

Odd couples: reconciling academic and operational cultures for whole-institution sustainability governance at universities

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Abstract

Purpose – This study aims to explore barriers and pathways to a whole-institution governance of sustainability within the working structures of universities.

Design/methodology/approach – This paper draws on multi-year interviews and hierarchical structure analysis of ten universities in Canada, the USA, Australia, Hong Kong, South Africa, Brazil, the UK and The Netherlands. The paper addresses existing literature that championed further integration between the two organizational sides of universities (academic and operations) and suggests approaches for better embedding sustainability into four primary domains of activity (education, research, campus operations and community engagement).

Findings – This research found that effective sustainability governance needs to recognise and reconcile distinct cultures, diverging accountability structures and contrasting manifestations of central-coordination and distributed-agency approaches characteristic of the university's operational and academic activities. The positionality of actors appointed to lead institution-wide embedding influenced which domain received most attention. The paper concludes that a whole-institution approach would require significant tailoring and adjustments on both the operational and academic sides to be successful.

Originality/value – Based on a review of sustainability activities at ten universities around the world, this paper provides a detailed analysis of the governance implications of integrating sustainability into the four domains of university activity. It discusses how best to work across the operational/academic divide and suggests principles for adopting a whole institution approach to sustainability.

Keywords Governance, Sustainability, Embedding sustainability, Institutional culture, Operational and academic foundations, Whole-institution approach

Paper type Research paper



1. Introduction

As the concept and urgency of sustainability have expanded globally in recent decades, universities face growing pressure – from internal and external stakeholders – to commit to sustainability action within their institutions [Association of University Leaders for a Sustainable Future (ULSF), 1990; Bauer *et al.*, 2020; Branje *et al.*, 2016]. A parallel scholarship of Sustainability in Higher Education (SHE) developed and observed three waves of sustainability action at universities (Baker-Shelley *et al.*, 2017; Henderson *et al.*, 2017; Hoover and Harder, 2015; Wals and Blewitt, 2010). The first wave in the 1970s focused on the integration of environmental sustainability into teaching and research (Ralph and Stubbs, 2014; Wals and Blewitt, 2010). A second wave at the turn of the 21st century aimed to reduce the environmental footprint of campuses (Ralph and Stubbs, 2014). Now, in the third wave with an expanding global understanding of sustainability, universities seek a more holistic integration of sustainability into the domains of education, research, operations and community engagement (Henderson *et al.*, 2017; Wals and Blewitt, 2010).

This holistic integration of sustainability encompasses scholarly research and on-the-ground action to advance a “whole institution approach of sustainability” (Baker-Shelley *et al.*, 2017; Mader *et al.*, 2013). This approach differs in important aspects from previous sustainability action. First, the whole institution approach effectively takes a wider definition of sustainability based on environmental, economic and social foundations (Bauer *et al.*, 2020; Henderson *et al.*, 2017; Wals and Blewitt, 2010). Second, in relation to the epistemic expansion of sustainability, this approach seeks to consider *what* sustainability actions are enacted and *how* they are enacted across education, research, operations and community engagement (Henderson *et al.*, 2017; Hoover and Harder, 2015). As part of this procedural focus, the nature and mechanisms of university governance emerged as an essential point and challenge for the implementation of a whole institution approach to sustainability (Bauer *et al.*, 2020; Bieler and McKenzie, 2017; Leal Filho *et al.*, 2020; Niedlich *et al.*, 2020; Purcell, 2019; Bormann *et al.*, 2023).

Through comparative case studies of ten different universities around the world that are leaders in sustainability action, our research aimed to better illuminate the different governance approaches and possibilities to develop a whole institution approach to sustainability. As universities have multiple sustainability cultures and locations of power – e.g. different governance processes for academic and operational sustainability (Hoover and Harder, 2015) – we sought to examine the current activities of and barriers to sustainability governance at universities, from its operational and academic foundations and throughout the domains of education, research, operations and community engagement. Our research questions were as follows: How do administrative governance and academic governance differ in their activities and approaches to sustainability? How can these differences be better considered and harnessed when striving for a whole institutional approach to sustainability? To distinguish between operational and academic governance, we do not seek to dismiss the increasing entanglement between them (Ferrer-Balas *et al.*, 2008; Scott and Gough, 2006; Rowlands, 2017; Trencher *et al.*, 2014). Rather, we strive to elucidate and provide principles for a more representative and integrated approach to whole institution sustainability governance in universities.

2. Literature review

2.1. (Good) governance of sustainability at universities

At a general level, university governance can be understood as the policy frameworks, administrative apparatus and other relevant resources used to implement effective management of complex processes (Leal Filho *et al.*, Song, 2019). More often than not, implementation and management are included as part of the definition of governance;

Niedlich *et al.* (2020) describes governance as the “process of steering society and economy through collective action and in accordance with common goals” (p. 2).

SHE literature on governance is mainly concerned with what constitutes “good governance” – that is, what type and features of governance best enact a whole institution approach to sustainability transformation at universities, embodying the domains of education, research, operations and community engagement. What surfaces – from case studies, surveys, meta-analysis and framework creations – is an endorsement of sustainability transformation surfaces that is representative and democratic in its governance approach. Good governance is associated with the inter-linked involvement and shared prioritization of the university’s multiple “stakeholders” including: management, students, professoriate and teaching community, staff and external stakeholders from community organizations to large corporations.

Concurrently, these studies point to the importance of a centralized approach such as stronger managerial leadership, alignment of sustainability conception and strategies across campus, comprehensive implementation of sustainability curriculum, etc. However, the literature is quick to specify that such central coordination should be enacted and balanced with the flourishing of bottom-up actions that ultimately decentralize and redistribute influence (Djordjevic and Cotton, 2011; Ferrer-Balas *et al.*, 2008; Purcell, 2019; Weiss *et al.*, 2021). Thus, while the whole institution approach advocates for sweeping, “transformative” actions, it [denies] a centralized procedure. Niedlich *et al.* (2020) suggests “binding decisions should not be confused with centralized, top-down decision-making” and “overarching coordination does not necessarily mean centralized control” (pp. 7-9).

2.2 Historicity and present of academic and operational governances

This underlying tension current to literature on a whole institution approach to sustainability – advocating for sweeping institutional reform whilst attempting to bolster grassroots action – reflects challenges to enact sustainable change within a governance system that is increasingly dominated by a corporate model (Bieler and McKenzie, 2017; Bullen *et al.*, 2010; Purcell *et al.*, 2019). The corporate model rose in the 1980s in response to neoliberalizing activities and policies – the entanglement of knowledge with economic interests and motivations, decreased government funding for universities, etc. It focuses on commodification and marketization of university operations and tends to view decision-making power as concentrated at the level of administrative management in a top-down fashion (Bieler and McKenzie, 2017; Bleiklie and Kogan, 2007; Bullen *et al.*, 2010). A whole institution approach to sustainability seeks to pursue grassroots-empowered governance, which resembles a more collegial and representative type of governance. This collegial model, prominent until the mid-20th century, featured a senate at the center of governance with the university interpreted as a “republic of scholars” who pursue knowledge and truth for their intrinsic value (Bleiklie and Kogan, 2007; Rowlands, 2017). In the 1960s and 1970s, a representative model of governance led by academics that provided students and staff rights to contribute to institutional decisions (Bleiklie and Kogan, 2007) was short-lived. The 1980s shift that led universities to prioritize economic factors and the hierarchical model of administrative governance is often taken for granted, obscured by the normalization of everyday workings and lack of self-reflexivity on the history of university governance (Bansel and Davies, 2010; Blackmore, 2014; Rowlands, 2017).

This element of normalization is present in much current literature on sustainability governance, which promotes bottom-up action but retains a somewhat ahistorical understanding and terminology of governance at universities. Generally, universities are recognized as complex institutions that house multiple types of organizations and cultures whose values often come into conflict with each other (Hoover and Harder, 2015; Leal Filho *et al.*, 2020). Although the literature

ostensibly emphasizes this conflict, governance is almost consistently presented in a manner that does not bring into awareness alternatives to its present realization. “Governance” tends to be associated with higher-level administrative staff within a corporate model of organization, such as the signing of international charters, the capacity for institutional entrepreneurialism and central leadership and management (Baker and Shelley, 2017; Bieler and McKenzie, 2017; Mader *et al.*, 2013; Sisto *et al.*, 2020). The complexity of university governance is discussed in relation to matters such as the diversity of academic disciplines or complexity of sustainability as a concept, but distinctions between administrative and academic governance are rarely brought to light (Djordjevic and Cotton, 2011; Leal Filho *et al.*, 2020). One promising development is research conducted by Niedlich, Bauer and other scholars on governance in German higher education institutions. Their research recognizes that “sustainability governance” is not developed equally between the domains of education, research, operations and community engagement and thus, confirms different identities of governance at universities (Bauer *et al.*, 2020; Niedlich *et al.*, 2020; Bormann *et al.*, 2023). However, their assessment tools for governance still integrate all these domains, as part of their pursuit for a “whole institution approach” to sustainable development (Niedlich *et al.*, 2020). Ultimately, these analytic approaches reveal a potential to build a means to research sustainability governance at universities more representatively and democratically.

3. Methods

Our research incorporated two sets of comparative case studies of sustainability activities at ten universities around the world – University of Edinburgh in Scotland, Utrecht University in The Netherlands, Massachusetts Institute of Technology (MIT) and Arizona State University (ASU) in the USA, University of Hong Kong (HKU), University of São Paulo (USP) in Brazil, Monash University in Australia, University of Cape Town (UCT) in South Africa, as well as University of British Columbia (UBC) and University of Toronto (UofT) in Canada. The process was guided by a framework centred on modes and styles of sustainability governance at universities.

3.1 Framework development

A literature review of SHE helped determine the structure and content of our evaluative framework. Ultimately, the framework seeks to analyse each university’s whole-institutional approach to sustainability by considering initiatives across four domains (education, research, operations, community engagement) from the basis of its sustainability governance (Table 1). This interlinking relationship between sustainability governance and the four domains meant data collection had to factor in how each affects the other continually (Figure 1). By looking at the roles of administration, staff and faculty (and to a limited extent, students), we aimed to analyse who and how responsibility is taken up for sustainability governance (Holmberg, 2014; Omrcen *et al.*, 2018). We also invited participating sustainability actors in our selected universities to contribute to framework development and a collaborative, living document.

We anchored this overarching framework around the actors of sustainability governance to identify principal actors, their bureaucratic position and their style of governance. From this viewpoint, we evaluated the actors by their focus on academic or operational sustainability issues, and as undertaking central coordination and/or distributed agency activity (Table 2). This informed our analysis on the nature and substance of the four university domains related to sustainability and style(s) of governance(s).

Table 1.
Evaluative
framework for
analysis of
sustainability
governance

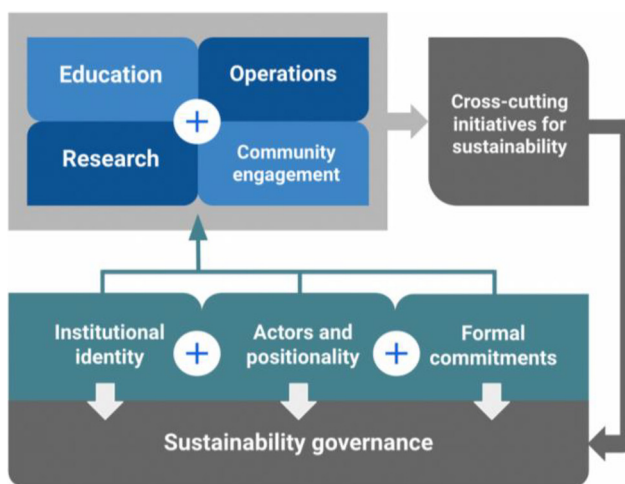
Headings	Breadth of coverage
General description of each university	• Type of university, its size by population and land area, operating budget, etc.
Sustainability governance at the University	• Identity (institutional mission, and definition of sustainability) • Actors (mandated principal actors, their bureaucratic position and style of governance) • Formal commitments (investment, budget, research funding, networks and ratings)
Sustainability activities in the four domains	• Education (sustainability curriculum, accessibility to students regardless of majors) • Research (sustainability research institutes, individual faculty champions, etc.) • Operations (GHG emissions reduction, green buildings, waste management, etc.) • Community engagement (involvement of the private/public sector in university initiatives)
Cross-cutting activities and partnerships for sustainability	• Research and teaching (transdisciplinary, disciplinary and interdisciplinary initiatives) • Academics and operations (projects involving both faculty and operational staff, etc.) • Integrated engagement by the university community with external partners
Culture, communication, and outreach activities	• The extent to which sustainability is part of the institutional culture • Barriers to sustainability (cultural and/or institutional barriers, etc.) • Communication and outreach of sustainability initiatives
Source: Authors' own work	

3.2 University selection

The ten universities were selected based on their sustainability leadership, regional coverage and available contacts. Our aim was to select a set of geographically distributed universities committed to sustainability transformations. Rating systems, including Sustainability Tracking, Assessment and Rating System and the Times Higher Education’s University Impact Rankings, were used and knowledgeable colleagues were consulted to identify and engage universities for this project. The first analysis was conducted in the summer of 2019 and included Edinburgh, UofT and Utrecht (Côté and Patel, 2021). The second analysis was conducted in the summer of 2020 and included ASU, MIT, UBC, UCT, HKU, USP, Monash and also UofT.

3.3 Data collection and analysis

The research design involved web-based searches and face-to-face virtual interviews with sustainability actors at the ten universities. Official, publicly available information on



Source: Authors' own work

Figure 1.
Relationship between
sustainability's
governance and four
domains of activity

	Central Coordination	Distributed Agency
<i>Academic</i> Pertains to the governance applied to and/or by university's academic units, including faculties, departments, schools and research institutes	- Need central coordination for a university level sustainability response and strategy. There is an inherent tension with the normal distributed agency role and activities of academic actors - Takes the form of sustainability actions implicating academic unit leads (i.e. director or chair of academic department, faculty dean)	<i>The default culture and operating mode of academic sustainability</i> - Takes the form of sustainability actions initiated and executed by instructors or students acting from a 'grassroots' level without significant direction from academic unit leads
<i>Operational</i> Pertains to the governance applied to and/or by university's operational facilities, including Facilities, Estates, Offices, etc.	<i>The default culture and operating mode of operational sustainability</i> - Takes the form of sustainability actions which implicate and are directed by operational and administrative leaders (i.e. President, Vice-President, facility directors)	- Need distributed agency dimensions to engage faculty and students in a meaningful way. There is an inherent tension with the mandate and accountability of operational sustainability staff - Takes the form of sustainability actions initiated and developed by staff independently from central directives, or which implicates wider university members

Source: Authors' own work

Table 2.
Definitions of
academic and
operational, Central
coordination and
distributed agency

sustainability activities and governance was collected from university and other relevant websites. This information, aligned with the framework, informed the case study for each university. To supplement and expand this data, individuals from multiple stakeholder categories were interviewed. Interviewees were recruited through the network of sustainability actors, and then by referral from initial interviewees. The first interviews were conducted in-person during the summer of 2019 with Edinburgh and Utrecht stakeholders, including 8 members of senior management, 11 cross-cutting sustainability coordinators, 19 operations staff, 7 academic administrators, 8 faculty members and 1 student group member. The second interviews were conducted virtually during the summer of 2020 with ASU, MIT, UBC, UCT, HKU, USP, Monash and UofT stakeholders, including 3 members of senior management, 5 cross-cutting sustainability coordinators, 9 operations staff, 8 academic administrators, 8 faculty members and 1 student group member. All virtual interviews utilized video call technology and were accompanied by a recording, transcription or notes.

Collected data was analysed against the evaluative framework (Table 1). A thematic analysis was conducted by iterating between data and framework, drafting individual case narratives and undertaking interpretative pattern-matching techniques by comparing and contrasting results and insights across cases.

4. Findings: two worlds of governance

4.1 Academic sustainability governance

Across the universities in our case study, a pattern exists of how governance on academic sustainability is typically structured. Most had a strong component of distributed-agency, meaning that participation from faculty members cannot simply be mandated through a central directive as this would not fit with the culture of academia. This long-standing culture emphasizes that faculty members independently deter their research and teaching interests, with some guidance and reinforcement from academic unit leads and little direct influence from the university administration. Instead, the university can influence and orient research projects by providing platforms of funding for strategic initiatives, such as research or teaching on interdisciplinary sustainability issues.

We observed that while most academic governance platforms on sustainability focus on incentives for targeted research participation of academics, particular incentives vary. At UBC, its UBC Sustainability Initiative (USI) created two funding programs for sustainability research by faculty groups from the same department and different departments. MIT's Environmental Solutions Initiative offers a similar scheme, where cross-disciplinary collaborative research opens possibilities for grants. Some platforms provide research facilitation and support by in-house staff though do not boast direct funding, such as Monash Sustainable Development Institute (MSDI). At UofT, a new Institutional Strategic Initiative funds highly interdisciplinary teams of scholars, several focused on sustainability issues. USP's Superintendence of Environmental Management (SGA) and UofT's Committee on the Environment, Climate Change and Sustainability (CECCS) add appeal to faculty members, as their project ideas, input and expertise can be incorporated into landmark campus retrofits and new-builds, given bureaucratic proximity of both to university leadership and assigned key roles in coordinating environmental dimensions of institutional strategic plans. At Utrecht, its Pathways to Sustainability (PtS) program provides significant funding for large-scale sustainability research programs. Aspects of this arrangement are also present in HKU's Centre for Civil Society and Governance, where collaborative projects with regional governments and local stakeholders are initiated by the centre, and specific research portfolio recruitments conducted after through a fellowship and

academy scheme. At ASU, several programs and units promote and support sustainability research. For example, the “Proposal Development Team” at the Global Institute of Sustainability (GIOS) is a group of grants researchers, writer-editors and graphic designers who assist ASU faculty and researchers in applying for large-scale, interdisciplinary research grants on sustainability topics. A majority of these platforms support faculty to address knowledge needs of external stakeholders and offer connections and outreach for partners to enable scaling-up of research projects and their impact [1].

On the teaching side, academic sustainability platforms were observed to administer programs of study, minors, sustainability “pathways” and “scholars” initiatives or dedicated units tasked with innovating the curriculum. MIT’s Environmental Sustainability Initiative developed a Minor in environment and sustainability, whereas its Energy Initiative administered an interdisciplinary Minor in energy studies. Similarly, the School of Sustainability (SOS) at ASU administers sustainability themed Minors and programs across several schools, and final approval on course proposals from faculty. SOS also has a curriculum and instructional design team that supports development and assessment of on-line, in-person and hybrid courses in sustainability. The MSDI at Monash goes a step further by managing a sustainability-related Master’s program jointly with several faculties. USP, UBC and UofT recognize that many sustainability curriculum initiatives may only attract students already pursuing sustainability studies, not the wider student body. USP’s solution was a series of introductory undergraduate sustainability courses for all, which were developed and e-delivered in collaboration with universities in seven countries across the GreenMetric World University Rankings Network. UBC developed a “pathways” approach where the USI works collaboratively with faculties to embed sustainability in most undergraduate programs and offer a sustainability “scholars” program as a paid graduate research internship. Work similar to UBC’s USI is also underway at UofT through CECCS’ teaching and learning subcommittee. However, its “sustainability pathways” offers all undergraduate students the opportunity to obtain credit for curricular and co-curricular activities related to sustainability, at one of three recognition levels – sustainability “citizen” (designation on the co-curricular record), sustainability “scholar” (designation on transcript) or sustainability “leader” (both designations). This approach attempts to make sustainability teaching, activities and recognition more readily accessible to the wider student body. ASU’s “Sustainability Scientists and Scholars” program provides support services and funding to faculty, teaching and/or conducting research on sustainability issues, after connecting them with sustainability scientists and scholars.

The next important consideration is the positionality of these academic sustainability platforms. Several aspects are at play, including origins of platforms, background of members and affiliates and reporting or accountability structures. The latter is especially relevant in evaluating the potential for the academic realm to retain an independent and bottom-up emphasis or to give control to corporate–administrative structures. Another key factor is whether the university has a bicameral system, where a Governing Board handles administrative and operational aspects and a Senate governs academic affairs, or a unicameral system where they are combined. In our study, we charted lines of reporting for academic sustainability platforms to these highest actors while considering accountability to distinct advisory councils.

Several academic sustainability platforms in our study had either a reporting, accountability, advisory, or funding structure that included operational or administrative leaders. These implications can be a positive sign of collaboration or a cautionary tale on amalgamation for a whole institution approach, integrating academic and operational

governance, particularly with the hierarchical presence of operational leadership and industry leaders in academic initiatives.

Some have operational leaders within formal accountability structures. The flagship USI was created by the Board of Governors, which exercises bicameral governance along with the Senate. Both sides of USI's branched leadership – its Senior Director and Academic Director – have reporting structures to the Provost, a Sustainability Strategy Steering Committee and a Board of Governors committee, and the Academic Director also reports to the Vice President Academic. A similarly branched leadership structure is observed at UofT, where the CECCS is co-chaired by a leading sustainability academic (who is also Presidential Advisor on the Environment, Climate Change and Sustainability) and the university's chief operating officer. CECCS reports to the President in his capacity on the administrative side of the house, ultimately reaching the university's unicameral Governing Council. At MIT, the Executive Committee of its Energy Initiative reports to both MIT's its President and Provost, suggesting a branched reporting structure previously observed for UofT and UBC.

Others have operational- and administrative-oriented leaders within an advisory capacity. The prominent presence of industry and its professionals were observed at Monash, Utrecht and MIT. The MSDI's leadership team includes academics, Professors of Practice and an operational member and reports to the Academic Board, its equivalent of the Senate. It also has an Advisory Council that, despite the inclusion of the Provost, is mostly industry, policy and community leaders [2]. Utrecht's PtS program has an International Advisory Board of senior researchers with a background in business, industry, governance and judicial systems, who act as a "critical friend" to PtS. Similarly, three initiatives at MIT – the Energy Initiative, the Sloan Sustainability Initiative and the Environmental Solutions Initiative – are advised by industry to some degree. The Environmental Solutions Initiative has distinct advisory councils for faculty students and external industry professionals. The Sloan Sustainability Initiative has a single advisory council of industry professionals. Arguably the most intriguing structure is the Energy Initiative, which has industry professionals on its Governing Board and External Advisory Board, and representatives from corporate partners on its Executive Committee. At ASU, the GIOS has a Board of Directors – including academics, business executives and leaders from the non-profit sector – co-chaired by the university president and two prominent donors of its sustainability initiatives. Of special note, ASU's platform and strategy for teaching, research and operational sustainability is powerfully influenced directly by its president. After becoming president in 2002, he proclaimed that sustainability would be a value "like liberty or justice" at ASU with a directive of numerous initiatives and funding programs.

Overall, patterns emerge on how central-coordination and distributed-agency approaches take place on the academic side. As a general rule, distributed-agency approaches are central to academic sustainability activities, as voluntary participation and buy-in of faculty on sustainability teaching and research make up academic sustainability work to begin with. As such, academic sustainability can be interpreted as inherently bottom-up. Simultaneously, we observed that most academic sustainability platforms of this case study contain a centrally coordinated component. If they were solely distributed-agency, we would not be able to observe them as having a university-wide reach, and the university would not be able to express its position on sustainability issues or join inter-university networks. As a result, central-coordination plays some role in the academic sustainability framework.

4.2 Operational sustainability governance

Within the operational side, notions of central-coordination and distributed-agency were observed to take different forms than the academic side. For starters, central-coordination within operations meant that upper management – typically the university's senior administration – set certain

policies which are carried out by operational offices as part of their mandate. In contrast to the academic side, no incentives or engagement campaigns are required from senior administration to attract participation from operational actors, as the nature of their bureaucratic structures does not warrant such an approach. Top-down action on policy can be more consistently enacted through a clear accountability structure between operational sustainability units and senior administration and also measured and operationalized for greenhouse gas (GHG) emissions, waste and water management plans or overarching climate strategies.

While operational sustainability units were observed to conduct purely centrally coordinated work, most cases had some degree of distributed-agency activity. Such distributed-agency within operations were in two forms – operational offices delegating engagement to operational projects from the wider university community (most often the case) or strategic initiatives initiated by lower offices with a top-down endorsement.

Because central-coordination within the operational side carries a clear bureaucratic structure, the senior administration has a larger capacity to direct operational sustainability initiatives. Monash's senior administration is a relevant example, as it created and dissolved multiple working groups over the years – from an Environmental Policy Task Force committee in 2003, an Office of Environmental Sustainability and the Vice Chancellor's Environment Group in 2008, to the current 2015 mandate from the Vice Chancellor through a working group. At Utrecht, the assignment of the Sustainability Programme and Green Office as primary sustainability actors in the university's Strategic Plan gives it a reporting structure linked to the Executive Board, its unicameral governing body. MIT's Office of Sustainability (MITOS) under the Executive Vice President and Treasurer's Office gives it a similarly powerful position as an operational sustainability actor.

Further efforts have also been made to coordinate sustainability work. After sustainability efforts were identified as fragmented and sporadic, UCT signed the 1994 Talloires Declaration and created a centralized replacement under the Vice Chancellor portfolio. This new Directorate of Environmental Sustainability reports to the Chief Operating Officer (who reports to the Vice Chancellor) and an Environmental Management Committee (which reports to a committee under UCT's Council including university administrators and State and donor appointees). At UofT, three Sustainability Offices were created at the three university campuses, and a Tri-Campus Sustainability Board (reconstituted as CECCS' Operations Subcommittee in 2021) coordinates their activities. All are accountable to UofT's senior administrative staff and show clear linkages and affiliations to the CECCS. The necessity of a coordinating role is most visible at USP as its Environmental Policy strategic plan was signed in 2018 after identifying the fragmented sustainability work of its seven multi-city campuses. Its key component is the Environmental Master Plan, where each campus establishes local priorities and pathways in compliance with minimum standards prescribed centrally. Commissions responsible for preparing, executing, monitoring and evaluating the campus-specific master plans are coordinated by USP's SGA. ASU's Office of University Sustainable Practices supports sustainability operations for four campuses and began as a sub-unit of ASU's GIOS. It was deemed a better fit reporting to ASU's Chief Financial Officer because of its mission to make the university's built environment operationally sustainable and to reach ambitious goals for solarization, "Zero Waste by 2025" strategy, etc. By 2020, ASU's Global Institute for Sustainability and SOS became associated with two new entities: the college of Global Futures and the Global Futures Lab. The college became the umbrella and supervisory unit for SOS. The lab is an administrative unit linking numerous, diverse efforts in sustainability and promotes thinking about sustainability problems and solutions at a global scale.

An important note on positionality can be inferred here. All operational sustainability units in our study had a reporting and accountability structure implicating operational or

administrative actors in upper-management of universities. Generally, the bureaucratic results-oriented culture that governed the work of operational sustainability units was also the culture of the actors to which they report to. While seemingly inconsequential, this presents a critical divergence from academic sustainability platforms with accountability structures reaching work of operational or administrative actors governed by operational cultures and principles. In other words, those tasked with sustainability on the operational side reported to actors with the same culture as their own, while several on the academic side largely did not.

We observed that most operational sustainability units – by their nature – perform top-down action according to their mandates, and many also have complementary bottom-up components. UBC has two operational units responsible for sustainability work: the Sustainability and Engineering unit under the Campus and Community Planning group, which handles policy development and planning, and the Facilities group under the Finance and Operations portfolio, which handles operational implementation. Those units work closely with the academic-oriented USI to implement collaborative, bottom-up initiatives such as Campus as a Living Lab (CLL) and Social Ecological Economic Development Studies, both of which support faculty and student engagement in sustainability projects. A similar bottom-up focus was observed at the MITOS, which adopted a framework beyond an operational focus with the campus as a test-bed for innovation and knowledge creation through research and education that engages faculty, students and other staff to collaborate on Living Labs. This bottom-up approach was complementary to its primarily top-down work on a GHG inventory and whole-institution scans, which are part of a top-down mandate to deliver on MIT's Climate Action Plan and GHG emissions targets. Similarly at USP, the SGA delivered on central mandates in Environmental Policy strategic plans by supporting faculty and student projects through its Pilot Projects program – synonymous to Living Labs, as it bridges research, community engagement, financial support and external partnerships. Another example is Utrecht's Green Office, the primary actor to accomplish the university's GHG goals for 2030 set as a top-down Strategic Plan. Implementation for that policy also featured bottom-up elements through work with researchers on Living Labs and students on behavioural change campaigns, among others. At UofT, the CECCS promotes a bottom-up approach, leveraging its ties with operational units such as University Planning, Design and Construction, Facilities and Services and the Sustainability Offices on the three campuses, in identifying and facilitating access to information about potential learning opportunities to be included in CLL courses. Many of these projects have informed the top-down work such as sustainable building design standards, a student engagement plan for one of the sustainability offices or food security framework at one of the campuses.

Traits of distributed-agency were also observed in operational sustainability through the developmental stages of policy – some initiatives were first developed at lower offices and garnered significant traction and local success, which increased their appeal and adoption as a top-down policy. An example is HKU's Sustainability Unit that initiated the Ditch Disposable campaign to change plastic use on campus. Initially carried out on a smaller scale and involved prominent early adopters, the campaign slowly succeeded and was adopted as an institution-wide policy. Another example was Monash's landmark initiative – Net Zero – that started as independent initiatives and proposals by individuals within operations, who continued developing it while advocating for endorsement by administration. Their approach was a good strategy as the Net Zero initiative was centrally endorsed and promoted and strengthened through a long-term alliance agreement with an industry partner to achieve net-zero emissions by 2030. The alliance also includes a Net-Zero Solutions Fund for Living Labs and collaboration across research, education and

community engagement. Both UBC and U of T have operational revolving funds that fund sustainability projects proposed by staff or faculty.

4.3 Summary of findings

Table 3 shows three key themes that emerged from our research and how each plays out in the academic and operational realms. It is clear that cultural differences in these two realms – visualized through Figure 2’s direct and indirect cultures – create challenges for implementation of a whole institutional approach.

5. Discussion: importance of a tailored approach

Our study focused on two types of actors in sustainability, located within different sides of the university – academic sustainability platforms and operational sustainability units. In naming these actors, our choice of language was intentional. The term “units” was used for operational actors with a clear bureaucratic accountability structure through which operational sustainability work is performed. In other words, reporting structures of these units can be more systematically traced, and their positionality within the organization is clearer. On the other hand, “platforms” was the chosen designation for academic actors, given that the clear bureaucratic positionality of operations largely did not exist [3]. While we were able to interpret and understand reporting structures of actors on academic sustainability, they were largely positioned beyond the traditional faculty, department, or college systems.

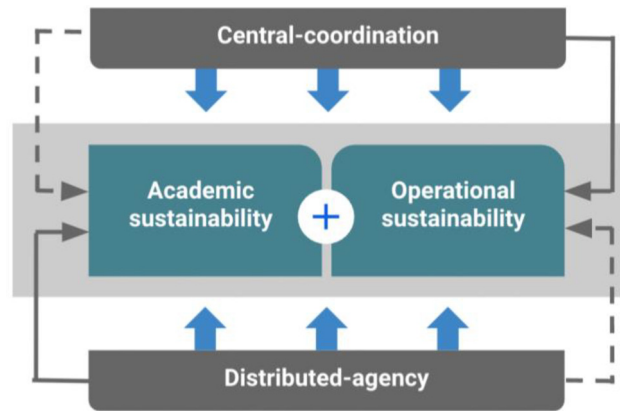
Supplementing case studies to advance the side-specific analysis, this section will distill overall findings into three themes that argue a monolithic treatment for both sides would not be effective, and suggest instead the importance of a tailored approach. The first theme is

	Academic sustainability	Operational sustainability
Divergence of cultures and structures	Culturally distributed agency Reports to both academic and operational actors, creating a clash of accountability cultures; With examples from UBC, UofT, MIT, Monash, UU and ASU	Culturally central coordination Reports exclusively to operational-administrative leaders, indicating an alignment of accountability cultures
Different manifestation of governance models	Central coordination – Administration’s financial support for and enabling of facilitating platforms Distributed agency – Voluntary buy-in from faculty With examples from UBC, MIT, Monash, UofT, USP, UU, HKU, ASU and UoE	Central coordination – Strategic planning and directed top-down work Distributed agency – Mandated wider engagement efforts to established projects With examples from Monash, UU, MIT, UCT, UofT, USP and ASU
Necessity and sufficiency of governance models	Distributed agency is necessary but not sufficient, as central coordination is required for broader engagement	Central coordination is necessary and moderately sufficient for successful work Distributed agency is an encouraged component With examples from UBC, MIT, UU, UofT, HKU and Monash

Table 3.
Governance themes
across academic and
operational
sustainability

Source: Authors’ own work

Figure 2.
Direct and indirect
cultures of academic
and operational
sustainability



Source: Authors' own work

descriptive, as it elaborates differences in cultural orientations and accountability structures on each side – both raise important considerations on the dynamics of collaboration and advancement. The second and third themes are more analytical, as each take central-coordination and distributed-agency as two distinct methods and elucidate differences in their manifestation and contributory value (necessity and sufficiency) within academic and operational sustainability.

5.1 Divergence of culture and structures

Observing cultural orientations and structures of operational and academic sustainability actors suggest a divergence, rendering an attempt to equate the two as problematic. This rationale influences how “politics” is to be navigated on each side to push sustainability work, with implications for new implementers of sustainability. Operational units follow a top-down structure where policies are set by upper-management and carried out by units positioned below them. This implies a clear bureaucratic structure, with accountability across structures involving a results-oriented model utilizing key performance indicators. Additionally, operational work is not voluntary so no incentives are needed for buy-in to policies by staff. In academia, faculty are granted independence to seek and carry out their research and teaching work, making it very difficult for university administration to instruct or demand a change to their work. However, academic sustainability platforms can influence academic work by facilitating collaboration between faculty and external partners for sustainability research and providing certain incentives to boost such activity.

As academic and operational sustainability face different reporting and accountability structures, any approach must account for how policy, incentives and work incorporation takes place within each side. Operational sustainability units report to the university administration, often through the Presidential, Vice Presidential or Vice Chancellor portfolios and reach the university’s appointed governing body – all portfolios deal with the university’s operational or administrative functions. We incorporated here the observation that operational sustainability units report to portfolios with the same cultural orientation as their own.

This is not the case observed with academic sustainability platforms, as they have a reporting, accountability, advisory or funding structure that involved actors on the operational side, and external industry professionals in some instances. Therefore,

sustainability work on the academic side – upholding a principle of independence and work agency – often reports in part to actors with a different cultural orientation. This mixing of cultures can be interpreted as a positive sign for collaboration. It could also signal a governance system that is pushing academic sustainability towards a more results-oriented operation, that has the potential to alienate academic participants.

5.2 Different manifestation of governance approaches

Given the accepted duality of central-coordination and distributed-agency for policy implementation, new implementers of sustainability should understand that the choice of methods is not arbitrary as each method does not apply equally to academia and operations. We emphasize that this difference in methods varies between the two sides, and each method manifests differently depending on where it is situated. Within operational sustainability, central-coordination takes the form of strategic planning and policies set by the administration, and carried out by operational units. In delivering on these mandates, an element of distributed-agency is suggested as observed units also strategised engagement from the wider university community – including faculty and students for initiatives such as Living Labs and behavioural change campaigns. Distributed-agency also took place when some independent initiatives of operational units garnered sizable success and were endorsed for a wider implementation as top-down policies of the administration.

On the academic side, a direct link to distributed-agency can be made through the observation that this is predominantly the culture of academic work, meaning academic sustainability platforms have to engage and incentivise faculty as participation is largely voluntary. A more substantial divergence exists in how central-coordination applies to academia. Observing signs of this, the typical directive model of operations cannot be expected, as it simply does not fit with how academia is structured. Instead, the institutional support needed to establish and manage academic sustainability platforms can be seen as signs of central-coordination, especially as platforms without such support may not likely have institution-wide reach that is observed in most of the case studies.

5.3 Necessity and sufficiency of approaches

In operational sustainability, central-coordination is necessary for successful work and moderately sufficient as well. Distributed-agency is not necessary or sufficient for successful work, but crucial if students and faculty are to be involved in operational sustainability projects. The rationale suggests operational sustainability units carry out both central-coordination and distributed-agency work to deliver on central-coordination mandates. They can carry out and be successful in central-coordination work (energy optimization, water and waste management and GHG emissions tracking, etc.) even if the distributed-agency aspects (engagement with and buy-in from faculty and students) do not pan out. In this sense, their central-coordination work. However, operational units limited to purely central-coordination work might not deliver transformational sustainability, as distributed-agency aspects often have a wider impact. As a result we do not consider central-coordination activities as sufficient for operational success.

Alternatively in academic sustainability, distributed-agency is necessary but does not allow for commitments, partnerships and inter-university relationships to be created. We observed that distributed-agency – engagement or work conducted by faculty – is an essential component of successful academic sustainability work, and there can be no academic sustainability without it. Some faculty might challenge central-coordination as a large body of academic work is naturally conducted in a more distributed-agency manner. Furthermore, such drawbacks might perpetuate the critical orientation of some faculty

towards university-wide sustainability efforts, given administrative involvement. However, a more collaborative research infrastructure for faculty and other stakeholders can be advanced if academic sustainability platforms receive institutional support through a central-coordination scheme. Distributed-agency work alone might lead to disjointed and sporadic efforts to classify as successful academic sustainability advancement. Some central-coordination is necessary to connect sustainability teaching and research to the institution's sustainability objectives.

Assessed collectively, any institution developing new sustainability policies and programs would benefit from the insight of a whole-institution approach – strongly championed by the literature – and this would understandably lead to a better embedding of sustainability throughout the institution (though, as suggested above, not as a blanket treatment for both academia and operations). The two sides have highly different characteristics of cultural orientations and accountability structures, so it is important to tailor an approach to better navigate and advance sustainability policy on each side. On this note, we acknowledge that weighing central-coordination and distributed-agency for policy implementation is often challenging. It is helpful to identify how each method would take shape differently in academia and operations. Ultimately, an understanding of the different approaches for academic and operational sustainability in the planning, execution and progress tracking phases would help substantially to develop sustainability programs and projects.

6. Discussion: suggested principles for good governance

Through our analysis, we attempted to confirm and elucidate distinctions between sustainability governance of the operational and academic sides of the university to better understand the diverse needs and reality of building a whole-institution approach to sustainability. In this concluding section, we suggest principles that hopefully work towards the whole institution approach by considering and upholding the university's multi-governance reality and potential [4]. Behind these principles is the need to build mutual trust across various cultures of the university, and resources to academic-operational bridging work, without which the startup and eventual continuity of sustainability work on an institution-wide scale may be unviable.

6.1 Taking an enabling role to embed sustainability throughout the institution

Recognition needs to be given to the importance of an “enabling” role on the part of both academic sustainability platforms and operational sustainability units. The aim is to embed sustainability initiatives within the many offices and departments that make up the institution, thus normalizing sustainability across the institution. Sustainability units and platforms would conceptualise various sustainability initiatives and kickstart the process, and eventually transfer responsibility for program delivery to engaged actors. Offices and departments have distinct priorities and might not have resources to devise sustainability initiatives on their own, especially if they represent a significant departure from existing portfolios. As such, initial support from sustainability platforms and units becomes a critical tipping point for actors to embrace sustainability objectives. As sustainability initiatives become increasingly integrated into the portfolios of many offices and departments, continued support from sustainability units and platforms may no longer be necessary for sustainability advancement.

6.2 Creation of a collective and inclusive narrative on sustainability for the institution

An institution-wide narrative on sustainability can be an effective tool to advance sustainability work at universities. When strategic planning includes sustainability objectives

and definitions, it opens doors to funding, incentive provision or increased facilitation for units and platforms conducting such work. This is especially true for administrations embracing the “enabling” role, as academic sustainability advancement is already being included as an item or even among the main pillars of administrations’ strategic planning. As academic sustainability becomes an institution-wide objective with a central-coordination mandate, operations can top up existing operational support for academic initiatives. Also as some department-specific funding currently targets only a specific subset of sustainability, a more comprehensive narrative at the institutional level could supplement such funding and intuitively include more projects as part of the university’s sustainability research portfolio. Finally, a comprehensive narrative can have external implications, in terms of reputation, faculty staff and student recruitment and funding.

6.3 Integration of academic and operational sustainability

As noted above, a “whole-institution approach” has often been championed as it is believed to foster better coordination between the academic and operational sides to advance sustainability as a whole. We argue that it is important not to mistake this with a blanket approach, as recognizing the key differences in approach is crucial. Across the universities we examined, numerous commonalities currently exist in reporting structures as both academic and operational sustainability actors often report to the same administrative–operational leadership, e.g. presidents and vice-presidents, chancellors, or Governing Councils. However, in the long run, the absence of academic actors at the top reporting structure may cause challenges for academic sustainability work, particularly the engagement of faculty and departments. To counteract this, several universities have already included reporting structures for platforms that reach the Senate and Provost. Still the operational link is kept with several academic sustainability platforms having directors with a branched reporting system to both operational and academic leadership.

A more promising method for integration might be through mandated collaborative working groups, where balanced membership of operational and academic actors is also expressed through joint leadership of a professor and operational manager. Each actor understands how best to spur engagement within their respective side and contribute to a well-rounded solution. Occasional embrace of this governance model at some universities is supplemented by the more widespread Living Labs, with its academic-operational collaborative nature and overall success as a university’s signature sustainability projects. This positive integration also becomes part of the institution’s narrative of successful sustainability advancement.

6.4 Leveraging community engagement for transdisciplinary research

Active participation and funding are essential for sustainability advancement. A model which might address both is an advisory council of community members, already practiced by several operational sustainability units and academic sustainability platforms. Some initiatives have advisory councils of staff, students and faculty while others include industry, government and civil society representatives. The latter is especially innovative, as closer connections with society can facilitate better partnerships, real-world project application and other forms of collaboration. With sustainability encompassing diverse disciplines and experiences, it is crucial to move away from extractive research modes and to develop reciprocal and respectful relationships with non-academic partners so transdisciplinary knowledge co-production can flourish. These avenues serve as potential expansion points for sustainability work and might help units and platforms achieve heightened societal engagement. However, attention still needs to be placed on the different cultures between academia and society and compatibility of their sustained collaboration.

6.5 More work needed to embed sustainability across university curricula

A sustainability curriculum can take on various forms – general sustainability courses, full programs and degrees, voluntary sustainability curricular patterns and others. One approach is to develop a mandatory introductory sustainability course for all students. A different approach has been to curate a curriculum based on voluntary participation, regardless of a student's program. Given the breadth of disciplines in sustainability – likely further influenced by the institution's narrative on sustainability – such a model would be relatively easy to implement and fit into existing interdisciplinary and transdisciplinary structures. Also, sustainability curriculum does not need to be institution-wide as universities with distinct college or campus systems may be best suited to implement a tailored approach. Similarly, a promising curriculum innovation has come from changing a single threshold-based certification system to a multi-tier program, which rewards levels of engagement with sustainability content.

7. Conclusion

While much of the literature on sustainability at higher education institutions emphasizes the value of a whole institution approach to sustainability, how this can best be achieved is less clear. Through analysing the domains of sustainability activity and governance structures of 10 universities in Canada, the USA, Australia, Hong Kong, South Africa, Brazil, the UK and The Netherlands, our research found distinct cultures, governance models and accountability structures within the academic and operational sides of the university. The academic side at these universities primarily functions through a distributed agency model and the operational side follows a central coordination model. Moreover, the positionality of actors appointed to lead institution-wide embedding of sustainability influenced the prioritization of certain domains of activities over others. We suggest that a tailored approach to sustainability governance, which connects both institutional cultures in a nuanced way, would be desirable. We recommend six principles for good whole-institution sustainability governance, where action is institutionally enabled, the narrative inclusive, academic and operational sustainability integrated, transdisciplinary research prioritized and sustainability embedded across the university curriculum.

Future research should focus on identifying new governance roles, collective practices and outcomes that emerge and new cultural narratives. As an adaptive concept, governance dynamics may change depending on the actors involved, the roles they take on *vis-à-vis* the institution's strategic goals or new directions in how sustainability is perceived. They also may change as whole institution approaches mature and evolve over time. Similarly, collective practices between cross-functional actors require striking an integrative balance that should be continually informed by studies of a larger sample of institutions and larger geographical coverage. Indeed, further investigation into approaches in developing country universities is needed to provide a richer understanding of this topic and more widely applicable insights. Finally, specific cultural narratives can vary in their effectiveness to mobilise an institution towards sustainability based on traits such as historic working culture and the fabric of the communities it serves, which means more insights are needed on the viability of a broader spectrum of cultural narratives for sustainability.

Notes

1. Post-interview, the University of Edinburgh created the Edinburgh Earth Initiative in 2021 for coordinating, stimulating and promoting climate change research and impact partnerships, particularly with the Global South.

2. Monash University's "Impact 2030 Strategic Plan," released in 2021, demonstrates a centralised push to establish "coordinated governance structures" to achieve "operational sustainability." This goal suggests the possibility for operational leaders to be embedded within the formal accountability structures of academic sustainability governance (and vice versa).
3. An alternative terminology distinguished between the organisational *pyramid* on the operational side and the infinite *plane* of faculty on the academic side. See John Robinson, "Universities and the Climate Crisis", Breaking Boundaries Podcast, Buffett Institute for Global Affairs, Northwestern University, Evanston, IL, Oct 25, 2021. <https://buffett.northwestern.edu/events/event-calendar/universities-and-the-climate-crisis-with-john-robinson-and-jennifer-dunn.html> (0:00-17:08).
4. These suggested principles, initially ten in total, were part of a 2020 report to the U of T President by Professor John Robinson, Co-Chair of the President's Advisory CECCS, based on his years of sustainability consultations and meetings at many universities. The version in this paper was adapted to our research analysis and incorporated insights from sustainability actors at participating universities.

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