

# Change agents under tensions: a paradox approach to strategies for transforming higher education toward sustainability

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## Abstract

**Purpose** – Guided by paradox theory, the study aims to significantly advance Sustainability in Higher Education Institutions (SHEI) scholarship and inform change agents' (CAs) practices by uncovering the tensions underlying the challenges CAs face in embedding sustainability in their universities and learning about potential strategies to manage these tensions.

**Design/methodology/approach** – The authors conducted a multi-step, mix-methods study including interviews ( $n = 15$ ), an online survey ( $n = 36$ ) and focus groups ( $n = 29$ ) with CAs from 17 of Austria's 22 public universities. Participating CAs consisted of faculty, staff and administrators with leading roles in their Higher Education Institutions' sustainability change processes.

**Findings** – Austrian SHEI CAs' responses revealed 15 tensions at and between the individual, organizational and system level addressing academic, organizational and external stakeholder engagement



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aspects. Six tensions were selected for more in-depth exploration including elaboration of management strategies, building on CAs' experiences. Results revealed examples of acceptance, separation and synthesis strategies.

**Research limitations/implications** – Based on the exploratory nature of our study, the authors do not claim to have identified a comprehensive list of tensions underlying the challenges faced by SHEI CAs, nor of all potential management strategies.

**Practical implications** – Although this study focused exclusively on Austrian SHEI CAs, the challenges they shared were consistent with those in the literature and, thus, insights should also support the CAs' efforts in other countries.

**Originality/value** – This study offers novel perspectives on how to manage the challenges to SHEI. To the best of the authors' knowledge, it is the first to describe paradox theory-informed management strategies recommended by a heterogeneous group of SHEI CAs to address the barriers they face in transforming their universities toward sustainability.

**Keywords** Sustainability in higher education institutions, Tensions, Tension management, Change agents, Sustainable universities, Whole-institution approach, Challenges, Barriers, Paradox theory, Strategies

**Paper type** Research paper

## 1. Introduction

A growing number of higher education institutions are working to adopt a whole-institution approach to sustainable development, one which calls on strengthening Sustainability in Higher Education Institutions (SHEI) [1] holistically, i.e. taking into account social, environmental and economic aspects of sustainability in operations, research, teaching, societal engagement and organizational culture (Kohl *et al.*, 2021; UNESCO, 2021).

Extensive scholarship has been conducted on the barriers to change agents' (CAs) ability to advance associated SHEI goals. Most studies report on a range of barriers (Hoover and Harder, 2015; Lozano, 2006; Blanco-Portela *et al.*, 2017; Leal Filho *et al.*, 2017; Akins *et al.*, 2019) and some also categorize and synthesize them (Verhulst and Lambrechts, 2015; Blanco-Portela *et al.*, 2017). Recognizing that hidden contradictions or tensions (Bien and Sassen, 2020; Lattu and Cai, 2020; Ruiz-Mallén and Heras, 2020) are typically at the “root” of these barriers or challenges to change (Hoover and Harder, 2015, p. 185), some SHEI scholars have begun to dig deeper, to explore what underlies the barriers or challenges to SHEI (Hoover and Harder, 2015; Deleye *et al.*, 2019; Lattu and Cai, 2020; Lozano, 2006). Paradox theory is one of the approaches that is informing this novel SHEI scholarship.

Paradox theory has informed the study of organizations for over 30 years (Schad *et al.*, 2016), suggesting that elucidating and acknowledging tensions can result in new and more effective change strategies than focusing on barriers or challenges alone (Smith and Lewis, 2011). Focusing on paradoxical tensions, for example, has been found to be effective in advancing corporate sustainability (Hengst *et al.*, 2020; Hahn *et al.*, 2018; Van der Byl and Slawinski, 2015). So far, however, only a few, select scholars have applied insights from paradox theory to advance sustainability in Higher Education Institutions (HEIs) (Lattu and Cai, 2020; Kemp and Scoffham, 2022; Hoover and Harder, 2015).

Much of the literature on paradox theory is theoretical, observational and analytical. Few studies are available on how CAs might manage tension in their day-to-day practices. One exception is an action research study conducted by Lüscher and Lewis (2008). These authors examined a collaborative process of working through paradoxical tensions at the Danish Lego Company. Starting from a perceived “mess” (i.e. “an intricate, fluid, and fuzzy issue” [p. 227]), challenges were named and, thus, made tangible. Next, the paradoxes underlying these challenges were collectively discussed. Finally, middle managers were enabled to develop

“workable certainties” (i.e. a meaningful and actionable understanding of complex situations, p. 235) to enable them to act on the identified tensions.

Building on the nascent body of SHEI research informed by paradox theory (Lewis and Smith, 2014), we set out to identify the tensions that underlie the barriers and challenges CAs face in their daily endeavors and provide recommendations for strategies CAs can adopt to manage these tensions. As such, we sought to answer the following research questions:

- RQ1.* What competing tensions underlie the challenges Austrian SHEI change agents (CAs) face?
- RQ2.* What strategies are these CAs already using or believe they could use to manage these tensions to embed sustainability in their HEIs?

To answer these research questions, we collected data through a multi-step, mixed methods approach from SHEI CAs who work for universities that are members of the Alliance of Sustainable Universities in Austria. SHEI has a long history in Austria, with the network operating since 2012.

We believe our study is the first to engage SHEI CAs in identifying the tensions they face and the strategies they can use to accept or engage with and navigate these tensions. Because managing paradoxical tensions is pivotal to SHEI processes (Hoover and Harder, 2015), we believe such insights are key to addressing the challenges SHEI CAs face and, thus, to a whole-institution approach. It is important to note that we recognize that SHEI CAs, like the ones who participated in this study, differ in status pending their role in the organizational hierarchy as well as in their levels of power and, thus, resources. As a result, so do their options to implement various management strategies (Xiao *et al.*, 2019; Battilana, 2016). Although an analysis of the influence of these differences falls outside the scope of the exploratory work reported on in this article, many of the management strategies that will be identified can be applied by SHEI CAs regardless of their roles, power and resources.

## 2. Theoretical background

Paradoxes are contradictory elements (i.e. “poles”) that are interrelated, exist simultaneously and persist over time (Smith and Lewis, 2011, p. 382). As such they inevitably result in “tensions” (Smith and Lewis, 2011). In organizations, paradoxical tensions are ubiquitous. They arise, for example, between stability and change, cooperation and competition or profit and purpose (Smith, 2014; Smith and Lewis, 2011; Karhu and Ritala, 2020; Schad *et al.*, 2016) and are often latent (i.e. “dormant unperceived, or ignored”) (Smith and Lewis, 2011, p. 390). Plurality, change, scarcity or cognitive effort are among the ways tensions can be made salient (Smith and Lewis, 2011).

As a result of greater complexities and competitiveness, tensions will continue to increase (Smith, 2014). If CAs do not address these tensions and/or only focus on one vs both poles, they might find themselves in a vicious circle (Smith and Lewis, 2011), i.e. “reinforcing cycles that perpetuate and exacerbate the tension” (Lewis, 2000, p. 763). Radical and fast changes, for example, that erase any stability are likely to result in chaos. Alternatively, acknowledging tensions creates opportunities for three types of “virtuous” management strategies (Figure 1):

- (1) *Acceptance* refers to acknowledging paradoxes and learning to live with them (Lewis, 2000). Acceptance strategies actively address poles in parallel (Poole and Van de Ven, 1989) or focus on finding ways to “work through” tensions (Schad *et al.*, 2016). Acceptance demands individual cognitive and behavioral competencies like equanimity, calm and evenness. Moreover, organizations need to be open to creativity and participation and support organizational learning (Smith and Lewis, 2011).

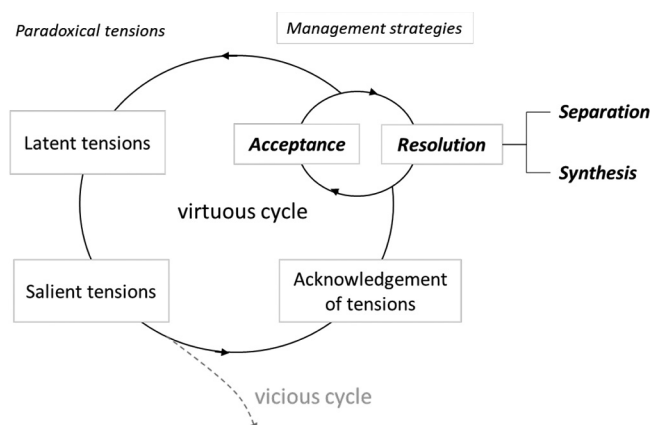
- (2) *Separation* suggests engaging with opposing poles through different social or physical locations (i.e. spatial separation) or each one at different times (i.e. temporal separation) (Hahn *et al.*, 2015). By keeping the two poles separate, interferences and inertia are avoided as well as conflicts minimized (Schad *et al.*, 2016). At the organizational level, separating poles into different operational units can be helpful. In the context of sustainability (Hahn *et al.*, 2015, p. 305), for example, separation strategies are “permanent or temporal pockets within or outside the organisation where organisational members can pursue their personal sustainability agendas”.
- (3) *Synthesis* seeks “new perspectives or elements that link or accommodate the opposing poles of a paradox” (Hahn *et al.*, 2015, p. 301). Such strategies are intended to result in novel solutions by simultaneously taking both poles into account (Schad *et al.*, 2016). To make sense of two opposing poles, individuals have to shift their focus away from the two poles and find an overarching, mediating logic that provides a new perspective (Hahn *et al.*, 2015).

Such virtuous management strategies lead to a state of a “dynamic equilibrium”, which allows for long-term success by constantly moving across tensions (Smith and Lewis, 2011).

As mentioned earlier, paradox theory has informed organizational scholarship since the late 1980s but has only more recently been applied to SHEI. For example, Hoover and Harder (2015) conducted a meta-ethnographical study of 13 qualitative SHEI studies to identify tension and contradictions inherent to SHEI including competition vs collaborative work, support for individual vs collective action, top-down leadership vs grassroots engagement, protection of territories vs boundary spanning, rational/pragmatic cultures vs holistic worldviews, rigid vs dynamic roles, rigid vs human-centered structures and new ideas as dangerous vs welcome.

Lattu and Cai (2020) focused on identifying tensions within the context of social and economic sustainability aspects in Finnish HEIs. By building on Hahn *et al.*'s (2015) framework for corporate settings and based on interviews with university leaders and officials, they identified six tensions:

- (1) academic leadership vs management legitimacy;
- (2) regional political tensions vs university profiling;



Source: Authors' own creation/work

Figure 1. Tension management based on Smith and Lewis' (2011) dynamic equilibrium model and Hahn *et al.*'s (2015) classification of managerial responses

- (3) political power over the university system;
- (4) changing academic work and profession;
- (5) academic autonomy vs state influence; and
- (6) the future role of the university institution.

Although they did not collect data on strategies, they suggested a set of illustrative coping strategies as a means for managing these tensions.

Kemp and Scoffham (2022) drew on the existing literature and their own experiences to identify two main tensions in SHEI, i.e. the tension between challenging or aligning with current HEI structures to bring forward radical change and the tension between the slow pace of change through education vs fast responses such as activism. These two tensions were used to build a paradox model that allows for understanding and analyzing current SHEI.

### 3. Sample, material and methods

This study collected data from CAs working for 17 of the current 19 public universities part of the Alliance of Sustainable Universities in Austria (Alliance). This informal network was created in 2012 to advance the country's SHEI through exchanging insights and collaboration, and as such, to contribute to a more sustainable society. The Alliance's main "expert group" consists of delegates of their respective member universities. These individuals are highly motivated to advance sustainability and are considered their universities' main sustainability CAs. Besides their roles as CAs, they serve in other roles as well (e.g. faculty, university leaders and staff in strategic positions, supporting staff) and differ in their status within university's hierarchy (Table 1).

Over the period of time of this study, the number of universities who participated in the Alliance grew, as did the sample. In 2018, 14 universities were members of the Alliance, with 13 represented by one or two CAs in the first round of interviews (Step 1, Table 1). By 2020, there were 17 university members, all represented by CAs (Steps 3 and 5, Table 1).

The study's methods were primarily qualitative because quantitative approaches tend to mask paradoxes rather than uncover them (Schad *et al.*, 2016). We adapted our iterative data collection approach from Lüscher and Lewis (2008), to move from what they refer to as a "mess" (i.e. challenges and underlying tensions are unknown) to ultimately "workable certainty" (i.e. strategies to manage uncovered tensions). Rather than refer to the term "mess", however, we refer to "challenges" because SHEI CAs can typically identify hindrances to their work.

More specifically, our study was completed through a series of data collection and analysis steps (Table 1). The guided interviews (Step 1) took place in 2018 and covered aspects of institutionalization and associated challenges (Bohunovsky *et al.*, 2020). The first qualitative content analysis of interview transcripts (Step 2) consisted of inductively coding SHEI challenges CAs identified using Atlas.ti. These challenges were used as a starting point to identify potential tensions underlying these challenges (Table 3). This interpretative step built on paradox theory literature as a research heuristic:

- guiding questions proposed by Schad *et al.* (2016, Table 2, p. 25f) informed by their meta-analysis of paradox theory scholarship; and
- a theoretical framework synthesizing tensions faced by organizations moving toward sustainability (Hahn *et al.*, 2015).

Step	Rational for each step based on Lüscher and Lewis (2008)	Objective	Method used in/of this study	Sample, material
1	Articulate mess/challenges	Institutional change and integration of sustainable development, success factors and challenges	Guided interviews	15 CAs from 13 Austrian universities (9F, 5L, 1S)
2	Formulate problem and dilemma	Mapping of challenges and identification of potential tensions	Qualitative content analysis and interpretation	15 interview transcripts from Step 1
3	Validate and select dilemma	Validation and rating of relevance of tensions for CAs and universities; selection of highly relevant tensions	Online survey	36 CAs from 17 Austrian universities (18F, 7L, 9S, 2O)
4	Formulate paradoxes	Deeper understanding of selected tensions	Elaboration of six selected tensions	Responses from Step 3 and literature
5	Validate paradoxes and discuss workable strategies	Review of tensions and discussion of tension management	Two group discussions on three selected tensions each	29 CAs from 17 Austrian universities (10F, 5L, 7S, 7O)
6	Workable certainty	Elaboration of tension management strategies	Qualitative content analysis and interpretation	Transcripts of group discussion
7	Reflection sessions	Obtaining feedback on the questioning pathway and quality of group discussion	Online feedback on group discussion	28 of 29 discussion participants (Step 5)

**Notes:** The roles of change Agents (CAs) within universities are described as F (Faculty) = scientific staff, L (University Leaders) = (vice-)rectors and staff in strategic positions, S (Staff) = individuals working in supporting roles or other nonscientific positions, O = multiple/other roles

**Source:** Authors' own creation/work

**Table 1.**  
Description of the study's objectives, methods and sample for each of the seven steps recommended by Lüscher and Lewis (2008)

**Table 2.**  
Questions guiding  
focus group  
discussions  
consistent with  
Lüscher and Lewis'  
(2008) "Collaborative  
Process of Working  
Through Paradox",  
as well as Sparrer  
and Varga von  
Kibéd's Tetralemma  
(Sparrer and Varga  
von Kibéd's, 2000)

Objective	Questions	Background
Starting reflection, problem definition	<ul style="list-style-type: none"> <li>– Would you like to correct or add anything in this presentation in advance to be able to start the discussion?</li> <li>– What questions do you have in relation to this tension, to facilitate your understanding?</li> </ul>	Linear questioning: common understanding of Poles A and B, tetralemma-position THE ONE and THE OTHER
Recognizing different perspectives	<ul style="list-style-type: none"> <li>– Could someone else view this tension, with its respective positive and negative aspects, differently?</li> </ul>	Circular questioning: Further exploration of polarities
Surfacing possible actions and their implications	<ul style="list-style-type: none"> <li>– If you want this tension to intensify at your university and the negative aspects of both poles to come to light, what could you do as a change agent to make this happen?</li> <li>– Conversely, if you want to strengthen the positive aspects of BOTH perspectives, what could you do as a change agent to achieve this goal?</li> <li>– Assuming you could simply ignore this tension, i.e. pretend that this tension does not exist, what would that mean for your work as a change agent?</li> <li>– What are some completely different possibilities of action that you can engage in as a change agent in relation to this tension?</li> </ul>	Reflexive questioning: unexpected context-change question, paradox intervention  Future-oriented reflexive question/ tetralemma-position BOTH  Tetralemma position NEITHER  Tetralemma position "NOT ALL OF THIS AND NOT EVEN THAT!"

Source: Authors' own creation/work

As a result of this step, 15 tensions were identified. The number of tensions was not predetermined but emerged empirically.

As part of an online survey (Step 3), 37 CAs were asked to review the 15 tensions, to comment on them, and then rate them in terms of how relevant (with 0 = not relevant to 5 = highly relevant) each was to them personally and their university. Three tensions from each of the two scales (i.e. a total of six) were selected for further examination. These six were selected from the 15 based on being ranked highly (4 or 5 on the Likert scale), having a narrow distribution in rankings, and to cover a range of tensions faced by SHEI CAs. Results were summarized in the form of six polarity maps (Johnson, 2014) to help participants learn about the positive results of focusing on either pole of each tension as well as the negative results of overemphasizing one tension's pole over the other (Step 4).

For the subsequent two online focus groups (Step 5), participating CAs were divided into subgroups of four to six individuals. Each group was asked to focus on one of the six tensions using the respective polarity maps. Coaching questions suggested by Lüscher and Lewis (2008) as well as by Sparrer and Varga von Kibéd (2000) were used to help participants examine and reflect on the respective tension in depth, consider alternative perspectives such as both poles, neither or other poles and to identify potential strategies to manage the tension. Table 2 gives an overview of the questions guiding focus group discussions.

The management strategies were coded next, again with Atlas.ti (Step 6). The content analyses revealed eight clusters in line with the three management strategies identified in



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the paradox literature. A final online survey asked participants whether the discussions helped them achieve the focus group goals (Step 7).

#### 4. Results

Results are presented in response to the two research questions on tensions and management strategies. A third section shares study participants' perspective on the research process.

##### *4.1 Challenges and tensions experienced by change agents in Sustainability in Higher Education Institutions processes*

The challenges identified through the content analysis range from the individual to the organization and systemic level. For example, at the individual level, interviewees responsible for SHEI often combine this task with other tasks in science, administration or management, thus sustainable development (SD) is only a complementary task. They also report increasing pressure from leaders to take on additional tasks. Especially, if their engagement is bottom-up, they report on the exhausting need to continuously motivate themselves. This results in work overload and a perceived lack of time. On the organisational level, interviewees indicated that they experience a lack of (top) management commitment and leadership. Moreover, SHEI structures are perceived as diverse and decentral and often it is unclear who to address in regard to SHEI. Interviewees report that many SHEI projects are not implemented or terminated due to a lack of organizational resources or personnel. Vertical and fragmented organizational structures were also identified as a challenge. On the systemic level, some wish for more support and a stronger SD vision from policy makers, whereas others are concerned about various stakeholders' (i.e. ministry, students, university board, etc.) expectations. Moreover, interviewees report that SD does not fit in with current research priorities that tend to reward narrow disciplinary excellence (e.g. scholarly vs societal impact).

Based on what CAs shared about the challenges they reported during the initial interviews (Steps 1 and 2), 15 potential underlying tensions emerged (Table 3). The CAs rated all of these 15 tensions as relevant to them and their institutions. Moreover, results suggested that these tensions occur at and between the individual, organizational and systemic levels of SHEI processes (Tables 3 and 4). Tensions also addressed diverse aspects such as academic topics, engagement with external stakeholders and most of all organizational issues.

Table 4 presents the six tensions that were selected for further examination and strategy discussion, including illustrative quotes.

##### *4.2 Management strategies*

The focus group discussions centered on the six tensions described in Table 4 and revealed different potential strategies to manage them (Table 5). Table 5 provides an overview of the proposed strategies (classified according to acceptance, separation or synthesis [Figure 1]), including illustrative quotes, and identifies the tensions that resulted in the respective strategies being mentioned.

Many of the strategies that were identified could be clustered as acceptance strategies. These strategies do not change a situation, but they can provide relief to CAs by helping them to accept a situation. Two strategy clusters were identified as separation strategies. These strategies can form "permanent or temporal pockets" (Hahn *et al.*, 2015) within the university, with objectives, performance indicators or structures that differ from traditional



Tension: level	Contradictory poles
<i>*Academic freedom</i> : all levels	SD is a central societal concept and must be taken up by universities vs SD as a normative concept endangers the freedom of science and teaching
<i>*Breadth vs focus in participation</i> : organizational	Bring everyone along vs focus on those who bring interest and capacity
<i>*Commitment vs mandate (I)</i> : between organizational and individual level	Promote voluntary commitment of persons to SD vs clear mandate from management for SD agendas
<i>Control vs autonomy</i> : organizational	Install or allow control bodies vs make autonomous decisions at university level
<i>*Cooperation vs competition</i> : organizational and systemic level	Cooperation vs competition within and between universities
<i>(*De)central SD structures (I)</i> : organizational level	Rely on decentralized commitment/allow decentralized initiatives vs establish central coordination offices for sustainability
<i>*Depth of change</i> : organizational	Quick wins vs systemic change; optimization – improvement – renewal
<i>*Diversity of actor(groups) within university</i> : organizational	Diverse poles: bureaucracy – flexibility; collegiality – hierarchy; (in)stable employment; intrinsic – extrinsic motivational systems
<i>*Individual roles (I)</i> : individual level	Different prioritization/roles of CAs at work and the respective value systems
<i>*Internal vs external goals</i> : organizational-systemic	Goals and interests of external partners vs sustainability goals of the university
<i>*OE's autonomy</i> : organizational	Ensure autonomy of organizational entities (OE) vs alignment based on higher-level sustainability goals
<i>*Degree of autonomy (U)</i> : between the organization and systemic level	Autonomy of university(s) vs political frameworks that promote/demand SD
<i>*Resource allocation (U)</i> : organizational level, as well as between organizational and systemic level	Use budget for core tasks vs invest in sustainability in higher education institutions (SHEI)
<i>*Scientific performance(s) (U)</i> : within and between all levels	Succeeding in relation to disciplinary academic performance evaluation system vs exploring new pathways of assessing success
<i>*Societal responsibility</i> : organizational-systemic	Diverse poles: different expectations towards universities and different understandings of university's responsibility are in conflict

**Notes:** SD = sustainable development, “Level” indicates, if the tension arises at or between the individual, organizational or systemic level; Italic letters \*mark those tensions that were further elaborated on, based on their relevance to the individual (I) or the university (U)  
**Source:** Authors’ own creation/work

**Table 3.**  
Overview of the 15 tensions and their contradictory poles identified through Step 2 and presented to CAs in Step 3

research institutes and thus provide a suitable environment for pursuing a sustainability agenda. Two further clusters were summarized under synthesis strategies.

Study participants identified strategies they have already deployed (most consisting of acceptance strategies) as well as potential strategies that they have not yet implemented. During the focus groups, participants were not asked to differentiate between strategies they have/not used, so as not to interrupt the flow of the conversation. Nevertheless, when actual examples accompanied deployed strategies, they were ultimately coded as such (e.g. see quote Q8:40 for “Establish separate organizational entities with a sustainability focus”, or Q13:25 for “Building on personal strength”). At least one quote in each cluster focuses on an example of a strategy that has been used.

Tension: level	Short description	Illustrative quote
<i>High relevance to individual</i>		
Individual role(s): Individual level	This tension reflects internal conflicts CAs experience. Apart from their roles as CAs, individuals often have other roles to fulfill (e.g. research, managerial/administrative). These roles are typically associated with divergent values and identities. Overemphasizing the CAs role can lead to burnout, whereas not pursuing this role can lead to a denial of one's own values	<i>... sometimes I have been afraid of what I have done, have I gone to too far now? (1 6:69)</i>
Commitment – mandate: between organizational and individual level	To successfully drive SHEI, CAs committed to engaging in bottom-up initiatives are needed. However, top-down support of these bottom-up initiatives is also necessary. Overemphasizing top-down approaches can lead to abdication of responsibility, whereas overemphasis of voluntary commitment might result in burning out CAs or limited continuity	<i>I'm the only one who has it (sustainability) somewhere in the job description ... no one else gets money for it. So, it is somewhere simply personal initiative. (14:29)</i>
(De)central SD-structures: organizational level	Central SHEI structures (e.g. SD institutes/faculties/centers) pool competencies, knowledge and responsibility for SD. In a decentralized network, sustainability is anchored in various parts of the university and responsibility is diffused. Over-emphasizing central structures can make it difficult for outsiders to engage. Overemphasizing decentral structures, results in a lack of clarity about who is in charge	<i>The sustainability advisory board was the result of a rethinking process: we concluded that we had to somehow get a grip on this link between science and administration, and faculties also have to be brought together in some way. (15:56)</i>
<i>High relevance for university</i>		
Degree of autonomy: between the organizational and systemic level	External regulatory requirements to foster SD can result in increased reporting obligations and can even be viewed as attacks on the freedom of science or resulting in universities' loss of power. However, if universities are granted complete autonomy, SHEI depends on the motivation of university leadership and internal CAs	<i>I would have expected much more from university regents, from the ministry, that is, from those who have some kind of control, supervisory or steering function of universities. (15:76)</i>
Resource allocation: within and between all levels	Austrian universities have a global budget that is largely needed to cover fixed costs. Allocating parts of it to SHEI means limiting expenses in other areas. Overemphasizing traditional fixed costs make SHEI projects difficult to finance and disregards the significance of SHEI. Overemphasizing SHEI investments might result in reduced funding for traditional expenses or a shift of burdens among employees	<i>Anything we do that is not directly attributed to a course or research project is not as easy to fund, e.g., a SD office, a SD officer ... (117:63)</i>
Scientific performance(s): within and between all levels	Overemphasizing SD research and outreach can lead to personal and organizational disadvantages as SD related activities are not well represented in performance evaluations. In contrast, overemphasis of disciplinary performance criteria strengthens disciplinary and compartmentalized knowledge generation and publication cultures, which tend not to address the complexity of societal problems	<i>Our SD doctoral program had problems because it did not fit into the normal scheme of an excellent doctoral college. The other doctoral colleges are as narrow and specific as possible. This one is as broad and open as possible. This is contradictory (1 3:110)</i>

**Notes:** CA = change agent, SD = sustainable development, SHEI = Sustainability in Higher Education Institutions

**Source:** Authors' own creation/work

**Table 4.** Overview and short description of the six tensions selected for further discussion along with the consequences of overemphasizing each pole with illustrative quotes (translated from German and partially shortened)

**Table 5.**  
Overview and short description of acceptance, separation and synthesis strategies recommended by the study's SHEI change agents (CAs) with illustrative quotes (translated from German and partially shortened)

Strategy cluster	Management strategies	Tension(s)	Quote
Focus on positive communication	Communicate about best practices and role models of one's own and/or other universities to inspire and empower action	Various	<i>I think it is important to create understanding for both poles within the university, one can explain: what do policy makers want, what does the university want? (Q 9:23)</i>
	Increase understanding of divergent value systems: when tensions arise due to differences between academic and government agencies' value systems (e.g. academic freedom vs public agency demands), explain these to constituents and encourage mutual understanding	Mainly: degree of autonomy	
Focus on process management	Enhance visibility of SD activities: share information about SD activities to increase activists' motivation and provide universities' leaders with best practice examples they can highlight	(De)central structures and individual role(s)	
	A adopt participatory approaches: involve individuals, ranging from "giving them a say" to co-decision-making	Mainly: commitment-mandate	<i>For many people, the primary interest is to address the topic [of SHEI], to communicate, to get involved by sharing one's perspectives about it. (Q12:43)</i>
	Provide service like an overview of SD activities at universities, linking actors and asking for feedback on one's SD initiatives	Mainly: (De)central structures and commitment-mandate	
Build on personal strengths	Demonstrate unique added value for collaborating in SHEI process to the various individuals and groups (e.g. students, faculty, staff, administration) from whom one is seeking buy-in or support	Mainly: commitment-mandate	
	Use Guerrilla tactics to "just do" what seems necessary even when there is no mandate to do so Draw on personal qualities like resilience, perseverance, patience and persistence; draw on one's dedication to SD to cope with tensions	Various Various	<i>I actually notice that it's better for my mental hygiene if I don't think about it so much, but simply work through tasks. (Q 13:25)</i>

(continued)

Strategy cluster	Management strategies	Tension(s)	Quote
Actively seek support	Secure support from leadership; sensitize leadership to the issue of sustainability and obtain their support, as some CAs may not act unless directed to do so; also create awareness of CAs' work and the tensions they experience Leverage advocacy from bottom-up actors (e.g. students) who can make different and potentially more radical pleas than faculty and staff; use this strategy deliberately to increase pressure on universities to change Network to seek allies within and outside the university (e.g. NGOs, government) for support	Various  (De)central structures and resource allocation  Various	<i>You need people who support the ideas and who, because of different interests . . . simply support the topic . . . Because otherwise you're pretty much on your own and you . . . end up frustrated . . . (Q 13:13)</i>
<i>Strategy type: separation</i> Collective action for sustainable development	Set up working groups to promote networking within and between universities as well as beyond to distribute the workload and motivate each other Appoint representatives; designate one individual per institute or department to form a working group to implement SD initiatives or identify and recruit volunteers for this role	Various  (De)central structures and individual role(s)	<i>How can [sustainability efforts] be strengthened at the individual university? . . . through working groups . . ., e.g. on education for sustainable development, climate, energy or whatever. This is perhaps less high-profile, but perhaps more effective within one's own university than something that comes from the network [of universities]. (Q10:51)</i>
Establish separate organizational entities with a sustainability focus	Fund internal SD projects; university leadership provides funding for projects to support internal cooperation between institutes to address societal SD challenges	Scientific performance(s)	<i>In the area of research, we have our own internal call for proposals. The rectorate also provides money for certain topics. And there is a general demand for inter- and transdisciplinary participation. (Q8:40)</i>

(continued)

Table 5.

Strategy cluster	Management strategies	Tension(s)	Quote
<p><i>Strategy type: synthesis strategies</i></p> <p>Change the mission</p>	<p>Change the university's goals: work toward incorporating sustainability as central to being a "responsible university"</p> <p>Change assessment and evaluation criteria to support inter- and transdisciplinary sustainability science</p> <p>Reflect on understanding of one's discipline: question one's role in one's respective discipline, recognize and publish work to contribute to a sustainability challenge (e.g. the sustainable development goals)</p>	<p>Various</p> <p>Scientific performance(s)</p> <p>Scientific performance(s)</p>	<p><i>Especially for transformative developments and CA activities, it is necessary to understand one's respective discipline in relation to the big picture ... (Q 8:11)</i></p>
<p>Change business rules</p>	<p>Define travel time as working time: expand the definition of "working hours" by including time spent commuting using public transport, if it is used to work (e.g. answer emails)</p> <p>Lengthen the time horizon on capital projects by considering a longer time horizon (e.g., 10 versus the typical 3–5 years) investments in green technology or (renovating) buildings can then be justified more easily financially</p> <p>Internalize external costs of CO<sub>2</sub> travel emissions by changing the costs of travelling and thus promote more sustainable modes of travel</p>	<p>Resource allocation</p> <p>Resource allocation</p> <p>Resource allocation</p>	<p><i>For example, regarding travelling, you could also take external effects ... into account and thus create a completely different picture. (Q 10:21)</i></p>

**Note:** "Tension(s)" refers to tension(s) that were mentioned within the context of a particular management strategy

**Source:** Authors' own creation/work

4.3 Reflection on the research process and outcome

Feedback from study participants suggested that discussing challenges and barriers as paradoxical tensions resulted in CAs being able to shift from a focus on perceived deficiencies (“lack of...”) to identifying ways to manage the tensions inherent to SHEI change processes. The majority (25 of 28 participants) rated the focus group discussion as very helpful or helpful in this regard (Figure 2).

5. Discussion

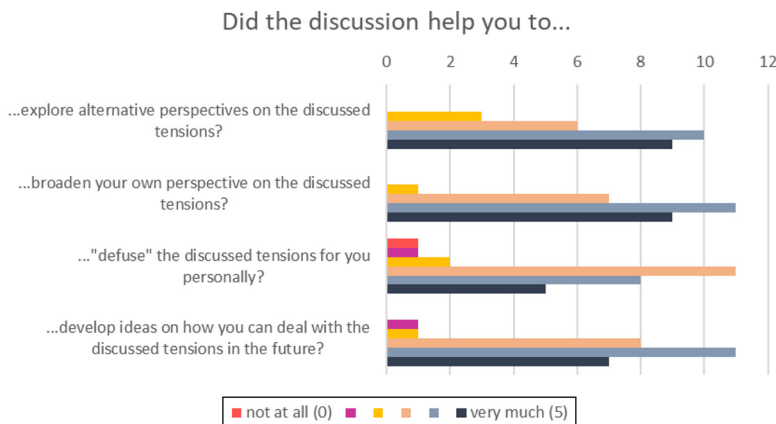
CAs face many barriers and challenges to embedding sustainability in HEIs (Leal Filho et al., 2017; Lozano, 2006). To strengthen CAs’ ability to manage these barriers and challenges, our study focused on:

- uncovering the tensions that underlie them; and
- identifying strategies for managing them.

Data were collected from 29 sustainability CAs from 17 of 22 public universities part of the Alliance of Sustainable Universities in Austria. The study’s focus and methods were based on and adapted from paradox theory scholarship.

Before turning to a discussion of the tensions and strategies that were identified, it is important to note Austrian sustainability CAs named barriers and challenges consistent with those in the existing SHEI literature, i.e.

- work overload by having to combine SD efforts with other tasks (Verhulst and Lambrechts, 2015);
- a lack of leadership (Blanco-Portela et al., 2017) and support from management (Leal Filho et al., 2017; Akins et al., 2019);
- a lack of policies to promote sustainability (Akins et al., 2019) and of a vision to change sustainability and education policies by government (Leal Filho et al., 2017);
- a lack of financial resources (Ávila et al., 2019; Aleixo et al., 2018; Deleye et al., 2019) or prioritization of SD (Ávila et al., 2019);



Source: Authors’ own creation/work

**Figure 2.** Number of study participants ( $n = 28$ ) who selected the closed-ended response options (with 0 = “not at all” to 5 = “very much”) to the anonymous survey questions about the research process and outcomes

- the vertical and fragmented organizational structure of HEIs (Aleixo *et al.*, 2018); and
- the disciplinary cultures and compartmentalization (Ávila *et al.*, 2019; Deleye *et al.*, 2019), which limit inter- and transdisciplinary collaborations on complex sustainability topics (Bien and Sassen, 2020).

We therefore argue that the tensions and strategies identified by Austrian SHEI CAs are also likely to be applicable to SHEI CAs in other countries.

As suggested by the above, barriers and challenges have typically been framed as “lacking” something. According to paradox theory, however, barriers and challenges cannot be overcome unless the tensions underlying them are acknowledged, revealed and explicitly addressed.

### *5.1 Tensions underlying challenges experienced by Sustainability in Higher Education Institutions change agents*

As anticipated based on paradox theory, the 15 tensions identified and validated by this study’s participants offer perspectives and a more in-depth understanding of challenges to SHEI. Characterizing challenges in terms of underlying tensions with two or more opposing and interrelated poles sheds light on the fact that challenges cannot be eliminated through “either-or” decisions. Because of poles’ interrelatedness, tension will resurface if one pole receives greater attention than the other (Smith and Lewis, 2011). Thus, each opposing pole must be identified and addressed, an approach that proved effective in our study. For example, instead of focusing exclusively on the perceived lack of academic leaderships’ commitment to sustainability, the paradox approach allowed study participants to also recognize the limitations of top-down approaches. The tensions between the need for support from leaders as well as bottom-up engagement came to light and were explicitly addressed. Pragmatically, this study thus suggests that by reframing barriers and challenges as tensions with two or more poles (i.e. acknowledging that each pole has advantages and disadvantages), CAs can take first step needed to managing tensions virtuously in their day-to-day efforts to achieve SHEI.

Although we do not claim that the 15 tensions identified by this study are comprehensive, they address a broad range of aspects key to a whole-institution approach to SHEI (UNESCO, 2021). Many of the tensions addressed academic (mainly research), operational and governance as well as societal engagement with partners such as NGOs and government agencies. As such, this study’s findings are consistent with prior research that Austrian public universities follow a holistic approach to SHEI (Bohunovsky *et al.*, 2020; Radinger-Peer and Bohunovsky, 2021).

One of the main tensions study participants identified occurred at the individual level, reflecting the fact that CAs typically hold and have to manage multiple roles in their universities. This is consistent with Smith and Lewis’ (2011) tensions between “belonging and performing”. According to the authors, these tensions occur as a result of a “clash between identification and goals as actors negotiate individual identities with social and occupational demands” (p. 383). Hoover and Harder (2015) similarly identify the frequent lack of clarity about the roles and responsibilities of SHEI CAs as an important source of tensions.

In contrast to this tension experienced at the individual level, about half of the remaining tensions mentioned focused on the organizational level. This finding is consistent with the “change” dimension in Hahn *et al.*’s (2015) analytical framework for SHEI. According to



these authors, tensions at the HEI level occur because of the many different perspectives on how sustainability can or should be integrated.

The other half of the remaining tensions occurred *between* the organizational and systemic level and at times also included the individual level. The number of tensions that touched on the systemic level are illustrative of HEIs' interdependence with scientific norms, government authorities and other societal forces that make change difficult (Kezar, 2011).

### 5.2 Strategies to manage these tensions

Following the identification of a range of tensions, six were selected for in-depth discussion of possible strategies to manage them. To the best of our knowledge, this study is the first to describe management strategies identified by actual SHEI CAs, based on tensions they experience in their daily work. Our findings thus build on and extend work by Hoover and Harder (2015) who stated the importance of addressing tensions in SHEI and of Lattu and Cai (2020) who focused on HEI management and proposed illustrative strategies. Moreover, our findings identified examples of acceptance, separation and synthesis strategies, thus illustrating the breadth of approaches that have already been deployed or could be deployed by SHEI CAs. In combination, the study's results show that there are many ways to overcome the barriers or challenges SHEI CAs face. The range of potential strategies can help CAs in their day-to-day work by giving them several options to explore and potentially pursue.

When CAs follow acceptance strategies, they leave the poles as they are and can find ways to use them constructively (Poole and Van de Ven, 1989; Hahn *et al.*, 2015). We identified the strategy to focus on positive aspects in communication, i.e. presenting good practice examples (to highlight that change is possible) and enhancing a better understanding of differences (to make people aware of tensions), as one acceptance strategy. This is in line with Lüscher and Lewis (2008) who name "effective and open" communication as a workable certainty to better involve team members. Involving people, providing services and highlighting what individuals can gain (added value) from participating in change processes were strategies that focus on process management. Similar workable certainties were found by Lüscher and Lewis (2008). The belief in one's personal strength differs from the abovementioned strategies in that it aims to strengthen CA's positive feelings and attitudes and, thus, focuses only on the individual. This particular strategy is in line with Karhu and Ritala (2020), who showed that virtuous tension management generates excitement and satisfaction instead of anxiety and other negative feelings.

In line with Hahn *et al.* (2018), separation strategies are used in the context of sustainability to maintain "core" business activities while also creating space for sustainability initiatives, thus allowing for different value and incentive systems. Hahn *et al.* (2015) argue that structural separation allows moral initiatives to withstand the dominant commercial logic. We showed that this applies to the SHEI context: The strategies we found in our study aim at forming groups that allow space for SHEI (as moral initiatives) within the traditional university setting.

Synthesis strategies do not eliminate tensions but rather find a means of meeting competing demands or considering divergent ideas simultaneously (Smith and Lewis, 2011); e.g. by seeking new perspectives that link or accommodate the opposing poles of a paradox (Hahn *et al.*, 2015). Indeed, this study identified strategies that aim at redefining goals of the university (contributing to SD) and changing assessment criteria or budgetary rules as synthesis strategies. Such strategies make decisions reasonable that were unreasonable in the past and, thus, allow for more sustainable solutions. For example, if universities included services to sustainability as a central aspect in their performance criteria for

faculty, researchers' tensions between the existing disciplinary science regime and SD-oriented transdisciplinary work would be eased.

### *5.3 Research process, limitations and further research*

By guiding CAs to acknowledge tensions in their work (i.e. an important first step to deal with tensions [[Hahn et al., 2015](#)]) as well as discussing possible strategies to manage these tensions, our study aimed to explore alternative perspectives on barriers and challenges to SHEI and to develop new ideas for how CAs can address them. Participants' feedback support findings from paradox theory that acknowledging tensions helps to reevaluate situations, find new opportunities and move ahead ([Van der Byl and Slawinski, 2015](#); [Hengst et al., 2020](#); [Hahn et al., 2018](#)). Applying a paradox perspective to SHEI challenges either through individual reflection or guided group processes can thus support CAs in their day-to-day work. As such, we recommend that CAs reframe the barriers and challenges they face as bipolar tensions, identifying both the negative and positive consequences of each pole ([Johnson, 2014](#)), and then, use the guiding questions in [Table 2](#) to uncover new strategies for managing these tensions.

Because our study was exploratory and drew on data from SHEI CAs in Austria, we are not suggesting that the tensions or strategies identified as part of this study are comprehensive. We also acknowledge that the existence of the collaborative Alliance of Sustainable Universities in Austria network may have influenced the tensions that were identified and focused on. This is because the CAs that participated in the study were members of the Alliance and, thus, had opportunities to learn and interact with each other before and during the study. Moreover, although the study's expert sample drew on leading CAs from Austrian universities, we did not include other stakeholders such as students who have also played important roles in advancing SHEI. Students and other SHEI stakeholders may experience other tensions and use alternative strategies for managing them. Finally, it is important to note that the first author is part of the Alliance's expert group. Being an "inside" researcher can be a limitation (i.e. if not sufficiently reflective about one's role/interests) or advantage (i.e. if building on preunderstanding) ([Brannick and Coghlan, 2007](#)).

Although these limitations suggest the need for future research to assess the generalizability of this exploratory study's findings, we argue that the results are likely to be applicable to SHEI CAs in countries with similar university governance structures and institutional framework conditions. This claim is based on the similarities of the barriers and challenges documented in the literature with those identified by the Austrian CAs who participated in this study. Moreover, CAs can apply the process outlined in this article to address the particular barriers and challenges and, thus, the tensions they experience – because a paradox-informed approach is broadly applicable (i.e. typically not dependent on spatial and organizational contexts).

Another important question for further research is which of the strategies can and should be used by SHEI CAs. Our understanding of the unique features of HEIs ([Kezar, 2011](#)) and the first author's insider knowledge suggest that the choice of strategies is likely to depend on the CA's position in the HEI hierarchy. CAs' hierarchical position is strongly related to their social standing ([Battilana, 2016](#)). The latter, in turn, determines their levels of agency, resources and support ([Pfitsch and Radinger-Peer, 2018](#); [Battilana, 2016](#); [Xiao et al., 2019](#)). There is also the question about the extent individual universities are capable of redefining their sustainability goals on their own, given that HEIs are strongly influenced by other universities, academic societies, on government agencies, etc. ([Kezar, 2011](#)). Although these questions fall outside the scope of this exploratory study, we argue that the acceptance strategies (i.e. ones that acknowledge tensions and try to "work through" them [[Lewis, 2000](#);

Schad *et al.*, 2016]) identified in this article are relatively easy to implement in that they do not require support from university leaders. Thus, they are also strategies for CAs with limited decision-making power.

Yet, another aspect that deserves further research is the overall effectiveness of the various strategies identified by this study. Although the participating CAs used many of the strategies they suggested, we did not have the opportunity to learn how effective the CAs deemed them to be. In particular, it would be desirable to learn about the long-term impact of the use of acceptance, separation and synthesis strategies in addressing the tensions and thus the challenges to SHEI, as the exploration of paradoxes “is an ongoing and cyclical journey” (Lewis, 2000, p. 761).

## 6. Conclusions

This study provides novel insights into paradox theory-informed strategies to manage tensions underlying the challenges CAs face in embedding sustainability in their universities. To the best of our knowledge, this is the first empirical SHEI study on tension management to advance both scholarship and support CAs’ practice. A mixed methods approach was used to reveal the rich experiences of a heterogenous group of 29 CAs, consisting of faculty, staff and administrators with leading roles in sustainability change processes at 17 Austrian public universities.

Results identified 15 tensions at and between the individual, organizational and system level. Six tensions, rated as most relevant by CAs and for universities, were selected for more in-depth exploration of management strategies. Based on discursive reflections of their diverse experiences, the CAs identified several clusters of acceptance strategies (positive communication, process management, building on personal strengths and actively seeking support), separation strategies (collective action for sustainable development and establishing separate sustainability organizational entities) and synthesis strategies (changing the mission and changing business rules).

Because the study was based on the experiences of CAs from Austrian public universities, we do not claim to have identified a comprehensive list of tensions underlying challenges faced by SHEI CAs globally, nor of all potential management strategies. However, in light of the consistency between the barriers to SHEI reported in the literature and challenges reported by the study’s Austrian SHEI CAs, we anticipate that the insights from this study will support SHEI CAs’ efforts in other countries.

## Note

1. Abbreviations: (S)HEI: (Sustainability in) Higher Education Institutions, CAs: change agents; SD: sustainability/sustainable development (used as synonyms); vs: versus; NGO: non-governmental organisations.

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