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# Learning from the Best: New Challenges and Trends in IR Reporters' Disclosure and the Role of SDGs

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**Abstract:** A worldwide debate on the effectiveness of business reporting information has engaged organizations, policy makers, regulators, and members of the capital market. The documents through which organizations disclose their annual performance are being questioned and criticized, as they appear inadequate for responding to stakeholder needs. In 2013, the International Integrated Reporting Council (IIRC) launched a project with the aim of redesigning corporate reporting processes and outputs, introducing integrated reporting (IR). At the center of IR are the six capitals defined by the IIRC representing the basis for an innovative form of evaluating and presenting performance. New topics on the global sustainable development agenda are growing in importance, requiring companies to enrich their disclosure and connect business to environment. In this study, we examined how a group of leaders in IR, 134 European companies from the IIRC IR reporters list, are currently disclosing IR capital and Sustainable Development Goals (SDGs), developing three evaluation scores: Capital Disclosure Index, SDG Disclosure Index, and SDG Compliance Index.

**Keywords:** integrated reporting; capitals; sustainable development goals; sustainable development goal disclosure

## 1. Introduction

The traditional structure, contents, and principles used by companies to measure and report their financial performance have been strongly debated and criticized, as they fail to correctly inform stakeholders and provide them with useful information [1–3]. Policymakers, associations, regulators, and businesspeople have begun to question some fundamental aspects of business's role in society. Globalization has been an incredible opportunity for economic growth and financial returns, but its benefits have not been shared equally among society members, negatively affecting trust between stakeholders and companies, disconnecting players in the value creation process.

As such, an increasing number of organizations have started to innovate their reporting practices, enlarging the area of disclosure with information about sustainability and non-financial metrics. This has led to the enlargement of the value concept [4] and to the aspiration of integrating financial and non-financial information into one single report [5–8]. At the end of this long process, in 2013, the International Integrated Reporting Council (IIRC) launched the International Integrated Reporting Framework with the purpose of establishing guiding principles and content elements that govern the overall content of an integrated report, and to explain the fundamental underpinning concepts. According to IIRC [9] (p. 33), integrated reporting (IR) is "a process founded on integrated thinking that results in a periodic integrated report by an organization about value creation over time and related communications regarding aspects of value creation". At the center of this process, the concept of integrated thinking refers to:

> The active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects. Integrated thinking leads to integrated decision-making and actions that consider the creation of value over the short, medium and long term.

As occurs with any novelty in the accounting field, IR (in this paper, we use IR for both integrated reporting and integrated report) has been at the center of a vivid debate [10–16]. Some scholars portrayed IR as a one of the main recently introduced corporate reporting, management, and accounting innovations [7,12,17–20], whereas others have dismissed it as the result of a temporary fad [8,21–24], with no real capability to effectively integrate financial and non-financial reporting.

According to KPMG [25], all over the world, the number of companies that specifically label their reports as "integrated" is growing slowly but steadily. In 2017, 14% of companies that belong to the G250, an index that lists the world's 250 largest companies by revenue based on the Fortune 500 ranking in 2016, issued a corporate report labeled as "integrated". Two years before, in 2015, the value was 11%. These data are particularly relevant for two reasons. Firstly, in this index, leaders in their sectors are ranked, such as companies like Apple, Toyota Motors, Microsoft Corporation, Bank of China, and General Motors. Secondly, due to the relevance of these companies, it is normal to expect some isomorphic and mimetic effects [26] implemented by the smallest companies and competitors. Due to this pattern, the behavior of the biggest companies often predicts trends that are subsequently adopted more widely.

Along with the diffusion of IR, other global trends can be recognized in the disclosure policies of companies all around the world. We are particularly referring to topics such as climate change, human rights, and the Sustainable Developments Goals (SDGs). The latter have been defined as "guideposts for a difficult transition to sustainable development" [27] (p. 176).

Therefore, adopting the institutional legitimacy perspective, we analyzed the level of disclosure about IR capitals and how companies leverage the integrated report to embed information about SDGs. We developed an evaluation grid for Sustainable Development Goal Disclosure (SDGD) based on the work of Adams et al. [28].

Referring to business risks and opportunities, modern companies must be conscious of the need to start thinking about aligning their mission, business model, and strategic priorities with the broader socio-economic context in which they are operating. As a consequence, the private sector is required to connect business strategies with the SDGs, developing business-led solutions, and enhancing corporate sustainability. Corporate sustainability is a wide term, often used synonymously with corporate social responsibility, corporate citizenship, environmental management, sustainable development, and the triple bottom line. In this paper we use this term as an alternative to the traditional growth and profit-maximization model. While corporate sustainability recognizes that corporate growth and profitability are important, it also requires the corporation to pursue societal goals, specifically those relating to sustainable development (SDGs).

In relation to SDGs and corporate sustainability, recently, Izzo [29] (p. 82) stated that:

There are two main opportunities brought out by IR in developing and delivering SDGs. On the one hand, IR can be used to embed the SDGs in organizations' thinking and reporting, enabling, in this way, their focus on sustainable development; on the other hand, IR can be used to demonstrate the impact of a company's value creation process toward sustainable development. IR, in other words, leads to greater transparency and completeness of the outcomes for sustainable development.

Using a sample of 134 European companies listed in the IR database as IR reporters [http://examples.integratedreporting.org/reporters?start=A&page=1], we aimed to assess the disclosure choices of these "best in class" companies, analyzing the level of disclosure of the capital defined by the IIRC and of SDGs. This study, thus, is particularly relevant at this stage of the IR journey, as the

IIRC has just begun the process of renewing the International IR Framework, and an in-depth analysis of the current state could offer insightful elements to orient the nature and direction of the revision.

We propose a first SDG compliance index grounded in the recommendations addressed by primary actors in the SDG academic and professional debate [28].

This paper provides several contributions. First, we offer a general overview of the state-of-the-art IR disclosure by increasing the focus on capital already analyzed by the literature toward the analysis of SDGD. Second, this was a first explanatory attempt to evaluate the level of disclosure and the quality of the information provided about SDGs. The last element could be interesting, as SDG reporting practices have already been identified as "rainbow washing", referring to the corporate practice of adopting SDGs for style rather than substance. In this sense, moving the debate on the topic toward an in-depth analysis about how, rather than if, companies disclose about SDGs.

In relation to corporate sustainability, our paper intends to enhance the discussion about the role of sustainable development in renewing the debate about corporate sustainability and providing organizations with new instruments to effectively integrate sustainability into their business models and operations.

The remainder of the paper is structured as follows. In Section 2, a literature review is presented that introduces the main topics in this paper, focusing on the IR concepts and the development of SDGs. The section ends discussing both the theoretical background and the research objectives. Section 3 presents the research method and dataset. Section 4 outlines the results of the analysis, and Section 5 critically discusses them. Finally, Section 6 concludes the paper, presenting the main contributions, limitations, and recommendations for future studies.

## 2. Literature Review

### *2.1. Integrated Reporting: A Long Journey*

Integrated reporting represents an innovative form of corporate disclosure aimed at providing a comprehensive picture of how organizations are creating value, leveraging different types of financial and non-financial capital. It responds to the needs of contemporary organizations to balance financial and non-financial information, as their success is nowadays defined (and often measured) by more than their short-term profitability [16,30,31].

The IIRC [9] (p. 7) defines an integrated report as "a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term". In this scenario, companies are largely adopting the principles of integrated reporting [25] and scholars are extensively investigating its adoption, evolution, and potential.

A first wave of IR studies was conducted as the new frontier of corporate reporting, pushing organizations toward more responsible behaviors [5,32], focusing on the application of the IIRC framework's guiding principles [33,34] and users' benefits [35]. Then, the level of disclosure provided by firms included in the IIRC's pilot program was investigated, together with the determinants of this disclosure choice [36]. Recently, many contributions have focused on how IR could be subject to formal assurance processes [7,18,37,38]. This is consistent with the importance of assurance in adding credibility to corporate sustainability reporting, institutional legitimacy, and stakeholder theory [39–42].

As occurs with any hot topic in the academic and professional debate, IR is not exempt from criticism. A widespread skepticism is growing about IR's ability to effectively contribute to corporate sustainability [43] and move beyond communication [44], leading some researchers to brand IR a failure [23]. Aware of that, the IIRC is currently refreshing the IR Framework to ensure integrated reporting continues to meet the wider goals of financial stability and sustainable development.

According to the IIRC, this revision, the first launched since the IR Framework was published in December 2013, intends to respond to an evolving market context in which corporate reporting practices have evolved, acknowledging the increased importance of a range of capital beyond purely financial capital. Organizations are also adapting and responding to global megatrends, such as the SDGs and climate change, with a growing focus on stewardship, corporate governance, and inclusive capitalism.

Within this scenario, integrated reporting has solidified its role in changing how companies think, plan, and communicate their value creation on a multi-capital basis. For this reason, analyzing its role in spreading SDG consciousness is even more relevant.

### *2.2. SDGs and SDG Disclosure*

The SDGs were adopted by all United Nation member states in 2015 as a universal call to action to coordinate the efforts of governments, organizations, and any member of society toward fundamental integrated goals, such as ending poverty, protecting the planet, and ensuring that all people enjoy peace and prosperity by 2030.

As shown in Figure 1, the SDGs encompass 17 goals based on 169 targets, tackling a wide spectrum of issues relevant to sustainable development, such as poverty, education, climate change, health, balancing economics and environmental degradation.

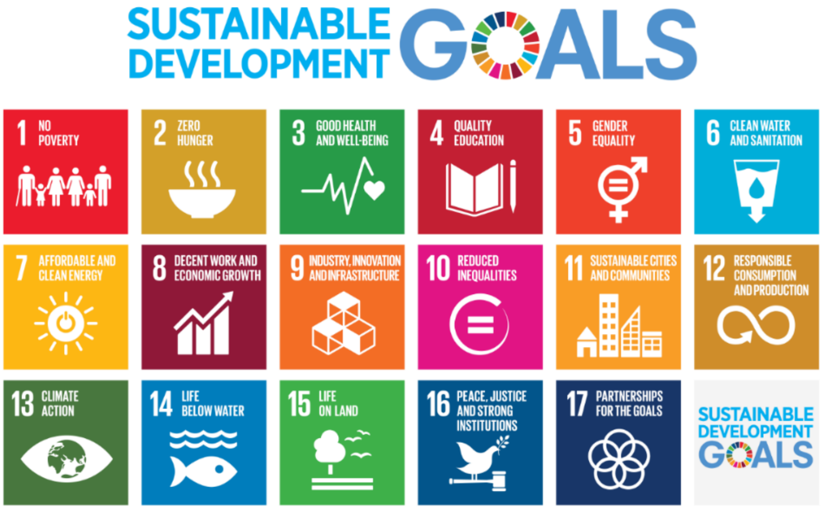


**Figure 1.** The 17 Sustainable Development Goals (SDGs).

Organizations worldwide play a significant role in achieving a long-term sustainable development balance [45,46], i.e., financial goals and local socio-economic growth. Companies are required to both minimize the negative impacts of their activity on the population and the planet and to maximize the positive impacts of their practices.

Along this line, the United Nations Global Compact (UNGC) and the Global Reporting Initiative (GRI) recently launched a new joint initiative (i.e., reporting on the SDGs, GRI, 2018; UNGC, 2018) with the aim of enabling "businesses to incorporate SDG reporting into their existing processes, empowering them to act and make the achievements of the SDGs a reality" [47]. As corporate sustainability has become vital for organizations' long-term successes, SDGs offer an opportunity for business-led solutions and technologies to be developed, creating advantages for organizations. Measuring and reporting these goals enable business organizations to contribute to the SDGs while capitalizing on a range of benefits, such as identifying future business opportunities and strengthening stakeholder engagement [29].

Although the SDGs are in their early stages, an increasing number of studies are investigating their evolution and diffusion in relation to their role in assessing corporate responsibility [48,49], influencing business models [50], enriching corporate disclosure [51], creating competitive advantage [52], and providing investment opportunities [53].

In this scenario, sustainability reporting is considered as one of the main enablers of SDG integration into business strategy and action [54], as "sustainability reporting initiatives [ . . . ] help to align capital market signals with sustainable development and thereby to mobilize responsible investment in the SDGs" [55] (p. 162). Nevertheless, the business approach to (and disclosure of) SDGs has already been criticized due to the lack of transparency and accountability [56,57] or the limited (or absent) information about how these goals relate to one another and about the drivers and key performance indicators of the impacts that the SDGs seek to address [46,58].

As such, primary actors in academic and professional SDG arenas [28] recently launched a set of recommendations for SDGD, presented as "an opportunity to establish best practice for corporate reporting on the SDGs and enable more effective reporting and transparency on social impacts" [28] (p. 5). These recommendations aim to support organizations in developing their SDG disclosures aligned with the other reporting frameworks that are actually being used, enhancing the credibility of their disclosure and concretely embedding SDGs into their business model and strategic decision process to contribute to sustainable development. One of the main characteristics of this contribution is that the fundamental concepts and principles of SDGD draw from those of the International IR Framework, GRI Standards, and the Taskforce on Climate-related Financial Disclosure (TCFD) recommendations. They do not propose an alternative approach to disclosure; rather, they complete and integrate frameworks that are already familiar for organizations.

The model proposed by Adams et al. [28] identifies three fundamental concepts and eight main principles of SDGS. The first underpins how organizations respond to sustainable development risks and opportunities, whereas another defines the elements that should be reflected by SDGD. The fundamental concepts of SDGD are: (1) long-term value creation for the organization and society, (2) sustainable development context and relevance, and (3) materiality. The principles of SDG disclosure are: (1) strategic focus and future orientation; (2) stakeholder inclusiveness; (3) conciseness; (4) connectivity of information; (5) consistency and comparability; (6) completeness, balance, understandability; (7) reliability and verifiability; and (8) timeliness. Within this paper, we refer to these principles as the "SDGD Principles", whose complete description is presented in Appendix A.

### *2.3. Theoretical Background and Research Objectives*

According to legitimacy theory, an organization's survival is strictly related to the perceptions of stakeholders, as well as to the relationship between social expectations and organizational behaviors [59], as a social contract exists between organizations and the society in which they operate [39,60,61]. The relevance of this approach is generally recognized, as "it is probable that legitimacy theory is the most widely used theory to explain environmental and social disclosures" [62] (p. 559). Legitimacy theory posits that organizations continually seek to ensure that they operate within the bounds and norms of their respective societies. This occurs because firms are economic units that operate within the contexts formed by a nexus of institutions that affect their behavior and impose expectations on them [63].

In adopting a legitimacy theory perspective, a company voluntarily discloses efforts and activities related to sustainability if management perceives that this is expected by the communities in which they operate [39,40,64,65]. The external environment thus exerts pressure on organizations in terms of laws, norms, rules, and routines that influence organizations' behaviors and disclosure policies. With this aim, integrated reporting and SDGs can represent two methods organizations use to manage these pressures and increase their transparency. In doing so, they increase the accountability of their financial and non-financial information report and gain legitimacy. External pressure normally leads to isomorphism [26,66], generally defined as the propensity of organizations to resemble other organizations that operate under similar environmental conditions. Enlarging this view, neo-institutional theory incorporates elements as cultural values in the process of gaining support and recognition from stakeholders [67].

An organization can gain or reinforce legitimacy as a consequence of three institutional pressures related to coercive (i.e., laws, decrees, or regulations), normative (i.e., moral compliance or pressure exerted by professional networks in terms of value, beliefs, or social norms), and mimetic (i.e., adoption of a generally accepted behavior in the same industry) isomorphic forces [68]. In the end, isomorphism arises both from external and internal pressures.

According to Rosati and Faria [49], one of the aspects through which organizations might differentiate themselves in relation to their sustainability reporting is the adoption of emerging sustainability concepts and frameworks, such as those currently represented by the Sustainable Development Goals. Then, assuming that a company's disclosure is significantly influenced by external pressures in the search for legitimacy, the main purpose of this study was to empirically investigate the level of disclosure of IR reporters of the multiple capitals proposed by the IIRC and of SDGs. Specifically, we aimed to (1) identify the overall level of disclosure about IR capital and SDGs among organizations that are assumed to be the best in class in this field (and that, as a consequence, could lead other organizations to mimic their behavior and practices) and (2) conduct a first attempt to evaluate the level of SDG compliance using an evaluation grid that considers five of the principles of SDG disclosure, as defined by Adams et al. [28], which are discussed in the next section.

Thus, the specific research questions that we addressed in this research were the following: Which IR capitals and SDGs are currently being disclosed by companies particularly active in preparing IR? How do these organizations disclose information about SDGs? What is the level of their SDG disclosure?

## 3. Methodology

As illustrated above, the purpose of our study was to analyze European companies' disclosure practices about IR capitals and SDGs. With our analysis, we aimed to assess the disclosure choices of these "best in class" companies, analyzing the level of disclosure about the capitals defined by the IIRC and about SDGs.

This section explains the methodological approach used in our analysis. The first subsection describes the data sources and how the sample was drawn. The second subsection focuses on the technique used for the analysis of integrated reports and includes the definition of the disclosure and compliance indexes that were the basis of our research.

### *3.1. Sample Selection*

To answer our research questions, we gathered data mainly from the IIRC IR reporters list (as of December 2019), which is the official IIRC database that indicates a list of organizations "whose reports refer to the IIRC or the International IR Framework, or are influenced by the Framework through participation in IR Networks" [(Available at: http://examples.integratedreporting.org/all_reporters). The network aims to bring together the companies that are embracing the principles of integrated reporting to share best practices and to guide the companies that want to understand the benefits that arise from participating in a new reporting movement. The IR reporters list includes 531 companies operating in different regions. Due to the characteristics of our analysis, starting from the IIRC list, the sample of this study included the organizations from the IIRC sample that satisfy the following conditions: (1) the organization is based in Europe and (2) the organization published an integrated report in 2018.

In defining our sample, we excluded eight companies, as they are part of a group and only the holding company prepares the IR, or they do not provide the document in English, or they are not for-profit companies. Therefore, the final sample consisted of 134 companies (Appendix B). The determination of the sample is detailed in Table 1; the characteristics of its population by country and sector are presented in Table 2.

**Table 1.** Sample determination.

| Criteria | Sample |
|---|---|
| IR reporters as indicated by the International Integrated Reporting Council | 531 |
| - non-European companies | −349 |
| - companies that did not publish an integrated report in 2018 | −40 |
| - companies that have a holding company that publishes the report | −6 |
| - companies that published an integrated report 2018 not in English | −1 |
| - not-for-profit companies | −1 |
| **Total sample** | **134** |

**Table 2.** Characteristics of the sample by country and sector.

| Country | Number | % | Sector | Number | % |
|---|---|---|---|---|---|
| UK | 39 | 29% | Finance, Insurance, Real Estate | 47 | 35% |
| Italy | 18 | 13% | Manufacturing | 25 | 19% |
| Netherlands | 15 | 11% | Services | 14 | 10% |
| Spain | 12 | 9% | Electric and Gas | 12 | 9% |
| Germany | 9 | 7% | Mining | 10 | 7% |
| Switzerland | 8 | 6% | Wholesale Trade | 10 | 7% |
| France | 7 | 5% | Transportation | 6 | 4% |
| Sweden | 6 | 4% | Construction | 4 | 3% |
| Russia | 6 | 4% | Retail Trade | 3 | 2% |
| Finland | 3 | 2% | Communications | 3 | 2% |
| Poland | 2 | 1% | | | |
| Denmark | 2 | 1% | | | |
| Luxembourg | 2 | 1% | | | |
| Turkey | 2 | 1% | | | |
| Belgium | 1 | 1% | | | |
| Norway | 1 | 1% | | | |
| Greece | 1 | 1% | | | |
| **Total** | **134** | **100%** | **Total** | **134** | **100%** |

To offer a general overview of the organizations analyzed, the financial characteristics of the sample population are presented in Appendix C (source: our elaboration from the Amadeus dataset).

### *3.2. Data Collection and Evaluation Indexes*

The analysis consisted of two steps. First, we downloaded the integrated report for the year 2018 from the IIRC website or from the companies' websites and manually collected data concerning the content to verify if the companies analyzed cite IR capitals and SDGs. Secondly, we used the data collected in a semi-objective content analysis based on the development of a disclosure index technique capable of capturing the quantity and quality of the information disclosed, together with the characteristics of the reports analyzed. More specifically, in relation to our sample, we manually collected the data through content analysis [69,70], which is the most commonly used technique to detect information inside text [71,72] and to analyze corporate social and environmental disclosure [65,73–82].

One of the major concerns relating to the use of the content analysis method is its reliability. Krippendorff [71] identifies three types of reliability: accuracy, reproducibility, and stability. In this paper we refer to these three dimensions of reliability and use them to assess our findings.

We analyzed each integrated report to verify if the different capitals proposed by the IIRC framework were presented and discussed [83]. A first index, the capital disclosure, was thus developed as follows:

$$CDI = \frac{\sum_{i=1}^{n} cd_i}{n} \tag{1}$$

where $cd$ is the number of companies that have disclosed at least one capital other than financial capital; $cd = 1$ if the integrated report cites at least one capital other than the financial one, and 0 otherwise; $n$ is 134, the total number of integrated reports analyzed.

Coherently with this analysis, we enlarged our focus in relation to SDG disclosure, developing the SDG Disclosure Index, calculated as follows:

$$SDGs\ DI = \frac{\sum_{i=1}^{n} SDGd_i}{n} \tag{2}$$

where SDGd is the number of companies that have mentioned at least one SDG. More specifically, SDGd = 1 if the integrated report cites at least one goal, and 0 otherwise; $n = 134$, which is the total number of integrated reports analyzed.

Both indexes can take values ranging from 0% to 100%. Values near to 0% signal that no (or low) indications of capital or SDGs were provided in the reports, whereas values close to 100% reveal that the majority of the companies in the sample provided this information.

The indexes could provide an initial overview of the companies' disclosure policies, indicating if the analyzed companies are considering IR capitals and the SDGs in their external communication to stakeholders. In addition, as the companies in the sample belong to the IIRC IR reporters list, we expected a high score in the Capital Disclosure Index, so this analysis, to be significant, subsequently focused on how companies disclose in practice. For this reason, we constructed a system of scoring to analyze the disclosure by the companies from a qualitative viewpoint, leveraging the SDGD Principles recently presented by Adams et al. [28].

As previously noted, Adams et al. [28] defined eight principles for SDG disclosure that should help companies to concretely embed the SDGs into their business model and strategic decision process, contributing to sustainable development (for a complete overview, see Appendix A). Out of these eight principles, due to the characteristics of our analysis, we only focused on five principles: strategic focus and future orientation; stakeholder inclusiveness; conciseness; connectivity of information; and completeness, balance, understandability. We did not consider the following principles: (1) consistency and comparability, as we analyzed just one year (2018), so it was not possible to consider changes in the application of the SDGD Principles; (2) reliability and verifiability, as we did not have any elements to infer the quantified SDGs were reliable; and (3) timeliness, for the same motivation expressed with reference to point (1).

For each of the five principles considered in our analysis, we developed a specific scoring grid using the elements defined by Adams et al. [28], using both a dichotomous approach and a more complex analysis of the integrated report section devoted to SDGs.

For the first principle, strategic focus and future orientation, we assigned 0 if the document contained no statement about risks and opportunities that influence strategy and the organization's business model to create long-term value for the organization and society; 1 if the IR illustrated a connection between the SDGs and the company's risk; and 2 if, in addition to the previous result, the company also provided information about the link (or the integration) between SDGs and the organization's business model.

To evaluate stakeholder inclusiveness, we used a dichotomous procedure, assigning 0 if no key stakeholder was identified, and 0 otherwise.

With reference to the third principle, conciseness, we used a scoring grid from 0 to 2, trying to balance the necessity of conciseness and the request for relevant information. More specifically, we assigned 0 if the information provided appeared uncomplete or vague, 1 if the company introduced the topic of SDGs but providing little information or brief mentions, and 2 if the SDG disclosure was well structured, presenting relevant elements (such as the prioritization of SDGs, their impact on company activities, and the strategies used for their implementation) and if the disclosure was simultaneously not redundant and confusing.

In relation to the connectivity of information, we focused on three key elements identified by Adams et al. [28]: business model, value creation strategy, and risk management, because companies should convey the interrelations among these elements and SDG achievement. Given the above, we assigned 0 to the companies that did not present any consideration of these elements, and 1 for each disclosed item. The score attributed to this principle, therefore, can assume a value ranging from 0 to 3.

For the last principle analyzed, completeness, balance, and understandability, we evaluated the three elements of the principle by assigning a value equal to 1 for each item. This means that the score varies from 0 to 3.

To conduct the evaluation, particularly critical for completeness, we considered whether the information provided was aligned with the fundamental concept of sustainable development [28] and if issues and impacts in the organization's value chain and outside its borders were addressed. Then, we considered if the information regarding the impact of the organization on the process of achieving SDGs was provided in a balanced way and without material errors. Finally, to evaluate the understandability, we considered how the information was provided, both graphically and textually.

To ensure the reliability of the procedure through which the data were collected manually, we used inter-coder reliability. This form, in which test–retest and internal consistency are two of the three conventional methods of reliability [84], "refers to the extent to which content classification produces the same results when the same text is coded by more than one coder" [85] (p. 17). The authors independently coded each document produced by the companies and conducted the analysis again on a sample of 54 reports (ca. 40% of the sample) at three different time periods. In this way, according to Krippendorf [71], we assessed for accuracy and reproducibility.

In support of the reliability of the analyses highlighted so far, for a sample of companies independently and in different periods of time, we verified that the coefficient of agreement (i.e., the ratio between the elements that recorded the same result and the total number of analyses conducted) was above acceptable levels to be able to determine that the analysis was conducted consistently. The discrepancy between the coders and the same codification at different times was analyzed, and the difference was resolved [86,87]. Through this procedure, we verified the stability of the content analysis.

Leveraging five out of Adam et al.'s eight SDGD Principles, we scored the disclosure provided by the analyzed companies, using the SDG Compliance Index for each company of the sample, calculated as follows:

$$SDGsCI = \frac{C}{m} \tag{3}$$

where $C$ is the disclosure score obtained by each company and m is equal to 11 and represents the maximum score potentially achievable.

The SDG Compliance Index can assume values in the range of 0% to 100%, where values close to 0% indicate low disclosure of sustainable goals, whereas values near 100% indicate that companies have paid particular attention to these issues.

## 4. Results

The first result of our study refers to the disclosure attitude of the 134 European companies analyzed referring to IR capitals. Of the sample, 129 organizations described at least one of the six capitals defined by the IIRC Framework in addition to financial capital. The latter, as expected, was cited by all the organizations analyzed.

The level of the Capital Disclosure Index, referring to the sample analyzed, was particularly high (96%). This result appears normal and is not particularly surprising, as the organizations in the sample, which are leaders in the IR field, evidently leverage capitals, seeking to explain how they interact with the external environment to create value over the short, medium, and long terms.

Focusing on the documents analyzed, only 24 organizations (18% of the sample) limited their information to just two capitals, whereas the majority introduced information about a number of capitals in different sections, such as "creating value for our stakeholders" and "operating an integrated business model" in the management report. Human capital (87%) and social and relational capital (63%) were the most cited capitals after financial capital. Our results, summarized in Table 3, are consistent with the evidence reported by Santis et al. [83], who listed financial, human, and social and relationship capitals as the most disclosed capitals in their sample (135 large companies belonging to the financial service sector along a three-year horizon), whereas manufactured capital was less disclosed.

**Table 3.** Capitals disclosed.

| Capital | Number | % |
|---|---|---|
| Financial | 134 | 100% |
| Human | 116 | 87% |
| Social and Relationship | 84 | 63% |
| Natural | 75 | 56% |
| Intellectual | 68 | 51% |
| Manufactured | 62 | 46% |

In relation to the core topic of this contribution—Sustainable Development Goals—our second disclosure index, the SDG Disclosure Index, confirmed that this topic is relatively new and the level of disclosure of SDGs is lower than that of IR capitals.

Out of 134 companies, only 95 released information about the SDGs in their IR. Thus, the Disclosure Index was 71%.

Going in depth into SDG disclosure, Table 4 presents a detailed analysis of the most common SDGs mentioned in the documents analyzed. The first column lists the 17 SDGs ranked on the basis of the most mentioned goal, followed by the indication of the number of organizations that disclosed information about each SDG and the related percentage.

**Table 4.** SDGs disclosed in the study sample.

| Sustainable Development Goals | Number | % |
|---|---|---|
| Goal 8: Decent work and economic growth | 82 | 86% |
| Goal 13: Climate action | 75 | 79% |
| Goal 9: Industry, innovation, and infrastructure | 69 | 73% |
| Goal 12: Responsible consumption and production | 68 | 72% |
| Goal 3: Good health and well-being | 66 | 69% |
| Goal 11: Sustainable cities and communities | 56 | 59% |
| Goal 5: Gender equality | 55 | 58% |
| Goal 7: Affordable and clean energy | 55 | 58% |
| Goal 17: Partnerships to achieve the goal | 55 | 58% |
| Goal 4: Quality education | 54 | 57% |
| Goal 6: Clean water and sanitation | 46 | 48% |
| Goal 15: Life on land | 45 | 47% |
| Goal 16: Peace and justice strong institutions | 42 | 44% |
| Goal 10: Reduced inequality | 39 | 41% |
| Goal 14: Life below water | 30 | 32% |
| Goal 1: No poverty | 28 | 29% |
| Goal 2: Zero hunger | 24 | 25% |

As shown in Table 4, the most commonly disclosed SDG is Goal 8: Decent work and economic growth. This finding is particularly relevant, as it highlights that 86% of the organizations that mentioned SDGs considered economic growth and the improvement of labor conditions as the most relevant duty of their activity.

Goal 8 is immediately followed by Goal 13: Climate actions (79%); Goal 9: Industry, innovation, and infrastructure (73%); and Goal 12: Responsible consumption and production (72%). Thus, according to our results, the environment and innovation and the responsible use of resources are the other main important challenges that organizations are facing.

The same table shows that Goal 6: Clean water and sanitation; Goal 15: Life on land; Goal 16: Peace and justice strong institutions; and Goal 10: Reduced inequality were considered by less than 50% of our sample.

Finally, the SDGs that seem to be less relevant, at least for the organizations analyzed in this study, were Goal 2: Zero hunger (mentioned by 25% of the sample); Goal 1: No poverty (29%); and Goal 14: Life below water (32%). Additional analysis of our data demonstrated that there was no clear sector or country effect in the decisions of companies regarding SDG disclosure.

Moving toward the second research question addressed in this paper, of how companies disclose SDGS, we calculated, as illustrated above, the SDG Compliance Index, considering the following disclosure principles: strategic focus and future orientation; stakeholder inclusiveness; conciseness; connectivity of information; and completeness, balance, understandability.

This analysis represents—from our point of view—the major contribution of the paper, as it relies on an innovative framework that intends to lead companies in identifying material sustainable development risks and opportunities relevant to long-term value creation for organizations and society, changing what an organization does and how it does it in order to contribute to the achievement of the SDGs, and enhancing the credibility of disclosures.

Our main finding revealed an average level of compliance of 38% for the analyzed companies. The compliance analysis results, thus, demonstrates a limited level of disclosure, suggesting that—at this stage—companies are not completely exploiting the potentialities of IR to effectively provide stakeholders with significant information about SDGs.

In this scenario, analyzing the components of this final and synthetic score is even more relevant.

Our results can be organized and interpreted in different ways. For each of the five SDGD Principles considered in our analysis, we provide a breakdown of the specific level of compliance, focusing on the frequency of the best and worst in class. This analysis could help with understanding which element is more "easily" disclosed by the organizations in our sample or indicating which is assumed by organizations as the most relevant for stakeholder information, in line with the basic elements of legitimacy theory. This is the case for two principles: conciseness and completeness, balance, understandability. Looking at these two principles, the average level of full compliance is quite high, with more than 60% of the companies in the sample receiving the maximum score. Our results simultaneously seem to indicate that organizations are less inclined to report risks and do not specifically identify a relationship between SDG activities and policies implemented and stakeholders. In this sense, the principle of stakeholder inclusiveness is the one with a lower percentage of disclosure (25%). Connectivity of information represents a sui generis case, with an unpolarized disclosure score (median, not low compliance or high compliance). As illustrated above, to measure the companies' compliance level with the principles, we develop a scale ranging from zero to three, checking for the presence of information and explicit links among SDGs and business models, value creation strategies, and risk management. The majority of the analyzed companies cite these elements to some extent, receiving a score of one (28%) or two (42%). This means that connectivity is relevant in the disclosure policies of the companies in our sample, but they are still struggling with fostering transparency and rigorousness.

Along this line, we also analyzed the level of SDG compliance by industry sector and by country. The means of the compliance score, along with the minimum, maximum, and median values per industry sector, are provided in Table 5. To offer an interpretation key for the analysis of these results, the first column indicates the number of companies for each sector. In defining the industries of the 95 organizations included in our sample that reported about SDGs, we used the Thomson Reuters Business Classification.

**Table 5.** Sustainable Development Goal Disclosure (SDGD) Compliance Index per sector.

| Business Classification | Number | Minimum | Maximum | Mean | Median |
|---|---|---|---|---|---|
| Finance, Insurance, and Real Estate | 32 | 9% | 100% | 64% | 73% |
| Manufacturing | 19 | 0% | 100% | 63% | 64% |
| Wholesale Trade | 9 | 27% | 100% | 68% | 73% |
| Electric and Gas | 9 | 9% | 100% | 52% | 36% |
| Services | 7 | 27% | 91% | 53% | 45% |
| Mining | 7 | 27% | 91% | 60% | 64% |
| Transportation | 6 | 9% | 82% | 52% | 64% |
| Construction | 2 | 0% | 73% | 36% | 36% |
| Retail Trade | 2 | 73% | 91% | 82% | 82% |
| Communications | 2 | 64% | 64% | 64% | 64% |

Restricting our analysis to the sectors populated by more than five organizations, our findings reveal that there was not a clear sector effect on the level of compliance provided by companies. The small population of some sectors is a limitation of the study, affecting the generalization of the data.

The same analysis was replicated with regard to the countries of the analyzed companies, as illustrated in Table 6. Focusing on the countries with more than five companies, the mean values show that Spain and the Netherlands tend to disclose about SDGs with a high level of compliance with respect to the SDGD Principles. Table 6 also demonstrates the relatively close value of the mean and the median for the first six countries, with the exceptions of Spain and Sweden. This indicates that these countries are fairly consistent in their level of compliance. Conversely, the relatively big differences between the mean and median (more than 10%) for Spain and Sweden show that a discrepancy exists in the level of compliance shown by the companies within these countries.

**Table 6.** SDGD Compliance Index per country.

| Country | Number | Minimum | Maximum | Mean | Median |
|---|---|---|---|---|---|
| U.K. | 21 | 0% | 91% | 56% | 64% |
| Netherlands | 15 | 36% | 91% | 67% | 73% |
| Italy | 13 | 9% | 100% | 61% | 64% |
| Spain | 10 | 36% | 100% | 80% | 91% |
| Germany | 9 | 9% | 91% | 49% | 45% |
| Sweden | 6 | 18% | 91% | 64% | 77% |
| Switzerland | 5 | 9% | 82% | 56% | 64% |
| France | 3 | 27% | 91% | 70% | 91% |
| Finland | 3 | 0% | 27% | 18% | 27% |
| Turkey | 2 | 55% | 82% | 68% | 68% |
| Russia | 2 | 27% | 82% | 55% | 55% |
| Luxembourg | 1 | 91% | 91% | 91% | 91% |
| Denmark | 1 | 9% | 9% | 9% | 9% |
| Poland | 1 | 55% | 55% | 55% | 55% |
| Norway | 1 | 82% | 82% | 82% | 82% |
| Belgium | 1 | 64% | 64% | 64% | 64% |
| Greece | 1 | 91% | 91% | 91% | 91% |

The next paragraph will present our discussion on these results.

## 5. Discussion

This study utilized content analysis of integrated reporting to reveal if and how companies disclose about SDGs. Furthermore, using Adams et al.'s [28] principles of SDG disclosure, the content analysis served as an indicator of the stage of diffusion of SDGs in corporate disclosure and companies' awareness about their role in sustainable development.

There were several noteworthy observations from our study.

First, the level of the Capital Disclosure Index, referring to the sample analyzed, was particularly high (96%). Such results are in line with previous research [83] and confirm the role of integrated reporting in providing a wide range of information about capitals. Almost all of the companies analyzed demonstrate a high level of awareness about the role of capitals in creating value. This result is—obviously—biased by the nature and composition of the sample (IR reporters as indicated by the IIRC).

Second, the analysis on the level of SDG disclosure revealed the relative novelty of the issue and the lower level of awareness among the companies analyzed. Out of 134 companies, only 95 released information about the SDGs in their IR. Thus, the Disclosure Index was 71%.

To fully understand this result, it is important to notice that SDGs were established in 2015 by the United Nations General Assembly, and our analysis refers to 2018. Given the above, our findings are not disappointing in terms of disclosure, as the SDGs, as with any innovation, generally require time to be processed and included in companies' disclosure processes.

In line with previous contributions [46,51], these findings suggest that SDGs provide the opportunity for academic studies into sustainability and corporate responsibility to further develop analyses of corporate disclosure practices.

Finally, focusing on the SDG Compliance Index, as already reported, our main finding revealed an average level of compliance of 38% for the analyzed companies. This is consistent with the literature stream that highlights the limits of SDG disclosure in providing effective information about drivers, key performance indicators, and the impacts of SDGs [46,58].

Considering both the aspirational nature of SDGs (which have non-mandatory disclosure) and the relative novelty of the topic, this result is not completely unexpected. Notably, we applied a model (Adams et al.'s model) that was developed in 2020, whereas our observations refer to 2018. Our results are thus even more relevant, as they demonstrate how some organizations anticipated the need for rigorousness in SDG disclosure, and how concepts such as balance, completeness, risk disclosure, and connectivity were emerging and developing in practice in the organizations' disclosure practices about SDGs well before the Adams et al. framework was constructed.

At the same time, the low level of effective and significant disclosure could be interpreted in an opposite way. Although firms are aware of the importance of SDGs as a hot topic in corporate sustainability, and even if the number of SDGs cited is high, companies still disclose little information. This could—at least hypothetically—supports the thesis of a "rainbow washing" practice adopted worldwide by companies. Therefore, these results could firstly confirm what scholars have recently observed regarding some of the SDG model limitations, which make its implementation difficult. More precisely, these limitations include the presence of 17 goals, 169 targets, and 230 indicators, which could create a high of level complexity; the lack of prescription concerning disclosure and metrics; the absence of incentives for organizations (or countries) to achieve SDGs other than the fact that they want to; the vague definitions of some goals.

On this point, according to Nicolai et al. [88], only SDG 17 and SDG 8 will be close to being met in 2030. Most targets (SDGs 1–7, 9, 10, and 15) are moving in the right direction, but progress needs to be hastened considerably to meet the goals.

Referring to our entire sample, only five companies received the maximum value for the SDG Disclosure Index. Among these companies, four of them were from Spain (Acciona, Cemex, Iberdrola SA, and Inditex) and one was Italian (A2A). Two of these best in class companies (Inditex and Iberdrola) were already considered in the academic field [29,54,89] and presented as examples of organizations that have implemented a strong sustainability commitment as the foundation of their mission. These companies have strongly linked their activities to SDGs. Iberdrola, as reported in its integrated report, adopted a more complete approach to SDG disclosure by defining: (1) its commitment to SDGs, which has led the company to fully integrate them into its strategy; (2) three different levels of priority that define the contribution of Iberdrola to sustainable development; and (3) the targets for the short, medium, and long term that the company has defined in relation to the goals assumed as its principal focus.

More specifically, our content analysis reveals that Iberdrola cites SDGs in three pivotal sections of the 2018 integrated report. SDGs are discussed in the "Letter from the Chairman & CEO", in the "Business Model and Strategy" section; and in the chapter dedicated to "Our Assets". By analyzing these choices it is possible to gather some considerations about the central role dedicated by the company to this issue.

The letter from the chairman and CEO typically opens the integrated report or other example of mandatory and non-mandatory documents addressed to stakeholders, and—at least in relation to our sample—SDGs are cited quite often. However, in this case, the reference to SDGs appears structured and the prioritization of them is even clarified. This is in line with the strategic role attributed to them in the "Business Model and Strategy" section, where the company defines three levels of contribution: main focus; direct contribution of Iberdrola; and indirect contribution to the rest of the SDGs.

Finally, the company specifically declares that it considers SDGs as an asset, something that creates value for the company and for its stakeholders. Interestingly enough, in the chapter "Our Assets", SDGs are put in relation to social and relationship capital, highlighting that Iberdrola cultivates a responsible and sustainable business model, in which both the company's and stakeholders' priorities (in the materiality matrix) are somehow related to SDGs.

Inditex clearly defined in its report its own contribution to sustainable development, tracing a link between SDGs and its business priorities (as circularity and efficient use of resources, attention toward customers, tax transparency, socially responsible supply chain, etc.). In doing so, the company, in each one of the priorities highlighted in the document, identifies targets where Inditex's contribution is the most significant. Different indicators that allow the progress towards meeting each goal to be measured were also reported.

Deeply analyzing the contents of the Inditex 2018 integrated report, it is possible to notice that sustainable development is even represented in the table of contents (Inditex's contribution to sustainable development). Apart from that, the letter from the chairman introduces the link between SDGs and the company's business model and in relation to sustainable strategy, and it is clearly stated that "Inditex is aware that the Company's prosperity is directly related to the prosperity of the communities and the environment where it carries out its business activity. That is why we are committed to the United Nations 2030 Agenda for Sustainable Development and have aligned our strategy with it" (p. 42). Aligning its strategy with the 2030 Agenda, the company identifies the main SDGs related to each one of their priorities in order to try to maximize our contribution. Within this framework, it is noteworthy that all of the Inditex 10 priorities (People; Integrated supply chain management; Socially responsible supply chain; Excellence of our products; Circularity and efficient use of resources; Contribution to community welfare; Tax transparency; Creating value for our shareholders; Compliance, good corporate governance, and ethical culture) are somehow linked to one or more goals (maximum 6). As a result of the Inditex business model, there are some SDGs where its contribution is more significant (Goal 3, 4, 12, and 17).

Furthermore, along with the diffusion of IR and the increase in SDG reporting, our study, in alignment with the literature, demonstrates that other global trends can be recognized in the disclosure policies of European companies. In this sense, we enriched our analysis, looking for other topics highly cited.

Our findings revealed that, at least in relation to our sample, companies are leveraging the integrated report to embed other relevant topics related to the environment and to sustainable development. In the analyzed reports, we found a high level of disclosure about human rights, presented as a key issue for the businesses, and companies' targets to cut carbon emissions. Even if this was not a part of our research questions, the analysis of the reports demonstrated that these topics are relevant emerging trends in corporate reporting, as shown in Table 7, where we also indicate some elements related to SDGs and IR capital that are not monitored by the analysis previously illustrated.

**Table 7.** Additional information.

| Additional Information Provided | Companies | % |
|---|---|---|
| Companies that present human rights as an issue for the business | 110 | 82% |
| Companies that disclose targets to cut their carbon emissions | 116 | 87% |
| Companies that provide information about SDGs | 95 | 71% |
| Companies that connect their corporate responsibility activities to the SDGs | 62 | 46% |
| Companies that connect their IR capitals to the SDGs | 13 | 10% |
| Companies that provide SDG prioritization | 21 | 16% |

## 6. Conclusions

The increasing attention toward sustainability and the growing debate regarding SDGs and the role of organizations in their achievement, are providing new impetus for companies' reporting practices and disclosure issues. Integrated reporting, a concise document that combines financial and non-financial (or pre-financial) performance measures, is largely considered as a suitable instrument to instigate and support this change [16,30,31].

Within this scenario, a number of principles, voluntary regulations, and recommendations enforced by leading organizations have flourished, feeding expectations from communities and even governments about organizations' activities and efforts in the sustainability arena.

Grounded in these premises and recognizing the external pressures organizations are facing, we aimed to analyze the level of disclosure about IR capitals and how companies leverage the integrated report to embed information about SDGs. Our analysis represents a first attempt to evaluate SDG disclosure, moving beyond a "tick the box" approach and analyzing the organizations' attitude toward the consideration of both risks and opportunities resulting from sustainability issues, and the implications for the value creation process and for the achievement of the SDGs.

This study was thus motivated by the need to offer some initial evidence to support (or reject) the claimed relevance of IR in companies' disclosure policies, and at least in this stage, in the European scenario with reference to SDG disclosure.

We provided empirical evidence that the analyzed companies present a high level of disclosure about IR capitals; the majority of them have started to cite SDGs in their integrated reports and the disclosure level about the SDGs is quite good, if we consider the novelty of the topic.

The Capital Disclosure Index revealed that approximately the entire sample (96%) described at least two of the six capitals defined in the IIRC Framework. The SDG Disclosure Index indicated that 71% of the European organizations analyzed used IR as an instrument to provide information about SDGs. With reference to this sub-sample of 95 organizations, the level of disclosure was 38% on average, signaling a certain awareness of the need for a structured framework for SDG disclosure.

This highlights the strict nexus between IR and SDGs and a clear trend that has emerged in a short space of time, strongly suggesting that the SDG profile will grow in corporate reporting and research trends [89] over the coming years.

The indicator database developed in this study represents an original contribution (mainly in relation to the SDG Compliance Index) that provides a much-needed baseline to advance sustainability measurement and reporting in the new SDG context. According to KPMG [25], the SDGs are fueling demands for impact data: organizations, stakeholders, and people want to know how companies are contributing to achieving the goals and the actual impact of those positive contributions. Similarly, they want to know how company activities are exacerbating the challenges the SDGs seek to solve, and the negative impact in real terms. Not only civil society wants this information; a number of large institutional investors that are exploring how they can align their investment approaches with the SDGs do as well. These trends demonstrate the relevance of research projects like this one.

Our findings highlight a number of major emerging trends within IR disclosure in addition to reporting on the United Nations (UN) Sustainable Development Goals. We are specifically referring to reporting on human rights and carbon reduction targets. This is fundamental to understanding the changes in the priorities for modern companies and the forces that have placed climate change [90,91] on chief financial officers' agendas all around the world.

This study may have several implications both for academics and companies. The results from the current analysis are expected to offer guidance on good practices for companies and corporate professionals who assess and prepare their own reports. It also serves as a guide to investors, asset managers, and rating agencies that have started to consider environmental, social, and governance (ESG) information in their assessments of corporate performance and risk.

Finally, by analyzing the actual trends in IR disclosure, this study sheds light on how organizations inform stakeholders about SDGs and may respond to external pressure about sustainable topics [39,40,64,65]. Chersan [92] found that with no differences among countries, the number of companies that publish integrated reports is increasing; however, the majority of these reports are deficient with regards to the long-term value creation process. In our opinion, as the modern economy requires organizations to create long-term value-enhancing SDGs, academic studies must also evaluate organizations' disclosure with regards to SDGs and SDGD.

Although this study aimed to provide a novel contribution to the emerging literature on IR and capital disclosure, it is still exploratory and has some limitations that must be considered when approaching this topic, analyzing the results, and generalizing its findings.

First, we used the IIRC IR reporters list, and the limited sample size, together with the countries' specific characteristics, inevitably influenced the results of the study and affected their generalization. Future studies might repeat the analysis by extending the investigation to other countries, providing a specific cross-country comparison.

Second, we focused on IR disclosure as reported at an instant in time (the year 2018). Further research could be conducted on the evolution of the disclosure practices about these topics over time, monitoring the progress of companies' disclosure and compliance indexes over the years.

Third, the methodology applied did not consider any governance of internal organizational factors, such as board composition, organizational size, resources and capabilities, intangibility, and economic and sustainability performance, which can act as determinants of the level of disclosure.

Future studies might consider the effects of institutional, governance, and organizational characteristics on IR disclosure, and could simultaneously analyze, by means of qualitative research methods, motivations and drivers for capitals and SDG disclosure. In addition to that, a more structured content analysis—also controlling for linguistic tone—could be fruitful and significant for the analysis of the SDGs' role within accounting research. Questionnaires could be used to explore in greater depth how SDGs are perceived in corporations. Interviews would allow corporate managers to explain their approach on many questions, such as how the indicators were selected for disclosure in the report. Case studies could provide insight into the process of developing, implementing, using, and improving SDG disclosure over time.

These research directions could provide a complete and more in-depth picture of IR and capital disclosure practices, generally considered a topic of crucial importance for the achievement of the sustainable development agenda. Thus, these topics offer relevant opportunities for future research within the corporate sustainability academic domain.

**Author Contributions:** Although the whole article is the result of a joint project and shared effort, Section 1 is to be ascribed to F.G.; Section 2 is to be ascribed to M.F.I., Section 3 is to be ascribed to A.D.S., Section 4 is to be ascribed to F.G., Section 5 is to be ascribed to M.F.I., and Section 6 is to be ascribed to A.D.S. All authors have read and agreed to the published version of the manuscript.

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## Appendix A The Principles of SDG Disclosure

| Principle of SDG Disclosure | Application |
|---|---|
| **Strategic focus and future orientation** | SDG disclosures should reflect the extent to which consideration of the SDGs and the sustainable development issues that they address are integrated into the organization's processes. This includes processes for considering the risks and opportunities that influence strategy and the organization's business model to create long-term value for the organization and society. |
| **Stakeholder inclusiveness** | SDG disclosures should reflect the outcome of the reporting organization's process to identify its key stakeholder groups, including the communities it impacts, and should explain how it has responded to their reasonable expectations and interests. (Adapted from GRI, 101). |
| **Conciseness** | SDG disclosures should be concise so that relevant information is not obscured, but SDG disclosures must nevertheless satisfy the principle of completeness. |
| **Connectivity of information** | SDG disclosures should demonstrate that the consideration of sustainable development issues and impact on the achievement on the SDGs is integrated into the organization's:<br>• business model,<br>• consideration of risks and opportunities in the external environment,<br>• strategy to create value and avoid harm,<br>• risk management, and<br>• other key organizational processes.<br>SDG disclosures should convey the interrelatedness of the SDGs and the interdependencies between the sustainable development issues that affect the organization's ability to create long-term value for organizations and society. |
| **Consistency and comparability** | Changes that occur through the application of these principles should be disclosed so that the SDG disclosures are comparable over time and across organizations. |
| **Completeness, balance, understandability** | SDG disclosures should be complete, balanced, and understandable. They should report the organization's impact on the achievement of the SDGs in a balanced way and without material error. In order for SDG disclosures to be complete and comply with the fundamental concept of sustainable development context and relevance and the fundamental concept of materiality, they may need to address issues and impacts in the organization's value chain but outside its boundary. |
| **Reliability and verifiability** | Quantified SDG disclosures should be reliable and verifiable. |
| **Timeliness** | SDG disclosures should be provided on a timely basis for users to make informed decisions. |

Source: Adams et al., 2020

## Appendix B Analyzed Firms

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | A2A | 35 | Centamin | 69 | Iberdrola SA | 103 | Redefine International |
| 2 | Abengoa | 36 | Clariant | 70 | Inditex | 104 | Rio Tinto |
| 3 | ABN AMRO | 37 | Coca-Cola Hellenic Bottling Co. | 71 | ING Group | 105 | ROSATOM |
| 4 | ACCA | 38 | Costa Edutainment | 72 | Intercontinental Hotel Group | 106 | Royal BAM Group |
| 5 | ACCIONA | 39 | Crest Nicholson | 73 | J Sainsbury plc | 107 | Royal Bank of Scotland |
| 6 | Achmea | 40 | Dellas | 74 | Johnson Matthey | 108 | Royal DSM |
| 7 | Aegon | 41 | Deutsche Bahn | 75 | JSC Atomenergomash | 109 | RSA Group |
| 8 | Aggreko | 42 | Diageo | 76 | JSC Atomredmetzoloto | 110 | Sabaf SpA |
| 9 | AkzoNobel | 43 | Direct Line Group | 77 | Kesko Corporation | 111 | Sage |
| 10 | Anglo American | 44 | Duchy of Cornwall | 78 | Koninklijke Philips NV | 112 | SAP |
| 11 | Antofagasta | 45 | Duchy of Lancaster | 79 | KPN | 113 | Schiphol |
| 12 | ArcelorMittal | 46 | Enagas SA | 80 | Lotos Group | 114 | Scottish and Southern Energy |
| 13 | Aspiag Service Srl | 47 | EnBW | 81 | Luossavaara-Kiirunavaara AB | 115 | SGS |
| 14 | Assicurazioni Generali SpA | 48 | Eni | 82 | LW Bogdanka | 116 | SNAM |
| 15 | AstraZeneca | 49 | Epson | 83 | MAS Real Estate Inc | 117 | Sofidel SpA |
| 16 | Atlantia SpA | 50 | Ernst & Young Nederland LLP | 84 | Mazars | 118 | Solvay |
| 17 | Atlas Copco AB | 51 | Europac Group | 85 | Melia Hotels | 119 | Swedfund |
| 18 | Atos | 52 | Ferrovial | 86 | Millicom International Cellular SA | 120 | Swedish Export Credit Corp. |
| 19 | AXA | 53 | Flughafen Munchen | 87 | Mondi | 121 | Syngenta |
| 20 | BAE Systems | 54 | FMO | 88 | Munich Airport | 122 | Telefonica |
| 21 | BAM Group | 55 | Fonderie di Montorso | 89 | Naftogaz | 123 | Terna SpA |
| 22 | Banca Fideuram | 56 | Fresnillo | 90 | National Grid | 124 | The Crown Estate |
| 23 | BASF | 57 | G4S | 91 | NN Group | 125 | Tieto |
| 24 | Bayer AG | 58 | Garanti Bank | 92 | Nordgold | 126 | Titan Group |
| 25 | BOLIDEN | 59 | Gas Natural Fenosa | 93 | Novartis | 127 | Trelleborg |
| 26 | Borsa Instabul | 60 | GDF Suez (Engie) | 94 | Novo Nordisk | 128 | UBS |
| 27 | BP | 61 | Gecina | 95 | Nutreco | 129 | UniCredit Group |
| 28 | British American Tobacco | 62 | Givaudan | 96 | OJSC Atomenergomash | 130 | Unipol |
| 29 | British Land | 63 | Go-Ahead | 97 | Orange | 131 | United Utilities |
| 30 | CaixaBank | 64 | Gorenje Group | 98 | Panalpina | 132 | Vodafone |
| 31 | Capgemini | 65 | GTS Holding | 99 | Pirelli | 133 | Xstrata (Glencore) |
| 32 | Cargotec | 66 | Halma | 100 | Rabobank Group | 134 | Yorkshire Water Services |
| 33 | Casillo Group | 67 | Hammerson | 101 | Randstad Holding | | |
| 34 | Cemex | 68 | HSBC | 102 | RCD Espanyol | | |

## Appendix C Characteristics of the Sample: Financial Data

| Variable | Average | SD | Min. | Max |
|---|---|---|---|---|
| Market capitalization €/K | 42,496 | 81,576 | 1055 | 745,000 |
| Operating Revenue €/K | 13,614,890 | 29,592,653 | | 263,931,999 |
| Profit/Loss €/K | 1,870,166 | 4,740,312 | –1,303,054 | 39,581,294 |
| Total Asset €/K | 25,344,903 | 43,161,754 | 7479 | 240,021,238 |
| Employees | 38,809 | 69,222 | | 559,880 |
| ROE pre tax | 19 | 20 | –10 | 119 |
| ROCE pre tax | 14 | 18 | –3 | 142 |

## References


1. Andon, P.; Baxter, J.; Chua, W.F. Accounting for Stakeholders and Making Accounting Useful. *J. Manag. Studies* **2015**, *52*, 986–1002. [CrossRef]
2. Hall, M.; Millo, Y.; Barman, E. Who and what really counts? Stakeholder prioritization and accounting for social value. *J. Manag. Studies* **2015**, *52*, 907–934. [CrossRef]
3. Humphrey, C.; O'Dwyer, B.; Unerman, J. Re-theorizing the configuration of organizational fields: The IIRC and the pursuit of 'Enlightened' corporate reporting. *Account. Bus. Res.* **2017**, *47*, 30–63. [CrossRef]
4. Porter, M.E.; Kramer, M.R. The big idea. Creating shared value. *Harv. Bus. Rev.* **2011**, *89*, 62–77.
5. Eccles, R.G.; Krzus, M.P. *One Report: Integrated Reporting for a Sustainable Strategy*; John Wiley & Sons: Hoboken, NJ, USA, 2010.
6. Higgins, C.; Stubbs, W.; Love, T. Walking the talk(s): Organisational narratives of integrated reporting. *Account. Audit. Account. J.* **2014**, *27*, 1090–1119. [CrossRef]
7. De Villiers, C.; Rinaldi, L.; Unerman, J. Integrated Reporting: Insights, gaps and an agenda for future research. *Account. Audit. Account. J.* **2014**, *27*, 1042–1067. [CrossRef]
8. Thomson, I. But Does Sustainability need Capitalism or an Integrated Report a Commentary on 'The International Integrated Reporting Council: A Story of Failure by Flower. *J. Crit. Perspect. Account.* **2015**, *27*, 18–22. [CrossRef]
9. IIRC—International Integrated Reporting Council. International Framework. Available online: http://integrate-dreporting.org/resources/ (accessed on 29 January 2020).
10. Busco, C.; Frigo, M.L.; Quattrone, P.; Riccaboni, A. *Towards Integrated Reporting: Concepts, Elements and Principles*; Springer: London, UK, 2013.
11. Paternostro, S. Integrated Reporting and Social Disclosure: True Love or Forced Marriage? A Multidimensional Analysis of a Contested Concept. In *Non-Financial Disclosure and Integrated Reporting: Practices and Critical Issues (Studies in Managerial and Financial Accounting)*; Songini, L., Pistoni, A., Baret, P., Kunc, M., Eds.; Emerald Publishing Limited: Bingley, UK, 2020; Volume 34, pp. 107–146.
12. Perego, P.; Kennedy, S.; Whiteman, G. A lot of icing but little cake? Taking integrated reporting forward. *J. Clean. Prod.* **2016**, *136*, 53–64. [CrossRef]
13. De Villiers, C.; Venter, E.R.; Hsiao, P.-C.K. Integrated reporting: Background, measurement issues, approaches and an Agenda for future research. *Account. Financ.* **2017**, *57*, 937–959. [CrossRef]
14. Reimsbach, D.; Hahn, R.; Gürtürk, A. Integrated reporting and assurance of sustainability information: An experimental study on professional investors' information processing. *Eur. Account. Rev.* **2017**, *27*, 559–581. [CrossRef]
15. Velte, P.; Stawinoga, M. Integrated reporting: The current state of empirical research, limitations and future research implications. *J. Manag. Control* **2017**, *28*, 275–320. [CrossRef]
16. Kannenberg, L.; Schreck, P. Integrated reporting: Boon or bane? A review of empirical research on its determinants and implications. *J. Bus. Econ.* **2019**, *89*, 515–567. [CrossRef]
17. Eccles, R.G.; Krzus, M.P. *The Integrated Reporting Movement*; John Wiley & Sons: Hoboken, NJ, USA, 2014.
18. Simnett, R.; Huggins, A.L. Integrated reporting and assurance: Where can research add value? Sustainability Accounting. *Manag. Policy J.* **2015**, *6*, 29–53.
19. Lodhia, S. Exploring the transition to integrated reporting through a practice lens: An Australian customer owned bank perspective. *J. Bus. Ethics* **2015**, *129*, 585–598. [CrossRef]
20. Dumay, J.; Bernardi, C.; Guthrie, J.; Demartini, P. Integrated reporting: A structured literature review. *Account. Forum* **2016**, *40*, 166–185. [CrossRef]
21. Milne, M.J.; Gray, R. W(h)ither ecology? The triple bottom line, the global reporting initiative, and corporate sustainability reporting. *J. Bus. Ethics* **2013**, *118*, 13–29. [CrossRef]
22. Brown, J.; Dillard, J. Integrated reporting: On the need for broadening out and opening up. *Account. Audit. Account. J.* **2014**, *27*, 1120–1156. [CrossRef]
23. Flower, J. The International Integrated Reporting Council: A story of failure. *Crit. Perspect. Account.* **2015**, *27*, 1–17. [CrossRef]
24. De Villiers, C.; Sharma, U. A critical reflection on the future of financial, intellectual capital, sustainability and integrated reporting. *Crit. Perspect. Account.* **2017**. [CrossRef]

25. KPMG. The KPMG Survey of Corporate Responsibility Reporting 2017. Available online: https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/10/kpmg-survey-of-corporate-responsibility-reporting-2017.pdf (accessed on 15 March 2020).
26. Di Maggio, P.J.; Powell, W.W. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *Am. Sociol. Rev.* **1983**, *48*, 147–160. [CrossRef]
27. Le Blanc, D. Towards integration at last? The sustainable development goals as a network of targets. *Sustain. Dev.* **2015**, *23*, 176–187. [CrossRef]
28. Adams, C.A.; Druckman, P.B.; Picot, R.C. *Sustainable Development Goal Disclosure (SDGD) Recommendations*; ACCA: London, UK; Chartered Accountants ANZ: Sydney, Australia; ICAS: Guelph, ON, Canada; IFAC: New York, NY, USA; IIRC: Ottawa, ON, Canada; WBA: West Bromwich, UK, 2020.
29. Izzo, M.F. Sustainable Development Goals: A new role for organizations. In *Sustainable Development Goals and Integrated Reporting*, 1st ed.; Busco, C., Granà, F., Izzo, M.F., Eds.; Routledge: Abingdon, UK, 2018; pp. 49–80.
30. De Villiers, C.; Hsiao, P.C.K.; Maroun, W. Developing a conceptual model of influences around integrated reporting, new insights and directions for future research. *Med. Account. Res.* **2017**, *25*, 450–460. [CrossRef]
31. Maniora, J. Is integrated reporting really the superior mechanism for the integration of ethics into the core business model? An empirical analysis. *J. Bus. Ethics* **2017**, *140*, 755–786. [CrossRef]
32. Eccles, R.G.; Serafeim, G.; Krzus, M.P. Market interest in nonfinancial information. *J. App. Corp. Finac.* **2011**, *23*, 113–127. [CrossRef]
33. Mio, C.; Fasan, M.; Pauluzzo, R. Internal application of IR principles: Generali's Internal Integrated Reporting. *J. Clean. Prod.* **2016**, *139*, 204–218. [CrossRef]
34. Cerbone, D.; Maroun, W. Materiality in an integrated reporting setting: Insights using an institutional logics framework. *Br. Account.* **2020**, *52*, 100876. [CrossRef]
35. Adams, C.; Potter, B.; Singh, P.J.; York, J. Exploring the implications of integrated reporting for social investment (disclosures). *Br. Account. Rev.* **2016**, *48*, 283–296. [CrossRef]
36. Izzo, M.F.; Fiori, G. The Influence of Corporate Governance on the Adoption of The Integrated Report: A first Study on IIRC Pilot Programme. In *Integrated Reporting: A New Accounting Disclosure*; Mio, C., Ed.; Palgrave Macmillan: London, UK, 2016; pp. 155–180.
37. Caglio, A.; Melloni, G.; Perego, P. Informational Content and Assurance of Textual Disclosures: Evidence on Integrated Reporting. *Eur. Account. Rev.* **2020**, *29*, 55–83. [CrossRef]
38. Maroun, W. Assuring the integrated report: Insights and recommendations from auditors and preparers. *Br. Account. Rev.* **2017**, *49*, 329–346. [CrossRef]
39. Deegan, C. The Legitimizing Effect of Social and Environmental Disclosures—A Theoretical Foundation. *Account. Audit. Account. J.* **2002**, *15*, 282–311. [CrossRef]
40. Cormier, D.; Gordon, I. An Examination of Social and Environmental Reporting Strategies. *Account. Audit. Account. J.* **2001**, *14*, 587–616. [CrossRef]
41. Hahn, R.; Kühnen, M. Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *J. Clean. Prod.* **2013**, *59*, 5–21. [CrossRef]
42. Ortas, E.; Gallego-Alvarez, I.; Álvarez Etxeberria, I. Financial factors influencing the quality of corporate social responsibility and environmental management disclosure: A quantile regression approach. *Corp. Soc. Responsib. Environ. Manag.* **2015**, *22*, 362–380. [CrossRef]
43. Stacchezzini, R.; Melloni, G.; Lai, A. Sustainability management and reporting: The role of integrated reporting for communicating corporate sustainability management. *J. Clean. Prod.* **2016**, *136*, 102–110. [CrossRef]
44. O'Dochartaigh, A. No more fairytales: A quest for alternative narratives of sustainable business. *Account. Audit. Account. J.* **2019**, *32*, 1384–1413. [CrossRef]
45. Scheyvens, R.; Banks, G.; Hughes, E. The Private Sector and the SDGs: The Need to Move Beyond 'Business as Usual. *Sustain. Dev.* **2016**, *24*, 371–382. [CrossRef]
46. Bebbington, J.; Unerman, J. Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. *Account. Audit. Account. J.* **2018**, *31*, 2–24. [CrossRef]
47. United Nations Global Compact. Reporting on the SDGs—Shape the Future of Corporate Reporting on the SDGs. Available online: https://www.unglobalcompact.org/take-action/action/sdg-reporting (accessed on 7 March 2020).

48. Topple, C.; Donovan, J.D.; Masli, E.K.; Borgert, T. Corporate sustainability assessments: MNE engagement with sustainable development and the SDGs. *Transnatl. Corp.* **2017**, *24*, 61–71. [CrossRef]
49. 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]
50. Morioka, S.N.; Bolis, I.; Carvalho, M.M. From an ideal dream towards reality analysis: Proposing Sustainable Value Exchange Matrix (SVEM) from systematic literature review on sustainable business models and face validation. *J. Clean. Prod.* **2018**, *178*, 76–88. [CrossRef]
51. Izzo, M.F.; Ciaburri, M.; Tiscini, R. The Challenge of Sustainable Development Goals. First evidence from Italian listed companies. *Sustainability* **2020**, *12*, 3494. [CrossRef]
52. Sullivan, K.; Thomas, S.; Rosano, M. Using industrial ecology and strategic management concepts to pursue the Sustainable Development Goals. *J. Clean. Prod.* **2018**, *174*, 237–246. [CrossRef]
53. Schramade, W. Investing in the UN Sustainable Development Goals: Opportunities for Companies and Investors. *J. Appl. Corp. Financ.* **2017**, *29*, 87–99. [CrossRef]
54. Adams, C. The Sustainable Development Goals, Integrated Thinking and the Integrated Report. Available online: http://integratedreporting.org/resource/sdgs-integrated-thinking-and-the-integrated-report/ (accessed on 15 January 2020).
55. United Nations Conference on Trade and Development. World Investment Report 2014. Investing in the SDGs: An Action Plan. Available online: https://unctad.org/en/PublicationsLibrary/wir2014_en.pdf (accessed on 15 January 2020).
56. Anasi, S.; Ukangwa, A.; Fagbe, C. University libraries-bridging digital gaps and accelerating the achievement of Sustainable Development Goals through information and communication technologies. *World J. Sci. Technol. Sustain. Dev.* **2018**, *15*, 13–25. [CrossRef]
57. Agarchand, N.; Laishram, B. Sustainable infrastructure development challenges through PPP procurement process: Indian perspective. *Int. J. Manag. Proj. Bus.* **2017**, *10*, 642–662. [CrossRef]
58. Griggs, D.; Nilsson, M.; Stevance, A.; McCollum, D. *A Guide to SDG Interactions: From Science to Implementation*; International Council for Science: Paris, France, 2017.
59. Nicolò, G.; Zanellato, G.; Tiron-Tudor, A. Integrated Reporting and European State-Owned Enterprises: A Disclosure Analysis Pre and Post 2014/95/EU 2020. *Sustainability* **2020**, *12*, 1908. [CrossRef]
60. Patten, D.M. Exposure, legitimacy, and social disclosure. *J. Account. Public Policy* **1991**, *10*, 297–308. [CrossRef]
61. Patten, D.M. Intra-industry environmental disclosures in response to the Alaskan oil spill: A note on legitimacy theory. *Account. Organ. Soc.* **1992**, *17*, 471–475. [CrossRef]
62. Campbell, D.; Craven, B.; Shrives, P. Voluntary social reporting in three FTSE sectors: A comment on perception and legitimacy. *Account. Audit. Account. J.* **2003**, *16*, 558–581. [CrossRef]
63. Campbell, J.L. Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *Acad. Manag. Rev.* **2007**, *32*, 946–967. [CrossRef]
64. Cho, C.H.; Patten, D.M. The role of environmental disclosures as tools of legitimacy: A research note. *Account. Organ. Soc.* **2007**, *32*, 639–647. [CrossRef]
65. Deegan, C.; Rankin, M.; Tobin, J. An Examination of the Corporate Social and Environmental Disclosures of BHP from 1983–1997: A Test of Legitimacy Theory. *Account. Audit. Account. J.* **2002**, *15*, 312–343. [CrossRef]
66. Oliver, C. Determinants of interorganizational relationships: Integration and future directions. *Acad. Manag. Rev.* **1990**, *15*, 241–265. [CrossRef]
67. Ntim, C.G.; Soobaroyen, T. Corporate governance and performance in socially responsible corporations: New empirical insights from a neo-institutional framework. *Corp. Gov. Int. Rev.* **2013**, *21*, 468–494. [CrossRef]
68. Kolk, A.; Perego, P. Determinants of the adoption of sustainability assurance statements: An international investigation. *Bus. Strategy Environ.* **2010**, *19*, 182–198. [CrossRef]
69. Krippendorff, K. Content Analysis. In *International Encyclopedia of Communications*; Barnouw, E., Ed.; Oxford University Press: Oxford, UK, 1989; Volume 1, pp. 403–407.
70. Ali, W.; Alsayegh, M.F.; Ahmad, Z.; Mahmood, Z.; Iqbal, J. The Relationship between Social Visibility and CSR Disclosure. *Sustainability* **2018**, *10*, 866. [CrossRef]
71. Krippendor, K. Content Analysis: An Introduction to its Methodology. *J. Am. Stat. Assoc.* **1984**, *79*, 240.
72. Gao, Y. CSR in an emerging country: A content analysis of CSR reports of listed companies. *Balt. J. Manag.* **2011**, *6*, 263–291. [CrossRef]

73. Branco, M.C.; Rodrigues, L.L. Factors influencing social responsibility disclosure by Portuguese companies. *J. Bus. Ethics* **2008**, *83*, 685–701. [CrossRef]
74. Amran, A.; Devi, S.S. The impact of government and foreign affiliate influence on corporate social reporting: The case of Malaysia. *Manag. Audit. J.* **2008**, *23*, 386–404. [CrossRef]
75. Gray, R.; Kouhy, R.; Lavers, S. Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure. *Account. Audit. Account. J.* **1995**, *8*, 47–77. [CrossRef]
76. Hackston, D.; Milne, M.J. Some determinants of social and environmental disclosures in New Zealand companies. *Account. Audit. Account. J.* **1996**, *9*, 77–108. [CrossRef]
77. Da Silva Monteiro, S.M.; Aibar-Guzmán, B. Determinants of environmental disclosure in the annual reports of large companies operating in Portugal. *Corp. Soc. Responsib. Environ. Manag.* **2010**, *17*, 185–204. [CrossRef]
78. Bouten, L.; Everaert, P.; Van Liedekerke, L.; De Moor, L.; Christiaens, J. Corporate social responsibility reporting: A comprehensive picture? *Account. Forum* **2011**, *35*, 187–204. [CrossRef]
79. Cormier, D.; Magnan, M.; Van Velthoven, B. Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions? *Eur. Account. Rev.* **2005**, *14*, 3–39. [CrossRef]
80. Gray, R.; Kouhy, R.; Lavers, S. Constructing a research database of social and environmental reporting by UK companies. *Account. Audit. Account. J.* **1995**, *8*, 78–101. [CrossRef]
81. Hou, J.; Reber, B.H. Dimensions of disclosures: Corporate social responsibility (CSR) reporting by media companies. *Public Relat. Rev.* **2011**, *37*, 166–168. [CrossRef]
82. Zeghal, D.; Ahmed, S.A. Comparison of social responsibility information disclosure media used by Canadian firms. *Account. Audit. Account. J.* **1990**, *3*, 38–53. [CrossRef]
83. Santis, S.; Bianchi, M.; Incollingo, A.; Bisogno, M. Disclosure of Intellectual Capital Components in Integrated Reporting: An Empirical Analysis. *Sustainability* **2019**, *11*, 62. [CrossRef]
84. Hassan, O.; Marston, C.L. Disclosure Measurement in the Empirical Accounting literature—A Review Article. *Int. J. Account.* **2019**, *54*, 2.
85. Weber, R.P. *Basic Content Analysis*, 2nd ed.; Sage: London, UK, 1990.
86. Rogers, R.K.; Grant, J. Content Analysis of Information Cited in Reports of Sell-Side Financial Analysts. *J. Financ. Statement Anal.* **1997**, *3*, 17–31.
87. Milne, M.J.; Adler, R.W. Exploring the reliability of social and environmental disclosures content analysis. *Account. Audit. Account. J.* **1999**, *12*, 237–256. [CrossRef]
88. Nicolai, S.; Hoy, C.; Bhatkal, T.; Aedy, T. Projecting Progress: The SDGs in Sub-Saharan Africa. Overseas Development Institute, London. Available online: https://www.odi.org/sites/odi.org.uk/files/resource-documents/10486.pdf (accessed on 1 July 2020).
89. Lange Salvia, A.; Leal Filho, W.; Londero Brandli, L.; Sapper Griebeler, J. Assessing research trends related to Sustainable Development Goals: Local and global issues. *J. Clean. Prod.* **2019**, *208*, 841–849. [CrossRef]
90. Yang, W.; Yang, Y. Research on Air Pollution Control in China: From the Perspective of Quadrilateral Evolutionary Games. *Sustainability* **2020**, *12*, 1756. [CrossRef]
91. Liu, H.; Liu, J.; Yang, W.; Chen, J.; Zhu, M. Analysis and Prediction of Land Use in Beijing-Tianjin-Hebei Region: A Study Based on the Improved Convolutional Neural Network Model. *Sustainability* **2020**, *12*, 3002. [CrossRef]
92. Chersan, I.C. Study on practices and tendencies in integrated reporting. *Audit Financ.* **2015**, *9*, 91–101.