









Article

International Trends and Practices on Sustainability Reporting in Higher Education Institutions

Walter Leal Filho ^{1,2}, Alfonso Coronado-Marín ³, Amanda Lange Salvia ^{4,*}, Fernanda Frankenberger Silva ^{5,6}, Franziska Wolf ¹, Todd LeVasseur ⁷, Maria J. Kirrane ⁸, Federica Doni ⁹, Armanda Paço ¹⁰, Malgorzata Blicharska ¹¹, Marina Schmitz ¹², Anselm T. Grah1 ¹³ and Sara Moggi ¹⁴

- ¹ European School of Sustainability Science and Research, Hamburg University of Applied Sciences, Ulmenliet 20, D-21033 Hamburg, Germany
 - ² Department of Natural Sciences, Manchester Metropolitan University, Chester Street, Manchester M1 5GD, UK
 - ³ UNESCO Chair 'Environmental Education and Sustainable Development', National University of Distance Education, 28015 Madrid, Spain
 - ⁴ Graduate Program in Civil and Environment Engineering, University of Passo Fundo, Campus I, BR 285, Passo Fundo 99052-900, Brazil
 - ⁵ Business School PUCPR, Pontifical Catholic University of Paraná, Curitiba 80215-901, Brazil
 - ⁶ Brazil Business School, Positivo University, Curitiba 81280-330, Brazil
 - ⁷ Sustainability Literacy Institute, College of Charleston, Charleston, SC 29424, USA
 - ⁸ Environmental Research Institute (ERI), University College Cork, T23 XE10 Cork, Ireland
 - ⁹ Department of Business and Law, University of Milano-Bicocca, 20126 Milan, Italy
 - ¹⁰ NÉCE-UBI (Research Centre for Business Sciences), Universidade da Beira Interior, Rua Marquês D'Ávila e Bolama, 6201-001 Covilhã, Portugal
 - ¹¹ Natural Resources and Sustainable Development, Department of Earth Sciences, Uppsala University, 752 36 Uppsala, Sweden
 - ¹² Coca-Cola Chair of Sustainable Development, IEDC-Bled School of Management, 4260 Bled, Slovenia
 - ¹³ Students Organizing for Sustainability International, 1608 Copenhagen, Denmark
 - ¹⁴ Department of Business Administration, University of Verona, 37129 Verona, Italy
- * Correspondence: 112737@upf.br



Citation: Leal Filho, W.; Coronado-Marín, A.; Salvia, A.L.; Silva, F.F.; Wolf, F.; LeVasseur, T.; Kirrane, M.J.; Doni, F.; Paço, A.; Blicharska, M.; et al. International Trends and Practices on Sustainability Reporting in Higher Education Institutions. *Sustainability* **2022**, *14*, 12238. <https://doi.org/10.3390/su141912238>

Academic Editor: Wen-Hsien Tsai

Received: 4 August 2022

Accepted: 21 September 2022

Published: 27 September 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract: Sustainability reports are regarded as important tools in offering information about the environmental, social, economic, and institutional performance of an institution, and in demonstrating a commitment to matters related to sustainable development. But even though sustainability reporting has been used by a variety of higher education institutions to date, it is not as widely practiced as it should be. To further investigate this topic, a twofold approach was used: a study focusing on sustainability reporting approaches deployed in a sample of 30 universities across a set of countries; and a survey with a sample of 72 universities from different global regions to assess the extent to which they are deploying sustainability reporting as part of their activities. The scientific value of the paper resides in the fact that it offers a comprehensive overview of the subject matter of sustainability reporting, and how higher education institutions handle it. It also outlines the efforts in developing these documents which may catalyse further progress in this key area.

Keywords: sustainability reporting; higher education; sustainable development; sustainability assessment; SDGs

1. Introduction

Scholars underline that “sustainability” can be a nebulous, contested concept, and, as such, is rather difficult to report on [1,2]. This can make it difficult for those in higher education to report on sustainability, regardless of the context. Even though there are various definitions and operational understandings of sustainability, the utilization of standardized reporting on sustainability in all its facets, at national or international levels, is a daunting task. This is also a challenge that higher education institutions (HEIs) have to face, as

sustainability progresses further into a climate-changed world, a world where the social, environmental, and economic pressures on higher education actions and infrastructure will be increased [3].

Higher education is a process-driven endeavor, in which each institution holds to its vision and mission statements. Many use strategic plans that provide a blueprint to help an institution successfully meet its vision and mission [4,5]. The implementation of sustainability reporting (SR) at universities complements strategic planning by enabling a comprehensive approach to sustainability, communicating sustainability values, strengthening the relations with relevant internal and external stakeholders [6], and showing the progress toward improved sustainability of a university [7,8]. Furthermore, the use of SR provides measurable benchmarks and metrics that allow those tasked with managing an HEI to make managerial decisions on sustainability-related issues.

Various institutional reporting mechanisms have been developed by on-campus professionals tasked with institutional reporting and strategic planning, often with the aid of faculty experts [8]. Almost all universities report on academics, facilities, procurement and budget, diversity, alumni affairs, student affairs, and student dining and housing, with other categories emerging on a case-by-case need [9,10].

SR in higher education can thus be defined as a university's effort to utilize internally administered qualitative and quantitative data-gathering mechanisms across a campus portfolio (academics, procurement, facilities) in such a way that enables the university to use this data to reach sustainability benchmarks [11,12]. These benchmarks may be implemented in an internally derived campus-wide or domain-specific sustainability action plan; or they may be external, as seen in the Association for the Advancement of Sustainability in Higher Education's STARS [13] reporting standard. To date, the STARS sustainability reporting system is the leading standard of reporting for higher education within the United States and is now increasingly used in an international context. Another popular reporting standard is the Global Reporting Initiative [14–17], which is mainly utilized by the business (especially the for-profit) sector, and thus needs to be adapted if employed in HEIs [8,18].

Regarding the state of the art in this field, it is important to recognize that SR in a higher education context differs from SR and accounting in corporate, for-profit, and even governmental contexts [2,19,20], as HEIs are not reporting the outcomes of their initiatives as extensively as for-profit institutions. As stated by Ceulemans et al. [11], "this sector [higher education] is clearly lagging behind on the implementation of SR" (p. 138). According to Larrán et al. [17], SR has not been well addressed by most HEIs, and it has been pointed out that this practice is still in its initial phase [6,8,21]. Figure 1 presents an overview of the evolution of the production of sustainability reports, referring to some produced by a set of universities over the past 20 years.

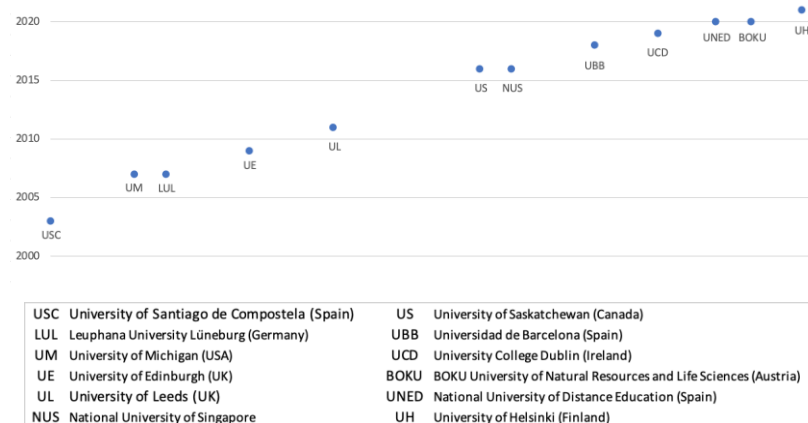


Figure 1. Production of sustainability reports over the years.

Part of the problem resides in the fact that it has been difficult to “convince” many HEIs about the benefits of reporting sustainability information. In fact, the amount of information reported is quite limited, being more focused on economic and environmental dimensions and less focused on social aspects [16]. Furthermore, there is a scarcity of studies emphasizing the relevance of this reporting practice. Thus, it is within this context of limited literature on SR in higher education that this study was developed according to the following research questions: Which lessons can be learned from the sampled reports? To what extent is sustainability reporting being practised among higher education institutions?

This paper intends to offer HEIs—and potentially institutions from other interested sectors—a comprehensive overview of how they can handle SR. In answering the research questions raised, the analysis focuses on the SR approaches and methods deployed in a sample of 30 universities across a set of selected countries, and on the extent to which universities have been applying SR in a sample of 72 institutions worldwide.

2. The Contribution of Sustainability Reporting to Institutional Sustainability Efforts

SR enables an organisation, either private or public, to communicate both its values and performance to its stakeholders [22]. As a voluntary mechanism, the process of SR in an organisation is driven by both internal and external motivations [23]. The benefits to an organisation of reporting on their sustainability efforts are multiple and include those that are internal—i.e., the ability to track progress against a set of targets, an opportunity to assess areas for potential cost savings, and coordinated planning of future actions—and those that are external—i.e., benchmarking against other organisations, increased transparency to stakeholders, and recognition from external agencies [11].

For HEIs, there is an expectation to “lead by example” in addressing the most challenging issues of our time and in disseminating new knowledge and best practices [24]. SR, therefore, can present a combined opportunity for HEIs in enabling them to communicate the progress that is being made, while also building momentum for more change [8]. At an organizational level, communication both internally and externally can drive change, management, and the sustainability agenda. Indeed, poor communication, together with lack of engagement of internal stakeholders in the reporting process, are often cited as constraints to sustainability in higher education [12,25].

In a study concerning the implementation of sustainable development in HEIs, SR was among the items with the lowest recognition (among others such as campus operations, research, and education) [26]. For An et al. [27], one of the reasons might be a lack of specific reporting guidelines for the higher education sector. Fonseca et al. [18] investigated the condition of SR at Canadian universities and also discussed the need for more in-depth analyses, access to more specific and strong data, and top-down policies to support efforts from students and sustainability offices. In a study about the process of developing the first sustainability report of a university, the main challenges which arose were data collection and compartmentalisation of information and proper understanding of the sustainability concept [23]. Considering the findings of the studies described above, a holistic approach is fundamental to promote useful results and also trigger further sustainability actions.

The use of rankings (or their use as indicators of performance) represents an additional motivation for developing sustainability reports. Both the UI Green Metric Ranking (which features over 800 universities globally) and the new Times Higher Education Impact Ranking (of over 400 universities) award (or credit) an institution for producing a sustainability report [28,29]. At the same time, these types of rankings are often criticised for being so broad as to be meaningless and for not providing an accurate reflection of the sustainability of the institution [30]. While rankings have been criticised as being tick-box exercises that can impede sustainability in HEIs, comprehensive SR helps institutions that are at a mature stage in the process by providing a “vision” to others of what a sustainable university might look like [4].

The contribution that SR can play in an institution’s sustainability activities and broader strategies will, of course, depend on the quality of the report. In an environment

where the social and ethical activities of universities are becoming more scrutinised, Alonso Almeida et al. [15] argue that reporting along recognised standards such as the Global Reporting Initiative could not only improve an HEI's reputation but also enable the institution to leverage additional funding and attract more students and qualified researchers. Although data collection is cited as being one of the main barriers to SR [31], that process, in turn, can further increase stakeholder engagement with the sustainability agenda of the organisation if carried out collaboratively.

With the focus of providing a "shared blueprint for peace and prosperity for people and the planet" [32], the United Nations developed the Sustainable Development Goals (SDGs). Governments, enterprises, and civil society are called upon to engage with the SDGs to reduce inequalities, improve health and education, and spur economic growth while dealing with climate change [32]. These are topics that universities also need to face and include in their strategy. A recent book published by a team led by the European School of Sustainability Science and Research (ESSSR) presented many examples of the contribution of higher education institutions towards the SDGs [33]. One way in which universities can contribute to the SDGs is by incorporating them into university organizational reporting [34] while the goals and the process of SR can mutually benefit from this interaction [35]. There are numerous examples of universities that are already including the global goals in their sustainability reports (e.g., [36–40]), but the ways in which they are reported are distinct.

In fact, as the way of reporting about the goals is different, the way universities are choosing to report on sustainability, in general, is different as well, offering various interpretations of results and illustrating a need for further research in this area. The state of affairs herewith described suggests that SR has evolved into an important tool in sustainability efforts. In contributing to this body of research, the present study explores how SR practices are implemented in HEIs considering a worldwide point overview.

As far as the extent of use of sustainability reporting is concerned, the evidence gathered so far points to several trends. For instance,

- (a) public universities are more present in the literature of sustainability reporting than private ones [41];
- (b) smaller universities tend to report on sustainability issues as part of their annual reports (i.e., embedded) as opposed to having dedicated sustainability reports;
- (c) there is no consensus of what is the best tool to use in sustainability reporting; North American universities tend to use the Sustainability Tracking, Assessment & Rating System (STAR) [42], whereas European ones do not seem to follow any specific formats, choosing elements such as GRI or software such as Sphera or Quentic instead; and
- (d) other elements are still unclear. For example, if larger higher education institutions, which have a sustainability strategy, tend to use sustainability reporting more often, when compared to their peers, which do not have such strategies. Here, more research is needed.

The approach used in the paper does not depart from any specific theory, such as institutional theory, legitimacy theory, or stakeholder theory. This is the case for two main reasons. The first reason is that other authors have done this already (e.g., [43]), and secondly the paper does not aim at a theoretical analysis or testing of a hypothesis. Rather, the basis of the paper is

- (a) an assessment of trends on the role of sustainability reporting and how sustainability reporting is being practiced; and
- (b) the use of case studies as examples to showcase how this matter is being handled.

3. Methods

This paper employs a mixed-method approach to respond to its research question. The qualitative approach was applied with an analysis of a set of case studies using a matrix with key features of sustainability reports; and the quantitative approach was used in the form

of an international exploratory study to investigate the extent to which universities have been pursuing SR. The exploratory study complements the focused analysis by providing evidence of how established SR is among members of an international university network dedicated to sustainable development research.

3.1. Case Studies

By means of a matrix, information on key features of sustainability reports were collected and structured. The sample selection for this study was based on a discussion among experts in the field, which resulted in countries and universities being best practice examples in sustainability. Thirty universities in six countries (Canada, Germany, The Netherlands, Sweden, UK and USA) have been chosen due to the level of attention they afford to SR and data availability. The definition of the main themes analysed in this study has been generated in the frame of an expert workshop during the Symposium on Sustainability Reporting in Higher Education, which took place in Edinburgh, UK, in March of 2019.

The data of the matrix is inferred from the information available on the universities' websites since one of the key elements in SR is transparency and open access to data and information [44–46]. The respective university sustainability reports—available at the first semester of 2019—were screened according to the following six topics themes: (1) composition of the SR team; (2) frequency of SR publication; (3) year the first report has been published; (4) type of SR; (5) use of STARS as standard applied for reporting; (6) issues covered (waste, water, energy, sustainable buildings, climate action/carbon management, sustainable mobility); and (7) inclusion of information about the SDGs. In Table 1, all research topics, items, and categories are specified.

Table 1. Matrix items.

Topic	Name of the Item	Categories and Item Details
Statistical	1. Composition of the SR Team	Sustainability Offices, Estates, Legal Office, Finance Office, ...
	2. Frequency of SR	- Yearly - Biyearly - Others - N/A
	3. SR since	- Year - Unclear
	4. Type of SR	- Dedicated - Integrated
	5. Use of STARS reporting tool	- Yes - No
Content	6. Issues covered	5a. Waste 5b. Water 5c. Energy 5d. Sustainable buildings 5e. Climate action/Carbon management 5f. Sustainable mobility (transport) - Yes - No
	7. Are the SDGs included?	- No - Yes, along with other sections - Yes, with a dedicated section

3.2. Exploratory Study

For the exploratory study, a survey was used to collect data related to frequency, format, motivation, and future plans, among other things. The applied set of questions is presented in Appendix A. The questionnaire was prepared by the authors and pre-tested with a set of sustainability experts to check consistency. The survey was applied in English and disseminated by using the online application from Google Forms.

The invitation to participate in the study was shared with all 140 HEIs members of the Inter-University Sustainable Development Research Programme (IUSDRP), a network of universities focused on undertaking research on matters related to sustainable development, and a set of sustainability mailing lists, representing a snowball sampling. The invitation to participate indicated that the respondents must be involved with the process of SR or sustainable campus operations in their universities. Whereas this led to a restriction in the circle of respondents, it has led to more authoritative responses because respondents were familiar with the topic.

The survey remained open for two months (30 September to 30 November 2020) and collected 72 individual responses from different universities and countries worldwide. The analysis focused on presenting the basic features of both investigated situations: universities that produce or do not produce the sustainability reports. For those which produce them, format, motivation, frequency, and future plans were presented, as well the impact of the Coronavirus pandemic on the process. For those who do not produce, reasons and future plans were presented.

4. Results

The first section and its sub-sections show the results of the qualitative approach describing the aspects of SR in a set of universities. The following section presents the results of the quantitative data collection through the exploratory survey and presents the vision from experts involved in SR.

4.1. Case Studies

The results of this analysis are presented below, following the topics listed in Table 2. Based on the criteria aforementioned, the reports from the selected universities have been analysed, and the results are presented in Table 2.

4.1.1. Composition of the Sustainability Reporting Team

The composition of the SR Team is highly diversified and ranges from sustainability or Green Offices (understood as “a university sustainability platform, usually led by students, that empowers them –and to a lesser extent research staff– to embed sustainability in the curriculum, operations, community and governance” [47]) situated within the respective administrative or service departments, to student-led organizations and similar initiatives, or faculty and related units. In general, sustainability offices predominate, within their own universities, such as the Sustainability Office of the Royal Institute of Technology or MITOS, the MIT Office of Sustainability.

It is often difficult to know about the responsible staff for the SR reporting because this is a result of cooperation among several actors and university units. Furthermore, some reporting mechanisms are developed by on-campus professionals responsible for institutional reporting and strategic planning, often with assistance from faculty experts.

4.1.2. Frequency of Sustainability Reporting

Regarding the frequency of publication of the sustainability reports, the cases analysed are divided into the following categories: published annually (70%, $n = 21$), published every two years (11%, $n = 4$); those published with a temporality that does not fit in any of the two previous classifications (9%, $n = 3$) because they cover longer periods not always of the same length (for example, the University of Hamburg published its first report in 2012, the second one two years later, in 2014, and the last one in 2018, covering the period

2015-18. The Carl von Ossietzky University of Oldenburg published their first in 2013, covering 2005-2012, and the second one in 2017, covering 2013-2016.); and finally, the cases in which this item is not applicable (7%, $n = 2$), because the date of the first report is not explicit in the source of information.

4.1.3. Sustainability Reporting Since

Of the universities studied, the first reports date back to 2007 with the Leuphana University of Lüneburg and the University of Michigan, whereas the last two joined the SR process in 2017, such as the University of Manitoba and the Chalmers University. Within a period of ten years, the years 2010 and 2012 showed the highest rate of incorporating SR. This evidences the novelty and the resistance of the reporting process.

4.1.4. Type of Sustainability Report

Regarding the type of SR, up to 80% ($n = 24$) were reported corresponding with a dedicated approach to sustainability. The remaining cases are divided between those that present integrated reports (7%, $n = 2$), such as the FH Eberswalde and the Gothenburg University, and those cases in which both types of reports have been found, integrated, and dedicated, (13%, $n = 4$), either in a specific document such as the University of Maastricht and Chalmers University or as an online document such as the TU Delft and Utrecht University.

4.1.5. Use of STARS as a Reporting Tool

Considering STARS as a dedicated standard applied by universities to increase comparability and transparency [13], up to nine universities are already reporting on sustainability through this tool comprising almost a third of the sample, including the University of Florida that reports only in this way. Five more are listed as STARS participants, but they have not produced any report yet. This is probably because STARS reporting is rather common in the US and Canada.

In addition to the abovementioned frameworks, it should be noted that German universities are trying to report by referring to international reporting frameworks, such as the GRI standards as implemented at the Carl von Ossietzky University Oldenburg and the University of Hamburg. The national German Sustainability Code (Deutscher Nachhaltigkeitskodex -DNK-) [48,49], introduced by the German Council for Sustainable Development (Rat für nachhaltige Entwicklung), is also implemented at the Leuphana University of Lüneburg and the KU Eichstätt-Ingolstadt.

4.1.6. Issues Covered

Of the issues covered, the most frequently occurring topic is energy, as shown in Figure 2 (in 29 cases out of 30). The lowest frequencies were observed for water and sustainable buildings, in both cases mentioned in 23 of the 30 reports analysed.

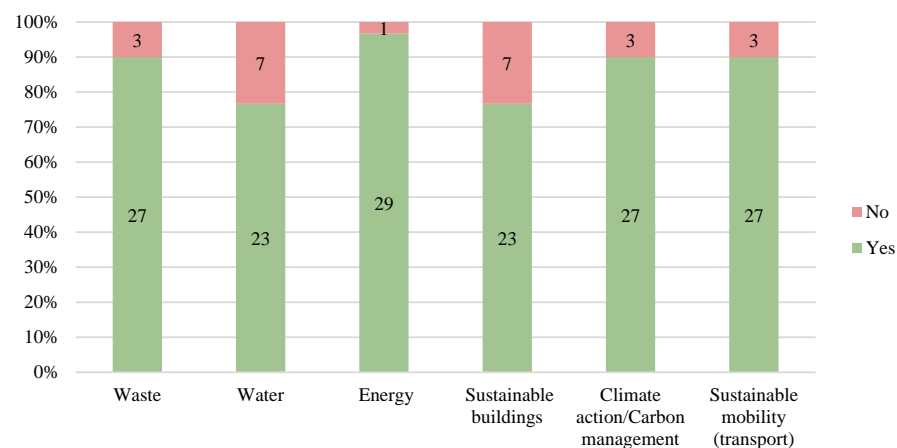


Figure 2. Issues covered in sustainability reports.

Table 2. Main matrix results.

Name of University		Statistical				Content						
		Frequency of SR (Yearly/Biyearly/Other)	SR Since (Year)	Type of SR (Dedicated/ Integrated)	STARS	Issues Covered						Are the SDGs Included? (No/Yes, along with Other Sections/Yes, with a Dedicated Section)
						Waste	Water	Energy	Sustainable Buildings	Climate Action/Carbon Management	Sustainable Mobility (Transport)	
Canada	University of British Columbia	Yearly	2008	Dedicated	✓	Yes	Yes	Yes	Yes	Yes	Yes	No
	University of Calgary	Yearly	2010	Dedicated	✓	No	Yes	Yes	Yes	No	No	No
	University of Toronto	Yearly	2010	Dedicated	(in process)	Yes	No	Yes	Yes	Yes	No	No
	University of Regina	n.a.	2014	Dedicated	✓	No	No	No	No	No	Yes	No
	University of Manitoba	Yearly	2017	Dedicated	✓	Yes	Yes	Yes	No	Yes	Yes	Yes, with a dedicated section
Germany	University of Hamburg	Other	2010	Dedicated		Yes	Yes	Yes	Yes	Yes	No	No
	FH Eberswalde Leuphana	Biyearly	2012	Integrated		Yes	Yes	Yes	Yes	Yes	Yes	No
	University of Lüneburg	Biyearly	2007	Dedicated		Yes	Yes	Yes	Yes	Yes	Yes	No
	Catholic University Eichstätt-Ingolstadt	Biyearly	2012	Dedicated		Yes	Yes	Yes	Yes	Yes	Yes	No
	Carl von Ossietzky University Oldenburg	Other	2013	Dedicated		Yes	Yes	Yes	No	Yes	Yes	No
Netherlands	University of Maastricht	Yearly	2011	Integrated/Dedicated	(in process)	Yes	Yes	Yes	No	Yes	Yes	No
	Utrecht University	Yearly	2010	Integrated/Dedicated	✓	Yes	Yes	Yes	Yes	Yes	Yes	No
	University of Amsterdam	n.a.	Unclear	Dedicated		Yes	Yes	Yes	No	Yes	Yes	No
	TU Delft	Yearly	2011	Integrated/Dedicated		Yes	Yes	Yes	Yes	Yes	Yes	No
	Wageningen University	Yearly	Unclear	Dedicated	(in process)	Yes	Yes	Yes	Yes	Yes	Yes	No
Sweden	Royal Institute of Technology	Yearly	2013	Dedicated		Yes	No	Yes	Yes	No	Yes	No
	Chalmers University	Yearly	2017	Integrated/Dedicated		Yes	Yes	Yes	Yes	Yes	Yes	Yes, along with other sections
	Gothenburg University	Yearly	2009	Integrated		Yes	No	Yes	Yes	Yes	Yes	Yes, along with other sections
	Swedish University of Agricultural Sciences	Yearly	2015	Dedicated		Yes	No	Yes	Yes	Yes	Yes	No
	Lund University	Yearly	2009	Dedicated		Yes	Yes	Yes	No	Yes	Yes	Yes, along with other sections

4.1.7. Inclusion of the SDGs

More than two-thirds of the analysed reports (70%, $n = 21$) do not mention the SDGs. At the same time, in seven of them (23%), SDGs are mentioned within other sections (i.e., sections not dedicated to the SDGs), generally linked to the university's sustainability objectives and how these objectives contribute to the SDGs. Only two universities make explicit reference in a section dedicated to the goals, either within its website (as with the University of Edinburgh) or with a document that directly reports on the contribution of the institution to the SDGs (as with the University of Manitoba).

As already mentioned above, two-thirds of the analysed reports do not include the SDGs as a reporting topic. For example, Swedish universities only mentioned them in general terms as being linked to the university's sustainability objectives, and, in turn, these objectives contribute to SDGs. However, some universities, such as all of those from the UK, already incorporate them to a great extent, especially Manchester Metropolitan University, which reports very extensively on the status and progress of the respective SDG targets while linking the goals to every section of their report [50]. Additionally, cross-references to the GRI reporting standards and key performance indicators are included (see reports of the University of Michigan or Manchester Metropolitan University). Only the Canadian "University of Manitoba Report on the United Nations Sustainable Development Goals" provides a separate overview/report that is only targeted at the 17 SDGs [40].

4.2. Exploratory Study

The survey collected 72 responses from universities worldwide (see Figure 3), complementing the results of the previous section. All global regions were represented:

- Americas (United States, Brazil, Guatemala, Mexico);
- Asia/Oceania (Australia, Bangladesh, Hong Kong, India, Iran, Israel, Lebanon, Philippines, Singapore, Sri Lanka, Taiwan);
- Africa (Ghana, Liberia, South Africa, Tunisia); and
- Europe (UK, Germany, Portugal, Spain, Italy, Belarus, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Latvia, Romania, Serbia, Sweden, Ukraine).

The profile of the respondents corresponded mostly to professors (43%, $n = 31$), followed by administrative roles (31%, $n = 22$) and, finally, researchers (12%, $n = 9$) or a mixed role among the three profiles.

Although 78% of the respondents ($n = 56$) indicated that their universities perceive sustainability as important, the rate of positive responses reduced when the sample was asked if the university produces sustainability reports (56%, $n = 40$). Figure 4 presents the results of the survey.

Of the universities that do not engage in SR, just 9% ($n = 3$) indicated that they will start to produce them in the future. The majority (56%, $n = 18$) indicated that the decision of implementing (or not) the SR still needs to be reviewed; and 35% ($n = 11$) indicated not having plans to produce reports in the future. As far as reasons for not producing sustainability reports are concerned, almost half of the respondents (47%, $n = 15$) indicated the lack of a specific policy basis to produce them. This reason is followed by 34% of the respondents ($n = 11$) indicating the lack of resources or time to focus on this activity. Only one respondent (3%) indicated that producing sustainability reports offers no added value. Other reasons (22%, $n = 6$) comprise the lack of knowledge on the topic, the lack of leadership, SR not being perceived as a priority, the team being engaged in other projects or with reporting indicators under preparation, and university avoiding additional regulatory burdens.

Of those universities that are already developing sustainability reports ($n = 40$), the majority (92%, $n = 37$) indicated that they would continue to be engaged in the process of reporting; the remaining 8% ($n = 3$) declared that continuity will be reviewed. As for the motivation, 80% ($n = 32$) of the respondents indicated strategic reasons, followed by marketing ($n = 21$) and policy requirements ($n = 19$). Other reasons were provided by 28% of the respondents ($n = 11$), and include access to funding, educational value,

and sustainability rankings. Most mentions refer to transparency, accountability, and communication and dissemination of sustainability efforts.

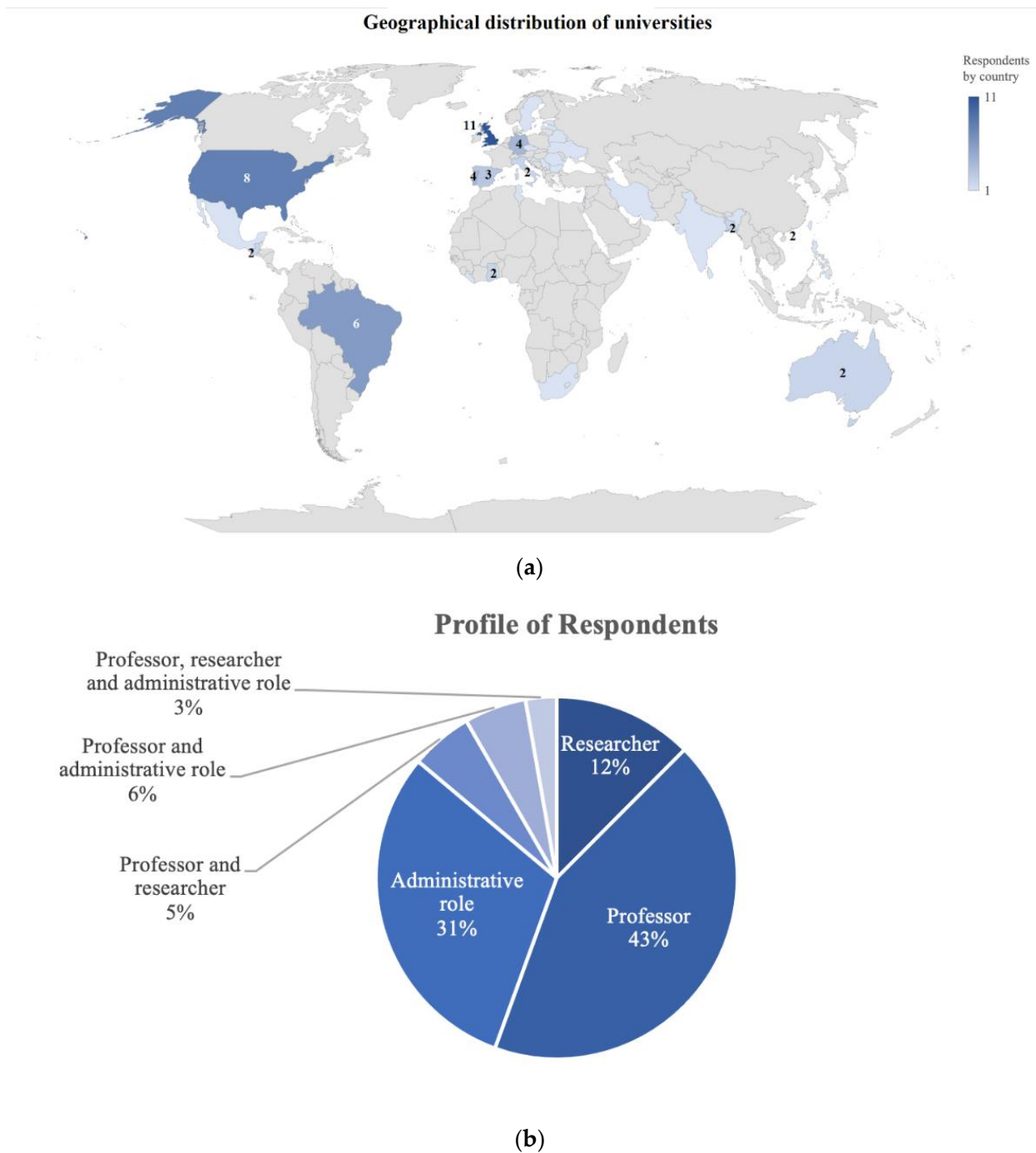


Figure 3. (a) Geographical distribution of the sample with number of respondents per country and (b) profile of survey respondents. Note. In the map, countries with one respondent are only colored.

In terms of format, most universities prepare dedicated sustainability reports (70%, $n = 28$), rather than integrated ones (30%, $n = 12$). Regarding frequency, most universities (68%, $n = 27$) stated to prepare their sustainability reports yearly, while just three institutions (8%) indicated a more frequent approach—twice a year. The remaining institutions are divided among the options irregularly and every two years (12%, $n = 5$ each).

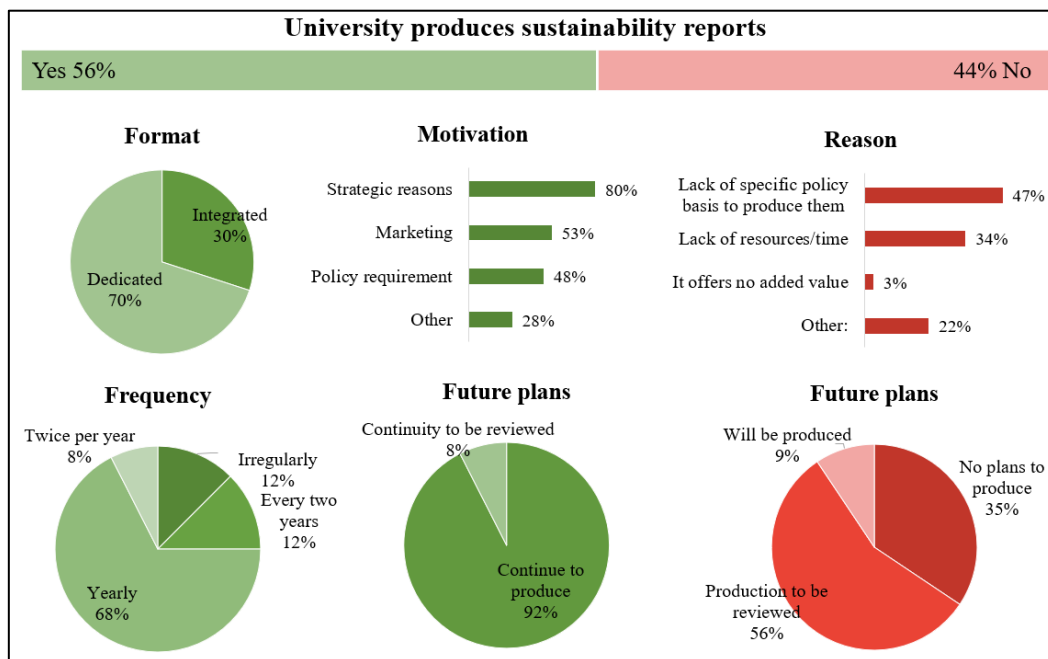


Figure 4. Summary of the results of the survey on sustainability reporting at universities.

Regarding the negative influence of the Coronavirus pandemic impacting SR, 50% and 8% of the sample indicated being affected to some extent and to a great extent, respectively. Just four universities out of 40 (10%) indicated not being affected at all, and 33% ($n = 13$) reported not being much affected.

5. Discussion

As well pointed out in previous studies, sustainability reports are not only intended to simply provide information about economic, environmental, social, and governance performance, as is the case with many corporate reports. Rather, they are also helpful tools that higher education institutions may deploy, in order to internalise and improve an organisation's commitment to sustainable development. Over and above this aim, SR provides HEIs with valuable documentation of the work they do and of the progress achieved, so as to inform internal (e.g., teaching staff, administration staff, students), and external stakeholders (e.g., companies, city administrations, institutional partners). Confirming the challenge indicated by An et al. [27], the present study shows that HEIs report on the lack of a specific policy basis to produce SRs. Other reasons include the lack of governance commitment or SR not being perceived as a priority. As noted by Lozano et al. [26], these reasons could indicate that sustainability might still be seen as having lower recognition when compared to other university efforts (such as operations, education, and research). This indicates the novelty of and the resistance against a reporting process that still have to evolve in many places [8,17].

Most of the universities that are already developing sustainability reports specified that they would continue be engaged in the process of reporting mostly for strategic reasons, and others for marketing or policy requirements, including funding access, educational value, or sustainability rankings. According to Ceulemans et al. [12], Domingues et al. [31], and Ntim et al. [22], the most positive aspects of SR refer to transparency, accountability, and communication and dissemination of sustainability efforts. At the same time, similarly to what is happening with SR in companies, the negative impacts of COVID-19 or most recently the war in Ukraine with worldwide impacts may lead to SR de-prioritisation, especially due to the need for reallocating resources to other pressing priorities [51]. Reporting practices will need to be revised in order to provide useful information on the effects of the pandemic and guide future reporting efforts [52]. The same applies to SR and might

also remain a significant challenge for universities after external challenges on top of other challenges related to teaching and research [53,54].

It cannot be expected that the number of organizations that use sustainability reporting may dramatically increase in the future [15]. The results of this investigation are aligned with Fiorani and Di Gerio [55], who reported a developing state of SR in universities in the Italian context, as well as having variable characteristics across universities and the challenge of lacking reporting guidelines for the sector. The amount of work involved and the costs associated with the preparation of sustainability reports suggest that an increase in the number of universities engaged in their preparation is unlikely. However, due to the many advantages associated with them, it is expected that some higher education institutions may see an opportunity here, and may take more advantage of sustainability reporting as a tool via which they can report on their sustainability efforts, across both an academic and a non-academic audience. This would reflect the expectation of stakeholders, who are increasingly demanding more accountability and transparency from organisations and the relationship between their initiatives and sustainable development [56]. All in all, the preparation of sustainability reports helps to promote an integrated, whole-institution approach to matters related to sustainable development and bring together the different cultures within the organization. However, without connecting the reporting criteria to strategic goals or annually monitoring the advancement in this field, the potential impact remains less meaningful.

This research underlines the need for further development of SRs considering these reports as strategic for universities' accountability. Among the features that need improvements in SRs practices are: a higher level of clarity, transparency, and a comprehensive view on the disclosed information on sustainability [57]; better disclosure as the result of a combination among qualitative and quantitative information rising the understanding on sustainability performance [58]; and, improvement of the quality of the disclosure, a wider dissemination of the reporting process within the organization, and communication of sustainability-related activities that can be further disseminated within and outside the university [59].

6. Conclusions

This paper reports on a study on SR at universities with two complementary approaches. First, an investigation of a sample of 30 universities across a set of selected countries to report on the level of attention they afford to SR and data availability. Secondly, an international survey with 72 universities on the extent to which SR practices are being deployed, and an overview of the main characteristics of reports, reasons for pursuing it or not, and future plans, among others.

Both the global survey of SR and the in-depth study of sustainability reports have a limitation in the sense that the sample cannot be regarded as representative. Indeed, this was not the intention. Whereas the rationale behind the global sampling was to obtain some information on how some higher education institutions perceive and regard SR, and identify the means by which they are being deployed. As such, the study provides an overview of the many approaches, formats, and methods in which sustainability reports are being prepared and disseminated.

The paper contributes to knowledge in the field of sustainability in higher education because it explores the diversity of themes approached, based on the 30 reports screened, and provides examples of how reporting can be designed and implemented. The implications of this paper are twofold. First, it illustrates the fact that the efforts in preparing sustainability reports are worthy, due to the many advantages that the documentation and pursuit of a common goal bring about. Secondly, the paper suggests that even though the frequency and types of the reports may differ, they can provide useful insights into an institution's commitment to sustainability, thereby offering a sense of direction as to where a university is heading in terms of sustainability.

Author Contributions: Conceptualization, W.L.F.; methodology, W.L.F.; writing—original draft preparation, W.L.F., A.C.-M., A.L.S., F.F.S., F.W., T.L., M.J.K., F.D., A.P., M.B., M.S., A.T.G. and S.M.; data collection, A.C.-M., A.L.S., F.F.S., F.W., M.S. and A.T.G.; data processing, A.C.-M. and M.S.; writing—review and editing, W.L.F., A.C.-M., A.L.S., F.W., M.B., M.S. and S.M. All authors have read and agreed to the published version of the manuscript.

Funding: The support of the Foundation for Science and Technology (FCT) under the project UIDB/04630/2020, is gratefully acknowledged.

Institutional Review Board Statement: The nature of the research, the methods used, and the fact that no personal data was stored or can be traced back to individuals, conforming with GDPR standards, means that the study is not subject to an ethics permit as specified by the Association of Medical Ethics Committee in Germany, the body responsible for such assessments in the country which led the study.

Informed Consent Statement: Consent was waived due to the point described above.

Data Availability Statement: Not applicable.

Acknowledgments: This paper is part of the “100 papers to accelerate the implementation of the UN Sustainable Development Goals” initiative.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Questionnaire applied for the exploratory study.

Questions	Responses
Does the University perceive sustainability reporting as important?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the University produce sustainability reports?	<input type="checkbox"/> Yes <input type="checkbox"/> No
No	<input type="checkbox"/> Lack of specific policy basis to produce them <input type="checkbox"/> Lack of resources/time <input type="checkbox"/> It offers no added value <input type="checkbox"/> Other
Why?	
What are the future plans about sustainability reporting?	<input type="checkbox"/> We will start to produce them <input type="checkbox"/> We will review whether we will produce them <input type="checkbox"/> We do not plan to engage on producing them
How regularly are sustainability reports currently being produced?	<input type="checkbox"/> Twice per year <input type="checkbox"/> Yearly <input type="checkbox"/> Every two years <input type="checkbox"/> Irregularly
What is the format of the sustainability reports currently being produced?	<input type="checkbox"/> Dedicated sustainability reports <input type="checkbox"/> Integrated (e.g., as part of an overall university reporting)
Yes	<input type="checkbox"/> Policy requirement <input type="checkbox"/> Marketing <input type="checkbox"/> Strategic reasons <input type="checkbox"/> Other
What is the motivation to produce sustainability reports?	
What are the future plans about sustainability reporting?	<input type="checkbox"/> We will continue to produce them <input type="checkbox"/> We will review whether we continue to produce them
Has the COVID-19 pandemic negatively influenced your work on sustainability reporting?	<input type="checkbox"/> Yes to a great extent <input type="checkbox"/> Yes, to some extent <input type="checkbox"/> Not much <input type="checkbox"/> Not at all

References

1. Leal Filho, W. Dealing with Misconceptions on the Concept of Sustainability. *Int. J. Sustain. High. Educ.* **2000**, *1*, 9–19. [CrossRef]
2. Burritt, R.L.; Schaltegger, S. Sustainability Accounting and Reporting: Fad or Trend? *Account. Audit. Account. J.* **2010**, *23*, 829–846. [CrossRef]
3. Orr, D.W. *Dangerous Years: Climate Change, the Long Emergency, and the Way Forward*; Yale University Press: London, UK, 2016; ISBN 0-300-22281-5.
4. Adams, C.A. Sustainability Reporting and Performance Management in Universities. *Sustain. Account. Manag. Policy J.* **2013**, *4*, 384–392. [CrossRef]
5. Lee, K.-H.; Barker, M.; Mouasher, A. Is It Even Espoused? An Exploratory Study of Commitment to Sustainability as Evidenced in Vision, Mission, and Graduate Attribute Statements in Australian Universities. *J. Clean. Prod.* **2013**, *48*, 20–28. [CrossRef]
6. Yáñez, S.; Uruburu, Á.; Moreno, A.; Lumberras, J. The Sustainability Report as an Essential Tool for the Holistic and Strategic Vision of Higher Education Institutions. *J. Clean. Prod.* **2019**, *207*, 57–66. [CrossRef]
7. Ramísio, P.J.; Pinto, L.M.C.; Gouveia, N.; Costa, H.; Arezes, D. Sustainability Strategy in Higher Education Institutions: Lessons Learned from a Nine-Year Case Study. *J. Clean. Prod.* **2019**, *222*, 300–309. [CrossRef]
8. Moggi, S. Social and Environmental Reports at Universities: A Habermasian View on Their Evolution. *Account. Forum* **2019**, *43*, 283–326. [CrossRef]
9. Hanover Research Financial Reporting in Higher Education. Available online: <https://www.hanoverresearch.com/media/Financial-Reporting-in-Higher-Education.pdf> (accessed on 30 June 2021).
10. Bellringer, A.; Ball, A.; Craig, R. Reasons for Sustainability Reporting by New Zealand Local Governments. *Sustain. Account. Manag. Policy J.* **2011**, *2*, 126–138. [CrossRef]
11. Ceulemans, K.; Molderez, I.; Van Liedekerke, L. Sustainability Reporting in Higher Education: A Comprehensive Review of the Recent Literature and Paths for Further Research. *J. Clean. Prod.* **2015**, *106*, 127–143. [CrossRef]
12. Ceulemans, K.; Lozano, R.; Alonso-Almeida, M.D. Sustainability Reporting in Higher Education: Interconnecting the Reporting Process and Organisational Change Management for Sustainability. *Sustainability* **2015**, *7*, 8881. [CrossRef]
13. Association for the Advancement of Sustainability in Higher Education The Sustainability Tracking, Assessment & Rating System (STARS) Reports and Data. Available online: <https://stars.aashe.org/reports-data/> (accessed on 30 August 2022).
14. Global Reporting Initiative GRI Standards. Available online: <https://www.globalreporting.org/standards> (accessed on 30 June 2021).
15. Alonso-Almeida, M.D.M.; Marimon, F.; Casani, F.; Rodriguez-Pomeda, J. Diffusion of Sustainability Reporting in Universities: Current Situation and Future Perspectives. *J. Clean. Prod.* **2015**, *106*, 144–154. [CrossRef]
16. Lozano, R. The State of Sustainability Reporting in Universities. *Int. J. Sustain. High. Educ.* **2011**, *12*, 67–78. [CrossRef]
17. Larrán Jorge, M.; Andrades Peña, F.J.; Herrera Madueño, J. An Analysis of University Sustainability Reports from the GRI Database: An Examination of Influential Variables. *J. Environ. Plan. Manag.* **2019**, *62*, 1019–1044. [CrossRef]
18. Fonseca, A.; Macdonald, A.; Dandy, E.; Valenti, P. The State of Sustainability Reporting at Canadian Universities. *Int. J. Sustain. High. Educ.* **2011**, *12*, 22–40. [CrossRef]
19. Schaltegger, S.; Wagner, M. Integrative Management of Sustainability Performance, Measurement and Reporting. *Int. J. Account. Audit. Perform. Eval.* **2006**, *3*, 1–19. [CrossRef]
20. Kolk, A. Trends in Sustainability Reporting by the Fortune Global 250. *Bus. Strategy Environ.* **2003**, *12*, 279–291. [CrossRef]
21. Huber, S.; Bassen, A. Towards a Sustainability Reporting Guideline in Higher Education. *Int. J. Sustain. High. Educ.* **2018**, *19*, 218–232. [CrossRef]
22. Ntim, C.G.; Soobaroyen, T.; Broad, M.J. Governance Structures, Voluntary Disclosures and Public Accountability. *Account. Audit. Account. J.* **2017**, *30*, 65–118. [CrossRef]
23. Lozano, R.; Llobet, J.; Tideswell, G. Developing a University Sustainability Report: Experiences from the University of Leeds. In *Sustainability Assessment Tools in Higher Education Institutions: Mapping Trends and Good Practices Around the World*; Caeiro, S., Filho, W.L., Jabbour, C., Azeiteiro, U.M., Eds.; Springer International Publishing: Cham, Switzerland, 2013; pp. 189–203. ISBN 978-3-319-02375-5.
24. Amaral, L.P.; Martins, N.; Gouveia, J.B. Quest for a Sustainable University: A Review. *Int. J. Sustain. High. Educ.* **2015**, *16*, 155–172. [CrossRef]
25. Trencher, G.; Yarime, M.; McCormick, K.B.; Doll, C.N.H.; Kraines, S.B. Beyond the Third Mission: Exploring the Emerging University Function of Co-Creation for Sustainability. *Sci. Public Policy* **2014**, *41*, 151–179. [CrossRef]
26. Lozano, R.; Ceulemans, K.; Alonso-Almeida, M.; Huisingh, D.; Lozano, F.J.; Waas, T.; Lambrechts, W.; Lukman, R.; Hugé, J. A Review of Commitment and Implementation of Sustainable Development in Higher Education: Results from a Worldwide Survey. *J. Clean. Prod.* **2015**, *108*, 1–18. [CrossRef]
27. An, Y.; Davey, H.; Harun, H. Sustainability Reporting at a New Zealand Public University: A Longitudinal Analysis. *Sustainability* **2017**, *9*, 1529. [CrossRef]
28. Puertas, R.; Marti, L. Sustainability in Universities: DEA-GreenMetric. *Sustainability* **2019**, *11*, 3766. [CrossRef]
29. Muñoz-Suárez, M.; Guadalajara, N.; Osca, J.M. A Comparative Analysis between Global University Rankings and Environmental Sustainability of Universities. *Sustainability* **2020**, *12*, 5759. [CrossRef]

30. Cronemberger de Araújo Góes, H.; Magrini, A. Higher Education Institution Sustainability Assessment Tools. *Int. J. Sustain. High. Educ.* **2016**, *17*, 322–341. [CrossRef]
31. Domingues, A.R.; Lozano, R.; Ceulemans, K.; Ramos, T.B. Sustainability Reporting in Public Sector Organisations: Exploring the Relation between the Reporting Process and Organisational Change Management for Sustainability. *J. Environ. Manag.* **2017**, *192*, 292–301. [CrossRef]
32. United Nations Sustainable Development—Knowledge Platform. Available online: <https://sustainabledevelopment.un.org/?menu=1300> (accessed on 30 June 2021).
33. Leal Filho, W.; Salvia, A.L.; Pretorius, R.; Brandli, L.; Manolas, E.; Alves, F.; Azeiteiro, U.; Rogers, J.; Shiel, C.; Do Paco, A. *Universities as Living Labs for Sustainable Development—Supporting the Implementation of the Sustainable Development Goals*; Springer: Cham, Switzerland, 2020.
34. Sustainable Development Solutions Network. *Getting Started with the SDGs in Universities: A Guide for Universities, Higher Education Institutions, and the Academic Sector, Australia, New Zealand and Pacific Edition*; SDSN—Australia/Pacific: Melbourne, Australia, 2017.
35. Rosati, F.; Faria, L.G.D. Addressing the SDGs in Sustainability Reports: The Relationship with Institutional Factors. *J. Clean. Prod.* **2019**, *215*, 1312–1326. [CrossRef]
36. RMIT University. Sustainability Annual Report 2018. Available online: <https://www.rmit.edu.au/about/our-values/sustainability/sustainability-annual-report> (accessed on 30 June 2021).
37. Stanford University Sustainability at Standford. Available online: <https://sustainability-year-in-review.stanford.edu/2019/> (accessed on 30 June 2021).
38. The University of Auckland Sustainability Report 2019. Available online: <https://www.auckland.ac.nz/en/about-us/about-the-university/the-university/sustainability-and-environment/SDGReport.html> (accessed on 30 June 2021).
39. University of Leicester. Annual Sustainability Reports. Available online: <https://www2.le.ac.uk/offices/estates/environment/Strategy/annualreports> (accessed on 30 June 2021).
40. University of Manitoba. 17 GLOBAL GOALS: University of Manitoba Report on the United Nations Sustainable Development Goals. Available online: http://umanitoba.ca/campus/sustainability/media/SDGReport_FINAL.pdf (accessed on 30 June 2021).
41. Leal Filho, W.; Kovaleva, M.; Fritzen Gomes, B.; Fudjumdjum, H.; Emblen-Perry, K.; Platje, J.; Tuladhar, L.; Vasconcelos, C.R.P.; LeVasseur, T.J.; Minhas, A.; et al. Sustainability Practices at Private Universities: A State-of-the-Art Assessment. *Int. J. Sustain. Dev. World Ecol.* **2021**, *28*, 402–416. [CrossRef]
42. White, G.B.; Koester, R.J. STARS and GRI: Tools for Campus Greening Strategies and Prioritizations. *Sustainability* **2012**, *5*, 100–106. [CrossRef]
43. Tavares, M.D.C.D.C.; Dias, A.P. Theoretical Perspectives on Sustainability Reporting: A Literature Review. In *Accounting from a Cross-Cultural Perspective*; Dias, A.P., Salman, A., Abdul Razzaq, M.G., Eds.; IntechOpen: Rijeka, Hrvatska, 2018; Chapter 3; ISBN 978-1-78984-280-7.
44. An, Y.; Davey, H.; Harun, H.; Jin, Z.; Qiao, X.; Yu, Q. Online Sustainability Reporting at Universities: The Case of Hong Kong. *Sustain. Account. Policy J.* **2020**, *11*, 887–901. [CrossRef]
45. Saraite-Sariene, L.; del Mar Gálvez Rodríguez, M.; de Haro de Rosario, A. Exploring Determining Factors of Web Transparency in the World’s Top Universities. *Rev. Contab.* **2018**, *21*, 63–72. [CrossRef]
46. Garde Sánchez, R.; Rodríguez Bolívar, M.P.; López-Hernández, A.M. Online Disclosure of University Social Responsibility: A Comparative Study of Public and Private US Universities. *Environ. Educ. Res.* **2013**, *19*, 709–746. [CrossRef]
47. Filho, W.L.; Will, M.; Salvia, A.L.; Adom̃ent, M.; Grahl, A.; Spira, F. The Role of Green and Sustainability Offices in Fostering Sustainability Efforts at Higher Education Institutions. *J. Clean. Prod.* **2019**, *232*, 1394–1401. [CrossRef]
48. The Sustainability Code. Sustainability Code Criteria. Available online: <https://www.deutscher-nachhaltigkeitskodex.de/en-gb/Home/DNK/Criteria> (accessed on 30 June 2021).
49. Bassen, A.; Sassen, R.; deHaan, G.; Klußmann, C.; Niemann, A.; Gansel, E. *Application of the Sustainability Code in Relation to HEIs—An Approach to Sustainability Reporting at HEIs (Second Revised Version)*. Federal Ministry of Education and Research (BMBF) Project “Sustainability at HEIs: Developing—Networking—Reporting (HOCHN)”; Duisburg, Essen: Hamburg/Berlin, Germany, 2020.
50. Manchester Metropolitan University Manchester Met and the Environment—Our Performance. Available online: <https://www.mmu.ac.uk/environment/performance/> (accessed on 30 June 2021).
51. Posner, C. Companies Divided on Impact of COVID-19 on Sustainability Efforts. Available online: <https://cooleypubco.com/20/06/12/impact-covid-19-sustainability/> (accessed on 30 August 2022).
52. García-Sánchez, I.-M.; Raimo, N.; Marrone, A.; Vitolla, F. How Does Integrated Reporting Change in Light of COVID-19? A Revisiting of the Content of the Integrated Reports. *Sustainability* **2020**, *12*, 7605. [CrossRef]
53. Leal Filho, W.; Azul, A.M.; Wall, T.; Vasconcelos, C.R.P.; Salvia, A.L.; do Paço, A.; Shulla, K.; Levesque, V.; Doni, F.; Alvarez-Castañón, L.; et al. COVID-19: The Impact of a Global Crisis on Sustainable Development Research. *Sustain. Sci.* **2021**, *16*, 85–99. [CrossRef]
54. Leal Filho, W.; Price, E.; Wall, T.; Shiel, C.; Azeiteiro, U.M.; Mifsud, M.; Brandli, L.; Farinha, C.S.; Caeiro, S.; Salvia, A.L.; et al. COVID-19: The Impact of a Global Crisis on Sustainable Development Teaching. *Environ. Dev. Sustain.* **2021**, *23*, 11257–11278. [CrossRef]

55. Fiorani, G.-D.G. ChiaraTI-Reporting University Performance through the Sustainable Development Goals of the 2030 Agenda: Lessons Learned from Italian Case Study Reporting University Performance through the Sustainable Development Goals of the 2030 Agenda: Lessons Learned from Italian Case Study. *Sustainability* **2022**, *14*, 9006. [[CrossRef](#)]
56. Hamilton, S.N.; Waters, R.D. Mainstreaming Standardized Sustainability Reporting: Comparing Fortune 50 Corporations' and US News & World Report's Top 50 Global Universities' Sustainability Reports. *Sustainability* **2022**, *14*, 3442. [[CrossRef](#)]
57. Brusca, I.; Labrador, M.; Larran, M. The Challenge of Sustainability and Integrated Reporting at Universities: A Case Study. *J. Clean. Prod.* **2018**, *188*, 347–354. [[CrossRef](#)]
58. Sepasi, S.; Braendle, U.; Rahdari, A.H. Comprehensive Sustainability Reporting in Higher Education Institutions. *Soc. Responsib. J.* **2019**, *15*, 155–170. [[CrossRef](#)]
59. Filippo, D.D.; Benayas, J.; Peña, K.; Sánchez, F. Communication on Sustainability in Spanish Universities: Analysis of Websites, Scientific Papers and Impact in Social Media. *Sustainability* **2020**, *12*, 8278. [[CrossRef](#)]