

Connecting Sustainable Development and Corporate Sustainability through a 2030 Agenda Disclosure Index: Evidence from the Top-listed Iberian Companies

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ABSTRACT:

To conciliate theories regarding the connection between corporate sustainability and sustainable development, this study presents a 2030 Agenda Disclosure Index compatible with different perspectives and standards, and which is tested in the contents of the sustainability reports of the top listed Iberian companies. Unlike studies that construct the SDG contribution variable as a dummy, reflecting only 'whether' and not 'how', our framework introduces content elements under 'top-down' and 'inside-out' approaches, which emphasizes management, monitoring and ability to connect with stakeholders, and reflecting different levels of alignment, from symbolic to substantive. Despite the observed improvement of the index and sub-indices over time, the contribution to sustainable development by Iberian companies can be considered, on average, mediocre and with room for improvement, especially in stakeholder engagement and monitoring, and in Portugal. In addition to business characteristics (location, size and sector), aspects such as adherence to frameworks and standards (UNGC and GRI) and benchmarking (DJSI) have been shown to be linked to increased substantiveness of indices or sub-indices; but also, more internal aspects such as ethical codes, sustainability committees and board size are determining factors. Thus, beyond transparency and disclosure, the framework introduces content and contextual elements that may be of interest to academics, managers and regulators concerned about corporate rhetoric or greenwashing.

Keywords: corporate sustainability, Sustainable Development Goals (SDGs), 2030 Agenda, sustainability reporting, dissemination index, listed companies

1. Introduction

Ever since the 1987 Brundtland report called for the integration of the different dimensions of sustainability -economic, environmental, and social- for the sake of true sustainable development, companies have been working towards a triple bottom line vision of their business models, often driven by social pressures and sometimes by institutional impulses (Henriques and Richardson, 2004). In this sense, the 'center of gravity' of the corporate social responsibility (CSR) debate has been shifting from appearance and public relations to competitive advantage and corporate governance. This, in turn, has led to greater and stronger business engagement between the corporate

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sustainability (CS) and sustainable development (SD) schedules (Elkington, 2004), as CS is the field of research that seeks to translate SD to the business level (Atkinson, 2000; Wilson, 2003; Meuer *et al.* 2020), enabling a better understanding of how business contributes to sustainability and society (Ashrafi *et al.* 2018; Maas *et al.*, 2016; Landrum, 2018, Ike *et al.*, 2019; Abeysekera, 2022). Indeed, Sheene and Farneti (2021) consider CSR as an application of the SDGs in the business context. This linkage between CS and SD is also shown in the bibliometric study conducted by Jan *et al.* (2023), by the fact that both concepts seek in the long term to reach and balance the economic, social and environmental dimensions. However, the increasing focus on CS has not been without criticism for lacking an explanation of how to properly account for its contribution to SD (Bansal and Song, 2017; Montiel and Delgado-Ceballos, 2014). For others, the central criticism lies in the lack of clarity between academics and managers on the nature of CS, which makes it difficult to distinguish when companies engage in greenwashing (Meuer *et al.* 2020).

The 2030 Agenda and its 17 Sustainable Development Goals (SDGs) have been a further step in the transformation towards a more sustainable society, and, in this context, both institutions (United Nations, 2015; United Nations Global Compact, 2017; SDG Compass, 2020) and academics (Topple *et al.*, 2017; Van Zanten and Van Tulder, 2018; Rosati and Faria, 2019a; Adams *et al.*, 2020; Pizzi *et al.*, 2021; Lozano and Barreiro-Gen, 2022; Yumnam *et al.*, 2024) have considered that companies can play a very relevant role in contributing to the SDGs through their strategies and operations.

Despite the complexities and difficulties in measuring the SDGs (Janoušková *et al.*, 2018; Sullivan *et al.*, 2018; Mukhi and Quental, 2019; Suárez-Serrano *et al.* 2023), companies show their commitment and value creation to society through their acceptance of the SDGs as a global framework for action (United Nations, 2015; United Nations Global Compact, 2017; Rosati and Faria, 2019a; Sullivan *et al.*, 2018; Lafortune *et al.*, 2020; Hacıhasanoğlu *et al.*, 2023). Measuring and reporting on corporate contributions to the SDGs has therefore become a necessary and priority objective for companies that want to improve their performance and accountability to stakeholders (Mukhi y Quental, 2019; Rosati and Faria 2019b; García-Meca and Martínez-Ferrero, 2021; S&P Global, 2021; Abeysekera, 2023; Mosgaard and Kristensen, 2023).

Considering the many authors who have previously expressed that more research and empirical efforts are still needed to integrate the definitions and criteria of CS proposed by different disciplines (In *et al.* 2024) and draw conclusions on corporate engagement with the SDGs (Pizzi *et al.* 2021; Heras-Saizarbitoria *et al.*, 2021; García-Sánchez *et al.* 2021a; Bose and Khan, 2022), on covering the shortage in the development of SDG frameworks (Chourasiya *et al.* 2024), on understanding the drivers of SDG reporting (Bose and Khan, 2022; Izzo *et al.*, 2020; Giannarakis *et al.*, 2023) and on whether SDG reporting plays a symbolic or substantive role (García-Meca and Martínez-Ferrero, 2021; Manes - Rossi and Nicolo, 2022), the present research attempts to bridge these gaps between SD and CS in the literature.

There is an extensive literature on the content analysis of CS reporting on SDGs (Pizzi *et al.*, 2021; Hacıhasanoğlu *et al.*, 2023; Heras-Saizarbitoria *et al.* 2021; García-Sánchez *et al.*, 2021a; Tsalis *et al.* 2020; Van der Waal and Thijssens, 2020; Calabrese *et al.*, 2021), with some references to the Spanish companies (López, 2020; Lassala *et al.*, 2021;

Curtó-Pagès et al., 2021), and the Portuguese case (Monteiro et al., 2020; Carmo and Ribeiro, 2022). In this sense, the proposed research aims firstly to cover the lack of comparative studies between Spain and Portugal in this area. This comparative analysis could be justified, on the one hand, because Spain is among the European countries that are most committed to the presentation of non-financial information, and in its transposition of the European Union Directive 2014/95/EU it includes specific guidelines on what to report (Maglio and Lombardi, 2023). On the other hand, the choices made by Portuguese listed companies in the context of the Directive may differ from other countries, due to their reduced capitalization value and their greater dependence on bank credit, which is based more on private information (Carmo and Ribeiro, 2022).

While these cited studies use SDG reporting as a proxy of engagement and analyse its possible drivers, there is a second, less numerous, group of papers that focus on SDG engagement from an organizational point of view: i.e. value chain (Van Zanten and Van Tulder, 2018), operational dimensions (Battaglia et al., 2020), legitimation strategies (Silva, 2021) and management models (Santos y Bastos, 2021). Another clear aim of our research is precisely to combine, under different theoretical perspectives, the content analysis of SDG reporting as a proxy for CS and its determinants with the introduction of organizational and governance aspects.

A third group of researchers have analysed the contribution and/or dissemination of the SDGs through indices. On the one hand, the use of indices is common when analysing countries (Kushwaha et al., 2022). On the other hand, when used in the business domain, they are usually constructed from secondary databases such as IIRC IR (Izzo et al., 2020), Refinitiv ESG (Bose and Khan, 2022), and especially from GRI data and indicators (Pizzi et al., 2021; García-Meca and Martínez-Ferrero, 2021; Heras-Saizarbitoria et al., 2021; Tsalis et al., 2020; Calabrese et al., 2021; Issa, 2017; das Chagas et al., 2022). In this context, the most original aspect of our study is the construction of, to our knowledge, the first 2030 Agenda disclosure index, as a proxy of the business contribution to SD, and directly based on the information collected in the reports available on company websites, without the use of standardised databases or indicators and, therefore, compatible with different frameworks and standards.

Trying to respond to these gaps and aims, while recognising that managers are under increasing pressure from their stakeholders to align their decisions with SD, and that policy makers need to better understand the drivers of CS in order to better regulate sustainability reporting (Arkoh et al., 2024), the paper is divided in four different sections. In the first one, the theoretical framework is presented. A second section describes the research method used. Thirdly, the results obtained from the data analysis are shown and discussed in relation to the previous literature reviewed. The main contributions and limitations of the study, as well as future lines of research and some managerial, social and policy implications, are finally presented in the conclusion section.

2. Conceptual framework and research questions

Considering Schwartz and Carroll (2008) diverse conceptual frameworks have been used to understand SD in the business environment: CSR, CS, stakeholder engagement, corporate citizenship, and business ethics. The SDGs have been introduced

more recently, but there is extensive literature examining the integration of SD at the firm level through the concept of CS (Ashrafi *et al.*, 2018; Ike *et al.*, 2019; In *et al.*, 2024). Although there is no common definition of CS (Montiel and Delgado-Ceballos, 2014), a thorough conceptualisation of the term is essential to make tangible the role of business in contributing effectively to SD (Meuer *et al.*, 2020). After all, the integration of CS into business strategy has been identified as the main challenge for companies to overcome if they want to become more sustainable (Nguyen and Kanbach, 2024).

Several studies link CS to different perspectives such as stakeholder, legitimacy, contingency, agency, and resource-based view theories (Ike *et al.*, 2019; Izzo *et al.*, 2020; Giannarakis *et al.*, 2023). However, in other cases the concept of CS remains vague as many studies apply a very global view of the term by assimilating it to CSR, sustainability, or SD (Wilson, 2003; Ashrafi *et al.*, 2018; Bansal and Song, 2017). There is no doubt that a broad perspective allows for dialogue between fields, but there is also a risk of using foundations that are more essential to those fields than to CS (Meuer *et al.*, 2020) and of barriers to integration between disciplines (In *et al.*, 2024).

Regardless of the theoretical basis, in accordance with Henriques and Richardson (2004), the transformation towards more sustainable business requires two types of approaches: 'top down' and 'inside out'. The former emphasizes management, monitoring, and control, while the latter is related to the ability to connect and respond to stakeholders. In an attempt to unify theories, Schwartz and Carroll (2008) identify three elements common to the different conceptual perspectives on business-society alignment: value, balance and accountability. Firstly, companies are expected to generate benefits for society, that is to create shared 'value' for different stakeholders. On the one hand, SD requires an integrated management or 'balancing' of the sustainability dimensions related to social, environmental, economic and governance issues (Domingo-Posada *et al.*, 2024). On the other hand, adequate "accountability" should imply a greater corporate commitment to provide sufficient, precise, and timely information to evidence the performance of its activities (Adams *et al.*, 2020; Sebrina *et al.*, 2023).

Ceres (2020) calls on companies to take actions –integrated, decision-useful, comparable, and verified, and stakeholder relevant– to embrace transparency and public disclosure and enable all stakeholders to understand and evaluate their sustainable business priorities and strategies for both risk management and competitive differentiation. In the same sense, Adams *et al.* (2020:5) encourage the private sector “to respond and engage by connecting business strategies with the SDGs, developing business-led solutions, and enhancing corporate sustainability”. They demonstrate that Principles of SDG Disclosure connect with those of major reporting frameworks/standards such as GRI, IIRP or TFCFD. In particular, the GRI framework is often used as a proxy for comparable and reliable information on CSR for three reasons: (1) it is the most widely used sustainability reporting standard, (2) it is considered the best available option for reporting on ESG criteria, and (3) it provides companies with objective and harmonized reporting (Giannarakis *et al.*, 2023); however, its specific application to CS remains underexplored. In the current dilemma between voluntary and mandatory reporting, some countries are adopting mandatory schemes such as the TCFD in New Zealand, IFRS S1 and S2 in the United Kingdom or the European Sustainability Reporting Standards (ESRS) in the European Union.

Related to this, the Sustainability Yearbook 2021 equates the SDGs to ESG frameworks such as UNGC or SASB (Sustainability Accounting Standards Board), stating that they allow investors to have reliable, high-quality, and time-tested data at hand (S&P Global, 2021). In addition, actively aligning business strategies with the SDGs will allow companies not only to maintain or strengthen their “license to operate” but to enhance their competitive advantage against companies that do not understand their contribution to the SDGs and do not revise their strategy accordingly (Sullivan et al., 2018; Mukhi and Qumental (2019).

As important as the contents of sustainability reports are the factors that may be influencing the SDG reporting. Therefore, the inclusion of elements of the "context" linked to sustainability will help to better understand sustainable decision-making (Rosati and Faria, 2019a; Calabrese et al., 2021; Curtó-Pagès et al., 2021; Hahn and Kühnen, 2013; ElAlfy et al., 2021).

In addition to the frameworks and standards related to sustainability reporting, a distinction can be made between two types of factors that can condition business decisions in this respect: institutional aspects (country-based) and organizational aspects (company-based). While authors such as Bose and Khan (2022) or Rosati and Faria (2019a) explore institutional factors (politics and law, markets and finance, society and culture, sustainability, innovation...), other studies (Lozano and Barreiro-Gen, 2022; Rosati and Faria, 2019b; Lassala, 2021; Henriques et al., 2022) find evidence on organizational factors influencing SDG (size, sector, age, risks, frameworks and external assurance, codes, corporate governance...). In our study, considering that the countries to be analysed are very close and subject to common European sustainability regulations, we will not rely on institutional theory but, following Nguyen and Kanbach (2024), the country variable will be considered as organizational factor linked to location.

Based on a combination of the above theories, approaches and research trends, the authors present an integrated framework of the conceptual elements for the implementation and dissemination of CS at the business level (Figure 1).

Inspired by the conceptual elements of Schwartz and Carroll (2008), Henriques and Richardson (2004) and Adams et al. (2020), our conceptual model aims to integrate SDG implementation and dissemination efforts more holistically within companies, thereby increasing accountability to stakeholders. As Manes-Rossi and Nicolo (2022) argue, achieving the SDGs requires moving away from symbolism and making substantive change. Beyond the degree of disclosure, the proposed framework sets out strategic choices, useful for achieving sustainable business transformation, in complementarity with other frameworks and standards.

Above all, the importance of aligning CS and SD through an Agenda 2030 Disclosure Index is based on two assumptions about reporting that we believe support this research and seek to reconcile the theories.

From the Stakeholder Theory, companies use their sustainability reports to publicly identify their SD achievements (Abeysekera, 2022), based on accountability to multiple stakeholders who demand to be better informed about the impacts of business activities (Henriques et al., 2022; Erraja et al., 2024). Indeed, stakeholder engagement is ‘crucial’ to the development of sustainability reports (Herremans et al., 2016) and to the level of quality of their ‘materiality’, which will be determined by the aspects that are

relevant to their stakeholders (Torelli *et al.* 2020). In this sense, as Henriques *et al.* (2022: 4) point out, “a topic is considered as material if it can significantly affect the organization’s ability to create value in the short, medium, or long term and if its omission or misstatement influences the decisions, actions, and performance of the company or its stakeholders”. Moreover, sustainability reporting can be used to engage stakeholders, and stakeholder engagement in turn influences the sustainability reporting features (Herremans *et al.*, 2016).

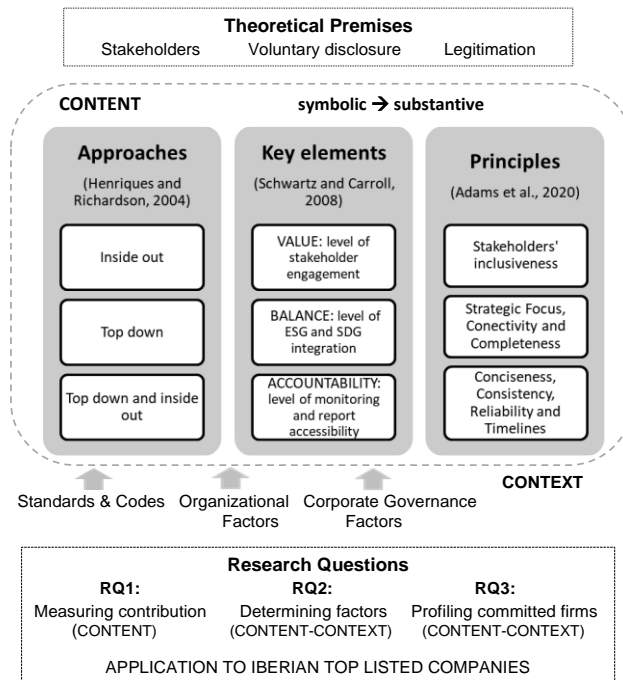


Figure 1. Conceptual framework for implementing and dissemination of SDGs

Secondly, according to the Voluntary Disclosure Theory, companies that publish comprehensive and verified information in their sustainability reports are more committed to SD in their activities. In contrast, business with poor sustainability performance prefer low-quality disclosure to hide their true performance and protect market position, in line with the Legitimacy Theory (Hummel and Schlick, 2016), forcing stakeholders to look at other factors such as age, size, or reputation to assess performance (Sehgal *et al.*, 2023).

Based on these premises and on the conceptual framework proposed for linking CS and SD, this paper addresses the following research questions in relation to the Iberian top listed companies:

RQ1: How can we measure the nature and the evolution of business contribution to SD through a 2030 Agenda disclosure index?

RQ2: Could we identify the underlying factors related to the proposed index?

RQ3: Are we ready to determine the profile of the companies most committed to the 2030 Agenda?

3. Method

The method followed in the development of the specific index for the dissemination of the 2030 Agenda is described below, explaining the sample of companies chosen for this purpose -those corresponding to the IBEX35 and PSI20-, the collection of information, and the consideration of the variables and data to be analysed.

3.1 Sample

The target population are companies listed on the Spanish IBEX35 and the Portuguese PSI20. These indices include, respectively, those Spanish and Portuguese companies with the highest capitalization value and prospects. As can be seen in Table 1, it has been possible to collect information from all IBEX companies and 19 PSI companies. In the research year, the average number of employees was 38,718 for the IBEX35 companies and 14,934 for PSI20 companies, with wide ranges in both cases.

Table 1: Sample companies 2022. Source: Authors' own research based on Epdata (2023) and corporate web sites

Spain (IBEX)	Portugal (PSI)
Acciona	Altri SGPS
Acerinox	Banco Comercial Português SA
Aena	Corticeira Amorim
Almirall	CTT Correios Portugal SA
Amadeus IT Group	EDP
ArcelorMittal	EDP Renovaveis
Banco Sabadell	Galp Energia-Nom
Banco Santander	Greenvolt
Bankinter	Ibersol, SGPS
BBVA	Jerónimo Martins, SGPS
CaixaBank	Mota Engil
Cellnex Telecom	Nos, SGPS
CIE Automotive	Novabase
Enagás	Pharol SGPS SA
Endesa	Ramada
Ferrovial	REN – Red Energéticas Nacionales SGPS SA
Fluidra	Semapa
Grifols	Sonae
Grupo ACS	The Navigator Company
Nº of employees	
Mean: 38,718	Mean: 14,934
Maximum: 260,462	Maximum: 123,458
Minimum: 66	Minimum: 17

3.2 Data collection

To carry out the collection of information, the content analysis of the sustainability reports or social responsibility reports of the companies included in the IBEX35 and PSI20 was used. This method is normally used in environmental and/or social studies and has been successfully tested to analyze companies' engagement with SD and the SDGs (Curtó-Pagès *et al.*, 2021; Battaglia *et al.*, 2020; Henriques *et al.*, 2022).

This search on corporate websites took place in the period from January to March 2024, in relation to the years 2020 and 2022.

3.3 Variables and data analysis

From the literature review, the categories of analysis were extracted, which are summarized in the model presented in Table 2.

Table 2: Content variables of the 2030 Agenda Dissemination Index

Content Category	Description of Content Elements	References	Dissemination Likert point scale of content variables				
			Symbolic				Substantive
			Non-existent (0)	Poor (1)	Mediocre (2)	Good (3)	
BALANCE	Commitment/alignment with the sustainability dimensions (ESG COMMITMENT)	United Nations, 2015; United Nations Global Compact, 2017; Lozano and Barreiro-Gen, 2022; Lafortune <i>et al.</i> , 2020; Kushwaha <i>et al.</i> , 2022; Hoang, 2018	Non-existent	Mentions ESG	Collect information on one dimensions (economic, social, environmental or governance)	Collect information on two dimensions (economic, social, environmental or governance)	Collect information on three or four dimensions (economic, social, environmental or governance)
	Commitment/alignment with SDGs (SDG COMMITMENT)	United Nations Global Compact, 2017; Topple <i>et al.</i> , 2017; Lozano and Barreiro-Gen, 2022; Janoušková <i>et al.</i> , 2018; Izzo <i>et al.</i> , 2020; Calabrese <i>et al.</i> , 2021; ElAlfy <i>et al.</i> , 2021	Non-existent	Corporate statement only	Report aligned with the SDGs: includes only one section in this regard	Report aligned with the SDGs: identifies activities aligned with the SDGs	Report aligned with the SDGs: integrates the SDGs into the firms operations
VALUE	Stakeholder engagement (STAKEHOLDER ENGAGEMENT)	United Nations Global Compact, 2017; Heras-Saizarbitoria <i>et al.</i> , 2021; Izzo <i>et al.</i> , 2020; López, 2020; Curtó-Pagès <i>et al.</i> , 2021; Ceres,2020; Henriques <i>et al.</i> , 2022	Non-existent	Identify and refers to Stakeholders	Classifies Stakeholders into internal/ external or primary/secondary	Includes Stakeholders and SDGs alignment	Includes alignment and establishes alliances with Stakeholders to meet the SDG
ACCOUNTABILITY	SDG indicators and monitoring implementation (MONITORING)	United Nations Global Compact, 2017; SDG Compass, 2020; Van der Waal and Thijssens, 2020; Calabrese <i>et al.</i> , 2021; Sebrina <i>et al.</i> , 2023; Hoang, 2018	Non-existent	Defines and presents indicators	Analyses evolution of indicators	Sets annual or multi-annual objectives to be met	Provides level of compliance with the objectives set (or provides evaluation by interest groups)
	Report accessibility on Website (REPORT ACCESSIBILITY)	SDG Compass, 2020; Janoušková <i>et al.</i> , 2018; Sebrina <i>et al.</i> , 2023; García-Sánchez <i>et al.</i> , 2021b	Non-existent	Appears in shared space	Appears on own space	Appears on the main page	Appears on main corporate page in a prominent place

Considering as a reference the index of disclosure of responsibility (IDR) proposed by authors such as Issa (2017) and Ehsan *et al.* (2018), during the choice of the

coding system, the dissemination index of the 2030 Agenda (DI_{2030A}) is built. Although the IDR is an index of dissemination and transparency of the contribution to the 2030 Agenda, the DI_{2030A} index has been proposed in an analogous way but focused on the accountability linked to the contribution to the achievement of the SDGs. For this purpose, we have been inspired by the 2030 Agenda index proposed by González-Torre and Suárez-Serrano (2022) in the field of higher education institutions.

For each company the DI_{2030A} is calculated with the equation (1).

$$DI_{2030A\ Co} = \frac{\sum_{i=1}^n DI_{i\ Co}}{n} \quad (1)$$

where "i" is the identifying number of the content category considered, i.e., each of the three dimensions proposed in the model ($n = 3$) in figure 1. In a similar way, each DI_{iCo} is calculated.

To ensure the greatest objectivity in the evaluation of the information collected from the sustainability reports, a scoring procedure was used. In line with Yalin et al. (2019) and García-Sánchez et al. (2021a), a Likert scale is proposed with integer values from 0 to 4 according to the level of compliance/dissemination of each element in each content. Although the objectivity of the assessment obtained cannot be fully guaranteed, the simplicity of the chosen scale of measurement and its construction based on other indices already contrasted considerably reduce the subjectivity that the decision-maker can provide in its use. In line with Hummel and Schlick (2016), coding was peer-reviewed, and the third author only intervened when discrepancies arose. Thus, in the overall computation of the DI_{2030A} index, the higher the level of transparency and dissemination in a company in a certain element, the higher its value (Table 2). On the other hand, these scales allow us to analyse García-Meca and Martínez-Ferrero's (2021) levels of SDG reporting, from symbolic to substantive. However, the analysis of the information contained in the reports, based on symbolic-substantive legitimacy, requires a great deal of effort and time on the part of researchers (Manes-Rossi and Nicolo, 2022).

As mentioned in preceding sections, to better understand business decisions regarding the implementation and reporting of the SDGs, it is important to note that very valuable information can be obtained by introducing contextual elements of the index. Table 3 summarizes the main control variables reflected in the literature review, accompanied by a descriptive analysis. Data collection is public in nature and has been limited to the information available on each company's website. All information was manually compiled in a spreadsheet to facilitate further processing and analysis.

Table 3: Contextual elements of the 2030 Dissemination Index and related variables

Contextual element	Description of variables	Descriptive analysis	References
Country	Spain/Portugal	65% Spanish 35% Portuguese	Rosati and Faria, 2021a; García-Sánchez et al., 2021a, Bose and Khan, 2022; Nguyen and Kanbach, 2024
Size	Large (> 500 emp.) Medium/Small	87% large 13% medium/small	Rosati and Faria, 2021b; Heras-Saizarbitoria et al., 2021; García-Sánchez et al., 2021a; Bose and Khan, 2022; Giannarakis et al, 2023; García-Sánchez et al., 2021b

Sector	Industry/Construction /Energy/Services	35.2% industry 7.4% construction 22.2% energy 35.2% services	Heras-Saizarbitoria <i>et al.</i> , 2021; Bose and Khan, 2022; Lassala <i>et al.</i> , 2021; Curtó-Pagès <i>et al.</i> , 2021
Benchmarking	DJSI (yes/no)	38.9% yes	Ike <i>et al.</i> , 2019; Van der Waal and Thijssens, 2020; López, 2020; Hummel and Szekely, 2022
Codes	UNGC (yes/no)	72.2% yes	Rosati and Faria, 2021b; Heras-Saizarbitoria <i>et al.</i> , 2021; Giannarakis <i>et al.</i> , 2023; González-Torre and Suárez-Serrano, 2022
	Ethical Codes (yes/no)	85.2% yes	
Standards & Reporting	GRI (yes/no)	88.9% yes	In <i>et al.</i> , 2024; Heras-Saizarbitoria <i>et al.</i> , 2021; Curtó-Pagès <i>et al.</i> , 2021; Carmo and Ribeiro, 2022; Henriques <i>et al.</i> , 2022; Hoang, 2018; González-Torre and Suárez-Serrano, 2022
	Integrated annual report (yes/no)	75.9%	
Corporate Governance	Size of board of directors	Mean = 12 (SD = 3.26)	Rosati and Faria 2019a; Pizzi <i>et al.</i> , 2021; Rosati and Faria, 2021b; García-Sánchez <i>et al.</i> , 2021a; Bose and Khan, 2022; Giannarakis <i>et al.</i> , 2023; Hummel K, Schlick, 2016; García-Sánchez <i>et al.</i> , 2021b
	Independent Directors (> 50%)	44.4% (more than 50%)	
	Women Directors (>= 40%)	29.6% (more than 40%)	
	Sustainability committee or equivalent (yes/no)	46.3% yes	

4. Results and Discussion

4.1 Measuring contributions through the 2030 Agenda Disclosure Index

In relation to the first research question (RQ1), the DI2030A value is shown for the total sample of companies selected, and this is contrasted with the values corresponding, on the one hand, to the three categories —BALANCE, VALUE, ACCOUNTABILITY— and, on the other, to the five elements —ESG COMMITMENT, SDG COMMITMENT, REPORT ACCESSIBILITY, MONITORING, AND STAKEHOLDER ENGAGEMENT—, which make up the global index.

As can be seen in first column of Table 4, the listed companies achieve mediocre values in 2022 in the DI_{2030A}, with an average score of 2.13 out of 4. In aggregate terms, the best rated core element is BALANCE, with a score of 2.42, followed by a mediocre ACCOUNTABILITY (2.12) and a poor VALUE (1.87). In disaggregated terms, companies perform slightly better on SDG COMMITMENT (2.44), ESG COMMITMENT (2.39) and REPORT ACCESSIBILITY (2.23), but they are clearly mediocre in MONITORING (2.00) and poor in STAKEHOLDER ENGAGEMENT (1.87).

Table 4: Relationship between indexes and contextual variables

Index	Global ^a		Country ^a		Size ^a		Sector ^b			DJSI ^c		
	2022	2020	Spain	Portugal	M/S	Large	Ind	Cons	Ener	Serv	Yes	No
Global DI _{200A}	2.13**	1.99**	2.28**	1.87**	1.69**	2.19**	2.29**	2.58**	2.04**	1.94**	2.32**	2.02**
Content categories												
Balance	2.42	2.37	2.63**	2.03**	1.58**	2.52**	2.63	2.75	2.33	2.18	2.62	2.29
Value	1.87**	1.43**	2.00	1.63	1.50	1.92	2.00**	2.75**	1.92**	1.53**	2.14**	1.70**
Accountability	2.12	2.18	2.22**	1.95**	2.00**	2.13**	2.11	2.50	1.75	1.95	2.19	2.07
Content elements												
ESG commitment	2.39	2.57	2.63*	1.95*	1.83	2.46	2.58	2.25	2.33	2.26	2.52	2.30
SDG commitment	2.44**	2.18**	2.63	2.11	1.33**	2.58**	2.68	3.25	2.33	2.33	2.71	2.27
Stakeholders engagement	1.87**	1.43**	2.00	1.63	1.50	1.92	2.00**	2.75**	1.92**	1.53**	2.14**	1.70**
Monitoring	2.00**	1.88**	2.36	2.00	2.00	2.26	2.39	2.00	2.00	2.26	2.33	2.17
Report accessibility	2.23**	2.47**	2.06	1.89	2.00	2.00	2.11	2.50	1.75	1.95	2.05	2.02

Index	UNGC ^a		Ethical code ^a		GRI ^a		Sustainability committee ^a		Board size ^c
	Yes	No	Yes	No	Yes	No	Yes	No	
Global DI _{200A}	2.26**	1.73**	2.12	2.14	2.21	1.54	2.28*	2.01*	0.161
Content categories									
Balance	2.63**	1.73**	2.33*	2.93*	2.52	1.58	2.70**	2.17**	0.156
Value	1.95	1.62	1.91	1.43	1.96**	1.17**	2.00	1.76	0.094
Accountability	2.20**	1.85**	2.13	2.07	2.15	1.88	2.15	2.09	0.052
Content elements									
ESG commitment	2.61**	1.69**	2.24**	3.43**	2.44	2.00	2.84**	2.00**	-0.040
SDG commitment	2.66*	1.77*	2.41	2.43	2.60**	1.17**	2.56	2.34	0.333*
Stakeholders engagement	1.95	1.62	1.91	1.43	1.96**	1.17**	2.00	1.76	0.094
Monitoring	2.35**	1.85**	2.25	2.14	2.29*	1.75*	2.26	2.21	0.041
Report accessibility	2.05	1.85	2.00	2.00	2.00	2.00	2.04	1.97	0.040

Note. Average data by studied variable, except correlation coefficient for continuous variable^c
Significance level in ^aMann-Whitney test, ^bKruskal-Wallis test, ^cCorrelation test: * 0.10, ** 0.05

These findings are consistent with the literature on CS that shows a greenwashing or disconnection between companies' rhetoric and real actions and alignment with stakeholders (Heras-Saizarbitoria et al., 2021; Boiral et al., 2017; Testa et al., 2018). As García-Meca and Martínez-Ferrero (2021) argue, good intentions are not enough, because if they are not accompanied by 'substantial' contributions, in the end we are condemning CS to the 'symbolic' approach of Legitimacy Theory. If, as Pizzi et al. (2021) argue, listed companies are more likely to disclose their contribution to the SDGs, it is to be expected that a larger sample in Spain and Portugal could further worsen the values of the index and sub-indices.

Within the mediocrity of the average contribution, and except for REPORT ACCESSIBILITY, which loses relevance between 2020 and 2022, there have nevertheless been significant improvements in DI_{2030A}, SDG COMMITMENT, STAKEHOLDER ENGAGEMENT and MONITORING. Among others, these findings are in line with

those of Silva (2021) and Manes-Rossi and Nicolo (2022), who show an evolution towards greater business engagement with the SDGs in the contents of the reports.

4.2 Determining factors of 2030 Agenda Disclosure Index

Regarding the second research question (RQ2), a similar analysis is carried out but contrasting the values of the DI_{2030A} index and sub-indices, according to the contextual elements considered in Table 3. To better explain the relationship between the Content and Contextual items, the Mann-Whitney test is used for dichotomous variables (Table 4). In the case of the Sector, since it is a variable with more than two categories, the Kruskal-Wallis's test was used. Any case, only those context variables where there are significant differences will be presented. The Board Size variable, which is continuous, includes a Pearson correlation test.

As can be seen, the most determining factor is UNGC, with 6 significant relationships; Country, Size and GRI with 4; Sector, DJSI and Sustainability Committee with 3, Ethical Code with 2 and Board Size with 1. In contrast, no significant differences were found in the other index contextual variables analysed: the Integrated Report or the presence of women and independents on the board. Perhaps the clue to this result lies in the systematic review by In *et al.* (2024). On the one hand, these authors find that CS is connected to sustainability reporting, but not to integrated reporting. On the other hand, although the corporate governance node is close to ethics and reputation, it is far from the sustainability-related nodes.

These findings are also coherent with studies that analyse the relationship between voluntary initiatives –based on the Triple Bottom Line assessment– and Sustainability or SDG reporting (Calabrese *et al.*, 2021; Curtó-Pagès *et al.*, 2021; Hahn and Kühnen, 2013; ElAlfy A, *et al.*, 2021). In this sense, significant differences are found related to DJSI, UN Global Compact, Ethical Code and GRI. On the one hand, in line with previous studies, the companies most likely to report on the 2030 Agenda are companies listed on the DJSI (Hummel and Szekely, 2022), following GRI standards or adhering to the UNGC (Curtó-Pagès *et al.*, 2021) or with Ethical/CSR Codes (Giannarakis *et al.*, 2023). On the other hand, the significant differences in relation to STAKEHOLDER ENGAGEMENT may be because the concern for ‘materiality’ of reporting is clearly understood as responding to stakeholder expectations and seek to reduce information asymmetries with them in companies following GRI Standards (Giannarakis *et al.*, 2023, Henriques *et al.*, 2022) or that are listed on the DJSI (Hummel and Szekely, 2022).

Regarding the Size of the company, the results obtained are in accordance with the approach that business dimension has a positive effect on the scope of sustainability reporting, based on two assumptions: i) larger companies cause greater impacts and therefore face greater stakeholder pressure (Hahn and Kühnen, 2013; ElAlfy *et al.*, 2021) and ii) larger companies tend to be more proactive in their sustainability reporting and will therefore be more likely to disclose information on the SDGs than smaller companies (Rosati and Faria, 2019a; García-Sánchez *et al.*, 2021a; Izzo *et al.*, 2020; García-Sánchez *et al.*, 2021b). In this sense, significant differences have been found between Size and SDG COMMITMENT. In the same sense, significant sector-related differences were found, so we can confirm the claim made by ElAlfy *et al.* (2021) that sectors with a higher

sustainability impact (construction and industry) are more likely to address the SDGs in their reporting.

Aligned with the studies of Hummel and Schlick (2016), Rosati and Faria (2019b) and Pizzi et al. (2021), which link corporate governance with SDG reporting, a significant and direct relation have been found between board size and SDG COMMITMENT and between the existence of a Sustainability Committee and higher values of the DI_{2030A} and BALANCE of sustainability dimensions (García-Sánchez et al., 2021a). However, although diversity in corporate governance tends to translate into greater transparency (García-Sánchez et al., 2021b), no nexus has been found in relation to either gender or director independence.

In relation to the Country, the results are consistent with the study of Iberian paper companies by Henriques et al. (2022) which shows a higher commitment to CS disclosure in Spain than in Portugal. Despite the fact that Spanish IBEX35 companies are significantly better in the DI_{2030A}, BALANCE and ACCOUNTABILITY, on average, both Spanish and Portuguese companies should make a significant effort to work together with their stakeholders to achieve the SDGs. The average mediocre performance is in line with the findings of Monteiro et al. (2020), which highlight the delay of Portuguese listed companies in relation to SDG reporting, and with Pacto Mundial (2022), which emphasises the stalling of Spanish companies in establishing public and measurable commitments on the SDGs until 2020.

4.3 Profile of most committed companies based on the 2030 Agenda Disclosure Index

To answer the third research question (RQ3), the listed Iberian companies are classified into two large groups, with the average value of DI_{2030A} as the cut-off point. Table 5 compares them in terms of content variables. Cluster 1, with 29 companies, is called "Most committed to SD", as it is made up of companies with higher levels of scores both in the overall index and in the different categories and elements. In contrast, cluster 2, with 25 companies and significantly lower scores, is called "Least committed to SD".

Table 5 also shows the comparisons between clusters according to the contextual variables. From these results it can be significantly affirmed that we were able to classify the sample into two clearly differentiated clusters and identify the profile of the companies 'most committed to SD', linked to Spanish and large companies, listed in the DJSI, adhered to the UNGC, and with Sustainability Committees. The ambivalent reality of having companies from both countries in the two clusters was also reflected in the work of Curtó-Pages *et al.* (2021), which concluded that while, approximately, half of Spanish listed companies had been making progress in the reporting of the SDGs since 2016, the other half were still not focusing on sustainability reporting.

Table 5: Differences based on DI_{2030A} average

	Cluster 1 Most committed to SD	Cluster 2 Least committed to SD	p-value
Number of cases	29	25	
Wilcoxon test for continuous variables			
DI_{2030A}	2.47	1.75	<0.001**
BALANCE	2.90	1.86	<0.001**
VALUE	2.28	1.40	<0.001**
ACCOUNTABILITY	2.22	1.84	0.035**
Dimensions commitment	2.93	1.76	<0.001**
SDG commitment	2.86	1.96	0.006**
Stakeholder engagement	2.28	1.40	<0.001**
Monitoring	2.40	2.04	0.071*
Report accessibility	2.03	1.63	0.131
Chi-Pearson test (H₀: independence of variables)			χ² (p-value)
Country	75.9% Spanish	52% Spain	0.067*
Size	97% Large	80% Large	0.054*
Sector	41,1% Industry	28% Industry	0.119
	13.8% Construction	0% Construction	
	17.2% Energy	28% Energy	
	27.6% Service	44% Service	
DJSI	55.2%	20%	0.008**
UNGC	88,7%	52%	0.002**
Ethical code	79.3%	92%	0.191
GRI	89.3%	88%	0.883
Integrated report	76%	75.9%	0.991
Independent Directors	37,9%	52%	0.300
Women Directors	27.6%	32%	0.723
Sustainability Committee	58.6%	32%	0.050**
Board size (Wilcoxon Test)	12 members	12 members	0.558 (p-value)

5. Conclusions and implications

Given the diversity of studies, theories and methodologies for analysing the contribution of companies to the SDGs, the conceptual framework, based on an original disclosure index of the 2030 Agenda, can be applied from different conceptual basis, as it is inspired by the three common elements identified by Schwartz and Carroll (2008) that connect business and society regardless of disciplines. In this regard, this holistic

framework has highlighted the several ways of implementing and dissemination firms' inputs to the 2030 Agenda, with different levels of 'balance' among dimensions and objectives, shared 'value' and 'accountability' to stakeholders. Unlike many studies that focus on a single perspective (e.g. legitimacy) or a specific standard (e.g. GRI), the proposed index reconciles theories and is compatible with different frameworks and standards.

Our framework is also driven by the ESG business philosophy as it seeks to ensure that commitment to the 2030 Agenda is totally integrated into business decision-making, CS, and accountability to stakeholders, i.e. based on the dual "top-down" and "inside-out" approach suggested by Henriques and Richardson (2004) to connect CS and SD and drive business towards sustainability. In line with Ceres (2020), the proposed 2030 Agenda Dissemination Index encourages companies to undertake actions that are integrated, decision-useful, comparable, verified, and relevant to stakeholders. In addition, the application of the index is tested to analyze the usefulness of IBEX35 and PSI20 companies' sustainability reports as a tool for aligning with the 2030 Agenda and being accountable to stakeholders, but the results obtained, and their application could also be of interest in other countries.

The main contribution of this research to the existing literature is that this is the first time that a 2030 Agenda disclosure index has been developed as an indicator of business contribution to SD. Moreover, it is based on original items available in public corporate sources rather than in secondary databases. It also presents a theoretical framework that goes beyond the content analysis of reports, with control variables based on standards/frameworks, organizational and corporate governance factors. In addition, there are no known previous studies that use cluster analysis methodology to classify companies and identify the profile of the most proactive in SDG engagement and disclosure, nor to compare Spanish and Portuguese companies. In relation to this comparison, although there is room for improvement in average terms, especially in stakeholder engagements and monitoring, Spanish companies show a better performance and there is also an ambivalent reality in both countries, where companies with good and poor results coexist.

Moreover, the framework designed goes beyond transparency and disclosure and introduces content and contextual elements that may be of interest to both academics, who seek inspiration, and professionals who want to deepen both their understanding of CS and the necessary business transformation towards SD and may use the framework as a self-assessment and positioning exercise. For example, studies that are based on disclosure indices usually construct the contribution variable to the SDGs as a dummy (Izzo et al., 2020), exclusively reflecting 'whether' and not 'how'. In our study, on the contrary, content variables can range from 0, which means that they report nothing on the SD, to 4, where the company's operations are aligned through different levels of integration, from symbolic to substantive.

In addition, sub-indices related stakeholder engagement and monitoring are also included, and factors that can help companies improve their sustainability are assessed. Specifically, in addition to business characteristics (location, size and sector), aspects such as adherence to frameworks and standards (UNGC and GRI) and benchmarking (DJSI) have proven to be very positive in improving the disclosure index or sub-indices; but also,

more internal aspects such as codes of ethics, sustainability committees and board size are determinants.

Beyond encouragement and guidance for managers, the proposed framework can be of help to different stakeholders, including society at large and NGOs, who are interested in distinguishing greenwashing and want to have a more comprehensive view of CS. Regarding the policy makers, this study highlights the mediocrity of sustainability reporting in Iberian companies that could justify the desirability of policy drivers, such as the CSRD, the recent European Directive (EU) 2022/2464 on corporate sustainability reporting, which will promote, in the coming years, greater accountability and comparability in CS performance reporting for companies of all sizes.

Nonetheless, the study has limitations that suggest future areas of research. One clear limitation is the size of the sample, motivated by the information collection effort based on symbolic-substantive legitimacy, which could be extended to all companies listed on the Spanish and Portuguese Stock exchanges, beyond those listed on the IBEX35 and PSI20.

To make cross-country comparisons, the study could be replicated in other European nations or even in other international markets. Likewise, a longitudinal study could be carried out to examine how regulatory changes, such as the introduction of the CSRD, can influence corporate behavior and strategy over time to align more substantively with the SDGs, beyond symbolic efforts. Extending the application of the proposed index to other sectors and markets would also help to verify its robustness in different business environments. In terms of variables, new elements linked to both country and corporate governance could be also explored and tested.

Future developments could contribute to reduce and quantify the uncertainty of the index, although it would mean to consider uncertainties for each of the parameters participating in the index and the propagation analysis of them to the index uncertainty estimation.

Finally, from a qualitative point of view, this holistic framework could even be tested in case studies, where the sub-indices could be analysed in more detail, using graphs and comparative position matrices, or complemented by in-depth interviews with managers.

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