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Are the sustainable development goals transforming universities? – An analysis of steering effects and depth of change

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ABSTRACT

Universities are increasingly engaging with the Sustainable Development Goals (SDGs). Appeal for the SDGs is partly based on their double transformation framing: they are seen as enablers of societal transformations and transformations within universities. This article aims to understand how the SDGs influence university transformations. We analyse how four universities have integrated the SDGs through a comparative case study. We propose a framework to determine the impact of the SDGs in universities by identifying their scope of change (i.e. discursive, institutional, relational, and resource effects) and depth of change (i.e. accommodative, reformative or transformative). This study shows that discursive effects are the most prominent hinting toward transformative change. To lesser extents, primarily accommodative, the SDGs have influenced institutional, relational, and resource changes. Overall, findings show that for the SDGs to fulfil their transformative potential in universities, they should be used as more than communications and legitimizing tools.

1. Introduction

> "If universities do not embrace the Agenda 2030, the Agenda will be difficult, even impossible, to achieve." (Parr et al., 2022, p.19).

Seven years have passed since the adoption of the Agenda 2030 and its 17 Sustainable Development Goals (SDGs). Although the direct inclusion of the Higher Education (HE) sector in the Agenda and the SDGs is considered limited (McCowan, 2019; Kohl et al., 2022), universities increasingly regard themselves as essential actors in the achievement of the Goals (Sterling, 2021; Parr et al., 2022).

The SDGs are a set of interlinked and interdependent goals agreed upon by 193 UN member states, proposing a vision of a just and sustainable world for 2030 (UNGA, 2015). Central to the SDGs is the commitment to *leave no one behind* (Long, 2018) and the recognition that different societal actors, including the HE sector, must partner to achieve this proposed future (UNGA, 2015).

The SDGs are not only proposed as a unifying agenda enabling partnerships between universities and other societal actors to address global challenges (Purcell et al., 2019) but the SDGs are also commonly proposed as a framework that should drive changes within universities (SDSN, 2017; Franco et al., 2019; Leal Filho et al., 2021). This understanding of the SDGs – as enablers of societal transformations and transformations within universities (Steele and Rickards, 2021) – resonates with decades-old calls for change in HE. In these calls, it is argued that to support societal transformations towards just and sustainable futures, universities should become objects of change themselves (Cortese, 2003; Tilbury, 2013; Sterling, 2013; Michelsen, 2016).

As a result of the rising attention to HE and the SDGs, universities around the globe are becoming increasingly interested in engaging with the Goals (Mallow et al., 2020; Chankseliani and McCowan, 2021). Examples of this engagement include signing voluntary commitments to the SDGs (e.g. The SDG Accord) and joining SDG-focused HE networks, such as the Sustainable Development Solutions Network (SDSN) (Ruiz-Mallén and Heras, 2020). The Times Higher Education (THE) Impact Rankings, which uses the SDGs to evaluate societal impact, have also influenced universities' interest in the Goals. This influence is most notable in the increase of participating universities in the last four years: from 467 universities in 2019 to around 1410 universities in 2022 (THE, 2022).

Although the interest of universities in the SDGs is increasing, and multiple examples of universities' engagement with the Goals are emerging, questions remain about the influence of the SDGs on university transformations. In particular, as a recent review has demonstrated, it is still unclear how the goal-setting approach of the SDG framework is influential as a governance mechanism, i.e. to what extent the framework produces desirable 'steering effects' (Biermann et al.,

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2022a). To address this gap, this study analyses how universities are engaging with the Goals and, through a case study of four universities, answers the following research question:

How are the SDGs generative to steering effects on university transformations for sustainability?

In this paper, we use the concept of steering effects to analyse if the SDGs have brought about changes in university discourses, structures, policies, and resource allocation, as well as how university actors relate to each other and to societal actors. Furthermore, our understanding of university transformations for sustainability is informed by Sterling (2013, 2021). We distinguish among the depths of change universities can undergo in response to sustainability and the SDGs. These changes can be accommodative, reformative or transformative (see Section 3). It is only at the latter depth of change where we recognise a transformation of the university. Thus, transformative change happens when sustainability becomes the *ethos* of the university, leading to a fundamental redesign of the institution. This redesign entails whole-institutional changes in university policies, practices, and programmes, as well as shifts in the university's underlying purpose (i.e. what the university is for), societal roles, and values (Sterling, 2013; Adams et al., 2018; Weiss et al., 2021).

The remainder of this paper is structured as follows. Section 2 offers a brief overview of research on universities and the SDGs. Section 3 introduces the analytical framework used to answer the research question. This section also details the research design and introduces the four universities included in this study. Section 4 presents the results, which are discussed in Section 5. This section also reflects on the analytical framework as a tool to understand the influence of the SDGs on university transformations. Finally, Section 6 presents the conclusions.

2. How has academic literature studied universities' engagement with the SDGs?

An increasing amount of academic literature explores how universities align or contribute to the Goals. The majority of this literature focuses on changes in education (i.e. first mission[1]) for the SDGs (Leal Filho et al., 2019; Fia et al., 2022; Serafini et al., 2022). Research in this area includes, but is not limited to: curriculum change and SDG-course inventories (Brugmann et al., 2019; Aleixo et al., 2020; Pallant et al., 2020; Chang and Lien, 2020); placed-based pedagogies (Warwick et al., 2019); co-curricular and extra-curricular activities (Ilham et al., 2020); sustainability competencies (Dlouhá et al., 2019; Alm et al., 2021); and teacher education (Chissingui and Nilza, 2020).

Compared with the literature on education and the SDGs, studies linking the Goals with the university's research mission (i.e. second mission) are less extensive. Studies in this area include SDG-research inventories to foster collaboration among researchers (Goodall and Moore, 2019), and partnerships across universities to promote the SDGs in academic research based on the indivisible nature of the SDGs (Körfgen et al., 2018). Studies also include frameworks to identify and leverage research clusters with significant potential to address multiple types of SDGs (Romero Goyeneche et al., 2022). Finally, literature linking third mission[2] activities and the SDGs commonly reports how universities collaborate with a wide range of societal actors and contribute to the Goals (e.g. Neary and Osborne, 2018; Körfgen et al., 2018; López López et al., 2019; Albareda-Tiana et al., 2020; Brandli et al., 2021).

Only a small body of work has analysed whole-institution approaches for SDG integration (i.e. through all three missions). For example, Paletta and Bonoli (2019), Mori Junior et al. (2019), Shiel et al. (2019), and Hansen et al. (2021) all describe university-wide efforts to integrate the SDGs at, respectively, the University of Bologna (Italy), RMIT University (Australia), Bournemouth University (UK), and University of South Florida (USA).

The literature introduced above presents different ways universities incorporate the SDGs, through single missions or as whole-institutions. However, these studies seldom investigate the SDGs as a governance mechanism. In other words, they rarely analyse the influence of the Goals in steering universities towards a desirable transformation. Furthermore, these studies often take the form of single-case studies. Thus, comparisons across cases – to identify variables, patterns or processes – are challenging. Against this background, there remains a need for a deeper and more systematic analysis of how the SDGs influence university transformations, specifically, the scope and the extent of these changes.

3. Research design

3.1. Analytical framework

As presented in the introduction, our paper is guided by the following research question:

How are the SDGs generative to steering effects on university transformations for sustainability?

In order to address this question, we propose an analytical framework, presented in Fig. 1, based on Ordoñez Llanos and Raven (2022) four *SDG steering effects*. We also use an adaptation of Sterling's (2013) *depth of sustainability change in universities* to study the extent of change in our cases.

3.1.1. Depth of change in universities

The first framework used in this study is based on Sterling's (2013) *depth of sustainability change in universities*. Although this framework did not include the SDGs in its conception, we have adapted it to identify the extent of change in universities in response to their engagement with the SDGs. The framework distinguishes between: no change, accommodative, reformative, and transformative change.

Firstly, no change means that the SDGs are not integrated into parts of the university; thus, there are no steering effects. Secondly, accommodative change is characterised by integrating the SDGs into the existing system, "which otherwise remains unchanged" (Sterling, 2013, p.35). Furthermore, SDG integration happens in isolated parts of a university, and these initiatives are often disconnected. Moreover, SDG-driven efforts are considered legitimate but are often contradicted by other agendas that are formally or informally endorsed by the university (Sterling, 2013, 2021).

Further to no change and accommodative change, the integration of the SDGs in universities can lead to reformative change. Reformative change occurs when universities question the underlying assumptions and norms constituting the 'normal' (Sterling, 2013) and, thus, reformulate policies, programmes, and institutional norms (Sterling, 2021). Overall, SDG integration leads to significant changes across the university.

Finally, the fourth depth of change refers to transformative change. This type of change happens when engagement with the SDGs allows universities to "deeply question paradigms, and therefore, purposes, policies, and programmes" (Sterling, 2013, p.36). SDG engagement also leads to redesigning norms and structures, which entail, among other changes, how the university relates to other societal actors for and because of the SDGs.

It is worth reiterating that Sterling's (2013) proposal was not initially intended to analyse the impacts of the SDGs in universities. Instead, Sterling proposed it to analyse the depth of change in universities based on their response to the broader sustainability agenda. However, in more recent work, Sterling (2021) recognises that the SDGs are the most current and popular representation of the sustainability agenda, and

[1] In HE literature, the education mission is commonly referred to as the first mission of universities, and research as the second mission.

[2] For an overview of different understandings of the so-called third mission, see Pinheiro et al. (2015).

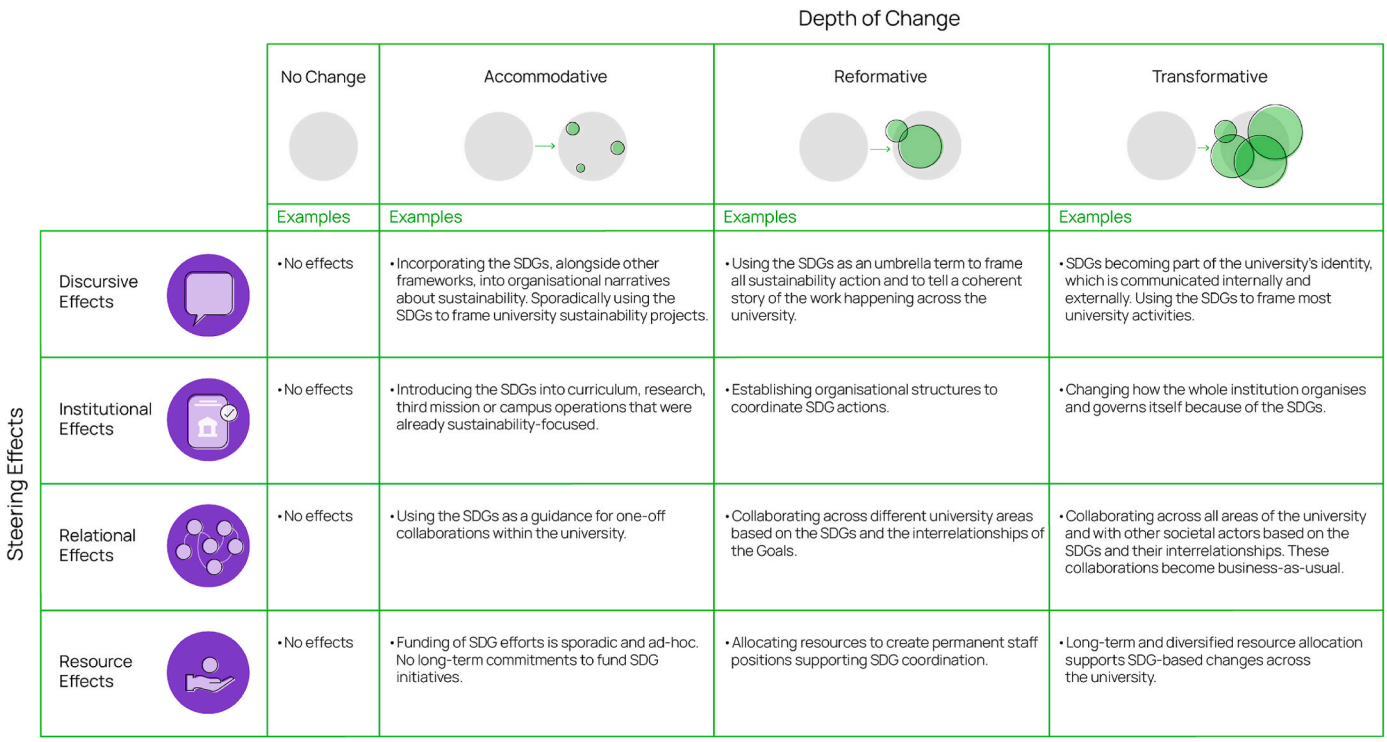

Fig. 1. Analytical framework combining SDG steering effects (Ordoñez Llanos and Raven, 2022) and depth of sustainability change in universities (Sterling, 2013). Some examples are based on (Ruiz-Mallén and Heras, 2020) and (Niedlich et al., 2020).

engaging with them is easier than with the more ambiguous concept of sustainability. Nevertheless, as seen in the Discussions Section, interpreting transformative change as changes for the SDGs can present some issues. As Sterling (2021) recognises, a transformation would entail embracing the SDGs seriously, thus, examining and changing the "structural factors that led to the multiple crises that made the SDGs necessary in the first place whilst also interrogating the concept of sustainable development itself" and the SDGs (p.3). Therefore, we recognise that for universities, transformative change would entail engaging with the SDGs whilst interrogating their limitations.

3.1.2. SDG steering effects

The second framework allows us to investigate the particular effects of the SDGs in universities (i.e. scope of change). This framework distinguishes four steering effects: discursive, institutional, relational, and resource.

Discursive effects include "references to the SDGs […] in organisational narratives, external communications, and strategic documents" (Ordoñez Llanos and Raven, 2022, p. 61). These effects capture the extent to which the SDGs have been used in university communications and strategic documents and how these documents use the Goals (i.e. to communicate what?). Discursive effects also capture whether the SDGs have led to shifts in official university narratives. Fig. 1 shows examples of accommodative discursive effects, including incorporating the SDGs into organisational narratives about sustainability but mentioning the Goals alongside other sustainability or social impact agendas. In contrast, reformative discursive effects are seen when the SDGs frame all sustainability and social impact efforts to tell a coherent story of the sustainability-related work happening across the university. Finally, transformative discursive effects happen when the SDGs become part of the university's identity, framing the majority of university actions, which are widely communicated internally and externally.

In addition to discursive effects, the framework allows us to identify the institutional changes driven or influenced by a university's engagement with the SDGs. Institutional effects are "changes in rules and institutional arrangements in support of the goals" (Ordoñez Llanos and Raven, 2022, p. 60). Accommodative institutional effects include limited and 'obvious' changes within universities (Sterling, 2021), such as integrating the SDGs into curricula or degrees that already focus on sustainability. Instead, reformative institutional effects are more widespread and embedded into the university, including comprehensive changes across education, research, the third mission, and campus operations. For instance, using the SDGs to redesign study plans and curricula across the university. Reformative institutional effects also include establishing new structures, or repurposing existing ones, such as institutes and departments, to coordinate SDG actions. Finally, transformative institutional effects include fundamental changes in how the university is organised and governed because of the SDGs.

The steering effects framework also considers the relational effects of SDG integration. Relational effects refer to "changes in relations between actors, such as new partnerships, to deliver on the goals or contestation among actors around their implementation" (Ordoñez Llanos and Raven, 2022, p. 61). Accommodative relational effects can include small-scale and one-off collaborations based on the SDGs. These collaborations often happen between university actors interested in sustainability. Conversely, reformative relational effects include SDG-based collaborations across multiple university areas, which are supported by installed processes and policies. Moreover, collaborations can also cross university boundaries and include partnerships with other universities and societal actors, often governments. These collaborations with societal actors are also expected at the transformative depth of change. However, at the latter, partnerships based on the SDGs usually include multiple societal actors (e.g. governments, civil society, local communities, private sector). Moreover, these partnerships become a common way of carrying out education and research, and are valued because of their mutual benefit to the university and other actors. Additionally, collaborations are guided by a deep understanding of the indivisible nature of the SDGs, thus, paying particular attention to potential SDG synergies and trade-offs.

Finally, resource effects cover "changes in resource allocation to

address the goals" (Ordoñez Llanos and Raven, 2022, p. 61). Accommodative resource effects include funding one-off SDG projects without a commitment to support these actions in the long term. In contrast, examples of reformative resource effects include resource allocation to create permanent staff positions related to the SDGs. Overall, resources are more consistent and come from universities themselves and from increased partnerships with other societal actors. Finally, transformative resource allocation is long-term and supports major changes across the university.

3.2. Methodological approach

We conducted a comparative case study to analyse the influence, in terms of scope (steering effects) and depth of change of SDG integration. According to Corcoran et al. (2004), case studies are ideal for investigating sustainability in universities since they allow for an in-depth study of complex subjects (i.e. universities), engaging with complex concepts (i.e. sustainability and SDGs). Case-study methodology also allows researchers to consider the contextual factors influencing university integration of sustainability (Corcoran et al., 2004; Barth, 2013).

A comparative case study was selected instead of a single-case study, since we aim to reflect the multiplicity of approaches to SDG integration in universities. Furthermore, comparative case studies are deemed more suitable when the study aims "to contribute to institutional practice elsewhere" and not "only improve one's own institutional practice" (Corcoran et al., 2004, p. 18).

3.2.1. Case selection

The comparative case study included four universities: two in Australia and two in Mexico, presented in Table 1. Multiple factors influenced case selection. Firstly, and most importantly, we selected the cases based on: (1) their differing ways of understanding their role in sustainability transformations and, thus, engaging with sustainable development and (2) their different degrees of SDG presence. These two reasons for case selection are further explained in the following paragraphs.

First, universities were selected based on their differing framings of their role in sustainability transformations. We used Cuesta-Claros et al. (2021) comparison of four normative university models: 1) the Human Development University (Boni and Walker, 2013, 2016), which proposes a role of universities as enablers of well-being, empowerment, and freedom; 2) the Developmental University (McCowan, 2019), which understands the role of universities as knowledge democratisers for sustainable development, underpinned by social justice concerns; 3) the Transformative University (Trencher et al., 2014), proposing universities as co-creators of solutions for sustainable development; and (4) the Post-Developmental University (McCowan, 2019; Perales Franco and McCowan, 2021), presenting universities as knowledge pluralisers, going beyond sustainable development and engaging with alternative forms of a good life and of being a university.

Each selected university resembled one of the first three models. The first university, Western Sydney University (WSU) mainly aligned to the Developmental University model, based on WSU's founding purpose of reducing inequalities in its local region through widening access to HE and catering to its community needs. The second university, Instituto Tecnológico de Estudios Superiores de Occidente (TS), mostly resembled to the Human Development University model, given its work in engaging with communities and marginalised groups around Mexico (e.g. immigrants) and focusing on empowering and bettering their lives. Finally, Monash University (MU) and Instituto Tecnológico de Estudios Superiores de Monterrey (TM), showed strong indications of the Transformative University model. Both universities are currently redirecting their education, research, and enterprising and technology transfer missions to create solutions for sustainable development.

We could not find a university that strongly resembled the Post-Developmental University model, as the model largely remains an ambition for alternative institutions rather than mainstream universities. However, the selected universities, through specific strategies and programmes, showed indications of this model. This is the case of WSU, which foregrounds Indigenous Knowledges in its latest sustainability strategy, and TS, which supports the self-determination of First Nations peoples, through its interculturality programmes.

The second criterion guiding the selection of universities was SDG presence. Universities were considered for the case study if they had at least: 1) joined an SDG-focused university network; 2) participated in the THE Impact Rankings; and 3) published sustainability plans or reports which referenced the SDGs. Based on an initial screening of strategies and websites, TM and WSU showed high SDG-presence, MU showed medium-high SDG-presence, and TS showed medium-low SDG-presence.

Additionally, the selection of countries and universities was partly pragmatic. Universities were chosen based on our level of familiarity with the national HE systems where the universities are located, language practicalities, access to data, and possibilities to conduct fieldwork[3].

Lastly, Australian and Mexican universities were selected because there is a paucity of studies analysing SDG integration in universities from these countries. This initial observation, made in 2021, was confirmed by Serafini et al. (2022). According to these researchers, most case studies on SDGs and universities have focused on the experience of European universities. Therefore, in this paper, we expand the knowledge of SDG integration in universities by focusing on countries that have been so far ignored in this type of academic literature.

3.2.2. Data collection and analysis

The case study was based on a total of 54 semi-structured interviews with different types of university actors in 2021 and 2022, with an average of 13 participants per university. These actor groups included:

- Students (members of student associations or sustainability initiatives)
- Academics (lecturers and researchers)
- Senior management and leadership
- Partnerships and engagement staff
- Sustainability coordinators

Aligned with guidelines for purposive sampling in qualitative studies, such as Bryman (2016), participants were selected if they were central to the main topic of interest. In other words, participants were selected if they had led or were heavily involved in SDG integration at their universities. In each university, we ensured to interview at least one person from each actor group (see Appendix A). Apart from gaining in-depth knowledge of SDG integration in each university, different types of university actors were selected to juxtapose perspectives (e.g.

Table 1
Universities included in comparative case study.

University	Country	Foundation Year	Type	Students
MU	Australia	1958	Public & Research-intensive	76,527[a]
WSU	Australia	1988	Public & Research-led	47,9711[b]
TM	Mexico	1943	Private & Teaching-oriented	67,630[c]
TS	Mexico	1957	Private & Teaching-oriented	10,560[d]

[a] Based on 2021 Annual Report, available at: https://bit.ly/3BD5Bpd.
[b] Based on 2021 Annual Report, available at: https://bit.ly/3LbRbiT.
[c] Based on 2021 figures, available at: https://bit.ly/3DgoXSa.
[d] Based on 2021 figures, available at: https://bit.ly/3RQ5xrk.

[3] However, due to COVID 19 restrictions, it was not possible to travel.

Pflitsch and Radinger-Peer, 2018; Niedlich et al., 2019). Depending on the university, some actors had worked for several years in sustainability-related roles or areas at their universities. These participants had either officially incorporated the SDGs in their work or changed positions to SDG-specific roles. Other actors were recently hired for SDG-specific positions.

The number of participants per case mainly relied on data saturation. Specifically, in this case study, the saturation point was reached when: (1) interviews ceased to generate new insights into SDG integration and (2) recommendations of potential interviewees were repetitive Bowen (2008). In the former, interviewees would describe SDG-related initiatives happening at their universities that other interviewees already explained; thus, they would not contribute to further understanding the influence of the SDGs in universities. In the latter, when interviewees were asked to suggest other interviewees involved in SDG integration at their universities, they would recommend people that had already been contacted for interviews.

In addition to reaching saturation point, the number of interviews per case was commensurate to recent publications in Higher Education for Sustainable Development (HESD) literature studying sustainability-oriented transformations within universities, which yielded valuable insights. Recent publications include Pflitsch and Radinger-Peer (2018), Niedlich et al. (2019), Baker-Shelley et al. (2020), and Schopp et al. (2020). This literature also informed the types of university actors included in the case study.

Further to the interviews, the analysis strongly relied on university documents, such as university-wide strategic plans, sustainability plans and reports, public presentations of said strategies and plans, university websites, and public commitments to the SDGs from universities. These documents, included in Appendix C, were critical for data triangulation in two ways. Firstly, they were used to verify if SDG-related changes described by interview participants were, in fact, happening at their universities. When information on particular initiatives was not found in these documents, the main author would follow up with the interviewees asking for information that would support their claims (e.g. official reports and website links). Secondly, these university documents were taken as the university's official stance concerning the SDGs. As such, they were used to compare how a university would refer to the SDGs against how university actors – with multiple ways of understanding the SDGs – would refer to the Goals. This comparison was particularly useful when analysing discursive effects.

The average duration of an interview was 60 min. These interviews were structured based on the analytical framework, including specific questions about the four steering effects and their depth of change. During these interviews, university actors were asked about policies, plans, reports, and projects integrating the SDGs in their universities. Interviewees were also asked about their experiences with these initiatives, and their opinion of their university's engagement with the SDGs. Interviews were held in English and Spanish (see Appendix B for the interview protocols). All interviews were transcribed and coded in the language of the original interview and then analysed in English.

Interviews and secondary data were deductively coded based on the pre-defined categories from the analytical framework. Regarding steering effects, given their interconnected nature, if a particular data point described more than one effect, the information was assigned to both codes for further analysis. For example, creating a new department was both an institutional effect, given a newly established structure, and a resource effect, given the resources needed to establish the department and hire personnel. Furthermore, codes describing steering effects were complemented by sub-steering effects, which were inductively coded. All steering and sub-steering effects are presented in the Results Section. Finally, to determine the depth of change of each steering effect, we combined the interviewees' reflections and assessments of their university's overall approach to the SDGs, with our analysis of primary and secondary data against the definition of each depth of change (i.e. accommodative, reformative, and transformative). Examples of typical quotes describing each steering effect based on their depth of change are included in Appendix D.

Table 2
Inclusion of SDGs in university documents. See Appendix C for a list of reviewed documents and their references.

		MU	WSU	TM	TO
Strategic Documents	University-wide strategy	✓	✓	✓	×
	Sustainability plan	✓	✓	✓	N/A
	ESG statement	✓	N/A	N/A	N/A
Reports	Sustainability report	✓	✓	✓	✓
External Communications	External presentations	✓	✓	✓	✓
	University news	✓	✓	✓	✓

4. Results

4.1. Discursive effects

To analyse discursive effects, we first identified if the SDGs were mentioned in university strategic documents. As shown in Table 2, the SDGs are mentioned in various documents, such as university-wide strategic plans, sustainability plans, and reports. In the case of MU, the SDG framework is also present in the Environmental Social Governance (ESG) statement (MU1). This type of document has not been adopted at the other three universities. Moreover, TS has not yet published a university-wide sustainability plan. Further to the official documents, the SDGs are mentioned in external communications, such as

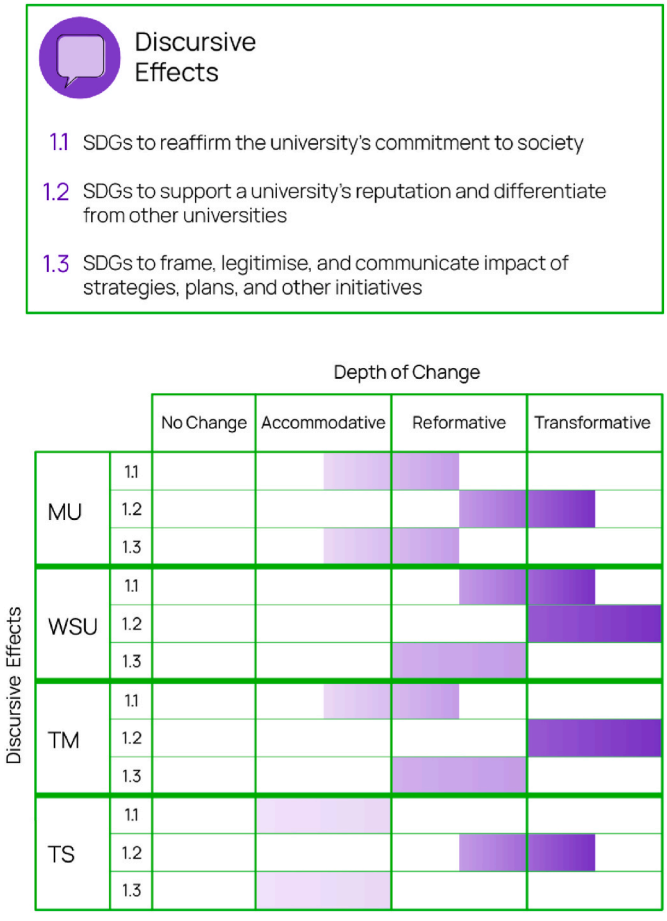

Fig. 2. Discursive effects and their depth of change in each university.

university news (e.g. TM1; WSU1) and during presentations from senior management to other actors working on sustainable development (e.g. MU2).

Central to the discursive effects is understanding the types of messages supported by the SDGs in these various strategies, reports, and presentations. Fig. 2 presents the three main discursive effects found in the study and the depth of change of these effects in each university.

Across the four cases, the *SDGs are used to reaffirm the university's commitment to society (discursive effect 1.1)*. In WSU's strategic documents and university news, the SDGs are commonly presented as a framework that demonstrates the university's founding role as an 'anchor institution' (reformative/transformative 1.1). In this role, universities are deeply embedded in their regions and committed to improving their local communities (Goddard et al., 2016). As stated by interviewee 17: "The university is very proud of its role and […] I do see it quite a lot, the role of anchor institution in our university, and we are very proud of that role and it is increasingly used together with the SDGs." To a lesser extent, TM also uses the SDGs to demonstrate its commitment to society. However, TM's strategic documents usually refer to the university's new vision of 'human flourishing' instead of the SDGs. The Goals are only presented as an enabler of this new vision (accommodative/reformative 1.1). According to interviewee 26, the concept of human flourishing for the university is relatively new, thus, the university is still "figuring out what it means, but obviously the SDGs are part of it. Even when they are not visible, they are always present". Similarly, at MU, the SDGs are considered enablers and do not take a central stage in narratives referring to MU's commitment to society (accommodative/reformative 1.1). Instead, the focus lies on MU's new strategy, with its 'three global challenges', i.e. climate change, thriving communities, and geopolitical security (MU3). Furthermore, the SDGs are often introduced in strategic documents alongside other frameworks such as the Talloires Declaration. Finally, the SDGs are only mentioned a few times concerning TS's commitment to society (accommodative 1.1). Instead, strategic documents refer to the university's Jesuit legacy, which focuses on social and environmental justice. Additionally, interviewees believe other frameworks, such as Pope Francis's encyclical '*Laudato Si',* are more relevant to communicating the university's societal roles than the SDGs (interviewees 44, 48, and 51). According to interviewee 51, the university's "commitment to society has always existed and has been our identifier. And it has always been underpinned by our commitment to social justice and to support a more plural and more diverse society. The SDGs could easily be aligned to this, but there are other frameworks and documents, such as Pope Francis's two last encyclicals, that act as referents in how we see and communicate our role in society".

The SDGs are also used in strategic documents and public presentations to support *the universities' emerging reputation as SDG leaders, thus differentiating themselves from other universities (discursive effect 1.2)*. Both MU and WSU are portrayed as international SDG leaders. However, whilst MU mainly communicates this leadership position to external audiences (reformative/accommodative 1.2), WSU does so internally and externally (transformative 1.2). These leadership statements are commonly supported by their ranking in the THE Impact Rankings, where, in 2021, WSU ranked first and MU ranked 42nd (THE 2022). According to interviewee 17, at WSU, "the only rankings we've been extremely successful are the SDG Impact Rankings, which rankings didn't matter to us until they did. And now we're very proud of that and the university now presents us as leaders of the SDGs." Similarly, rankings are used to describe TM as the "leader of the SDGs in Mexico" (interviewee 35). Furthermore, TM uses its newly established leadership role in university networks (e.g. SDSN), to support its SDG-leader image (transformative 1.2). Finally, TS also uses rankings to be described as the "most sustainable private university in Mexico" (TS1; TS2; interviewee 41). However, these leadership claims are also based on other rankings, such as UI GreenMetric, to support its positioning (reformative/transformative 1.2).

Although most interviewees deemed the SDG-leaders image as a positive framing, other interviewees expressed their concern about how these claims can discourage people at the university from engaging critically with the Goals. According to interviewee 20, "the university is not looking at the SDGs critically. On the contrary, they are using it to their own advantage, as a marketing strategy in a very utilitarian way.".

Finally, the SDGs are most commonly used to *frame, legitimise, and communicate the impacts of university actions (discursive effect 1.3)*. However, it is essential to distinguish between ex-ante and ex-post SDG alignment. Ex-ante alignment happens when projects are explicitly designed to address or engage with the SDGs. In those cases, their relationships to the SDGs are communicated as such. Examples include TM's SDG Initiative (ODS en el Tec in Spanish) and MU's practical guidance for SDG integration at universities (SDSN 2017). In contrast, ex-post alignment happens when projects do not consider the SDG framework during their design or implementation phases but use the SDGs retrospectively, to communicate their relevance and impact.

Across cases, ex-post alignment is common because the SDGs are considered a useful communication tool raising the visibility of sustainability efforts (interviewee 16). For example, at MU, WSU and TM, the SDGs are used to frame researchers' expertise around specific SDGs. Furthermore, at WSU, the SDGs have allowed people working on sustainability to tell a coherent institutional story of the projects happening across the university (interviewee 22). The latter can be seen when comparing WSU's sustainability reports from 2016 against 2020 and 2021 (WSU2; WSU3; WSU4), where we observe an increase in SDG usage as a guiding framework to present sustainability work (reformative 1.3). SDG framing at WSU can also be observed in the university's living labs – which link education, research, campus operations, and societal engagement – where the SDGs are used to communicate the impact of these projects on the university and its local communities (interviewee 16). Similarly, TM's social impact report (TM2) has adopted the SDGs to present 800+ university initiatives (reformative 1.3). This ex-post alignment is acknowledged by interviewee 39 at TM: "We are aware that our projects were born out of a necessity we observed in the community. However, when we hear that the world is looking at the SDGs, we can identify the commonalities between our projects and specific SDGs." Furthermore, interviewees at TS see benefits to "translating their projects following the logic of the SDGs" (interviewee 51), since the Goals can help legitimise sustainability projects, which could be considered radical by other actors (interviewees 45 and 48). However, this practice only happens as a high-level framing in TS's sustainability report (TS1) (accommodative 1.3). As expressed by interviewee 54, ""In our day to day, we do not use the SDGs. We do recognise that our work intersects with the SDGs, but we already had our own concepts to refer to our projects. In our case, we talk about our projects as 'articulated nodes', and people at the university know what we are talking about. They are based on complexity theory. […] Where I have mainly seen the SDGs mentioned is in our Sustainability Report."

Although SDG-framing is becoming popular at MU, this practice is rarely used to identify all sustainability-oriented work (MU4) (accommodative/reformative 1.3). Furthermore, interviewees approach SDG framing differently. According to interviewees 1 and 2, "some of us like putting the logos of the SDGs that each of our projects contributes to" (interviewee 1) because "the SDG boxes are easily identifiable" (interviewee 2). Other interviewees do not use the SDGs to communicate their projects' impact, although they recognise the value of discursively aligning their work to the Goals (interviewee 10). In contrast, a few interviewees at MU prefer not to use the SDGs in their communications to avoid alienating people (interviewee 14).

Although SDG framing is becoming popular, concerns were shared across the cases. Interviewees are aware that using the SDGs to frame projects can become box-ticking exercises. As expressed by interviewee 17: "Unfortunately, I have started to see the SDGs being used in very shallow ways, but I guess that is the double-edged sword you have. Either people talking about this in whatever way they mean or not at

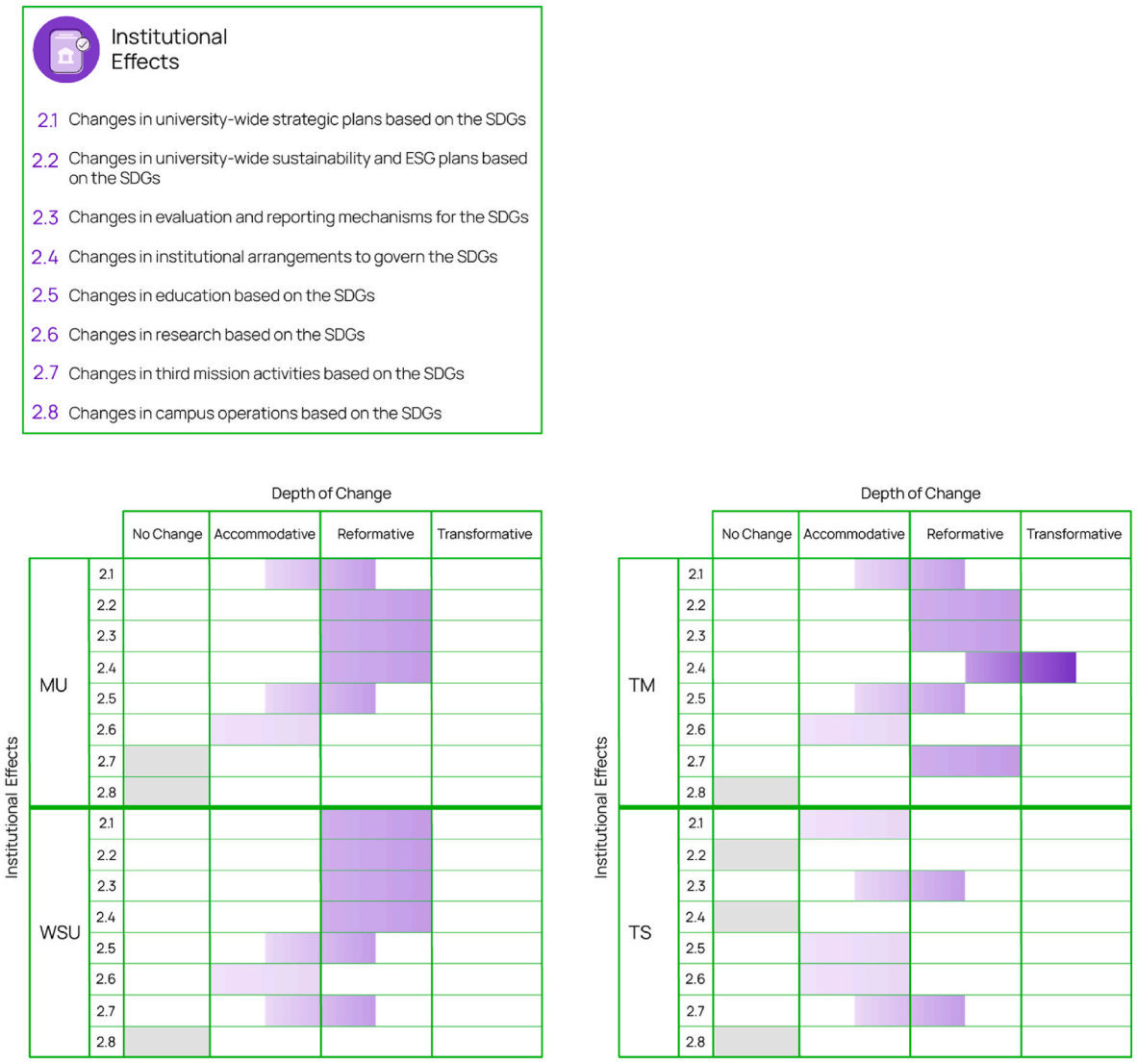

Fig. 3. Institutional effects and their depth of change in each university.

all". Furthermore, interviewees are wary of using the SDGs to frame the academic expertise of academic staff since they "do not always understand their assigned goal and associated targets" (interviewee 28). Finally, interviewees also critiqued how universities are using the SDGs at their convenience: "The SDGs are very much pulled to the front with specific projects, and they show great support when something aligns. But they magically disappear when something does not align." (interviewee 9).

Overall, in the four universities, SDG engagement has led to discursive shifts. Whilst WSU and TM's changes are reformative/transformative, MU's changes are mainly reformative, and TS's changes are accommodative/reformative.

4.2. Institutional effects

As mentioned earlier (i.e. Table 2), the SDGs are present in various university strategies and plans. However, institutional effects go beyond the inclusion of the Goals in strategic documents, as seen in Fig. 3.

Regarding strategies and plans, from 2020 to 2022, the four universities released five- or ten-year *university-wide strategies (institutional effect 2.1)*. Only three of them released *sustainability plans (institutional effect 2.2)*. As mentioned in the discursive effects, at MU, the new strategy focuses on three global challenges. Interviewees 12 and 13 argue that although the SDGs are not front and centre in the strategy, "the SDGs are intertwined" (interviewee 12) into it and "the three challenges can relate to several if not all SDGs" (interviewee 13) (accommodative/reformative 2.1). Furthermore, according to interviewee 13, it is better to narrow the focus to three than to have 17 university-wide priorities. However, other interviewees (e.g. 6 and 11) argue that the three global challenges should be placed within the broader SDGs framework.

Whilst the SDGs do not guide MU's strategy, the SDG framework is referenced four times in this document, most notably in relation to the ESG statement. This statement is partly based on the SDGs and aims to indicate the changes needed across the university regarding environmental and social sustainability (reformative 2.2). The ESG statement also introduces changes to reporting mechanisms against the SDGs (reformative 2.3). However, at the time of the analysis, details of how these changes would be adopted were not yet finalised. As expressed by interviewee 12, "you can see in these two documents that we have just released (Strategy and ESG statement) that we are committed to adopt new ways of reporting against the SDGs. It is already there, we cannot change it. We need to integrate our efforts and work out how to better report against the SDGs."

Similar to MU, the SDGs are included in TM's strategic plans but do not guide these strategies (accommodative/reformative 2.1). In contrast

to the other three universities, TM released two complementary strategic plans, a five-year and a ten-year plan (TM3; TM4). The SDGs are only mentioned in the former, where the university aims to link their actions to the SDGs, particularly to SDG 13 – climate action. Based on this limited and vague incorporation of the Goals, interviewees think the SDGs should be more prominent in strategies. This more robust integration would allow university actors to question the structures hindering progress in sustainability at an institutional level (interviewee 26). In addition to the strategic plans, TM released a Sustainability and Climate Change plan in 2021 (TM5). According to interviewee 28, the main drivers of this plan were climate change mitigation and adaptation. However, since the plan aims to introduce changes across the whole institution, the SDGs were instrumental in linking climate action to other sustainability challenges. Thus, introducing a more holistic understanding of sustainable development (reformative 2.2).

In 2021, WSU also released a five-year strategic plan (WSU5). This plan is guided by four principles: equity, transformation, connectedness, and sustainability. The SDGs strongly influence the latter principle (reformative 2.1), as seen in the indicator proposed to measure its success. This indicator states that through a whole-institution approach to sustainability, the university must retain its position within the top 10 universities in the THE Impact Rankings. Accordingly, evaluating and reporting against the SDGs is becoming part of WSU's business as usual (reformative 2.3). Additionally, WSU has released a Sustainability and Resilience Decadal Strategy (WSU6) to govern the university's sustainability action. The SDGs are included alongside Aboriginal and Torres Strait Islanders Indigenous Knowledges and Planetary Health as the three main frameworks underpinning the strategy (reformative 2.2). According to interviewee 22, "we drew on a range of different frameworks to think about the strategy, and they are all complementary". In particular, the SDG framework, as a set of interdependent goals, influences "how the strategy's priorities are interlinked" (interviewee 17). According to this interviewee, the strategy aims to focus on the indivisibility of the SDGs, as opposed to focusing on individual Goals.

Finally, TS also released a new five-year strategy in 2022 (TS2). This strategy focuses on three strategic priorities: academic excellence, Jesuit identity, and social and environmental impact. The new strategy differs from previous strategies because it introduces social and environmental impact for societal transformations as a priority. In contrast to the other three universities, TS's strategy does not include the SDGs. However, interviewees 48 and 51, stated that the SDGs informed the plan to some extent (accommodative 2.1). When asked why the SDGs were not included in the strategy, interviewees argued that the university already had specific priorities which speak to the SDGs but are not guided by them (interviewee 51). Furthermore, interviewees consider that the SDG's 2030 deadline does not align well with how universities think about time and impact (interviewee 50). Moreover, the SDGs are considered an agenda "whose global vision does not necessarily reflect local issues" (interviewee 51).

Besides changes to strategic plans, institutional effects also refer to *changes in reporting and evaluating mechanisms for the SDGs (institutional effect 2.3)* and *changes introduced to govern the SDGs across universities (institutional effect 2.4)*. Although TS does not have formal structures to govern the SDGs (*no change 2.4*), the university is integrating SDG-reporting mechanisms (interviewee 44), partly driven by the THE Impact Rankings (accommodative/reformative 2.3). Conversely, MU has two structures for managing the SDGs (reformative 2.4). The first one includes the ESG Working Group and the University Council behind the ESG statement, which oversee its progress and monitoring. According to various interviewees, the second structure is the Monash Sustainable Development Institute (MSDI). MSDI is a cross-university institute, considered the owner of the SDGs at MU, and is seen as the apparatus that other areas can consult about the Goals (interviewee 15). Moreover, MSDI's newly released five-year strategy has defined 'leadership for the SDGs' as one of its strategic priorities (MU5). Finally, WSU governs sustainability and SDG action through their C.O.R.E.[4] framework, which is defined as a "distributed governance framework that supports the delivery of the SDGs" (interviewee 17) (reformative 2.4).

However, the most evident structural changes can be seen at TM through the creation of a new Vice-Presidency of Inclusion, Social Impact, and Sustainability (VIISS in Spanish). This VIISS was developed to govern institutional efforts contributing to sustainable development and the SDGs, aiming to work across faculties and university missions (reformative/transformative 2.4). The VIISS is in charge of the Sustainability and Climate Change Plan and the university's social impact report mentioned earlier. Thus, TM has also developed mechanisms to report against the SDGs (interviewee 36) (reformative 2.3). Apart from VIISS, another structure, the SDGs Initiative, was created to guide TM's engagement with external actors. This initiative is managed by the school of Social Sciences and Government (interviewee 26).

Institutional effects are also seen in *changes to education, research, third mission activities, and campus operations (institutional effects 2.5 to 2.8)*. At WSU, the SDGs have influenced the creation of co-curricular offerings and sustainability minors. The latter have been collaboratively developed by students and staff, through the 21C Project. Furthermore, a short sustainability and SDG training module has been developed for academic staff. Additionally, according to the Sustainability and Resilience Decadal Strategy, WSU will develop further offerings based on the SDGs. However, it is unclear how the SDGs will inform this development (accommodative/reformative 2.5). Similarly, at TM, the Sustainability and Climate Change plan introduces several changes to education based on SDG 4.7 - education for the SDGs (ESDG). According to interviewee 26, planned changes include integrating ESDG training for course designers and lecturers, and developing a five-week unit on the SDGs for undergraduates (accommodative/reformative 2.5). Finally, at TS, the SDGs have been accommodated into existing sustainability programmes (interviewee 46) (accommodative 2.5). As argued by interviewee, at TS, "We have a series of post-graduate degrees on sustainability, and we have incorporated the SDGs in part of the programmes because they align very well to how we have been approaching sustainability for years. So, no, the SDGs didn't come and change everything, but as I said before, they align well." Similarly, at MU, the SDGs have been accommodated into their existing educational programmes (interviewee 8). However, there are additional changes at MU, such as integrating the SDGs into co-curricular programmes (e.g. Green Steps and Leave No One Behind), and plans to integrate SDG awareness and engagement in education across the university (MU1) (accommodative/reformative 2.5).

In contrast to changes in education, the SDGs have only led to accommodative changes within research activities in all universities. Discreet efforts have focused on mapping and identifying research addressing the Goals. However, these efforts have not translated into widespread changes. Nevertheless, university-wide efforts exist to coordinate and champion sustainability research, although they are not based on the SDGs. For example, at WSU, "a few years ago, the university decided to focus its research agenda around four broad themes, […] and one of the themes is environment and sustainability. An important aim of the themes and the champions leading each theme is to create interdisciplinary collaborations across the university. Now, within this theme, they have incorporated the SDGs" (interviewee 20).

Regarding third mission activities, at MU, there have not been university-wide changes based on the SDGs (interviewees 14 & 15). In contrast, at TM and to a lesser extent at TS, the SDGs have influenced the programming of third mission activities, particularly mandatory social service for undergraduate students. According to interviewees 40 and 48 from TM and TS, respectively, a total of 480 h of social service activities,

[4] C.O.R.E. stands for Curriculum, Operations, Research, and Engagement.

which are mandated by law in Mexico, are organised based on the SDGs. In this social service, at TM, students need to work with a formative partner, commonly a Non-Governmental Organisation (NGO) or a Civil Society Organisation (CSO), to develop a project addressing an SDG (interviewee 40) (reformative 2.7). At TS, the explicit links of their social service programming with the SDGs has changed over the years. According to interviewee 54, "we used to track this alignment. We are less focused on linking them to the SDGs now" because they are now giving priority to their own transdisciplinary structures working on local societal issues (called 'articulated nodes'). Finally, at WSU, the SDGs have been integrated into the university's Regional Centre of Expertise (RCE), which was established pre-2015. This RCE is part of a network of centres across the world established during the United Nations Decade of Education for Sustainable Development (UN DESD), linking education to the sustainable development of local and regional communities. In regards to campus operations, no changes based on the SDGs in any of the universities were observed (no change 2.8). The Goals are only used to frame and communicate the impact of campus sustainability projects (see discursive effects).

Overall, the four universities show different depths of changes in regards to institutional effects. Whilst changes within TS have been mainly accommodative, changes within WSU, TM, and MU have been accommodative/reformative. However, WSU and TM show more reformative changes than MU.

4.3. Relational effects

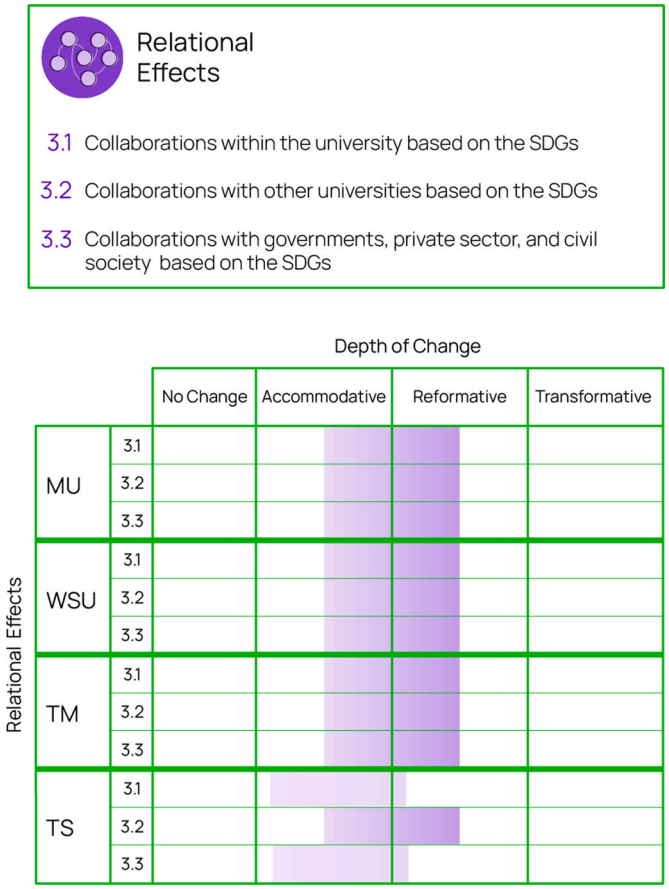

Fig. 4. Relational effects and their depth of change in each university.

Relational effects include changes in relations based on the SDGs. In this study, we identified three sub-effects, presented in Fig. 4.

The most common relations are *new collaborations within the university (relational effect 3.1)*. At MU, since 2017, there have been efforts to increase SDG-based collaborations among different university areas (interviewee 7). These efforts have focused on identifying and mapping work aligned with the SDGs or organising events (e.g. research seminars) where people frame their work around the Goals (interviewees 7 & 8). These initiatives aim to "make connections, which may not have been apparent before" (interviewee 5) and, thus, "facilitate collaborations" (interviewee 7). However, interviewees who have been part of these initiatives are unsure if collaborative work has increased because of the SDGs. As expressed by interviewee 8, "I think people are picking a colour and saying: I am 7 or 9. They are not looking at the others and thinking how they can contribute together." Nevertheless, interviewees 6, 7, and 12 are hopeful that SDG-reporting introduced in the ESG statement will support new collaborations (accommodative/reformative 3.1).

Similarly, at TM, there is hope that SDG-mapping and SDG-reporting will result in increased collaborations (interviewee 26). These mapping and reporting efforts aim to identify and support new partnerships. Other events, such as the 17 Rooms exercise,[5] have also been organised to facilitate collaboration around the Goals. However, although reporting processes have been institutionalised, the formation of new partnerships is still an informal process, mainly based on "word of mouth" (interviewees 28 & 35) (accommodative/reformative 3.1).

At WSU, the C.O.R.E. framework partly aims to facilitate sustainability and SDG collaborations across education, research, campus operations, and the third mission. According to interviewee 17, the framework has enabled them to establish new partnerships among people working in sustainability and the SDGs over the years. However, they have "not seen a significant increase of collaborations beyond these sustainability-oriented people, and what they were purposefully doing already". Instead, other university efforts are supporting collaborations for sustainability. For example, the establishment of Environment and Sustainability Research Theme Champions have pushed academics to talk to each other and to find ways of collaborating (interviewees 20 & 21). Additionally, WSU has developed various sustainability living labs, aiming to bridge across university areas (interviewee 16). However, both examples have not been guided by the SDGs but have used them to communicate their impact and relevance (accommodative/reformative 3.1).

Finally, at TS, the SDGs are only sporadically used to support collaborative work within the university (accommodative 3.1). This lack of SDG collaborations does not mean that TS actors are not working together for sustainable development. Instead, and in line with TS's discursive and institutional effects, it means that most interviewees do not consider the SDG framework as suitable as other sustainability and societal agendas. As interviewee 51 explained: "There are new centres at the university aiming to work in a multidisciplinary and interdisciplinary way and some of their work is partly guided by the SDGs. For example, SDG 5. I say partly because it's not like they looked at the SDGs and they found a social issue they weren't aware of before. The reality of our country in terms of violence against women was the main driver of this project."

Regarding *collaborations with universities (relational effect 3.2),* all cases are part of university networks where they actively engage with other universities to promote solutions for the Goals (accommodative/reformative 3.2). In the case of MU and TM, they lead their regional SDSN networks. As a part of these networks, MU has worked with other universities to support SDG integration in the HE sector through SDG guides (SDSN 2017; SDSN 2020), webinars, research depositories (MU6), and other events. Additionally, as part of SDSN, MU, TM, and TS worked with the Australian and the Mexican government, respectively, to elaborate their countries' SDGs Voluntary National Review (VNR). Besides collaborative work through networks, MU has also worked with

[5] https://www.rockefellerfoundation.org/17rooms/.

another university to support the City of Melbourne's Voluntary Local Review (VLR). Finally, MU, WSU, and TM are increasingly encouraging SDG-based collaborations with other universities as part of their internationalisation agendas. For example, as part of their internationalisation plans, TM joined a Global Classroom initiative, where they partner with universities across the world to deliver a course (i.e. unit) to students from their university and the partner university. According to interviewee 37, when they joined the initiative, "we decided that we would only offer courses based on the SDGs. This way, we look for teaching partners from other universities within the initiative and we deliver the course together".

The last relational effect refers to *new collaborations with societal actors (relational effect 3.3)*. Most of these partnerships at MU, TM, and WSU happen via the institutional structures governing the SDGs (institutional effect 2.4). For instance, in line with claims that MSDI holds ownership of the SDGs at MU, interviewees consider MSDI the main actor partnering with governments, the private sector, and civil society (interviewees 14 & 15). These partnerships include the City of Melbourne VLR project, the Transforming Australia SDG progress report, and other SDG collaborative work with UN agencies (accommodative/reformative 3.3).

At TM, partnerships are enabled by VIISS and the SDGs Initiative. The latter was established as an outward-looking structure aiming to engage with external actors for the SDGs. Some collaborative projects include supporting Mexico's SDG Legislative Strategy and using the SDGs to guide collaborations with NGOs and CSOs through students' social service and through TM's Centre for Social Innovation (interviewees 26, 28, 39 & 40).

Lastly, in 2019, TS signed an agreement with the Mexican government to create a Lab for the Agenda 2030, where students, academic staff, entrepreneurs, and CSOs could collaborate to address the SDGs (INAES, 2019). However, the project is paused due to a lack of governmental resources (interviewee 45). Additionally, academic staff at TS's Interdisciplinary Centre for Social Engagement (CIFOVIS in Spanish) have proposed an approach called 'articulated nodes' to guide interdisciplinary and transdisciplinary work addressing social and environmental issues. Although the approach is based on the interrelationships of these issues, which overlap with the SDGs, CIFOVIS does not use the SDGs to guide their collaborations (interviewee 54).

Limited engagement with the SDGs to support external collaborations is the most evident at TS. However, this limited engagement happens across all four universities. At MU, TM, and WSU, interviewees identified multiple partnerships with government, industry, and civil society contributing to the SDGs without being directly influenced by the SDG framework. Furthermore, it is important to note that university collaborations with societal actors are relatively small compared to other collaborations across the universities. According to interviewees, at MU, "big partnerships with governments are not driven by the SDGs. They are driven by specific outcomes, such as job creation, that will win them votes." (interviewee 15). Moreover, "the private sector does not approach the university looking to impact the SDGs and there are no incentives to go looking for these partnerships" (interviewees 9 & 14). Similar statements were repeated in all four universities. This shows, to some extent, a lack of SDG integration in non-sustainability-driven areas of the university.

Overall, the four universities show different depths of change regarding relational effects. Whilst changes within WSU, TM, and MU have been primarily accommodative/reformative, changes within have been accommodative.

4.4. Resource effects

The last steering effect refers to changes to resource allocation because and in support of the SDGs. Fig. 5 presents the three different resource effects found in this study. The first effect, *changes in resource allocation within the university (resource effect 4.1)*, is present in all cases.

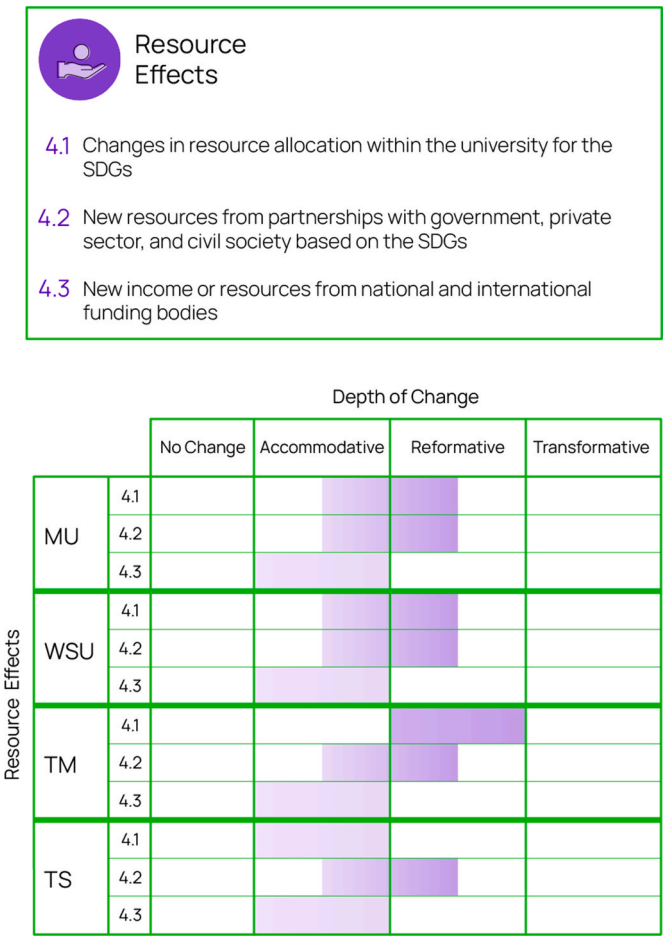

Fig. 5. Resource effects and their depth of change in each university.

At TS, effects are accommodative since the university mainly dedicates resources to supporting one-off SDG efforts (e.g. TS4). Conversely, based on the institutional changes described earlier, funding is becoming more consistent and long-term at MU and WSU (accommodative/reformative 4.1). Finally, establishing the VIISS and the SDGs Initiative at TM has created new permanent staff positions to support SDG coordination (reformative 4.1). According to interviewee 27 from TM, "at least three new people at the 'ODS en el Tec' initiative have been hired because of the university's commitment to the SDGs. There are more, definitely. The new Vice-Presidency has hired multiple people lately and I am sure you will find at least 2 or 3 more people hired because of the SDGs.". Additionally, given the rising importance of SDG rankings, interviewees expect their universities to assign funds for new job roles supporting the development of suitable SDG reporting mechanisms (interviewees 12 & 35).

Although the four universities have collaborated with different actors for the SDGs, according to interviewees 11 and 17, *new resources from those collaborations (resource effect 4.2)* are low compared to other university projects (accommodative/reformative 4.2). Furthermore, interviewee 27 stated that working with governments can be a double-edged sword because some government officials expect university work to be free. Other projects, such as the Agenda 2030 Lab at TS, represent a potentially significant resource income. However, as mentioned earlier, the project has been paused due to a lack of governmental resources (interviewee 45).

Lastly, *resource allocation from national and international funding (relational effect 4.3)* is accommodative in the four universities. According to interviewees 6, 7, 10, 20, 24, 27, 43, and 45, Australian and Mexican national governments do not use the SDG framework to

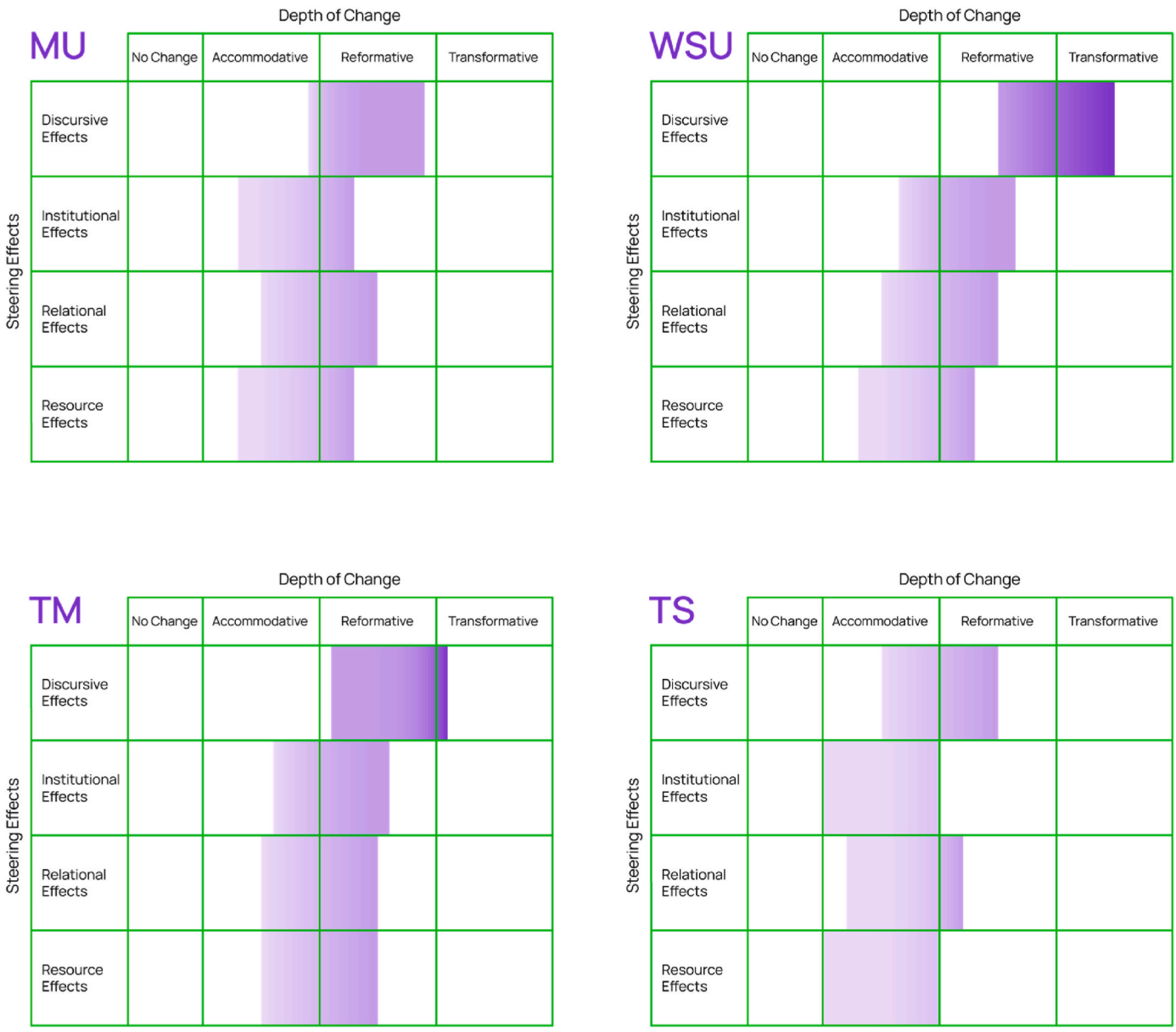

Fig. 6. Summary of steering effects and depth of change in each university.

allocate funds to universities. This is also the case with national research entities in both countries (i.e. ARC and CONACYT). Despite this lack of SDG-driven resource allocation, all universities have been able to procure funds because they have located SDG-issues in governmental priorities (interviewees 7, 17, 27 & 45). However, in Mexico, based on recent changes in how funding is assigned to private universities, interviewees are pessimistic about their chances of being further funded by the national government (interviewee 45). In response, in 2021, TM and TS joined a network of Mexican private universities which aims to procure international funds for research addressing the SDGs.

Overall, in the four universities, SDG engagement has led to accommodative changes in resource allocation in TM, WSU, and TS, whilst TM's changes have been accommodative/reformative.

5. Discussions

5.1. Steering effects of the SDGs in universities

As seen in Fig. 6, there is evidence of steering effects in all cases. However, discursive effects are the most common, supporting earlier findings from (Biermann et al., 2022b). Discursively aligning university narratives to the SDGs is becoming popular and, according to interviewees, demonstrates their universities' commitment to society. As Biermann et al. (2022b) suggest, changes in discourses are powerful in themselves and could be the first step to other steering effects at deeper levels. In universities, this means that incorporating the SDGs into strategies, to reinforce their societal roles and signal substantial changes, could lead to university transformations.

However, based on our study, these nods to change have rarely translated into reformative or transformative institutional, relational, and resource effects. As stated by several interviewees, there are risks that the SDGs will remain at a discursive level and will be only used to communicate impacts and legitimise actions. These concerns are shared in other universities across the world. According to a survey from the International Association of Universities (IAU), universities are mainly using the SDGs as a marketing tool instead of critically engaging with the Goals for systemic change (Mallow et al., 2020).

Although discursive effects were the most prominent in our study,

universities have had varying degrees of success at introducing the SDGs in their strategies, policies, plans, and organisational structures. As mentioned in the previous section, universities have included the Goals in university strategies and sustainability plans. However, since these strategies will be implemented in the following years, the full set of SDG-based changes deriving from said strategies is still unknown. For instance, we are yet to see significant changes in long-term resource allocation, which, based on our study and in line with findings from the SDG Accord Survey (SDG Accord, 2021), are rare. Regarding other institutional effects, the Goals have influenced, to varying extents, the creation and redesign of governing organisational structures for the SDGs, as seen in the examples from our cases (e.g. VIISS, MSDI, C.O.R.E.). However, given the relatively recent establishment and redesign of these structures, questions remain about the types of institutional arrangements that can better support further and more profound changes.

Additionally, the four universities have introduced – or are in the process of introducing – changes to their reporting processes against the SDGs. Although SDG reporting is considered a sign of commitment to the Goals (Steele and Rickards, 2021), it is too early to know how it will influence SDG integration. However, as seen in our cases, the THE Impact Rankings have become influential in determining university performance against the SDGs. Moreover, universities use the rankings to support their images as sustainable, committed, and leading institutions. However, HE scholars remain sceptic of these rankings, given their focus on collecting and monetising data, and their reductive, and to some extent opaque approach (Hazelkorn, 2022). Thus, the THE Impact Rankings could influence universities' approaches to the SDGs and discourage universities from engaging with a more transformative integration of the Goals.

In regards to relational effects, the SDGs seem to allow universities to establish a common language to communicate and collaborate with other societal actors in pursuit of the Goals. This 'common language' argument has facilitated collaborations among universities. Furthermore, universities have engaged in small- and- medium-sized partnerships with governments on SDG-based projects. However, there is less evidence of collaborations with the private sector and civil society. Various interviewees mentioned that, in their experience, the private sector rarely speaks the 'SDG language' when working with universities. These insights challenge the image of the SDGs - commonly put forward by practical guides (e.g. SDSN, 2017; Kistner et al., 2020) - as a language that is understood and used by all types of societal actors to engage in partnerships. However, as argued by López López et al. (2019), if universities want to collaborate with other sectors for and because of the SDGs, then the former should work on increasing the latter's awareness of the Goals.

Even within universities, where the 'SDG language' is becoming more popular, university actors value, interpret, and use the SDGs differently (Steele and Rickards, 2021). Across our cases, several interviewees value the SDGs as a communication tool. However, others view the SDGs as jargon which can alienate people, so they do not reference the Goals. Furthermore, some interviewees think that the framework contains too many Goals; thus, they prefer to align strategic actions to only a few SDGs. Conversely, other interviewees argue that strategies, collaborations, and funding must embrace the Goals' complexity and interdependency. Finally, a few interviewees argue that since the SDGs were defined 'elsewhere', they do not represent an accurate image of the local issues universities should focus on. Therefore, the Goals should not dictate significant institutional changes nor collaborations. Based on our study, these diverse understandings and usages could be influencing how the framework is integrated into the university. Thus, future research could explore these different understandings and their influence in SDG integration within universities.

5.2. SDGs supporting university transformations

The analytical framework guiding this study distinguishes between three depths of change. The last change –transformative – describes a fundamental redesign of the institution, where universities adopt a sustainability *ethos* at their core and change accordingly. Based on our study, none of the universities are entirely transformative. However, when this transformative change was discussed with interviewees, conversations rarely focused on the SDGs. Most interviewees value the Goals as a vehicle for helping their universities enter the transformative space, but they do not consider the SDGs as the main characteristic of university transformations for sustainability. In other words, interviewees want to transform their universities so they can address the SDGs and support the creation of sustainable and just futures. However, they do not envision a university solely based on the SDGs as a result. For example, at WSU, where SDG influence has been mainly reformative, interviewees acknowledged the usefulness of the SDGs. However, they argued that their university's vision of a sustainable and just future goes beyond the Goals.

TS gives us another perspective on the influence of the SDGs in university transformations. Interviewees from TS argued that although SDG influence has been primarily accommodative, the university should be located within the reformative space, given its focus on social and environmental justice. The latter shows that change seems to be happening in universities, even if they have limited engagement with the SDGs. Nevertheless, given the growing popularity of the SDGs as a proof of universities' societal impact and commitment, perhaps the question is not if universities should engage with the SDGs but how will they engage?

Based on the four cases, we argue for critical engagement with the SDGs, which entails understanding the limits and silences of the SDG framework without fully dismissing it. Critical engagement means that university actors must examine these limitations and silences, address them or even challenge the SDGs through a plurality of perspectives related to just and sustainable futures. However, it also means that university actors must actively engage with the SDGs and their benefits, understanding that the Goals are a set of interconnected issues, which are receiving increasing attention from diverse societal actors, and whose ultimate vision is considered transformative.

5.3. Attributing changes to SDGs in universities

As presented in Section 2, our analytical framework allows us to identify the steering effects of SDGs in university transformations. However, at times, it was challenging for us to establish whether the SDGs were solely responsible for the observed steering effects or whether other issues were at play driving the observed changes.

In a couple of universities, we found examples where the influence of the SDG framework is direct, evident, and leads to multiple steering effects; thus, attribution was a straightforward task. Conversely, across all cases, we found multiple examples where the SDGs have only led to one type of steering effect, often discursive. To corroborate that SDG influence was limited, we asked interviewees directly involved in these projects to determine if and how the SDGs had influenced them. Finally, attribution was complex in examples where the SDGs somehow informed the development of particular projects but were not significantly included in their final versions. In those cases, we characterised the steering effects as accommodative.

Although the analytical framework presents steering effects linearly, and multiple examples indicate that discursive effects happen first and lead to other effects, we are cautious about using the framework in such an incremental way. Based on the case study, changes do not always start with discursive effects. For example, in some cases, reporting against the THE Impact Rankings started as a thinly institutionalised practice. However, results from the rankings have led to discursive effects, such as presenting the universities as SDG leaders. This leadership position has led to other discursive effects, such as increased SDG framing in universities, and other institutional effects, such as formalising SDG reporting mechanisms.

Finally, future research interested in analysing the effects of the SDGs in universities could complement this study by investigating how national agendas influence SDG integration in universities. Although the aim of our study did not explicitly look into national contexts as barriers or enablers, we can observe that in both countries, their national agendas have influenced the integration of SDGs within universities. For example, following governmental priorities and responsibilities, Australian and Mexican governments have collaborated with universities to work on SDG Voluntary National Reviews and Voluntary Local Reviews, thus, leading to relational effects. In other cases, national priorities and agendas have, to different extents, hindered universities' engagement with the SDGs. This is particularly evident in Mexico, where recent changes to funding policies have excluded private universities from participating in large research projects aligned with the SDGs.

6. Conclusions

Literature linking SDGs and universities is increasing. Both scholarly and grey literature has evolved from purely normative calls for change, arguing that universities should integrate the SDGs, to research proposing conceptual frameworks for SDG integration, and to case studies presenting how specific areas of universities have engaged with the SDGs. The present study builds upon this literature and analyses the influence of the SDGs, as a governance framework, in university transformations. We argue that it is important to understand university transformations, and the particular impact of the SDGs, if universities are to support the creation of more just and sustainable futures.

In this study, we propose an analytical framework to identify the steering effects of the SDGs (i.e. discursive, institutional, relational, and resource) and the depth of change (i.e. no change, accommodative, reformative, and transformative). Our study, analysing four universities in Mexico and Australia, shows multiple ways of integrating the SDGs in universities, resulting in different depths of change. Specifically, our findings show that discursive effects are the most prominent. The SDGs are used in universities to reinforce their societal roles and commitment to society. Moreover, universities are increasingly using the SDGs to frame their activities. In addition to discursive effects, we identify several other effects, including: changes to curricula; the creation or structures to govern the SDGs and to report against them; the establishment of small- and- medium-sized partnerships for and because the SDGs; and resource allocation to support some of these changes.

The analytical framework proposed in this study and its results can support holistic SDG integration in universities. Distinguishing among discursive, institutional, relational, and resource effects and their depth of change can help answer questions such as: Are the SDGs setting agendas within the university or serving them? Are universities only using the SDGs as part of a communications strategy, or are they using them to influence deeper and longer-term changes? Are universities using the SDGs to engage in partnerships to address the very own issues represented in the Goals or only to frame their collaborations?

Before exploring future research that could build upon our study, it is important to discuss the main limitation of this study. At the time of the interviews and data analysis, the four universities were in the process of adopting multi-year university-wide strategies and sustainability plans. On the one hand, this benefited the study since the strategies and projects were at the top of the interviewees' minds, and some participants were involved in these efforts. On the other hand, since discussions about implementing strategies and pursuing particular projects are still ongoing, we do not fully know the extent to which the SDGs will change the universities.

Finally, future research could zoom into specific steering effects whilst considering the interrelationships of our analytical framework. For example, research could look into the communicative power of the SDGs and the influence of discursive effects on other effects. Further work could also focus on researching how university actors understand and perceive the SDGs: Which perspectives exist within universities? How do these perspectives and actors interact? How do these perspectives influence SDG integration? Furthermore, at an institutional level, research could shed light on how seemingly unproblematic university structures, policies, narratives, and practices compete against the SDGs and constrain their transformative potential. Additionally, other work could identify and analyse university characteristics (i.e. type, size, governance), external factors (i.e. national funding mechanisms, legislation), and social mechanisms (i.e. strategic profiling, isomorphism) influencing universities' adoption of the SDGs. Lastly, future research could also focus on relational effects and how SDG partnerships, within and outside universities, can enable changes within the institution.

Ultimately, we argue that university transformations are needed, and we still consider the SDGs as a framework with the potential to steer universities towards those transformations. However, paraphrasing Steele and Rickards, neither co-optation of the SDGs nor being cynical and perfectionist towards the Goals will help. Although the SDGs seem to be a powerful communications tool, their transformative potential does not only lie in communicating impact, legitimising action or reporting successes. At the same time, we believe that to reach the transformative space, universities need to engage critically with the Goals. Critical engagement with the SDGs allows university actors to act upon the SDGs whilst questioning the framework and its silences through a plurality of perspectives that go beyond the Goals.

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CRediT authorship contribution statement

Andrea Cuesta-Claros: Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft, Visualization. **Shirin Malekpour:** Conceptualization, Methodology, Writing – review & editing. **Rob Raven:** Conceptualization, Methodology, Writing – review & editing. **Tahl Kestin:** Conceptualization, Methodology, Writing – review & editing.

Declaration of competing interest

The authors declare no relevant financial or non-financial interests.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.esg.2023.100186.

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