017; Takahashi et al., 2016) or tourism (Hoffmann et al., 2009; Rivera & Clement, 2019) are more vulnerable to environmental threats even as we stand today. Many of the empirical studies employed to back the model's propositions thus stem from these fields.

3.2.1 | Perceived susceptibility

Borrowing from the health belief model (Rosenstock, 1974), the first factor of the environmental belief model is *perceived susceptibility*. In the health context, perceived susceptibility refers to "beliefs about the likelihood of getting a disease or condition" (Champion & Skinner, 2008, p. 47). Translated to the business context, this factor concerns managers' beliefs about the likelihood of a firm being harmed by climate-related risks. Perceived susceptibility may range from low (i.e., denial of any possibility that the threat can affect the firm) to high (i.e., perception of a high likelihood that the threat will affect the firm). In analogy with the health belief model, the environmental belief model assumes the following.

Proposition 1. The higher the extent to which managers believe that their firm is susceptible to a climate-related threat, the more prone will they be to initiate organizational change toward sustainability.

In line with Proposition 1, awareness of and perceived climate change-based vulnerability were shown to influence whether firms undergo organizational change (Pinkse & Gasbarro, 2019). It is therefore important how managers interpret the information that is available to them. For instance, an empirical study from ski tourism (Hoffmann et al., 2009) showed that *objective vulnerability* through climate change (operationalized as a decrease in the amount of natural snow) did not predict organizational change—and instead, only *awareness of possible climate-related effects* served as a predictor of the scope of corporate adaptation. In cognitive terms, information related to climate change must be in managers' focus of attention (Pinkse & Gasbarro, 2019). As long as managers do not believe that their businesses are susceptible to environmental issues, they will not perceive an urgent need to shift gears toward sustainability. That is, sustainability will remain a low priority unless climate-related issues threaten an organization's core activities (Howard-Grenville et al., 2003).

Empirical research suggests that perceived susceptibility increases when threats become more concrete. For example, even if farmers may not believe in the abstract concept of (human-induced) climate change, they still perceive—and feel susceptible to—changes of the weather (Takahashi et al., 2016). Similarly, findings from the UK

housing sector suggest that climate change may be seen as an abstract threat, "an issue on the horizon rather than something that required action at present" (Hertin et al., 2003, p. 282), with no *general* susceptibility perceived. Nevertheless, housebuilders in the study reported concerns about concrete environmental threats. For example, strategic land managers in the south of England were worried about increased flooding, whereas technical directors in London perceived changing demands for heating and cooling (Hertin et al., 2003). Although respondents from their study had not taken action to prevent climate change, they had taken measures to adapt to the concrete aspects that they were aware of and that were immediately relevant to their business tasks.

3.2.2 | Perceived severity

The second factor of the environmental belief model is *perceived severity* (also referred to as *seriousness*). In the health belief model, perceived severity is defined as "feelings about the seriousness of contracting an illness or of leaving it untreated" (Champion & Skinner, 2008, p. 47), which includes both medical and clinical consequences (e.g., death and pain) as well as possible social consequences (e.g., effects on work, family life, and social relations). In psychological terms, this perceived severity constitutes the degree of emotional arousal created by the thought of the risk (Rosenstock, 1974). Translated to the context of environmental sustainability, it is the perceived severity of the threat to the firm or the kinds of difficulties or disadvantages the manager believes that the given situation will create for them. Managers' convictions concerning the severity of environmental issues may range from low (i.e., no concern that the threat may do any harm to the firm) to high (i.e., perception of high degrees of real danger and should the firm be affected by the threat). Extrapolating from the health belief model, the environmental belief model assumes the following.

Proposition 2. The higher the perceived severity of a climate-related threat for the company, the more prone managers will be to initiate change toward sustainability.

Empirical findings back Proposition 2. For example, the mere belief in climate change does not predict organizational change, but high levels of perceived threats through climate change do, however, make a difference. For example, studies from agriculture showed that US farmers who believed in severe threats posed by anthropogenic climate change were more likely to support farm-level adaptive action and farmers' level of concern about on-site farm risks predicted the extent of adaptation initiatives (Arbuckle et al., 2014; Mase et al., 2017; Takahashi et al., 2016). Similarly, recent findings from a quantitative study based on 492 survey responses by managers from the manufacturing industry revealed that perceived exposure to climate risks is positively related to climate action (Todaro et al., 2020). These findings support the relationship between severity and change initiatives as proposed by the environmental belief model.

Regarding the perception of severity, proximity to or harm from previous climate-related phenomena such as water shortages or extreme temperatures is an important factor that can increase adaptation behavior (Arbuckle et al., 2014; Haden et al., 2012; Li et al., 2017; Takahashi et al., 2016; Zanocco et al., 2018). When people have personally observed or experienced environment-related threats firsthand, this motivates them to take self-protective measures, including the adaptation of their businesses accordingly.

3.2.3 | Perceived benefits

The third factor of the health belief model is *perceived benefits*, when actions are taken (Rosenstock, 1974), that is, beliefs in the "efficacy of the advised action to reduce risk or seriousness of impact" (Champion & Skinner, 2008, p. 48). Transferring this factor to the context of environmental threats, perceived benefits are beliefs regarding the relative effectiveness of the change in reducing these threats to the company. They may range from low (i.e., the change is not considered effective) to high (i.e., the change is considered highly effective for reducing the threat). Borrowing from the health belief model, the environmental belief model suggests the following.

Proposition 3. The higher the perceived benefits of sustainable practices to reduce the threat, the more prone will managers be to initiate change toward sustainability.

Gaining benefits can mean that, by implementing certain measures, future adversity may be avoided or reduced. Measures to reduce environmental harm, for example, can reduce costs (e.g., greater energy efficiency, reduced costs for materials and chemicals, and reduced waste disposal) and increase product quality. This applies more to manufacturing companies, however, than to service companies (Simpson et al., 2004).

The threat that companies may seek to avoid, moreover, does not necessarily have to be the environmental problem itself. Niles et al. (2013) found, for instance, that Californian farmers perceived higher risk from *government regulations to address climate change* than from climate change itself. Reducing the risk of being negatively affected by future regulations thus served as the main reason behind the choice to participate in climate-related governmental programs. In a similar vein, changes toward more sustainable practices may reduce the risk of losing reputation or customers, as environmental sensitivity increases and the market demands change (Carroll & Shabana, 2010; Collins et al., 2010; Hertin et al., 2003; Jansson et al., 2017; Simpson et al., 2004). In some industries, stronger environmental regulations would not just increase their costs but close down entire markets (Simpson et al., 2004). Hence, innovative business models, such as generating value from waste or renting instead of owning (Bocken et al., 2014) as well as product and service innovation (Adams et al., 2016; Hallstedt et al., 2013) are clear potential benefits of organizational change for these companies. Indeed, these types of benefits lie at the core of the "business-case perspective" of CSR (Carroll & Shabana, 2010).

In addition, perceived benefits of changes toward sustainability may vary with the intensity of adversity that is already experienced. Findings based on objective metrics (i.e., temperature) from the ski tourism industry (Rivera & Clement, 2019) suggest that changes that involve protective measures occur most frequently when the intensity of environmental adversity is at a medium level, whereas high and low levels of adversity seem not to lead to changes at all. The authors surmised that at low levels of adversity intensity, "organizational inertial forces constrain organizations' willingness to adapt." The flip side likewise applies, wherein, "at severe levels, growing natural forces eventually impose limits beyond which protective adaptation becomes unviable" (Rivera & Clement, 2019, p. 1298).

3.2.4 | Perceived barriers

The fourth factor of the environmental belief model is perceived barriers to change. In the health belief model, these are the beliefs "about the tangible and psychological cost of the advised action" (Champion & Skinner, 2008, p. 48). Extrapolating to the organizational context, we see that perceived barriers occur when managers believe that certain changes could be effective in reducing the threat of climate change but would, however, be expensive (e.g., producing at higher costs), inconvenient (e.g., changing supply chains), or unpopular (e.g., introducing recycling systems for customers). Following the health belief model, the environmental belief model proposes the following.

Proposition 4. The higher the perceived barriers of sustainable practices, the less prone managers will be to initiate organizational change toward sustainability.

The most obvious barriers to change toward sustainability on the part of companies are immediate financial aspects, including increasing costs (e.g., investment in environmentally preferable technology or more sustainable practices) and losses in terms of financial incentives due to falling energy prices (Williams & Schaefer, 2013). A detailed analysis of barriers to the implementation of sustainability in wine companies breaks down the economic downsides further into additional labor, increased bureaucracy, time consumption, extra costs and capital investments, and additional marketing and consulting costs (De Steur et al., 2020). This barrier is related to the perception of whether costs can be passed on to customers (Canevari-Luzardo et al., 2020; Simpson et al., 2004) and of whether there is a demand for (more expensive) sustainable products (Sajjad et al., 2020).

A second, related barrier is the perceived risk of the change. White and Selfa (2013) found, for example, that farmers were more likely to undergo change toward sustainable practices when they observed the positive effects at other farms. They were not willing to be the first ones to take the risk. In a similar study, the economic risk related to a new practice and the unpredictability of changing business models and supply chains were found to be considered as the main barriers to change for farmers (Takahashi et al., 2016). Thereby, also *inconsistent* governmental policies, for example, regarding incentives for sustainability or fines, such policies can likewise be barriers to change (Williams & Schaefer, 2013).

The third potential barrier to changes toward sustainability is insufficient resources, such as human resources, sources of environmentally friendly materials, requisite knowledge and equipment, and supportive collaborations with other industry players (Jiao et al., 2020). Similarly, Collins et al. (2010) highlighted insufficient knowledge and information as one of the major barriers, and Papagiannakis & Lioukas, 2012 found that managers' perceived ability to deal with environmental issues predicted their environmental responsiveness. In this context, case findings from the introduction of organic products in the Swiss food industry suggest that existing organizational structures pose constraints on efforts at change (Maier & Finger, 2001) and many companies are subject to path dependencies (Jones et al., 2019; von Sydow et al., 2009). As an eye-catching example, farmers who grow certain types of fruits cannot easily switch to new varieties, because the trees take some time to grow and produce yield (Takahashi et al., 2016).

A fourth barrier to change is cultural attitudes. When the changes required conflict with the predominant organizational culture, these changes are less likely to be adopted (Howard-Grenville et al., 2003) and the transition is made more difficult (Harris & Crane, 2002; Hengst et al., 2020). Similarly, changes in practices may be challenging because they can lead to intraorganizational conflicts of "who we are" as an organization (Kump, 2019). For example, farmers were found to be reluctant to change if the suggested measures were at odds with their knowledge and attitudes, that is, with how they thought that farming should be conducted (White & Selfa, 2013). In this context, also strong interest groups can serve to inhibit change in pursuit of sustainability (Stuart et al., 2012).

3.2.5 | Cues to change

So far, the four core beliefs of the environmental belief model have been presented that form the basis for readiness to embrace change toward sustainability: the combination of high perceived susceptibility and the severity of climate issues provides the motivation for change; high perceived benefits together with sufficiently low barriers provide a preferred path of action. Nevertheless, in the context of health-related behavior, Rosenstock (1974, p. 332) observed that "the combination of these could reach quite considerable levels of intensity without resulting in overt action unless some instigating event occurred to set the process in motion." In other words, behavioral change usually needs a *cue*. In that vein, the environmental belief model also comprises a cue for change.

Proposition 5. The existence of a cue will increase the likelihood of managers to initiate organizational change toward sustainability.

Cues can be internal or external. Internal cues are the ones that come from within an organization, for example, due to observations of changing conditions, or personal experiences of managers or organization members. They are closely related to the *perceived severity* of climate-related issues. For example, personal harm from a specific event, such as a drought or wildfire, can drastically change organization members' views about climate change (Zanocco et al., 2018). Hence, personal experiences with specific climate issues may serve as an internal cue to take preventive action (Arbuckle et al., 2014; Haden et al., 2012; Li et al., 2017; Takahashi et al., 2016).

External cues are provided from outside the organization, for example, through media campaigns, demonstrations by NGOs (e.g., "Fridays for Future"), or other kinds of external information—analogous to "a postcard from the dentist" that reminds us to make an appointment for a medical check-up (Rosenstock, 1974, p. 332). External cues have higher chances of triggering action when they target concrete issues on the ground, instead of global and abstract "climate change." For instance, farmers are more concerned about the (specific) weather conditions than the (rather abstract) climate (e.g., White & Selfa, 2013), and housebuilders are more interested in required changes in cooling technology than in changes in the climate (Hertin et al., 2003). Nevertheless, concrete evidence of the impacts of climate-related phenomena can raise managers' awareness and thus serve as a critical first step toward change (Arnell & Delaney, 2006; Mase et al., 2017).

Importantly, the sources of external cues need to be credible and trustworthy. One of the reasons why managers may refrain from change toward more sustainable practices is that they receive information from—in their view—dubious sources. For example, Takahashi et al. (2016, p. 954) quoted farmers who were suspicious of climate-related information from the government: "[i]t's so political, the whole topic is so political … it's very hard to trust the information you're getting … it seems like a really good tool to manipulate people with."

3.3 | Modifying factors

Like the health belief model, the environmental model considers "modifying factors" that may influence managers' beliefs about climate-related threats; these can be *individual-level*, *firm-level*, and *contextual variables*.

3.3.1 | Individual-level variables

One of these individual-level variables that may affect managers' beliefs in the threats as specified in the environmental belief model is *age*. Although it was found that managers' *concern* for environmental issues increases with age (Ololade & Rametse, 2018), when it comes to concrete *action*, a study from the agricultural context (Mase et al.'s, 2017) revealed a lower likelihood on the part of older farmers to implement climate adaptation measures. However, the variable of age must be interpreted with caution, because it may be confounded with *zeitgeist* (e.g., 1970s vs. 2020s).

Regarding the role of gender, although there may be no gender differences in personal *values* (Bhattacharyya & Rahman, 2020), females were found to perceive climate change as a greater *risk* than males (van der Linden, 2015). In the context of farming, female farmers were twice as likely as male farmers to add crop insurance (Mase et al., 2017). This finding hints at a gender effect of risk tolerance in female farmers. Albeit not testing for gender effects, Todaro et al. (2020) found that risk tolerance moderates the relationship of perceived risks and climate-related organizational changes.

Importantly, managers' level of knowledge about environmental issues matters. In this sense, awareness of climate change is positively related to perceived susceptibility and severity (Todaro et al., 2020; van der Linden, 2015). Meanwhile, a lack of knowledge about climate-related issues can increase perceived barriers to climate action (Jiao et al., 2020), whereas a profusion of knowledge may open up new business opportunities (Jansson et al., 2017). In the context of farming, Mase et al. (2017) observed that increased levels of education lead to increased likelihood of climate adaptation strategies.

3.3.2 | Firm-level variables

Probably the most important firm-level factor is the company's dependency on natural resources; the higher this dependency, the higher the risk is perceived. Along the same lines, managers in the fishing industry or in tourism were found to perceive higher vulnerability from climate-related threats than managers from other firms (Saleh Safi et al., 2012). In this context, managers' perceived benefits of a change will depend on the (perceived or real) availability of alternative business opportunities or markets (Canevari-Luzardo et al., 2020; Simpson et al., 2004).

Another important factor that may modify managers' perceptions of threats is their companies' position in the supply chain, as well as their dependency on other actors (Canevari-Luzardo et al., 2020). Pressure by primary stakeholders (i.e., those with whom they have direct economic transactions) can increase managers' perceptions of potential risks and benefits of changes toward sustainability (Jiao et al., 2020; Sajjad et al., 2020). In contrast, pressure by other stakeholders (e.g., NGOs and community) plays a subordinate role or may even decrease managers' perceptions of threats (Wijethilake & Lama, 2019).

Moreover, firm size may have an important impact on the perception of risk. For instance, farmers managing larger farms in Hungary were found to believe more deeply in climate change than farmers of smaller farms, and those who had purchased farmland recently perceived higher vulnerability than others (Li et al., 2017). At the same time, changes toward sustainability come with certain costs that SMEs often cannot afford and require resources (e.g., knowledge, machines) that SMEs often do not have available (Simpson et al., 2004). Despite

general awareness of environmental issues, SME managers can find it difficult to translate them into business problems (Williams & Schaefer, 2013).

3.3.3 | Contextual variables

Regarding *contextual variables*, the geographic region (World Economic Forum [WEF], 2019) and level of industrial development of that region (Cummings, 2008) as well as cultural conditions (Oreg & Katz-Gerro, 2006) may shape managers' beliefs about environmental threats. In that context, the overall economic and political situation was found to have an impact. When the economy is weak, managers tend to focus on their core business and reduce (peripheral) sustainable practices (Panwar et al., 2015).

Within a country or region, structural aspects such as the generally competitive structure in farming (Stuart et al., 2012), or (lacking) subsidies for sustainable practices (White & Selfa, 2013) or loan programs (Stuart et al., 2012) may affect perceived risks of change toward sustainability. Moreover, the general availability of high-quality infrastructure and technologies may have an effect on whether managers perceive environmental threats (Saleh Safi et al., 2012). Vice versa, new technological developments and changes in social and cultural values in a whole industry can mobilize managers for change. Examples include the trend toward sustainable agricultural practices (White & Selfa, 2013) or toward "heritage" in the wine industry (De Steur et al., 2020), changes in nutrition behavior in the packaged food industry (Shnayder et al., 2016), or collective action in the building sector (Jones et al., 2019). Such industry shifts change the competitive structure and reinforce the benefits of sustainable practices. However, when the industry is fragmented, such as the case with the wine industry, these effects of competitive pressures on businesses can be complex (Tyler et al., 2020). In general, when customers begin to demand more sustainable products and services, changes toward sustainability may reduce business risks and open up new opportunities in a range of industries (Jansson et al., 2017).

4 | DISCUSSION AND IMPLICATIONS

This article began with the question of under what circumstances environment-related threats mobilize managers behind organizational change in pursuit of sustainability. Applying an environmental cognition lens, and borrowing theory from health psychology, the article outlined a model that places top managers' *beliefs* about environment-related threats center stage. The environmental belief model features theoretical and practical implications.

4.1 | Theoretical implications

Even if environmental threats pose severe risks to mankind (e.g., IPCC, 2013, 2018; WEF, 2020), organizational change toward

sustainability remains a strategic business decision (Hengst et al., 2020), where managers have to balance environmental interests with business concerns. In their professional roles, they are usually expected to put business interests first, which can, however, lead to tensions between their personal values and legitimate managerial actions (Hengst et al., 2020; Williams et al., 2017). These tensions are crucial, because managers, more than individuals in other professions, strive for *self-enhancement*, that is, for power and achievement in their job roles (Arieli et al., 2020) and only the few are mobilized by *purely* environmental arguments (Schaefer et al., 2020). Based on these observations and in contrast to earlier research, the environmental belief model did not focus on *threats to the environment* but on *environment-related threats to the business*.

Specifically, the environmental belief model proposes that environment-related threats will be effective in mobilizing for organizational change toward sustainability when managers believe that (i) their firms are susceptible to these threats, (ii) the threats are serious for their firms, (iii) the measures to counteract climate-related threats are beneficial, and (iv) barriers to undertaking these measures are low. As demonstrated throughout the paper, all these propositions are supported by substantial empirical evidence from organizational contexts, especially from domains that are particularly vulnerable to climate change, such as agriculture (Arbuckle et al., 2014; Canevari-Luzardo et al., 2020; Haden et al., 2012; Li et al., 2017; Mase et al., 2017; Takahashi et al., 2016) or tourism (Hoffmann et al., 2009; Rivera & Clement, 2019). This is interpreted as an indicator that the model's premises are valid.

The more general conclusion of this paper is that *environmental threats will mobilize the majority of managers for organizational change only if they believe that these threats also affect their businesses, and that their actions will reduce harm to their business, or increase (or sustain) corporate success*. Hence, environment-related threats may hold higher potential to mobilize managers behind sustainable change when they are translated to the business world, for example, as "risk management" or "crisis management" issues (Winn et al., 2011). In this respect, environment-related threats to the company may be direct (e.g., effects of changes of the weather) or indirect (e.g., damage to the company's reputation and higher cost through changes in regulations). Currently, business interests and environmental issues are often contradictory. Managers who implement changes toward sustainability have to work through an array of conflicting interests within organizations (Hengst et al., 2020). Against the background of growing awareness about environmental threats in the general public (Capstick et al., 2015; Poushter & Huang, 2019), noncompliance with sustainable practices may become an increasing business risk. Hence, threats to the environment and to the business may increasingly overlap in the future, as a result.

As one important boundary condition of the environmental belief model, to initiate organizational change toward sustainability, managers have to see at least one feasible course of action (for similar arguments, see Rosenstock, 1974). If they do not see alternative business opportunities (Simpson et al., 2004), or if they perceive the threats as too severe (Rivera & Clement, 2019), managers may not implement sustainability initiatives. In certain contexts such as

farming, the possibility to apply climate mitigation practices (e.g., buying fuel-efficient farm equipment, reducing electricity usage, and installing solar panels) or adaptation practices (e.g., shifting to less water-intensive crops and using drought-tolerant varieties) depends on farmers' actual physical environment, which cannot be changed (Haden et al., 2012). A strong feeling of susceptibility to what is regarded as a most serious threat in combination with a real conviction that there are no efficacious measures of prevention or control may lead to psychological defense mechanisms, such as "turning a blind eye" (Rosenstock, 1974). This may partly explain findings from multiple studies revealing that many farmers—despite objective changes, for example, in planting seasons—do not believe in climate change (e.g., Niles et al., 2013; Takahashi et al., 2016; White & Selfa, 2013) or in the harming effects of their fertilization practices (Stuart et al., 2012).

As a limitation of this work, the premises of the environmental belief model were proposed and discussed in isolation. It is, however, assumed that only a combination of environmental beliefs will lead to change. Perceived severity may, for example, only lead to change if the perceived barriers to counteracting it are low. Otherwise, managers would not initiate change according to the model. Previous empirical research has studied some of the interrelations between these factors. For their part, Pinkse and Gasbarro (2019), for example, investigated how awareness about and perceived vulnerability to climate change predicted organizational change initiatives in the oil industry. Meanwhile, Takahashi et al. (2016) considered the relationship of susceptibility and severity as factors of change toward sustainability. Then, there was White and Selfa (2013) who questioned farmers about the perceived severity, benefits of, and barriers to climate-related change initiatives. Future empirical research may be dedicated to studying the whole model, especially the interaction of factors prompting change toward sustainability.

4.2 | Practical implications

At one point in her Davos speech, teenage climate activist, Greta Thunberg (2020), said she had been warned about telling people to panic; however, she quipped "don't worry, it's fine. I've done this [i.e.,tried to spread panic] before and I can assure you it doesn't lead to anything." Even if Thunberg may have evoked feelings of panic in managers, these may not necessarily have translated into *threats to their businesses*.

The propositions of the environmental belief model may provide guidance on how to frame arguments. For example, activists may highlight the likely effects of climate change on sensitive aspects of companies. They may start to raise awareness about the *severity* of the threat *to businesses* by outlining likely business-related drawbacks of environmental issues, for instance, on their supply chains, natural resources, or energy costs. At the same time, they may increase the perception of managers that the *company is susceptible* to the threat. Perceived susceptibility may concern both the direct environment-related threats and the indirect threats through likely governmental

regulations to mitigate or counteract these threats (Niles et al., 2013). Susceptibility increases when threats are concrete and specific to the company and when they are closely related to business goals (e.g., Hertin et al., 2003).

Furthermore, information campaigns may highlight the *benefits of the change* toward sustainability for the company by taking a business-case perspective (Carroll & Shabana, 2010) and by focusing on the potential for innovation (Adams et al., 2016; Bocken et al., 2014; Hallstedt et al., 2013). In this context, Howard-Grenville et al. (2003) developed a set of "cultural frames" (e.g., operational efficiency frame, and market demand frame) to translate environmental issues into business issues. This perspective could make it easier to "sell" environmental issues to managers and other decision-makers (Alt & Craig, 2016).

As another practical implication, by predicting managers' likelihood to act on environment-related threats, the environmental belief model devises areas of action for policymakers to set effective measures for change. In particular, respective legislative policies (Bryant et al., 2020) and tax regulations (Lyon & Maxwell, 2003) can have a direct impact on *perceived benefits* and *barriers* of change toward sustainability (e.g., White & Selfa, 2013; Williams & Schaefer, 2013) accordingly. All these measures should address managers of not only large firms but also those of SMEs. First, SMEs represent the predominant firm type in most regions (OECD, 2017); they cumulatively account for approximately two thirds of global production and one third of pollution (Wiesner et al., 2018). Second, SMEs can create innovative solutions to sustainability problems (Markman et al., 2016), thereby acting as "sustainability champions" that take the lead in reducing harmful environmental impact (Wiesner et al., 2018). Third, while it is widely accepted that large firms can act as catalysts of widespread systemic change (DiMaggio, 1988; Hardy & Maguire, 2008; for the context of sustainability, see Andrade & Puppim de Oliveira, 2015), the transformative power of SMES is often underestimated. When they engage in collective action, however, SMEs can initiate cascades of change in a whole industry (Jones et al., 2019; Sarasvathy & Ramesh, 2019).

In conclusion, given that environmental issues are considered today's greatest threats to mankind, better understanding of the levers that gear firms toward more environmentally friendly practices is vital. The environmental belief model improves the current understanding of why managers may or may not initiate organizational change toward sustainability when confronted with environment-related threats—and what to do about it.

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