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A Comprehensive Measurement for Sustainability Reporting Quality: Principles-Based Approach

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Abstract: This study presents a comprehensive approach to measure sustainability reporting quality (SRQ) and examines levels of SRQ. It was then used to measure SRQ in Indonesia. Based on reporting guidelines, the new comprehensive measurement for SRQ was developed by not only evaluating the extent of disclosures, but also by examining the quality. The content analysis was conducted to measure the level of SRQ using this comprehensive measurement. The samples are from stand-alone sustainability reports of companies. The results indicate that the overall score for SRQ was moderate. The score was derived using five aspects: the extent of quantitative reporting, the extent of qualitative reporting, the content of the report, the quality of the report, and sustainability reporting accordance. This proposed comprehensive SRQ measurement was used to examine the quantitative and qualitative aspects. This measurement will help academicians to examine the quality of reports and provide more credible assessments that can be used by practitioners to analyze the content of the report. Applying the SRQ measure to Indonesian companies empirically enriches the existing literature and creates a new platform for future studies.

Keywords: Indonesia, sustainability reporting quality, sustainability report.

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INTRODUCTION

The trend of sustainability issues has highlighted the significance of sustainability reports (SRs) and has established corporate sustainability as an important topic in business literature (Malik, 2015). According to Elkington (1998) and GRI (2013), a SR provides comprehensive information focusing on economic, environmental, social, and governance performance based on the "triple bottom line" approach. The report can assist companies to reach their objectives, measure performances and manage changes (Perez & Sanchez, 2009). He and Loftus (2014) found that companies with better sustainability performance disclose higher levels

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of sustainability information and provide more objective and verifiable sustainability disclosures compared to those that do not.

Global reporting initiatives' (GRI) guidelines (currently named GRI standard) are a widely used framework for voluntary sustainability reporting (Chen & Bouvain, 2009; Waddock & Googins, 2011). According to the Governance and Accountability Institute Inc. (2012), 53% of the 500 largest companies listed on the US stock exchange follow the S&P 500 (SPX) stock index-published SRs, whereas 63% follow the GRI indicators. Also, a report published by KPMG (2017) indicated that nearly 98% of the 250 largest companies around the world publish this type of report. The use of GRI guidelines is continually growing (Roca & Searcy, 2012). This growing trend needs to be addressed and followed by good practices, not only the number of reports, but also the quality.

The GRI G4 guideline is the GRI's fourth generation of sustainability reporting guidelines. It is designed to be universally applicable to small-to-large organizations and in any industrial sector, across the world. Because GRI G4 are complemented with material and services features. Similar to previous GRI guidelines, the G4 not only includes widely accepted references and issue-specific reporting documents, but also is designed as a consolidated framework for reporting performances against different sustainability codes and norms (GRI, 2013). Following the development of GRI G4 in 2016, GRI published the GRI Standard as a new platform for further sustainability reporting. This study refers to GRI version 4 (GRI G4) in which all the reporting principles are the same with GRI Standard.

Moneva *et al*. (2006), Milne and Gray (2007), Diouf and Boiral (2017) raised the issues of the quality and reliability of SRs, which have been largely questioned. The disclosure of information for corporate sustainability performance, despite the efforts for standardization, remains problematic due to observed inconsistencies that limit the quality and credibility of information (Diouf & Boiral, 2017; Hahn & Kühnen, 2013). The need for measurement to examine the quality of SRs has also been driven by several new regulations released by some countries, such as Singapore and Indonesia.

Prior studies have been very limited in measuring corporate SRs based on only quantitative approach-disclosure performances (Gunawan, 2015). Having identified the research gap, the main objective of this study is to propose a new comprehensive measurement for sustainability reporting quality (SRQ). This study should be considered as the first comprehensive study focusing on the assessment of SRQ, and includes 1) the extent of sustainability reporting disclosures (SRD), 2) the sustainability reporting principles (SRP) and 3) the sustainability reporting accordance (SRA).

The SRQ measurement as proposed in this study offers a new comprehensive measurement using many different scoring approaches for assessing SRQ level that consists of the extent of reporting (SRD), the principles of reporting (SRP), and the accordance of reporting (SRA). The extent of reporting is assessed through a content analysis process. It aims to see how the SR is prepared in accordance with GRI G4 guidelines, specifically to understand how the reports disclosed information as stated in the disclosure standard of SR according to GRI G4 guidelines.

The reporting principles are fundamental to achieve transparency in the sustainability reporting, which is divided into two groups: principles for defining report content (SRPC) and principles for defining report quality (SRPQ). The principles for defining report content identify the report content by considering the organization's activities, impact, and the substantive expectations and interests of its stakeholders. These principles consist of several aspects, as the following:

a. Stakeholder Inclusiveness
   The organization should identify its stakeholders, and explain how the organization has responded to the stakeholders' reasonable expectations and interests.

b. Sustainability Context
   The report should present the organization's performance in the wider context of sustainability.
c. Materiality
   Materiality establishes the conceptual bedrock of corporate reporting, yet no authoritative definition of it exists. The importance of different sustainability issues varies systematically across companies and industries (Khan *et al*., 2015).
d. Completeness
   The report should include coverage of material aspects and their boundaries, be sufficient to reflect significant economic, environmental, and social impacts, and enable stakeholders to assess the organization's performance in the reporting period.

The principles for defining report quality ensures the quality of information in the SRs, including its proper presentation (GRI, 2013). All of these principles are fundamental to achieve transparency and enable stakeholders to conduct sound and reasonable assessments of performance and take appropriate actions.

a. Balance
   The report should reflect positive and negative aspects of the organization's performance to enable a reasonable assessment and unbiased picture of overall performance.
b. Comparability
   The organization should select, compile, and report information consistently, so that the organization's performance can be analyzed over time and compared to other organizations.
c. Accuracy
   The reported information should be sufficiently accurate and detailed for stakeholders to assess the organization's performance.
d. Timeliness
   The usefulness of information is closely tied to whether the timing of its disclosure to stakeholders enables them to effectively integrate it into their decision-making processes.
e. Clarity
   The organization should make information available in a way that is understandable and accessible for stakeholders when using the report.
f. Reliability
   The organization should gather, record, compile, analyze, and disclose information and processes, used in the preparation of a report, in a way that they can be subject to examination, and establishes the quality and materiality of the information.

Previous studies from Gunawan and Abadi (2017) and Oeyono *et al*. (2011) measured SRD based on the disclosures list developed. Arguing that quality is more important, and developing new measurement based on principles is essential, this study proposes a comprehensive SRQ measurement to examine the SRD, SRP and SRA. Afterwards, this study applied this measurement to assess stand-alone SRs published by companies in Indonesia by using content analysis method, covering both quantitative and qualitative aspects.

Companies in Indonesia have been chosen as samples, as they are unique for many reasons. First, Indonesia is the largest ASEAN country, with the population of more than 252 million, and has the fourth largest population in the world, with purchasing power parity (GDP) of 932.26 billion US dollars in 2016. Indonesia also have many traditions and cultures. Further, there are a many multinational companies that

need to publish SRs, following their parent companies' lead. These multinational companies should adopt and create a strategy in accordance with local content, in particular to support sustainable development goals. Hence, Indonesia becomes an interesting country for investment and a country with a captive market for economic growth. The economic growth can be sustained-achieved by a growth in environmental and social aspects.

This paper provides some insight contributions from the existing literature on sustainability reporting. First, this paper proposes a new measurement based on content analysis to improve the quality and reliability of examining SRs and the analyses of the reports disclosures by studying stand-alone SRs in Indonesia. Second, this study also proposes new comprehensive approaches in assessing SRQ performance using sustainability reporting guideline principles. Third, this study contributes a new platform for future studies to examine not only quantity, but also more on quality aspects. The application of measuring SRQ for companies in Indonesia also provides empirical evidence for disclosed information to enrich the existing literature, particularly in the context of developing countries. These findings can also be used to conduct comparative studies in other countries to gain an understanding on the differences and similarities of disclosures, which may lead to further discussions on the aspects of countries that support sustainable development goals.

METHODS

To apply a proposed new measurement scoring for assessing the quality of SRs, samples were derived from stand-alone SRs of companies in Indonesia by taking all available SRs from the data sources during 2018. There were 69 stand-alone SRs collected in this study.

A content analysis was conducted by applying scores, using the proposed measurement, for the SRs. According to Krippendorff (1980) and Neuman (2014), the essence of content analysis is a technique for gathering and analyzing the content of text. The content analysis method has been widely used to analyze the extent of disclosures (Raar, 2002; Tilt, 2001).

Comprehensive SRQ Measurement Development

This study developed the SRQ measurement by examining the SRD, SRP and SRA using a content analysis method. A set of guidelines governing the content analysis procedure was established to achieve reliable and systematic coding, to ensure the process was applicable, and yielded uniform results from repeated procedures.

This study proposes a new measurement to develop scores based on the prior scoring method proposed by Gunawan and Abadi (2017) and adding some additional explanations. Further, this study also provides a new approach by proposing the calculation of a total score that is divided by the number of indicators disclosed (not by the total number of all indicators). This calculation provides more reasonable results after an extensive pilot study conducted prior to this proposed scoring method. This study does not cover all GRI required indicators according to the material principle, allowing each company to select their own materials aspects based on their business risks. Consequently, assessing the quality of SRs based on items disclosed cannot be conducted anymore, particularly when the companies are different, but rather, the analysis should focus on six principles for defining quality of sustainability reporting: balance, clarity, accuracy, timeliness, comparability, and reliability, as well as the four principles for defining report content: materiality, stakeholder inclusiveness, sustainability context, and completeness.

A. The Extent of SRQ

The content analysis was applied to examine disclosed information for each GRI indicator disclosed in the SRs. This study used the scoring index from the content analysis as described in Table 1 (Gunawan & Abadi, 2017). The quantitative and qualitative approaches were applied to differentiate the scores by type of disclosed information, not the quality of standard or guideline disclosures items.

Table 1 Quantitative and Qualitative Scoring Index

Quantitative	Qualitative
0 = no information is disclosed in accordance with the indicators	1 = only qualitative
1 = sentence	2 = qualitative and monetary
2 = paragraph	3 = qualitative and non-monetary
3 = 2–3 paragraph	4 = qualitative and diagram (table/chart)
4 = 4–5 paragraph	5 = qualitative, monetary, and non-monetary
5 = <5 paragraph	6 = qualitative, monetary, and diagram (table/chart)
	7 = qualitative, non-monetary, and diagram (table/chart)
	8 = qualitative, monetary, non-monetary, and diagram (table/chart)

B. Sustainability Reporting Principles

According to Global Reporting Initiative (2018), the principles for sustainability reporting include 1) defining report content (SRPC) and 2) defining report quality (SRPQ). Both principles are explained as follows:

Defining Report Content (SRPC)

To assess the defining report content, this study refers to GRI G4 guideline (GRI, 2013). The measurement methods to assess the aspects of these principles are explained as follows:

a. Stakeholder Inclusiveness

As explained by GRI, the disclosures for stakeholders inclusiveness includes: 1) the organization description of stakeholders it considers accountable (as stated in G4 – 24 section); 2) the stakeholder engagement processes (as stated in G4 – 26 section); 3) any stakeholder engagement processes undertaken specifically for the report (as stated in G4 – 27 section); 4) the stakeholders processes being consistent with the scope and aspect boundaries (as stated in G4 – 20–21 sections). Therefore, to examine the quality of stakeholder inclusiveness information (G4 – 20,21,24,26,27), a proposed new measurement for awarding scores was described as follows:

1 = there is one description about the five elements
2 = there are two descriptions about the five elements
3 = there are three descriptions about the five elements
4 = there are four descriptions about the five elements
5 = there are five descriptions about the five elements

b. Sustainability Context

A SR should present the organization's performance in the wider context of sustainability. Referring to this principle, this study identified the disclosure in the SRs by undertaking the following approach. First, the key word "sustainability" was identified to find the disclosures related to this principle. To measure the sustainability context, it was important to identify the number of indicators that contained the word "sustainability." Then, the number of indicators identified was divided by the total indicators disclosed. Finally, the proposed scoring was described as follows:

1 = no description related to sustainability
2 = number of indicators mentioning "sustainability" word is up to 25% of total indicators
3 = number of indicators mentioning "sustainability" word is more than 25% and up to 50% of total indicators
4 = number of indicators mentioning "sustainability" word is more than 50% and up to 75% of total indicators
5 = number of indicators mentioning "sustainability" word is more than 75% of total indicators

c. Materiality

The Materiality principle explains the information the SR should cover, including: 1) the organization's significant economic, environmental, and social impacts; or 2) the substantively influencing assessments and decisions by stakeholders. Accordingly, this study employed the content analysis scoring technique in Gunawan and Abadi (2017) by identifying the disclosures in SR for each indicator related to the materiality principle. To identify the indicators to be treated as material aspects, this study referred to GRI G4 general and sector-specific disclosures. Two steps were applied to measure this principle. First, scores from the content analysis for each indicator considered material which was calculated; then, the scores were divided by the number of material indicators that should be disclosed according to GRI G4 disclosure requirements.

d. Completeness

The Completeness principle states that a SR should include coverage of the material aspects and their boundaries. The report is required to sufficiently reflect significant economic, environmental, and social impacts, as well as enable stakeholders to assess the organization's performance within the reporting period. Completeness primarily encompasses the dimensions of scope, boundary, and time.

To examine the application of these principles, a SR should fulfill the requirements of: 1) take into account impacts within and outside the organization, and cover and prioritize all material information on the basis of the principles of materiality, sustainability context, and stakeholder inclusiveness (as stated in G4 – 17–23 indicators); 2) include all significant impacts in the reporting period, and reasonable estimations of significant future impacts (as stated in G4 – 1 and G4 – 2 indicators); 3) not omit relevant information that influences or informs stakeholder assessments or decisions or reflects significant economic, environmental, and social impacts (G4-SO1 and G4-SO2). Based on this understanding, this study proposed a new measurement scoring for content analysis, as follows:

1 = one or two indicators are described
2 = three or four indicators are described
3 = five or six indicators are described
4 = seven or eight indicators are described
5 = more than eight indicators are described

Defining Report Quality (SRPQ)

To measure variables in defining report quality, this study focused only on material indicators that referred to the materiality principle. Each material indicator was examined to determine the conformity to the principle of defining report quality. Beest and Boelens (2009) contributed to improve the quality measurement of financial reporting through the operationalization of fundamental characteristics (i.e. relevance and faithful representation) and the enhancement of qualitative characteristics (i.e. understandability, comparability, verifiability, and timeliness) as defined in the ED (IASB, 2008).

a. Balance

This study refers to an approach proposed by Beest and Boelens (2009) in measuring balance principle (see Table 2).

Table 2 Measurement Approach for Balance Principle

Principle	Description	Operationalization	Source
Balance	To what extent does the company, in the discussion of the SR, highlight the positive events as well as the negative events?	1 = emphasis on positive events; 2 = negative events only mentioned; 3 = emphasis on positive events, but negative events are mentioned, no negative events occurred; 4 = balanced positive/negative events; 5 = impact of positive/negative events also explained	Beest and Boelens (2009), Cohen et al. (2004), Dechow et al. (1996), McMullen (1996), Rezaee et al. (2003), Sloan (2001)

b. Comparability

According to Tasios and Bekiaris (2012), comparability can be defined as the quality of information that enables users to identify similarities and differences between two sets of economic phenomena. Comparability not only refers to the consistency of the use of certain procedures by a single company, but also refers to comparability between different companies. Since the comparison between companies could not be conducted by referring to the understanding of material aspects that stresses on materiality principle, this study analyzed comparability by only taking "comparability over time" as the basis of analyses. Table 3 provides the scoring approach of Chatterji *et al*. (2009) complimented by scoring proposed by Beest and Boelens (2009).

Table 3 Measurement Approach for Comparability Principle

Principle	Description	Operationalization	Source
Comparability	To what extent does the company provide a comparison of the results between current period and previous periods?	1 = no comparison; 2 = only with previous year; 3 = with 2 previous years; 4 = 2 previous years + description of implications; 5 = > 2 previous years + description of implications	Beest and Boelens (2009), Beuselinck and Manigart (2007), Chatterji et al. (2009), Cole et al. (2007), Jonas and Blanchet (2000)

c. Accuracy

The reported information should be sufficiently accurate and detailed for the stakeholders to assess the organization's performance. The characteristics that determine accuracy are various, depending on the nature of the information and users. This study employs some scoring approaches from Beest and Boelens (2009), which are described in Table 4.

Table 4 Measurement Approach for Accuracy Principle

Principle	Description	Operationalization	Source
Accuracy	To what extent are valid and complete explanations (or data) provided to support information disclosure in the SR?	1 = only described qualitative information; 2 = general explanation; 3 = specific explanation; formula explained, etc; 4 = comprehensive argumentation; 5 = comprehensive argumentation with supporting data	Beest and Boelens (2009), Hirst et al. (2004), Jonas and Blanchet (2000), McDaniel et al. (2002)

d. Timeliness

According to Tasios and Bekiaris (2012), timeliness can be explained as information, which is available to decision makers before it loses its capacity to influence decisions. In other words, timeliness refers to the time taken to reveal the information and is related to decision usefulness in general (IASB, 2008). When examining the quality of information in annual reports, timeliness is measured using the natural logarithm of amount of days between the year-end and the signature on the auditors' report following the year-end. However, in SRs, there are three principles associated with timeliness.

The three timeliness principles include: 1) information while it is recent relative to the reporting period; 2) the collection and publication of key performance information which is aligned with the sustainability reporting schedule; 3) information which clearly indicates the time period to which it relates, when it will be updated, and when the last updates were made. To measure the principle of timeliness, this study combined G4 – 29 indicators in the "timeliness principle" with the required reporting submission of SR to the Financial Services Authority in Indonesia, which is in April. Consequently, it is expected that SRs should also be published at the same period, or not long after April the following year. Based on this argument, the measurement for the timeliness principle can be explained as follows:

1 = If the SR is published after July
2 = If the SR is published in July
3 = If the SR is published in June
4 = If the SR is published in May
5 = If the SR is published in April

e. Clarity

Clarity refers to understandability. The level of understandability increases when the information is classified, characterized, and presented clearly and concisely. Understandability is defined as the quality of information which enables users to comprehend its meaning (IASB, 2008). Understandability is measured with five items which emphasize on transparency and clearness of the information presented in annual

reports (Courtis, 1995; Jonas & Blanchet, 2000; IASB, 2008; Iu & Clowes, 2004). This understanding applies to all reports that need clarity to understand the content.

To measure the quality of the "clarity" principle, several steps were undertaken. First, classifying and characterizing information as to how well organized the information is presented in the annual report. If the annual report is well organized, it is easy to search for specific information (Jonas & Blanchet, 2000). Accordingly, narrative explanations help to improve the understandability of information (IASB, 2008; Iu & Clowes, 2004). In addition, the presence of tabular or graphic formats can improve understandability by clarifying relationships and ensuring conciseness (IASB, 2008; Jonas & Blanchet, 2000). Further, if the annual report is prepared by combining words and sentences that are easy to understand, the reader is more likely to understand the content as well (Courtis, 1995). Meanwhile, if technical jargon is unavoidable, for instance industry-related terms, an explanation in a glossary may improve the understandability of information.

Understandability is the quality which enables users to comprehend its meaning. Information that cannot be understood by users is useless, even if the information is relevant to users (Tasios & Bekiaris, 2012) and therefore, the level of understandability can be further enhanced by the use of graphs, diagrams, and tables (IASB, 2008).

Clarity in this study was measured using two categories according to Beest and Boelens (2009) (Table 5).

Table 5 Measurement Approach for Clarity Principle

Principles	Description	Operationalization	Source
Clarity1	To what extent does the presence of graphs and tables clarify the presented information?	1 = no graphs; 2 = 1–2 graphs; 3 = 3–5 graphs; 4 = 6–10 graphs; 5 = > 10 graphs	(e.g. Beest & Boelens, 2009; IASB, 2008; Jonas & Blanchet, 2000)
Clarity2	What is the size of the glossary?	1 = no glossary; 2 = less than 1 page; 3 = approximately one page; 4 = 1–2 pages; 5 = > 2 pages	(e.g. Beest & Boelens, 2009; Jonas & Blanchet, 2000)

f. Reliability

This study employed a fifth indicator proposed by Beest and Boelens (2009) that introduced the use of corporate governance (CG) in measuring the reliability principle (see Table 6).

Table 6 Measurement Approach for Reliability Principle

Principle	Description	Operationalization	Source
Reliability	To what extent does the company provide information on CG?	1 = no description related to CG indicators; 2 = number of CG indicators disclosed less than 25% of the total CG indicators; 3 = number of CG indicators disclosed 25% to 50%; 4 = number of CG indicators disclosed 50% to 75%; 5 = number of CG indicators disclosed >75% of the total CG indicators. The total CG indicators was 63.	(e.g., Beest & Boelens, 2009; Jonas & Blanchet, 2000)

C. Sustainability Reporting Accordance

To assess the level of accordance to GRI G4 indicators, this study referred to GRI G4 guideline (GRI, 2013). The measurement methods to examine the aspects of the sustainability reporting in accordance to the indicators suggested by GRI were calculated by classifying the disclosures based on its alignment to each of the indicators guidelines. This study proposes a new approach to the measurement scale for content analysis by using a scoring approach as described below:

1 = The disclosed information aligns up to 25% with the guideline requirements (partially applied)
2 = The disclosed information aligns more than 25% up to 50% with the guideline requirements (partially applied)
3 = The disclosed information aligns more than 50% up to 75% with the guideline requirements (partially applied)
4 = The disclosed information aligns more than 75% up to less than 100% with the guideline requirements (partially applied)
5 = The disclosed information aligns 100% with the guideline requirements (fully applied)

RESULTS AND DISCUSSION

The SR contents from 69 companies in 2018 were scrutinized by using a set of measurement scores developed in this study. A careful content analysis process was applied to assess the extent of reporting quality disclosures: the principles of reporting (SRQ/SRP), were grouped by report content (SRPC) and report quality (SRPQ), and finally, the SRA was measured.

The Extent of SRD

The extent of reporting (SRD) analysis was divided into two approaches: quantitative and qualitative disclosures.

Similar to the finding in Gunawan (2010), the results of the quantitative approach showed a score of 2.50, which indicated that the companies did not present a detailed and sufficiently comprehensive report as the average information presented for each indicator was only two–three paragraphs. Positive in nature and little comprehensive information had been predicted as a common practice of disclosures (Deegan & Gordon, 1996; Gunawan, 2010; Tilt, 2001). The score for the qualitative analysis was 3.65, which demonstrated that most of the SRs contained qualitative and non-monetary information accompanied by related tables or charts to enhance the quality of the report. The summary for the content analysis result for these approaches is described in Table 7.

Table 7 Content Analysis Result on SRD

No.	Measurement	Score
1	Quantitative	2.50
2	Qualitative	3.65
Average		**3.08**

Overall, the average score for SRD was 3.08 out of 5. This number indicated that the extent of sustainability reporting by companies in Indonesia is moderate (about 60% of the total maximum score). The result also showed that the SRs contained qualitative information, non-monetary information, and diagrams (tables/charts).

Defining Report Quality Principles (SRP)

The Principles for Defining Report Content (SRPC)

The principles for defining report content guide any decisions to identify what content the report should cover by considering the organization's activities and impacts, as well as the substantive expectations and interests of its stakeholders. These principles were designed to be used in combination to define the report content. The summary of the content analysis result in examining stand-alone SRs in Indonesia is described in Table 8.

Table 8 Content Analysis Result on SRPC

No.	Principle	Score
1	Stakeholder Inclusiveness	4.42
2	Completeness	4.40
3	Sustainability Context	2.21
4	Materiality	2.13
Average		**3.29**

The average score for stakeholder inclusiveness was 4.42 showing that the reports have highlighted the stakeholder inclusiveness; and the average score for completeness aspect was 4.40 indicating that most of the reports have comprehensively disclosed the majority of the GRI indicators required aspects. Meanwhile, the average score for sustainability context was 2.21, which pinpoints that most of the reports did not comprehensively disclose sustainability understanding.

There were few companies that clearly linked their sustainability activities with the economical and social values in their long-term decision-making and performance. When these companies disclosed the sustainability information, the disclosures were considered as fulfilling the sustainability context criteria.

At the same time, the average score for the materiality aspect was 2.13, indicating that the disclosures in the SRs did not fully cover materiality issues. This lack of information for the materiality aspects indicates that companies in Indonesia do not really understand the context of material information in accordance to their specific type of industries and stakeholders' needs. The low results for material information also show that companies in Indonesia that publish SRs are not aware of the essence of material aspects in accordance with the companies' risks and strategies. Therefore, the area of understanding material aspects needs to be improved in order to provide relevant information in the reports, and not just "nice" when publishing reports.

The overall score from examining SRPC was 3.29, in the "moderate to high" level (3.29 out of 5). This result explains that in the context of "principles of content", the SRs have disclosed the major components. However, the disclosures for materiality aspects needs improvement to better provide relevant information regarding the sustainability challenges and achievements for companies, in terms of sustainability strategies and support of sustainable development goals (SDGs).

The Principles for Defining Report Quality (SRPQ)

The principles for defining report quality provide principles for ensuring the quality of information in the SR, including its presentation. The scoring after conducting a content analysis process is presented in Table 9.

The highest score for SRPQ was the "timeliness' principle with 3.23 out of 5, indicating that the majority of

Table 9 Content Analysis Result on SRPQ

No.	Principle	Score
1	Timeliness	3.23
2	Reliability	3.04
3	Accuracy	2.34
4	Balance	1.94
5	Clarity	1.68
6	Comparability	1.56
Average		2.30

SRs in Indonesia were published before July in the following year. However, it is still expected that the SRs could be published at the same time or not far after the April period, when the annual reports have to be submitted to the Financial Services Authority. Delay in publishing SRs can reduce the usefulness of the SR quality. As identified, when companies hold their annual general meeting each year, they need to discuss the companies' performance, not only economical, but also environmental and social. Providing reports in these three performance areas will enhance the stakeholders' comprehensive and integrated perspective so they can formulate relevant decisions and strategies, and at the same time understand the environmental and social importance in contributing to economic performance.

The assessment of the companies' SRs for the "reliability" principle resulted in a moderate level (average score of 3.04 out of 5). Most companies struggle to provide reliability information due to the difficulty of obtaining data across departments and business functions. This reason may also contribute to the low scores for "accuracy" (2.34 out of 5) and "clarity" (1.68 out of 5) principles. It was also noticed that the graphs and tables presented in the reports consisted of 1–2 graphs, and the glossary size was approximately one page. Graphs and tables are considered as a way to provide clearer and more accurate information in SRs.

This study also found that the "balance" principle score was low (average score of 1.94 out of 5). This result shows that companies tend to report positive and negative issues in an unbalanced manner. Companies prefer to disclose positive news and seem to worry about the negative public reaction to any "bad news' reports, such as fines or penalties. Some examples of positive disclosures identified included: company's achievements in receiving awards and their contribution to societies.

The last principle of SRPQ assessment was "comparability" with a very low score (1.56 out of 5). The very low score can be influenced by the application of the completeness, reliability and clarity principles. For these three principles, companies experienced difficulties in gathering data for at least 3 years due to poor documentation and data recording systems. As a result, comparison of significant data against previous years could contain misleading or incorrect information. Hence, it is essential that comparability be improved in order to also provide evidence for reliability.

The average score of SRPQ was 2.3 out of 5, indicating that the level of SRPQ for SRs analyzed in this study was low (lower than 2.5 as the median score). This result shows empirical evidence that the quality of SRs needs to be improved, with this idea being the main motivation in conducting this study.

Sustainability Reporting Accordance

The SRA score shows the alignment of the report disclosures in accordance to GRI G4 guideline. A summary of the content analysis results for SRA is presented in Table 10.

Table 10 Content Analysis Result on SRA

No.	Level of accordance to indicators	Companies disclosed the information	%
1	0%	1	1.45%
2	>0–25% (partially applied)	3	4.35%
3	>25–50% (partially applied)	16	23.1%
4	>50–75% (partially applied)	31	44.93%
5	>75% to <100% (partially applied)	18	26.09%
6	100% (fully applied)	0	0%
Total		**69**	**100%**

The result of this study showed there were no SRs analyzed that applied the GRI G4 guideline thoroughly and completely. The average score of SRA was 2.98 out of 5. This number indicates that the level of "in accordance" with the SRs guideline, in this regards to GRI G4, was "moderate." However, the majority of reports disclosed more than 50–75% in relevance to the guideline (44.93%). Hence, even though the overall scores were "moderate," almost half of the reporter companies disclosed quite comprehensive information in accordance to the guideline. These results show that companies in Indonesia are much more determined in disclosing information in accordance to the indicators guideline, rather than understanding or disclosing the principles of SRs. This situation shows that "tick mark" basis practices are more relevant compared to the "principle" basis approach. As a result, the number of information disclosures tends to be many, regardless of the quality of information.

Comprehensive SRQ Measurement

The summary of the content analysis result for assessing quality of SRs is described in Table 11.

Table 11 Overall Results for SRQ Based on Principles

No.	Variables	Average Score
1	SRD: Quantitative	2.50
2	SRD: Qualitative	3.65
3	SRPC	3.29
4	SRPQ	2.30
5	SRA	2.98
	SRQ	**2.93**

Overall, the score for SRQ was 2.93 out of 5, showing that the level of quality of the SRs analyzed in this study, was "moderate to high." When comparing the results to previous studies, which found that the extent of sustainability reporting for companies in Indonesia was still low (Gunawan, 2010), this study found that new improvements related to the extent of sustainability disclosures, both quantitative and qualitative (for 2018 year observation) was moderate to high. The highest score for SRD was for the qualitative measurement, showing

that disclosures by sentences, graph, and pictures were higher than other types of disclosures, while disclosures based on principle in content were much higher compared to disclosures based on principle in quality. As shown in Table 9, "comparability," "clarity" and "balance" were the lowest disclosed information in SRs by companies in Indonesia. On the other hand, "timeliness' was the most disclosed information, indicating that majority of the SRs were published no later than July in the next year following the reporting period.

However, in contrast, it is likely that the reporting companies were not fully aware of the quality of principles, especially as the principles were not stated in the required indicators. Despite the challenges in collecting reliable data to enhance the comparability, completeness, and clarity, this study provides strong evidence that the reporting companies in Indonesia tended to comply with indicators suggested by the Guideline or Standard, but not the quality principles. Hence, when publishing SRs became mandatory, there was a high level of disclosure compliance with regulations, regardless of an understanding on the quality of the reports, which should be the foundation for SRs. Consequently, the reporting and "ready to report" companies are now expected to improve their reporting processes and to provide better report quality by considering the materiality aspects based on risk of each organization's activities and key impacts to their stakeholders, as well as the substantive expectations and interests of its stakeholders comprehensively.

CONCLUSIONS

Overall, the score for SRQ was moderate to high (2.93 out of 5). Over 90% of the companies referred to the guideline provided by the GRI G4 version, while fewer than 10% were still referring to GRI G3 guideline. When comparing the results to previous studies, which found that the extent of sustainability reporting for companies in Indonesia was still low (Gunawan, 2010), this study found that new improvements related to the extent of sustainability disclosures, both quantitative and qualitative (for 2018 year observation) was moderate to high. Therefore, it can be concluded that there has been an increasing trend of SRD in terms of the total numbers of companies reporting, and the items disclosed based on the indicators' guideline. This increasing trend was proved based on the numbers of SRs that increased year on year. However, there is still a challenge to improve the quality of reports based on principles and not only based on stated indicators.

The main important contribution of this study relates to the attributes of SRQ, and the proposed comprehensive measurement in content analysis using sustainability reporting guideline principles, not indicators. This more comprehensive measurement approach is important to provide a new platform for future studies to examine not only indicators, but also quality aspects, which refer to principles. The application of measuring SRQ for companies in Indonesia also provides empirical evidence to enrich the existing literature, particularly in the context of developing countries, which show improvements and also challenges. Having considered the growing number of stand-alone SRs in Indonesia, it is necessary to improve, not only the quantity of reporting companies, but also the quality of sustainability reporting.

The result of this study is expected to motivate professional accounting bodies in Indonesia, and other developing countries, to seriously consider the development of sustainability reporting guidelines based on country specifics. Since there is increased legislation around sustainability reporting, or countries where they are considering implementing legislation, the result of this study is also expected to play a significant role in improving SRQ in Indonesia.

Future studies are suggested to apply this proposed SRQ measurement in the context of other countries, or in a wider context. A comprehensive proposed measurement of content analysis, based on SR principles, can be a basis to conduct similar studies with different samples. Since the SR indicators change every period, and

comparing disclosures in different type of industries is no longer relevant, measuring the SR quality by applying principles is much more reasonable. Furthermore, describing sustainability quality in quantitative scores (for example only dummy variables 0 and 1) faces challenges since there is much duplication in disclosing information and reveals incomprehensive analysis.

Hence, measuring SRs should not only apply quantitative but also qualitative aspects, and not only refer to indicators disclosed, but also principles-based disclosures. In particular for Indonesia or other countries that have regulations mandating SRs, it is strongly suggested that the fundamentals of sustainability should be acknowledgeable and put into practice, as only providing information referring to indicators fails to build relevant sustainability strategies. One way, as a first step, is to immediately build a sustainability strategy by engaging with stakeholders and by identifying relevant material aspects.

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