

## **Idiosyncratic volatility, option-based measures of informed trading, and investor attention**

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## RESEARCH ARTICLE

# Deconstructing corporate sustainability narratives: A taxonomy for critical assessment of integrated reporting types

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## Abstract

The purpose of our study is to provide a taxonomy of integrated reporting (<IR>). First, we develop a coding catalog containing criteria and metrics. Second, we assess the degree to which annual/sustainability reports comply with <IR>, and identify types of reports (taxonomy). Methodologically, we employ conceptual arguments to draft the criteria and metrics. The taxonomy relies on a cross-sectional content analysis of annual/sustainability reports and websites of 128 listed Danish organizations. We present several results. First, we develop the two dimensions of FORM and CONTENT for our taxonomy. Second, we identify three types of reports: *traditional* (27%), *enhanced* (57%), and *integrated thinking* (16%). Specifically, *integrated thinking reports* exhibit higher connectivity, more compliance with sustainability standards/guidelines, and more frequent external assurance. Surprisingly, *enhanced content reports* are often published as “one report” and framed as shareholder-oriented. Conversely, *integrated thinking reports* tend to comprise several highly connected reports, and emphasize stakeholder perspectives.

## KEYWORDS

business model, corporate social responsibility, environmental policy, integrated reporting, integrated thinking, stakeholder engagement, sustainability reporting, sustainable development

## 1 | INTRODUCTION

Organizations are held increasingly accountable for sustainable practices both by society and the competitive corporate market. Accordingly, attention toward sustainability reporting to stakeholders is on the rise. Organizations are under increasing pressure to motivate and explain how they create value over time (García-Sánchez & Noguera-Gámez, 2017; Sierra-García et al., 2015; Vitolla, Raimo, Rubino, & Garzoni, 2019). Integrated reporting (<IR>) has been suggested as a tool for communicating diverse organizational practices in one holistic, communicative unit (de Villiers et al., 2014; Dumay et al., 2016). Here,

social and ecological sustainability along with revenue gains and governance can be presented in their entirety. Resilient, post-neoclassical capitalism is contingent on both financial stability and on sustainable conduct in its exchange with nature and humans (Schöne, 2015), and <IR> is the latest way of finding an appropriate managing and communication practice to acknowledge this (see the literature reviews of de Villiers et al., 2014; Dumay et al., 2016; Gibassier et al., 2018; Vitolla, Raimo, & Rubino, 2019). The International Integrated Reporting Council (IIRC) describes <IR> as “a process founded on integrated thinking that results in a periodic integrated report by an organization about value creation over time and related

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communications regarding aspects of value creation" (IIRC, 2017). Each previous developmental stage in sustainability reporting—such as the triple bottom line (TBL) or corporate social responsibility (CSR) reporting—has extended financial reporting by separate reports and dynamic online reporting (Cho et al., 2009). <IR> has set its goal at rejoining sustainability disclosure through the pivotal concept of *integrated thinking* (Maniora, 2017), which ideally results in one unified report (de Villiers et al., 2014; Hopwood et al., 2010). However, <IR> has, as many other practices of organizational communications and reporting, been harnessed for window dressing (Boje, 2016; Taylor et al., 2018). For stakeholders including scholars, it can be challenging to recognize ceremonial *frontstage* <IR> (Cho et al., 2018). Researchers still lack criteria that can identify organizations that self-proclaim <IR>-adoption on paper, but lack compliant practices. At the same time, executives could benefit from guidelines and scaffolding as to how to put well intent into practice: It is still an open issue how organizations translate the principles of <IR>, as developed by the International Integrated Reporting Council (IIRC), into reports (Cowan et al., 2010; Dumay et al., 2016). Thereby, <IR> remains a "black box." Another challenge for research is, that studies may be prone to accidentally ignoring organizations that avoid the term <IR>, but fully comply with the <IR>-framework (Maniora, 2017; Serafeim, 2015). In general, the diffusion of the term IR may lead to some of its originally ascribed practices being decoupled, other practices being added, and the original terminology becoming imbued with different meanings (Ansari et al., 2010; Etzion, 2014; Fiss & Zajac, 2006; Speckbacher et al., 2003). As a result, we have a limited understanding of the current state of <IR>-adoptions (Dumay et al., 2016; Stent & Dowler, 2015). As a remedy, de Villiers et al. (2014, p. 1062) call for "particular metrics that capture the characteristics of a good integrated report" (also cf. the literature review of Dumay et al., 2016).

Replying to their call, this study's main research goal is to *propose a taxonomy for <IR> for critical (de)construction of corporate narratives*. That is, we provide a tool for critical text work allowing for step-by-step disaggregation of reporting into thematic groups. The term taxonomy refers to classifying annual/sustainability reports into groups according to their sophistication (e.g., "adopters" vs. "non-adopters" of <IR>). For creating such groups, taxonomies rely on abstract criteria (e.g., "ecological sustainability") that become measurable through observable metrics (e.g., the degree of "CO<sub>2</sub> emissions"). The usability of a taxonomy for future research can be assessed through a test for its predictive validity (e.g., by corroboration; Bisbe et al., 2007). Aligned with this definition, we have two research objectives that jointly encompass our main research goal:

1. *Our first research objective (RO-1) is to outline criteria and pertaining metrics for our taxonomy.* We use conceptual arguments based on the <IR>-framework as outlined by the IIRC to do so. As a result, we present a coding catalog for annual/sustainability reports, which comprises the two dimensions (and metrics) of FORM and CONTENT. For FORM our metrics comprise: external assurance; connectivity; guidelines for preparation and presentation of the

report; and explanation of value creation. For CONTENT we consider forms of capital; strategy; organization; and outlook.

2. *Our second research objective (RO-2) is to propose a taxonomy (viz. types) of annual/sustainability reports.* The IIRC (2011) already outlines different pathways and reporting types for <IR>, such as "one report," or combined options. For RO-2 we perform multiple-coder, cross-sectional content analyses of annual/sustainability reports and websites of 128 listed Danish organizations. We identify three types of reports: *traditional reports* (27%), *enhanced content reports* (57%), and *integrated thinking reports* (16%). Surprisingly, *enhanced content reports* are often published as "one report" and framed as shareholder-oriented. Contrary to this, *integrated thinking reports* tend to comprise several highly connected reports, and emphasize stakeholder perspectives. Specifically, *integrated thinking reports* exhibit higher connectivity, more compliance with sustainability standards/guidelines, and more frequent external assurance.

In sum, we provide a three-layered taxonomy for <IR> (RO-2) based on a coding catalog (RO-1). Future research can use this study as a foundation for classifying, measuring, hypothesizing, and testing on the phenomenon of <IR>. Thereby, this study adds to the tradition of *empirical classification studies*: their taxonomies have had a substantial impact on how their research communities have defined practices (for value-based management (VBM): Fiss & Zajac, 2004; for the balanced scorecard (BSC): Speckbacher et al., 2003). What is more, students of sustainability-centered subjects (such as business studies, communication studies, environmental studies) could apply our taxonomy as a scheme in working with case studies (Lueg & Lueg, 2014; Lueg, Lueg, & Lauridsen, 2016). Finally, executives themselves could see merits in using the taxonomy as a helpful blueprint for what aspects to consider in report designing.

The remainder of the paper is organized as follows: Section 2 presents the theory foundations and derives *criteria* and *metrics* for <IR> (RO-1). Section 3 explains our methodology. Section 4 classifies the reports (RO-2: *taxonomy*). Section 5 points out contributions, limitations, and future research opportunities.

## 2 | DEVELOPMENT OF CRITERIA FOR AN INTEGRATED REPORTING TAXONOMY

### 2.1 | Conceptual foundations: Integrated reporting as an incremental stage of sustainability reporting

The objective of this section is to outline *criteria and pertaining metrics for our <IR>-based taxonomy (RO-1)*. <IR> aims at bringing together material information on an organization's business model in its strategic, social, and environmental context (IIRC, 2021, p. 13), and is thereby the latest, incremental stage of development in sustainability reporting (de Villiers et al., 2014; Eccles & Saltzman, 2011; Hahn & Kühnen, 2013; Stent & Dowler, 2015). <IR> explains how an organization's business model transforms capital from one form (input) into

other forms of capital (output). It also elaborates on how the organization defines sustainable performance, what the output of this was for the reported period, and which outputs are to be expected in the future considering material risks and opportunities. <IR> supports organizations in identifying and communicating short-, mid-, and long-term financial and non-financial key performance indicators that stretch beyond the traditional financial reporting of annual reports.

### 2.1.1 | The international integrated reporting framework

The International Integrated Reporting Framework, developed by the International Integrated Reporting Council, forms the basis for <IR>. Since it is principle-based and not an accounting standard, it neither prescribes how to report, nor does it constitute a benchmark to assess the quality of <IR>. The framework establishes guiding principles and *content* elements that frame the *content* of a report, and it explains the fundamental concepts that surround the *form* of a report. The framework thereby provides metrics for two central criteria, CONTENT and FORM, which we will revisit when developing our coding catalog. The three *fundamental concepts* include (a) *value creation for the organization and for others*; (b) six forms of *capital* (financial, manufactured, intellectual, human, social and relationship, and natural); and the (c) *value creation process* (also called: *business model*). There are seven *guiding principles* (IIRC 2013): (a) *Strategic focus and future orientation* assures that the user of the integrated report understands the organization's strategy, the intertwined transformation of capitals, and how the organization creates value in the long term. (b) *Connectivity of information* explains how this value creation of an organization depends on the interrelatedness of various factors. (c) *Stakeholder relationships* motivate an organization to explain to which degree it understands, accounts for, and responds to legitimate stakeholder needs. (d) *Materiality* suggests that only relevant information is being reported. This should be done with a high level of (e) *conciseness*; (f) *reliability and completeness*, as well as (g) *comparability*. Last, the <IR>-framework suggests eight content elements. (a) *Organizational overview and external environment* include all basic relevant data about the organization, such as key figures on size and the competitive environment. (b) *Governance* explains how the (c) *business model* is monitored, and which (d) *risks and opportunities* affect it. (e) *Strategy and resource allocation* gives an account of what the organizations wants to achieve. (f) *Performance* reports on the current achievements, and (g) *outlook* assesses which future performance can be achieved. Last, there is (h) *basis of preparation and presentation*, which includes *general reporting guidance*.

There is no unanimous understanding of what <IR> should look like in practice (Feng et al., 2017; van Bommel, 2014). The IIRC (2011) acknowledges that there can be different approaches to <IR>, such as “one report,” or a sustainability report that is meticulously linked in all aspects to the annual report (Eccles & Krzus, 2010, p. 11f). In addition to the “one report” debate, <IR> may also include ongoing communication that manifests itself in website presentations and online tools/databases, social media, press releases, and stakeholder meetings (Eccles & Krzus, 2010, p. 11f; Maniora, 2017). Thereby, a central pillar of <IR> is the concept of *integrated thinking* that “takes into account the connectivity

and interdependencies between the range of factors that affect an organization's ability to create value over time” (IIRC, 2021, p. 2; Maniora, 2017).

### 2.1.2 | Critical voices on integrated reporting

<IR>—and sustainability reporting in general—encounter both endorsement and criticism. Organizations profit by identifying opportunities of improving internal processes (IIRC, 2012), presenting competitive advantages, thereby boosting performance (Carroll & Shabana, 2010; Lueg et al., 2013; Porter & Kramer, 2006), and signaling their intents of being sustainable, which earns them legitimacy across various stakeholder groups (Carroll & Shabana, 2010; Cho et al., 2012; Godfrey et al., 2009; O'Dwyer et al., 2011; Serafeim, 2015). Stakeholders profit from the increased transparency and, thus, accountability of these organizations (Stent & Dowler, 2015), which is also of interest to already well-informed investors (Cho et al., 2013). Critics refute that <IR> reflects sustainability, since <IR> prioritizes providers of financial capital and defines *materiality* in their favor (Bebbington & Larrinaga, 2014; Brown & Dillard, 2014; Flower, 2015; Gray, 2010). Also proponents admit that there are shortcomings of <IR>; for example, that disclosure is voluntary, unregulated, and inadequately connected. Its future orientation also makes it difficult to audit, and thereby less reliable (Busco et al., 2013; de Villiers et al., 2014; Hahn & Kühnen, 2013; Stent & Dowler, 2015).

### 2.1.3 | Empirical approaches to integrated reporting

Similar to the strife in the conceptual debate, empirical studies face this obstacle to define (rather than document) at what point an organization becomes an “adopter” of a concept like <IR> (de Villiers et al., 2014; Etzion, 2014; van Bommel, 2014). It stands to reason that self-proclamation, box-ticking compliance, or publishing one single report do not make an organization an <IR>-adopter (Eccles & Krzus, 2010). Similarly, a researcher may overlook <IR>-organizations that effectively report in an integrated manner, because they intuitively avoid the <IR>-label and its symbols/artifacts, such as having one single report (Etzion, 2014). Extant market-level studies mostly investigate the effects of <IR> on firm valuation, governance, and analyst expectations. These studies proxy <IR> through aggregated scores from Bloomberg or Thomson Reuters, who do not disclose the (respective weights of the) data that create these scores. Thereby, <IR> remains a black box. Organization-level studies open this black box to explain what <IR>-implementation may look like, but their measurements are often ad hoc and thereby lack comparability and replicability. This study tries to evolve and synthesize the best from these two approaches.

## 2.2 | Conceptual development: Criteria and metrics for integrated reporting

The requirements of <IR> are not met by simply merging the annual report with the sustainability report (Eccles et al., 2015; Serafeim, 2015). Yet, the <IR>-framework is principle-based and thereby free of

metrics. Hence, empirical researchers have to develop an <IR>-coding catalog by themselves (de Villiers et al., 2014; Stent & Dowler, 2015). Sustainability reporting in general suffers from a lack of generally accepted measures (Bebbington & Larrinaga, 2014; Contrafatto, 2014). As a remedy, Clarkson et al. (2011) show in their literature review that quantitative coding of voluntary disclosure has become an established research method since the 1980s. Stent and Dowler (2015) are among the first to create an <IR>-related catalog (recently: Pistoni et al., 2018). They use hand collected data from annual reports and websites of four organizations to assign <IR>-compliance scores. Yet, their catalog only aligns with the content elements (CONTENT) of <IR>. Our framework additionally puts strong emphasis on the FORM of the reports. Churet and Eccles (2014) rate annual reports for their *Integrated Reporting Practices* from *low sophistication* (quantified information on sustainability programs), over *mid sophistication* (qualitative information on programs and strategy), to *high sophistication* (quantified strategic information). Data stem from the

RobecoSAM database that confines itself to Management Discussion sections. Similar to Churet and Eccles (2014), Serafeim (2015) relies on Thomson Reuters' ASSET4 score as a proxy for <IR> compliance for 1114 organizations, and Maniora (2017) uses the assessment of the database corporateregister.com. Taking a quite different approach, Eccles et al. (2015) employ content analysis of 25 <IR> reports (similar approaches for holistic <IR>: Busco et al., 2014; Veltri & Silvestri, 2015). They illustrate full/partial/non-compliance of three selected best <IR> practices (strategic focus, connectivity of information, and materiality). We follow these examples of developing manifest metrics that reference to the <IR>-framework. Additionally, we take the entire <IR>-framework into account (content and form), and use numerical scoring that enables comparability across organizations.

Figure 1 documents how the 19 components of the <IR>-framework (three fundamental concepts, seven guiding principles, and nine content elements) translate into manifest metrics in our coding

Coding catalogue			Basis in <IR>-framework															
			Value creation Capitals Value creation process		Strategic focus and future orientation Connectivity of information Stakeholder relationships Materiality Conciseness Reliability and completeness Consistency and comparability						Org. overview and ext. environment Governance Business model Risks and opportunities Strategy and resource allocation Performance Outlook Basis of preparation General reporting guidance							
<b>Category: CONTENT</b> (20% weight, maximum 2 points in total, maximum 0.5 points each)			Score (from 0 to 2)		Fundamental concepts		Guiding principles						Content elements					
Capitals (or resources / focus areas) are inputs to an organization's business models and comprise 6 different types of capital ( financial; manufactured; intellectual; human; social and relationship; or natural capital).					x		x											
Organizational configuration explains the business model.							x						x x x					
Strategy explains how the organization deals with competition and the external environment.							x						x x					
Outlook and expectations indicates challenges/uncertainties of an organization in pursuing its strategy, and the implications for its business model/performance							x						x					

catalog. Each component of the <IR>-framework can appear in several subsections of the coding catalog (like Stent & Dowler, 2015, p. 103). We developed the catalog in an abductive manner (Lukka & Modell, 2010) by iterating between meticulous reading of the <IR>-framework and its commentaries, pilot-coding featured integrated reports (IIRC, 2017), as well as discussing with academics and practitioners. The coding catalog contains the two main sections of FORM and CONTENT that offer a total score from 0 to 10 per organization. We assign 80% of the weight for the <IR>-score to the FORM category, because it represents *integrated thinking*, the most crucial element that distinguishes <IR> from previous sustainability and traditional reporting (Eccles et al., 2015, p. 106). These belong mainly to the *fundamental concepts* and *guiding principles* of <IR>, such as external assurance of sustainability activities and connectivity between the financial statements and the sustainability activities. Most of the CONTENT metrics resemble the *content elements* of <IR>, and could also be found in traditional reporting. Therefore, we assign only 20% of the total weight to the CONTENT category. Figure 1 explains the criteria FORM and CONTENT, their metrics, which <IR>-framework component they originate from, as well as the criteria for scoring the reports of organizations (our research objective 1). Appendix contains an example of coding of the Integrated Report from Novo Nordisk.

### 3 | METHODOLOGY: HOW TO APPLY THE METRICS

#### 3.1 | Method: Content analysis and coding

We use content analysis to code <IR>-sophistication with our catalog.<sup>1</sup> Content analysis is an established research method in research on <IR> and sustainability reporting in general (Busco et al., 2014; Clarkson et al., 2011; Eccles et al., 2015). This method can analyze a wide range of data on complex real-life phenomena, including visual and textual data. It deconstructs qualitative phenomena by creating sub-categories. This also allows for quantifying such initially qualitative phenomena, which has been demonstrated in sustainability reporting by trusted sources like Bloomberg (ESG-scores), Thomson Reuters (ASSET4-scores), or the databases of RobecoSAM and corporateregister.com. Our study acknowledges that an understanding of socially constructed phenomena like <IR> does not automatically arise from observing inter-subjective facts. Researchers need to interpret the phenomenon in relation to its underlying values, future possibilities, and means of communication (Nørreklit, 2017).

For the coding, one of the authors of this study and an external rater independently assigned scores from 0 to 10 to the report of each organization according to the eight developed metrics for FORM and CONTENT (Figure 1). We searched the annual reports and sustainability disclosures for the signifiers (metrics) derived in the coding catalog. We did not formalize detailed coding rules since these tend to give a false sense of reliability and may shift attention away from the core of the phenomenon to be investigated (Saldaña, 2015). For instance, we identified how organizations broach the issue of *value*,

and assessed whether the term has been used in the sense defined in the coding catalog. This included that the organization had to explain how it creates value with capitals that are beyond the financial and manufactured types, and how this affects relevant stakeholders. By tracing all words to their context sentences, we were able to control for changes in meaning and ambivalence (Saldaña, 2015; Weber, 1990). We also considered synonyms in this search (e.g., *resources* or *focus areas* instead of *capitals*). We thereby use the content analysis as “a research technique for the objective, systematic, and quantitative description of manifest content of communications” (Berelson, 1952, p. 74). The allocation of some of the points was flexible than that of others depending on the context. We were rigid if words appeared to be unalterable for the <IR>-framework, such as the term *value*. Otherwise, we were more flexible: for instance, we allowed the *outlook* section to be named the *expectations* section. This demonstrates that we have not blindly box-ticked if an organization proclaimed to follow the <IR>-framework, as a descriptive study would have done. Rather, we base our judgment on the criteria and metrics that we *previously* developed from the <IR>-framework, and assess if an organization *follows* the <IR>-framework (irrespective of whether they use the term <IR> or not).

The initial inter-rater reliability for the eight developed metrics across the 128 organizations ranged from 93% to 100%. We corroborated the reports with the presentation of the websites, as they complete sustainability *reporting* in a less constrained manner (Unerman, 2000). We created data on each organization through screenshots and in a spreadsheet file containing the most relevant links and page numbers. Conflicting classifications could be resolved through discussions with the rest of the author team by particularly looking at the documented instances on which the rater disagreement was based (similar: Chauvey et al., 2015).

#### 3.2 | Sample: Selection and data sources

We chose the Danish capital market due to its comply-or-explain policy on sustainability reports. Since 2008, section 99a of the Danish Financial Statement Act requires listed Danish organizations to report on sustainability in their annual reports on a comply-or-explain basis (DBA, 2008). It was extended in 2012. Similar regulations apply to the financial industry (DFSA, 2014). Organizations must report on sustainability policies, standards, guidelines, and principles; systems or procedures translating policies into action; human rights; climate impact reduction; evaluation of sustainability performance; and they must give an outlook on sustainability issues. Organizations can be exempted if they are members of the UN Global Compact. Likewise, Nasdaq (2011) recommends sustainability disclosures. These nudges make Denmark a pioneer in sustainability reporting on the regulatory level (for an overview of countries' legislation, cf. de Villiers et al., 2014; Lueg, Lueg, Andersen, & Dancianu, 2016; Maniora, 2017). In addition, we chose listed organizations since they have a large impact on society, more accountability toward stakeholders, and tend to use multiple communication channels. Hence, there should be many



organizations of interest to our investigation, such as the early <IR>-promoters Novozymes and Novo Nordisk.

Specifically, we conduct a cross-sectional analysis of the organizations listed on Nasdaq OMX Copenhagen (Nasdaq, 2015). We removed 20 of the original 148 OMX organizations that had foreign International Securities Identification Numbers placing them outside Danish regulation ( $n = 8$ ), public plans to de-list from Copenhagen Stock Exchange ( $n = 9$ ), or incomplete information ( $n = 3$ , e.g., due to very recent listing). This resulted in a sample of  $n = 128$  organizations. We used the latest annual/sustainability reports available: 99 reports use the fiscal year 2014, 12 are from 2013/2014, and 17 are from 2014/2015 (similar: Chauvey et al., 2015). All other data on organizational characteristics (e.g., size, industry, performance) are retrieved from Morningstar, a rating agency.

## 4 | TAXONOMY OF THE REPORTS: TYPES, STRUCTURES, VOLUME, POLICIES, AND FRAMING

### 4.1 | Descriptive analysis of the reports: Strong CONTENT, upside potential in FORMAT

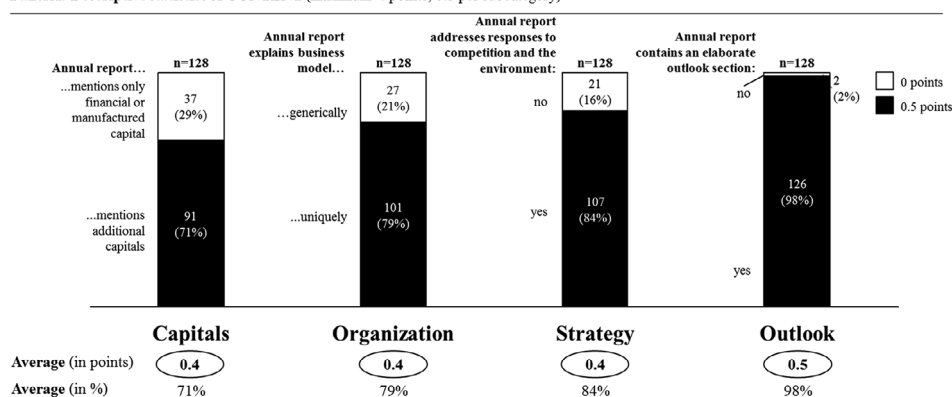
The objective of this subsection is to develop an <IR>-based taxonomy (typology) of reports (RO-2). Overall, organizations could

achieve a score from 0 to 10 for their <IR>. The average <IR>-score across organizations is 4.4 out of this 10, signaling upside potential. Organizations score relatively high on <IR>-related CONTENT with 1.7 points out of 2 (83% achievement). Figure 2A depicts the CONTENT criterion. It shows that score achievement ranges from 71% (capitals) to 98% (outlook and expectations). These levels resonate with the high achievements reported by Stent and Dowler (2015) on four organizations (contrary: Mio et al., 2020). In the FORM criterion (Figure 2B), organizations only reach 2.7 of 8 possible points (34% achievement). Specifically, they have only 9% achievement in the metric *assurance*, since full ( $n = 10$ ) or partial ( $n = 4$ ) external audits of sustainability activities are seldom. This discrepancy already hints at the fact that FORM is a highly discriminative criterion, while CONTENT appears to be quite uniform across all reports.

### 4.2 | Classification of reports: Traditional reports, enhanced content reports, and integrated thinking reports

We plot the two criteria CONTENT and FORM (cf. Figure 3; Table 1 displays the raw data). The x-axis counts the number of organizations in ascending order of their <IR>-score (depicted by the y-axis). The pattern of this graph supports a classification of the 128 reports into

Panel A: Descriptive statistics of CONTENT (maximum 4 points; 0.5 per subcategory)



Panel B: Descriptive statistics of FORM (maximum 8 points; 2 per subcategory)

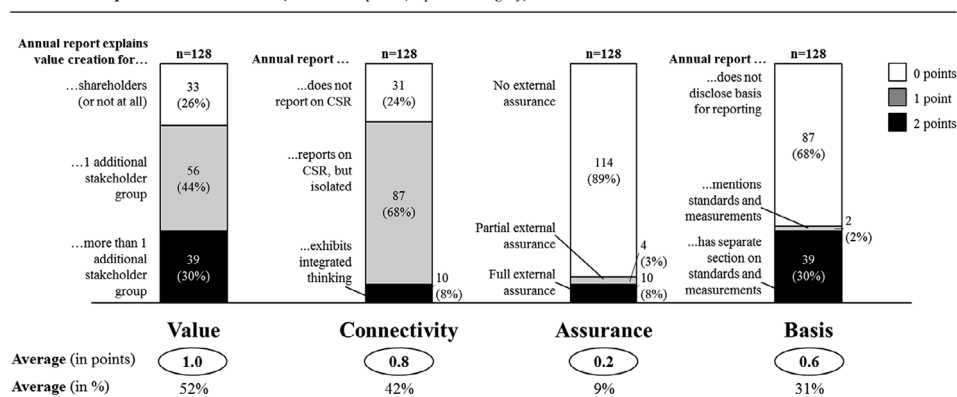


FIGURE 2 Descriptive statistics of the coding for the annual reports

three types. We classify 21 (16%) as *integrated thinking reports*, 73 (57%) as *enhanced content reports*, and 34 (27%) as *traditional reports*. This resonates with the binary global classification of Churet and Eccles (2014) into a 31% *high* reports, 60% *mid* reports, and 9% *low* reports. We explain the classification below:

Some <IR> proponents argue that only a single report is a true integrated report. The IIRC (2011, p. 20) opposes this notion, and clarifies that <IR> can take four “[a]lternative pathways to Integrated Reporting,” as long as *integrated thinking* is pivotal (Churet & Eccles, 2014; Maniora, 2017). Pathway #1 is the *combined report* where the annual report merges with the sustainability report. Pathway #2 is the *supplement report* where the integrated report is the only addition to the statutorily required annual report. Pathway #3 is a *modified report* where the sustainability report complies with the Guiding Principles and Content Elements of Integrated Reporting. Pathway #4 is an *internal report* on sustainability that is used by management but not publicly disclosed (Lueg & Radlach, 2016).

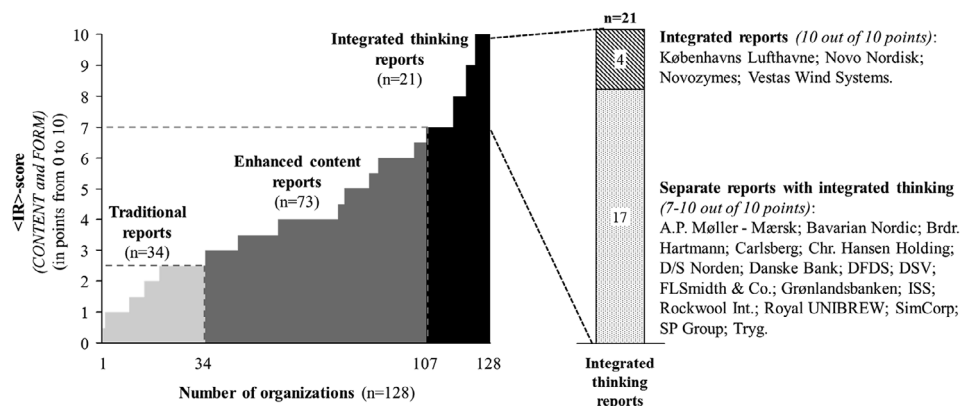
We can see that the IIRC’s conjecture reflects organizational practice: In practice, there are numerous reports that exhibit *integrated thinking* without explicitly mentioning the <IR>-framework or publishing only one single report, which we call *integrated thinking reports*.<sup>2</sup> In total, we found four organizations that exhibit *integrated thinking* and present a fully integrated report in one document (cf. organizations in Figure 3). This corresponds to pathway #1 (IIRC, 2011, p. 20). Since only Novo Nordisk explicitly uses the term <IR>, it is not surprising that no further organization has chosen the IIRC’s

(2011) pathway #2, where an integrated report is the only supplement to the annual report. Rather, 17 organizations have chosen pathway #3 and connected their existing sustainability reporting to the annual report. Six of these 17 modify their sustainability reporting and demonstrate *integrated thinking* across all sections. The remaining 11 of these 17 pick up on the IIRC’s (2011) alternative suggestion to tailor specific sections in accordance with *integrated thinking*. Examples of *integrated thinking* are reports that discuss environmental risk in the risk management section, or that build an argumentation in the management discussion section on the basis of sustainability. Of course, we cannot say which organizations are on pathway #4 and have adopted <IR> only internally (IIRC, 2011). In sum, 21 reports are classified as *integrated thinking reports*.

We consolidate organizations that only elaborate on their financial information, and thereby stick to traditional reporting. After the long step at the 2.5-point threshold (Figure 3), voluntary disclosure increases substantially. Thus, the definition of *traditional reports* spans 34 organizations that scored 0.5–2.5 points.

We classify the residual 73 reports as *enhanced content reports*. They go well beyond traditional reporting, but do so in silos without *integrated thinking*.

Our taxonomy (typology) is constitutive: *traditional reports* score low in both the CONTENT and the FORM criterion. *Enhanced content reports* additionally disclose voluntary information (criterion CONTENT), yet without exhibiting *integrated thinking* (mainly covered by



**FIGURE 3** Report type classification

**TABLE 1** Descriptive statistics on the integrated reporting reporting scores per reporting type

<IR>-scores	Integrated thinking reports	Enhanced content reports	Traditional reports	All
Number of organizations	21	73	34	128
Actual range	7–10	3–6.5	0.5–2.5	0.5–10
Average	8.2	4.4	1.9	4.4
Median	8.0	4.0	2.0	4.0

*Note:* *Traditional reports*: organizations that only elaborate on their financial information, and thereby stick to traditional reporting. *Enhanced content reports* additionally disclose voluntary information (criterion CONTENT), yet without exhibiting integrated thinking (mainly covered by the criterion FORM). CONTENT forms the necessary condition for <IR>. *Integrated thinking reports* exhibit integrated thinking (high scores in both CONTENT and FORM). FORM thus constitutes the sufficient condition for <IR>.



the criterion FORM). CONTENT forms the *necessary* condition for <IR>. In addition to *enhanced content reports*, *integrated thinking reports* exhibit *integrated thinking* (high scores in both CONTENT and FORM). FORM thus constitutes the *sufficient* condition for <IR>. Figure 4 conceptualizes this taxonomy.

### 4.3 | Structure: Integrated thinking reports often comprise several documents

This section analyzes the structure of the reports (Figure 5). 3% of the organizations publish single reports. 29% combine the annual report with other reports (mostly the sustainability report) in one document. 47% of the organizations refer to separate reports within their annual reports (again, mostly sustainability reports). 21% of the organizations choose to explain why they do not present a sustainability report in compliance with Danish regulation. Mostly, they argue that sustainability reporting is irrelevant to their business model (Lueg et al., 2015).

Many researchers prefer a single <IR>-report (Eccles & Krzus, 2010). We would have expected that only the *integrated thinking*

reports comply with this requirement. Therefore, it is noteworthy that 67% ( $n = 14$ ) of the *integrated thinking reports* are *separate reports*. Organizations appear to trust that report recipients will recognize the integrated aspects in these reports by themselves. Only in 14% of all cases ( $n = 3$ ) are *integrated thinking reports* combined reports. At the same time, it is surprising that so many *enhanced content reports* ( $n = 27$ ; 37%) are combined reports. The reason for this might be mimicry: issuing one report evokes the immediate impression of <IR>-compliance. However, Eccles et al. (2015) emphasize that pasting a sustainability section into the annual report is not the same as an integrated report.

### 4.4 | Disclosure policies: Integrated thinking reports link to the <IR>-framework, UN global compact or GRI guidelines

When organizations adhere to frameworks and guidelines, they are more likely to provide substantiated voluntary disclosure (Chen & Bouvain, 2009). All reports have a section that declares compliance or exemption from Danish regulation. 24% declare to perform no sustainability-related activities. 63% have a structured sustainability policy with pertaining activities, and 13% have a sustainability policy without structured activities. Overall, 76% of all organizations are hence active in sustainability. Sustainability reporting is lowest for *traditional reports* and highest for *integrated thinking reports* (Figure 6).

Only Novo Nordisk specifically refers to the <IR>-framework. 42% of the organizations declare compliance with the UN Global Compact, but only 27% have officially joined the initiative. The remaining 15% describe the guidelines as the inspiration for their reports. 15% of the reports mention the GRI guidelines, but only 6% report accordingly. Organizations tend to see these standards and guidelines as complements, since there is a 28% overlap (Figure 7): of the 57 (45%) organizations that mention these standards, 16 (13%) mention both. Split into the groups, all *integrated thinking reports* relate to one (48%) or more (52%) standards. 52% of the *enhanced content reports* do not relate to any standard. Neither do 97% of the *traditional reports*. This supports the conjecture that adhering to standards and guidelines is related with higher <IR>-scores (Beck et al., 2017).

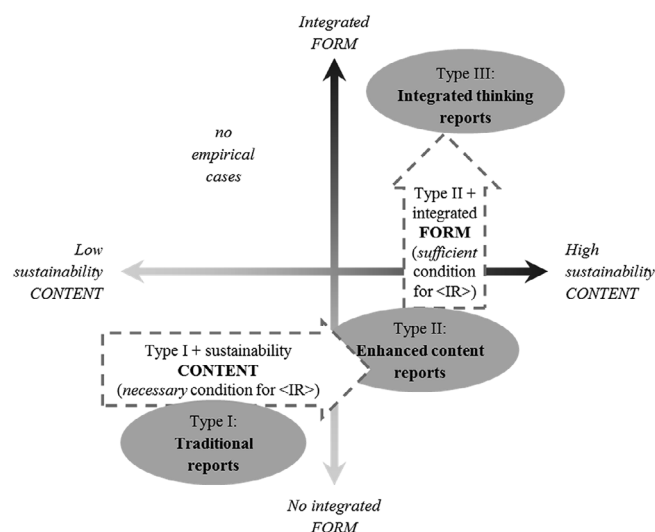


FIGURE 4 Visualization of the three constitutive report types I-III

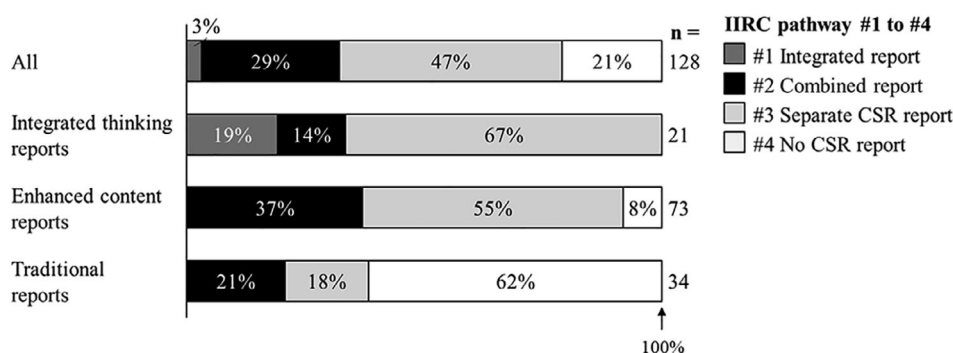
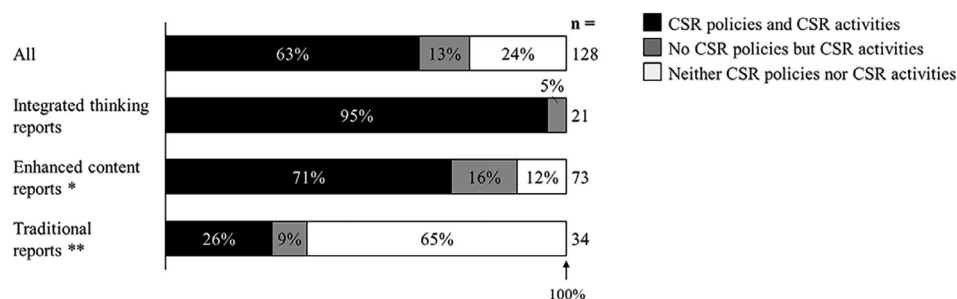
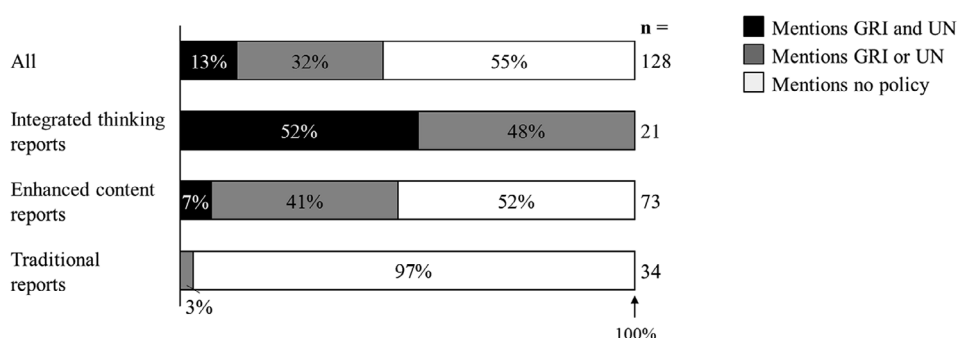
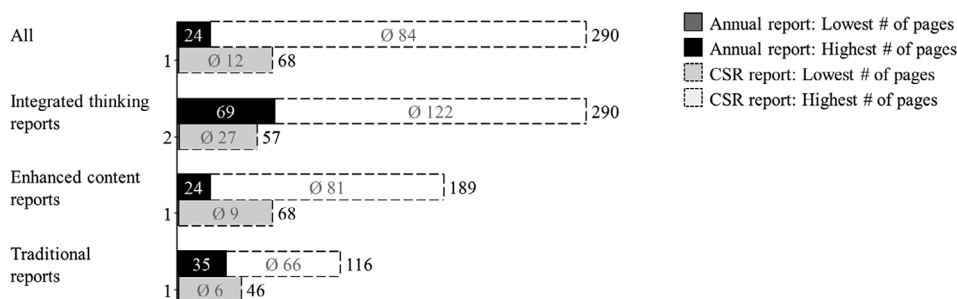


FIGURE 5 Structure of the reports

**FIGURE 6** Sustainability policies and sustainability activities across report types**FIGURE 7** Sustainability standards across report types**FIGURE 8** Number of pages in the reports

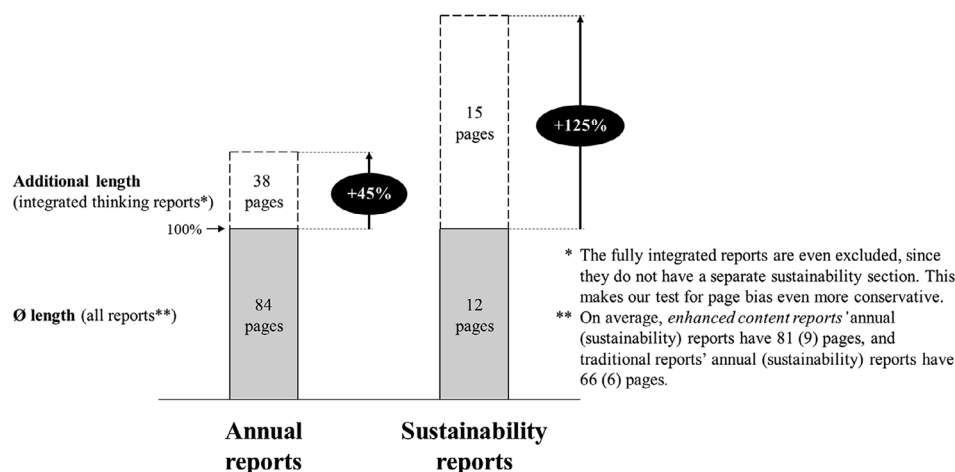
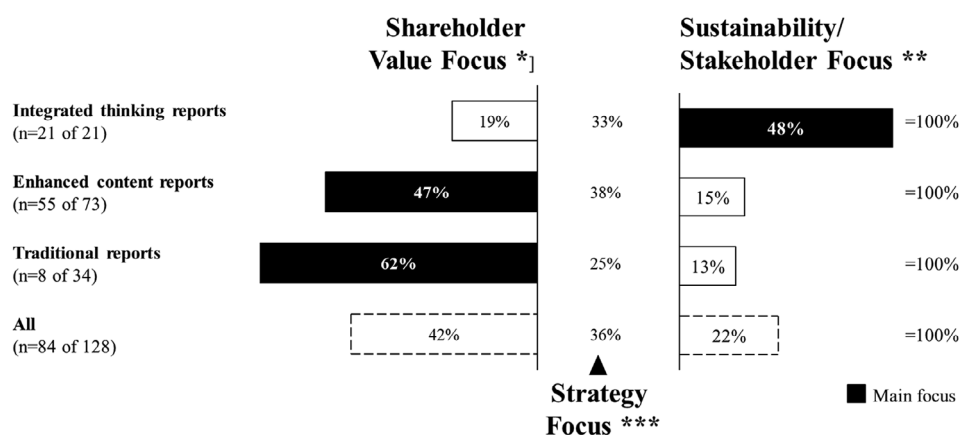
#### 4.5 | Volume of the reports: No apparent page bias

Figure 8 shows that, on average, *integrated thinking reports* are longer than *enhanced content reports*, with *traditional reports* being the shortest.

Content analyses and scoring of annual reports are often susceptible to a page bias: large organizations tend to have more stakeholders—and more to report about. As their reports are longer, they more easily receive a higher coding score. A comparison of <IR>-scores and the lengths of the reports speaks against a page bias (Figure 9): the average annual report consists of 84 pages. The annual reports within *integrated thinking reports* have only 45% more pages on average (in total: 122 pages). The average sustainability report consists of 12 pages. However, the sustainability reports within *integrated thinking reports* have a remarkable 125% more pages on average (in total: 27 pages). This means that the higher <IR>-scores for *integrated thinking reports* stem mainly from *relatively* longer voluntary disclosure, and not from *relatively* longer annual reports (also cf. Chauvey et al., 2015).

#### 4.6 | Framing: Trade-offs instead of win-wins

The IIRC (2021) sees shareholders as the main recipients of <IR> (de Villiers et al., 2014), while some researchers stipulate a broader audience (Bebbington & Larrinaga, 2014; Brown & Dillard, 2014; Flower, 2015; Gray, 2010). Organizations can signal their choice of prioritized stakeholders by *framing* their voluntary disclosures beyond the annual/sustainability report on their websites (Carroll & Shabana, 2010; Falck & Heblich, 2007). It would be reasonable to expect that organizations issuing *integrated thinking reports* frame their sustainability activities as a foundation of shareholder value and elaborate on it in the investor relations section. This sends the message of a *win-win case* of sustainability that fuels the business model and ensures the flow of funds to investors. Organizations presenting *traditional reports* and *enhanced content reports* might see sustainability rather as a *trade-off*, and as irrelevant to their business model (as mentioned, most organizations that opt out of the Danish disclosure regulation give this reason). Hence, they would present sustainability to the public as being a stand-alone phenomenon in a separate section on their

**FIGURE 9** Additional length of annual versus sustainability reports**FIGURE 10** Website presentation of sustainability information by report type

website. To explore this matter, we analyzed in which section of the website organizations presented their sustainability disclosure. Surprisingly, organizations do not act according to our expectations (Figure 10).

Forty-four organizations in the original sample ( $n = 128$ ) do not present sustainability information on their website. Of these 44, none have *integrated thinking reports*, 18 have *enhanced content reports*, and 26 have *traditional reports*. Across the entire sample, the framing of sustainability information seems random: 42% present it under “investor relations”/“corporate governance,” 25% under “about the organization,” 22% under “sustainability/CSR,” and 34% disclose no such information. An analysis per report type reveals better insights: surprisingly, organizations operating with *integrated thinking reports* mainly frame sustainability as a merit in its own right, and present it in a separate section (48%). Organizations issuing *enhanced content reports* frame sustainability from a shareholder value perspective and present it under “investor relations”/“corporate governance.” The IIRC (2021) acknowledges that business models transform capitals, where some forms are enhanced by consuming others. It appears that most organizations publishing *integrated thinking reports* want to explain this *trade-off* to a wide range of stakeholders, while those publishing

*enhanced content reports* stick to justifying the *win-win* business case of sustainability toward shareholders (Hahn et al., 2010).

## 5 | CONCLUDING DISCUSSION

This study makes several contributions to theory, practice, and methodology.

### 5.1 | Conceptual contributions

First, we contribute conceptually by developing a coding catalog for <IR> containing criteria and metrics. We thereby answer calls to enable empirical research beyond the current conceptual stage (de Villiers et al., 2014; Dumay et al., 2016). The catalog purports a comprehensive assessment of the CONTENT and FORM of voluntary disclosure from an <IR>-perspective. Much research accounts only for the *extent* (pages or words) of the disclosure, but not for their *content* (Chen & Bouvain, 2009; Clarkson et al., 2011). We propose that <IR>-related CONTENT is merely a *necessary* condition

for adopting <IR>. Almost every organization in our sample scores very high on this criterion. In addition to the CONTENT-criterion, we develop metrics to code an <IR>-consistent FORM. Thus, we propose that <IR>-related CONTENT is a *necessary* condition for adopting <IR>. The FORM-criterion (e.g., external assurance and connectivity) represents the most distinctive difference between *integrated thinking reports* and the rest. Many organizations struggle to present an *integrated thinking FORM*, since FORM is more difficult to achieve than it is to list CONTENT. Achieving this new style of reporting practices (FORM) makes it difficult to simply mimic sophisticated reports (Bebbington & Larrinaga, 2014; Cho et al., 2015). Thus, we propose that <IR>-related FORM is a *sufficient* condition toward adopting <IR>.

Second, we present a comprehensive taxonomy (typology) of <IR>-reports based on this coding catalog. In our sample of 128 organizations, we identify 21 *integrated thinking reports* (*traditional reports*: 27%; *enhanced content reports*: 57%). Of these 21 *integrated thinking reports*, four follow pathway #1 outlined by the IIRC (2011, p. 20), and 17 follow pathway #3. This taxonomy helps to open the black box of <IR> beyond a delusive adopter vs non-adopter dichotomy. It also structures this young field of research in <IR>, and provides a nomenclature for the diverging practices that can be commonly observed. Through this taxonomy, we uncover that *enhanced content reports* are relatively often published as a single document, mimicking the <IR> artifact of “one report.” Contrary to this, *integrated thinking reports* are often published as several, but highly connected, reports. In line with this, Maniora (2017) problematizes that some organizations might falsely self-proclaim <IR>-adoption while others could adopt <IR> without using the label. This study provides several leads indicating that some organizations issuing “one report” are in fact not <IR>-adopters, whereas others with *separate* sustainability report are. Since transitions in report types can be fuzzy, our study might help in understanding why some (allegedly non-integrated) *separate* reports outperform (possibly just self-proclaimed) <IR>-reports (cf. some ambivalent findings of Maniora, 2017). We therefore propose that future research should be careful in adopting a simplistic dichotomy of combined versus separate reports, even though popular databases offer data that invite this practice.

## 5.2 | Practical contributions

For policymakers, including standard setters, our coding catalog could serve as a scoring device to track <IR>-compliance. This assists in measuring the effects of soft nudges and mandatory adoption. Specifically, third-party audits of voluntary disclosure differentiate *integrated thinking reports* from the rest. Audits are objectively measurable metrics, so their effects are an intriguing topic for future investigation (de Villiers & Van Staden, 2010). O'Dwyer et al. (2011) suggest that external legitimacy of sustainability reporting positively affects the attitude of organizations to agree to voluntary audits. Policymakers can help establish this external legitimacy by providing default nudges for sustainability reporting (comply-or-explain), and thereby also exert

influence over what is being reported (O'Dwyer et al., 2011). Moreover, our findings on separate but connected reports fuel the discussions about what “one report” means (Eccles & Krzus, 2010), and whether there are several pathways to achieve it (IIRC, 2011).

Organizations will find our findings useful to understand and manage what it practically means to comply with the rather broad principles of <IR>. It supports them in discussing with stakeholders how and why different forms of capital are being converted (Eccles et al., 2015). It also triggers discussions on which activities, governance mechanisms, and internal control systems should be in place to substantiate the external reporting (de Villiers et al., 2014; Dumay et al., 2016). Our findings should influence the reporting style of organizations in a way that they align their sustainability reporting with the criteria presented in this report, specifically the ones relating to FORM (focus on different forms of value creation; show connectivity activities; get external assurance; and be transparent about the reporting process *why* capitals are reported like this). Organizations will profit through greater analyst coverage, more long-term investors, lower cost of capital (Gerwanski, 2020), greater stock liquidity, and lower yields to maturity in bond issuances (Dhaliwal et al., 2011; Gao et al., 2015; Serafeim, 2015). Our main, practical suggestion to organizations is to break with the paradigm that shareholders supposedly expect a *win-win* business case for <IR>. Shareholders might rather appreciate an honest discussion of the *trade-offs* of converting different forms of capital (Hahn et al., 2010). We can see in practice that most *enhanced content reports* frame their voluntary disclosure as being most valuable for shareholders, suggesting a *win-win* scenario (Hahn et al., 2010). In contrast, we can see in practice that *integrated thinking reports* frame sustainability as a *trade-off* in that they address a broad range of stakeholders at once.

For users of annual/sustainability reports, this paper offers the insight that the sustainability-related CONTENT is only a necessary condition for <IR>. It is the FORM of the report that bridges the chasm from sustainability reporting to full <IR>. So instead of marveling at the CONTENT of a sustainability report, users should assess its FORM (viz. external assurance, or the links between financial or strategic information). Students of sustainability-centered subjects (such as business studies, communication studies, environmental studies) could apply our taxonomy as a scheme in working with case studies.

## 5.3 | Methodological contributions

Our approach extends previous proxies or classifications of <IR>-reports (Churet & Eccles, 2014; Eccles et al., 2015; Serafeim, 2015; Stent & Dowler, 2015). It provides a viable methodological example of how to use data from content analysis for annual/sustainability reports and websites to investigate compliance with the <IR>-framework across a comprehensive population of organizations. The data used for this study are (partly externally audited) publicly available information, which increases the validity of this study. We provide an abbreviated coding example to illustrate the reliability of the coding process (Appendix).

## 5.4 | Limitations

This study is subject to several limitations. First, the <IR>-framework offers a very rich set of principles. Our coding catalog synthesizes them into two criteria with four metrics each. Such aggregation runs the risk of oversimplification, but is a boon for large-scale research.

Second, the coding itself relies on a content analysis of reports and websites. Any such, research is subject to subjective judgments (Nørreklit, 2017; Unerman, 2000). While some metrics can be measured unambiguously (e.g., external audits), others allowed for our discretion. We attempt to increase the validity of the coding by using two independent coders. Moreover, the abbreviated coding example helps to assure the reliability of this measurement (Appendix).

Third, organizations have more channels of communication than reports and websites, which we could have analyzed (e.g., social media and shareholder meetings). However, the annual report is externally audited and must reflect all material aspects of the year.

Fourth, this study cannot make statements about the *quality* of the internal, organizational activities themselves that are the basis of the reports (cf. Baker & Schaltegger, 2015; Maniora, 2017, p. 765). It only assesses the *reports* on these activities. Thus, conclusions that organizations providing *integrated thinking reports* would be more sustainable than the rest cannot be directly inferred (for instance, cf. the study of Cho et al., 2012).

## 5.5 | Future research

Future research can use these limitations as a basis. First, investigating the diffusion pattern of <IR> would be interesting (e.g., Higgins et al., 2014 for 15 early <IR>-adopters in Australia). Generally, one would expect that early adopters have rational reasons, for example, that <IR> adds economic value. Late adopters tend to adopt for social reasons, such as legitimacy, or coercive isomorphism (Tolbert & Zucker, 1983). Likewise, it would be of interest to see if rational and social reasons appear simultaneously, and why: Bhimani et al. (2016) find that already early adoptions of sustainability reporting are motivated by coercive isomorphism (for Total Quality Management, cf. Kennedy & Fiss, 2009). Future research could also investigate if organizations choose different report-types based on their motivation for adopting <IR> (cf. for sustainable MCS: Ditillo & Lisi, 2016; for upper echelons/narcissism and CSR: Petrenko et al., 2016). In this diffusion process, the issue of over-compliance may be of interest: some organizations might see no reason for adopting <IR> but to pre-empt an inadvertent government regulation (Arora & Gangopadhyay, 1995; Nikolaeva & Bicho, 2011). Organizations can legitimately decide against <IR>, and the diffusion will be incomplete. Then, adoption will carry an imbued meaning with which adopters try to differentiate themselves from non-adopters. The more recent *diffusion as classification* theory addresses such phenomena to better understand how the definition of a seemingly dichotomous adoption is suddenly *entrenched*, and what connotation it carries (Beck et al., 2017; de Villiers et al., 2014; Etzion, 2014). For instance, it would be interesting to see if obvious <IR>-adopters find

substantially different but equifinal ways to report (IIRC, 2011), as a closer look at the differences among our *integrated thinking reports* hints. Also, it might be that some well-reporting organizations will refuse to adopt an <IR>-label in order to demonstrate uncompromised dedication to the financial aspects of shareholder value (Etzion, 2014). From this theoretical perspective, *enhanced content reports* might already have reached the final desired state of <IR>, and are no longer in a transient, evolutionary stage toward becoming *integrated thinking reports* as proposed by the IIRC (2011, p. 20).

Second, researchers could test the <IR>-performance-relationship using this <IR>-coding catalog and longitudinal performance data. This could clarify whether this voluntary disclosure carries value for market participants (Lueg et al., 2019; Pelozo, 2009; Zhou et al., 2017), or whether organizations tend to adopt <IR> *because* they perform well (Lueg & Lueg, 2020; Lys et al., 2015; Muheki et al., 2014). Alternatively, there could be an omitted variable as well as contingencies that influence this relationship (Grewatsch & Kleindienst, 2015). Also, it is worthwhile investigating the effect of <IR> on environmental or social performance (Cho et al., 2012), or why <IR> appears mostly to be related to market-based performance data (returns, risk, and volatility), but not to accounting measures. So far, the literature review of Dumay et al. (2016) synthesizes that “no research robustly establishes the benefits of <IR>.”

Third, the role of external assurance of <IR>-reports could be further investigated, as this characteristic strongly discriminates *integrated thinking reports* from the rest. This could be done by using experiments (O'Dwyer et al., 2011; Reimsbach et al., 2017).

Fourth, discourse analysis could shed further light on different framings that organizations use for their reports. For instance, when do they present sustainability activities as a *win-win* scenario, and when as a *trade-off*? In this vein, the role of non-textual elements could be investigated using a multi-modality approach (Iedema, 2007).

Fifth, sustainability reporting is quickly diffusing, and we might be observing mimetic and coercive isomorphism in the next years: the more reports are being produced, the less they get read carefully. To counter this development, researchers should consider using artificial intelligence, such as basic computer-aided text analysis (CATA) that may soon advance to unsupervised learning algorithms even in standard software applications. CATA is consistent and not resource-intensive. It would allow analyzing larger data sets and could pre-sample the most relevant reports. Thereby, CATA might partly substitute or complement human-based content analysis (Short et al., 2010).

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## ENDNOTES

<sup>1</sup> When applying the <IR>-specific coding framework, we need to remember that most reports published are originally not meant to be in accordance with <IR>. Still, we evaluate all reports by <IR>-related metrics.



Thereby, we achieve an important goal to identify all reports that are in accordance with <IR> irrespective of the terminology the organization uses (i.e., identifying all correct positives while avoiding false negatives). In addition, we can identify the organizations that claim to be in accordance with <IR>, even though they are clearly not (avoiding false positives). For content analysis and coding of CSR in general, see Torelli et al. (2020).

<sup>2</sup> We choose the conservative nomenclature of integrated thinking reports instead of <IR>-reports/adapters. In this way, we can exclude self-proclaimed <IR>-adapters, and include reports that comply with the <IR>-framework without labeling themselves <IR>-adapters.

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## APPENDIX A.: CODING EXAMPLE: NOVO NORDISK ANNUAL REPORT 2014

This appendix documents how the annual/CSR reports and the websites have been coded in the catalog, using the example of Novo Nordisk (NN). NN has received the prize of “The Best Integrated Report” among Danish organizations. NN has a long history of the CSR reporting. According to their website, the first environmental report was published in 1994 (for the fiscal year 1993). NN was the first company in Denmark and one of the first worldwide to do so. From 1998, it began to publish a social report, which was merged

with the environmental one in 1999. In 2004, NN has integrated its annual report with its sustainability report. NN is the only organization in Denmark that officially mentions the <IR>-framework as a basis for their reporting. After all, we can conclude that Novo Nordisk is 100% compliant with our presented framework with respect to both content and form dimension requirements. Thus, the company is an active IR practitioner who successfully integrates Triple Bottom Line (financial, environmental, and social elements) into one integrated report. This result perhaps also relates to the fact that Novo Nordisk has participated in the Pilot Program of IIRC, and also currently follows the guidelines of the IIRC Framework.

**Organizational configuration: 0.5 points (Panel A, p. 4).** NN offers a holistic but concise description of the business model within its four focus areas.

**Value: creation 2 points: (Panel A).** NN presents three long-term social targets and environmental targets “to support long-term financial performance, balancing responsibility with profitability, with the aim of creating sustainable value for shareholders and other stakeholders”. NN emphasizes a multi-stakeholders approach and emphasizes CSR-related words.

**Assurance: 2 points (p. 111).** Independent assurance report on the social and environmental reporting by PricewaterhouseCoopers according to AA1000AS: “[...] free of material misstatements and has been stated in accordance with the social accounting policies and environmental accounting policies [...]”.

**Preparation and presentation: 2 points (p. 97).** NN follows UN Global Compact, AA1000 standards and IIRC Framework and refers to the chosen accounting policies, materiality aspect, and an overall structure of the statements.

### Panel C

## CONSOLIDATED FINANCIAL, SOCIAL AND ENVIRONMENTAL STATEMENTS 2014

### CONSOLIDATED FINANCIAL STATEMENTS

- 56 Income statement and Statement of comprehensive income
- 57 Balance sheet
- 58 Statement of cash flows
- 59 Statement of changes in equity
- 60 Notes to the Consolidated financial statements

### CONSOLIDATED SOCIAL STATEMENT (SUPPLEMENTARY INFORMATION)

- 96 Statement of social performance
- 97 Notes to the Consolidated social statement

### CONSOLIDATED ENVIRONMENTAL STATEMENT (SUPPLEMENTARY INFORMATION)

- 102 Statement of environmental performance
- 102 Notes to the Consolidated environmental statement

**Outlook and expectations: 0.5 points (p. 6).** The outlook section explains expectations for the next year compared to the previous year.

**Capitals: 0.5 points (Panel B).** NN discusses financial, social, and natural capital in an integrated manner (“Triple Bottom Line”).

**Connectivity: 2 points (Panel C).** Social/ environmental statements receive the same emphasis as financial statements. They refer to each other: “Since 2004, Novo Nordisk has reduced CO<sub>2</sub> emissions [...] by 45%, while in the same period the company has grown by 206% measured in sales.”

**Strategy: 0.5 points (Panel D).** The four recurring focus areas are stated, and a strategy is described for each.

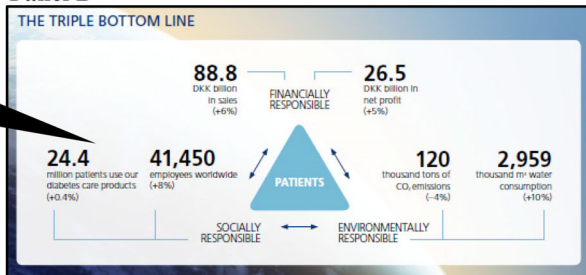
(<http://www.fsr.dk/Nyheder%20og%20presse/Pressemeddelelser/2015-pressemdelelser/CSR-prisen-2015>).

☒ FORM category  
☐ CONTENT category

### Panel A



### Panel B



### Panel D

