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INTEGRATED REPORTING QUALITY ASSESSMENT

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**Abstract.** This research aims to investigate the integrated reporting (IR) quality on European firms and whether there is an improvement on (IR) quality from 2016 to 2017. Using 63 firms in the period of 2016 and 2017, the content analysis method then applied to evaluate the quality of 126 integrated reports. This results then used to investigate whether there is an improvement of the integrated reporting quality from 2016 to 2017. The research findings show that the European firms, on average, published a moderate quality of integrated report. There is also improvement in integrated reporting quality from 2016 to 2017, but partially only, especially for readability and clarity of document and content element area.

**Keywords:** Integrated reporting; quality; European firms

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**JEL Classifications:** L10, L20

## 1. Introduction

Recently, the traditional reporting model presented in the company's annual report and sustainability report seem fail to capture the economic effects on economic changes and business in a timely way (Healy and Palepu, 2001). Annual reports seems to be more complex, clustered, and less relevant to the stakeholders (Financial Reporting Council, 2011). Although companies also provide non-financial information, but they do not present it in a integrated manner to encourage the shareholder and other stakeholder's understanding of the companies (KPMG, 2011). To better improve the corporate reporting with the integration of financial and non-financial information, Integrated Reporting is developed by The International Integrated Reporting Council (IIRC) (IIRC, 2013). Our research is encouraged by the emersion of integrated reporting (IR) to respond the stakeholder's demand as it becomes a debated corporate reporting trend in the world.

Integrated reporting as a new corporate reporting trend in the world presents an organization's business model and value creation process, highlight the use and dependence types of resources, enable stakeholders to evaluate a firm's ability to create value over the short, medium, and long term more effectively, and assist users to assess firm long-term viability, therefore they can more effectively allocate scarce resources.

Integrated Reporting (IR) as an integrated thinking combines financial, social, governance, and environmental information into a single report (IIRC, 2013).

Some previous research on IR has mainly focused on the analysis of IR roles and objectives (Brown and Dillard, 2014; Lodhia, 2014, Dumay, et al., 2016; Vejera et al., 2018; Prodanova et al., 2020), the main issues of IR framework (Abeysekeraa, 2013; Higgins, et al., 2014), the relationship between integrated reporting and sustainability disclosure (Adams, et al., 2016; Maas, et al., 2016; Garcia, et al., 2015), and the determinants of IR adoption (van Bommel, 2014; Jensen and Berg, 2012; Zabihollah, 2016).

Conversely, the research on IR quality assessment is quite scarce (Mark and Haji, 2014; Lozano and Valencia, 2016). Some research recently have showed that (IR)are still diffused scarcely among firms and when the firms adopt (IR)framework, it is not fully applied (de Villers et al., 2014; GRI, 2013a). A study conducted by International Integrated Reporting Council (2014) showed that companies have a great interest in (IR)adoption. However, they faced difficulties and reluctant to fully adopt (IR)framework. The reasons are there is too much confidential information about the companies. It needs large amount of resources and there are some technical problems in gathering the data. Consequently, there is a big issue related with (IR)framework's application and its quality that attract both academics (Pistoni, Songini, and Bavagnoli, 2018; Eccles and Krzus, 2014; Eccles and Serafeim, 2015) and practitioner's interests (Ernst & Young, 2014; KPMG, 2012; PwC, 2014).

Accordingly, this paper aims to examine the integrated report quality on European firms as the biggest voluntary (IR)adopter in the world. It is then followed by the investigation whether there is an improvement or not of the integrated reporting quality from 2016 to 2017. This is a quite scarce topic in the literature especially focus on (IR)quality. In term of quality assessment, some previous studies focus more on the Corporate Social Responsibility (CSR) report or sustainability report (Pistoni, Songini, and Bavagnoli, 2018). Hence, we have referred to the previous studies conducted by Hammond and Miles (2014), Pistoni, Songini, and Bavagnoli (2018), and Integrated Reporting Framework established by International Integrated Reporting Council (IIRC) (2013) to develop a new scoring framework and it is considered more extensive.

We have analyzed 126 integrated reports from 63 European firms in 2016 and 2017 derived from IIRC official database. To the best of author's knowledge, this is the first study examining the integrated reporting quality specifically on European firms. The first results show that European firms published a moderate quality of integrated reports. Then, the second results found that there is a partially significant increase of integrated reporting quality on European firms on 2016 to 2017, especially on the readability and clarity of document and content element areas.

This paper has several contributions. First, it enriches the literature aspects related with the (IR)quality. The researchers develops a more extensive measurement to assess the integrated reporting quality and particularly focus on European firms. Second, the research findings give a practical insight to the firms, IIRC, governments, and policy makers. It will help the firm to establish a better integrated report.

The remainder of this paper is organized as follows. Section 2 provides the literature on integrated reporting and its quality assessment. It is then followed by section 3 presenting the research framework and methodology. The fourth section discusses the findings. Finally, the last section summarizes the results and gives final remarks.

## 2. Literature Review

The International Integrated Reporting Council (2013) defines Integrated Reporting (hereafter abbreviated as <IR>) as “ a process founded on integrated thinking that results in a periodic integrated report by an organization about the value creation overtime and related communications regarding aspects of value creation.” Integrated report provides a concise information about how the organization's goernance, strategy, and performance lead to the value creation over the short, medium, and long term. The (IR)concepts attract the word leading companies to join the IIRC pilot programme, for instance Unilever, Microsoft, Hyundai, etc. B20 (business forum advising the G20 governments) said that (IR)will encourage corporate reporting more conducive for shareholders, particularly on long term investment (Pistoni, Songini, and Bavagnoli, 2018).

In order to ensure the integrated report quality and to achieve transparency and comparability of the published integrated reports amongst different companies, seven Guiding Principles are introduced in the IR Framework. It underlies the preparation and presentation of integrated report, inform the content and how it should be reported. This guiding principles comprise the strategic focus and future orientation, the connectivity of information, stakeholder relationship, materiality, conciseness, reliability and completeness, and consistency and comparability (IIRC, 2013). The integrated report also consists of eight content elements that link to each other. These content elements also depend on the individual circumstances of companies. They are organizational overview and external environment, governance, business model, risk and opportunities, strategy and resource allocation, performance, outlook, and basis of preparation and presentation (IIRC, 2013). Under the (IR)Framework, organisations used these Content Elements to explain their unique value-creation process by providing the link between these content elements. The business model, which is seen as “the core of the organisation” (IIRC, 2013a, p. 13), can be considered as the first and most significant element in assessing a company’s value-creation process. These content elements are then used in this paper to assess the integrated reporting quality.

There are two main theories taken into consideration and giving insight underlying the quality of disclosure. First, the proprietary cost theory states that companies limit their voluntary disclosure because of the existence of disclosure cost, for instance data measurement, communication and elaboration, and the diffusion of company’s strategic information that can give the advantages for competitors (Dye, 1986; Verrecchia, 1990; Wagenhover, 1990). Second, according to the agency theory, there are differences between shareholder need for information disclosure and managerial disclosure incentives. Managers are particularly risk-averse and reluctant to provide more disclosure because a high disclosure can escalate shareholder and stakeholder’s ability to discipline them (Nager, et al., 2003). According to Jensen and Meckling (1976), the demand for disclosure emerges from agency conflicts between managers and outsiders. Previous studies found that a voluntary disclosure is useful for companies (Welker, 1995), especially to provide a higher volume of relevant information to the outsiders. Hence, it can diminish the information asymmetries (Maria, et al., 2017).

Eccles and Krzus (2014) suggested that it is not the absolute number of firms establishing the integrated reporting, but the (IR)quality that matters. The integrated reporting quality implies the capacity of (IR)to provide the strategic element describing firm performance and value creation process (Garegnani, et al., 2015). The effectiveness of applying (IR)framework will determine the usefulness of these reports to investor. Some previous studies found that even though companies published integrated reports, they still implement the (IR)framework only partially (Pistoni, Songini, and Bavagnoli, 2018). This evidence calls the interest of practitioners and academics to change their perspective from the type and quantity integrated reports towards the quality.

Some researchers viewed that a quality relates particularly with the ability of corporate report to explain the strategic elements and to describe companies performance and it’s value creation. Garegnani et al., (2015) said that a report’s quality links to multiple characteristics and information that should be analyzed together. ‘Quality reporting is not about religiously complying with a framework, but about approaching strategic reporting with the right mindset. It’s about taking a longer-term, broader, more operational perspective that will challenge how companies think, operate, monitor and report performance in a connected way’ (PwC, 2014). Therefore, a quality assessment is not related to the quantity of information only, but it covers a broader explanation. Some researchers said that firm disclosure should be informative and significant, comparable, understandable, comprehensive, reliable, and available easily (Garegnani et al., 2015). Unerman (2000) suggested that it is necessary to consider its contents as a whole to assess the report’s quality. Other characteristics include disclosure’s themes, nature, range of issues and styles, scope, time period, coverage, and location (Asif et al., 2013; Hackston and Milne, 1996).

Some previous studies proposed a number of guidelines have to assess the quality of sustainability report. According to Hammond and Miles (2004) there are three main forms of assessment approaches : (1) formal monitoring procedures conducted by professional scoring and ranking exercises; (2) award schemes, to highlight and reward best practices of corporate reporting; and (3) academic quality assessment by checking the quality of corporate disclosure using content analysis. However, the previous studies did not reach a consensus on which

important items in assessing the voluntary disclosure's quality. It is because of the difficulties to clearly define the concept and items of disclosure. 'When a study covers voluntary disclosure, there is no predefined list of items, so it is necessary to define a list that will be applied to all of the companies surveyed' (Garegnani et al., 2015, p. 546). Therefore, the researchers usually used the list of items from previous literature and regulatory framework as well (Adhikari and Tondkar, 1992).

Ernst & Young (2012) launched the Excellence in Integrated Report Awards, to analyze the integrated reporting quality in South Africa and promote a better quality and best practice of IR adoption. The IIRC then in 2014 also published 'Assurance on IR: an exploration of issues' to call the interest particularly on quality aspects. The Financial Reporting Council (2014) also published 'Guidance on the Strategic Report', and focused on the quality of corporate reporting, especially its ability to provide the strategic elements to capture the firm performance and value creation. The main substantial issues found by the previous research regarding with the integrated reporting quality are there is no connectivity among the business model, strategy, performance, and outlook. This is due to the limited use of pictures and diagrams and a poor explanation. There are also information gaps in some areas such as stakeholder engagement, materiality process, the inadequacy of business model description, the completeness of information and limited verification from third party (Eccles and Serafeim, 2015).

Researchers have examined integrated reports especially for the information content. In the mandatory context in South Africa, Johannesburg Stock Exchange (JSE) requires their listed companies to publish integrated reports or provision of reasons for not doing so. Hindley and Buys (2012) investigated the integrated report quality of mining companies on the JSE and related them to the compliance on Global Reporting Initiative (GRI) guideline. They found that the companies compliance to GRI standard have been improved since the JSE requirement to produce integrated reports. Van Zyl (2013) also examined the integrated report quality of JSE companies particularly in sustainability aspect using the JSE Sustainability Index. The findings showed that the extent to which sustainability component is integrated into firm strategy was low during the first two years of introducing (IR) as mandatory requirement.

Setia et al. (2015) investigated non-financial disclosure of integrated report by JSE listed companies. The findings suggested that there is an increased disclosure of information on human, natural capital, social and relationship, and intellectual capital. The researchers also found a greater increase in the quantity of relational and social disclosures compared to the other types of non-financial capitals. On another hand, Haji and Anifowose (2017) also implemented a similar investigation, but they used a bigger sample derived from JSE listed companies and including a three-year period after the introduction of the (IR) as a mandatory adoption. The findings showed an increase in the human and intellectual capital disclosures, but a decrease in social and relationship capital.

In the voluntary context, Melloni (2015) conducted a study on integrated reports published by IIRC Pilot Program. She found that the integrated reports have a greater emphasis on relationship capital rather than structural and human capital, but there is limited quantitative and forward-looking information for these capital. Stent and Dowler (2015) also investigate the extent to which integrated reports provide information disclosure related to Capitals, Content Elements and Guiding Principles. The researcher used (IR) prototype framework to analyze the level of (IR) disclosure on the annual reports of four best reporting firms in the New Zealand. They used a checklist of 53 items covering the six Capitals, Content Elements and Guiding Principles. The findings concluded that a relatively small gap existed between integrated reporting and current reporting. The sample companies score is in the range of 70–87 per cent of the maximum checklist score.

A previous study conducted by Pistoni, Songini, and Bavagnili (2018) on 116 integrated report in 2013 and 2014 found that the quality of integrated reports is low. The researchers used Getting Started example from IIRC official website to gather the published integrated report. The low quality of integrated report is due to the companies paid more attention to the form instead of the content of the integrated reports (the average total score in 2014 for Form is 3.5 compared with 2.9 for Content). Form area consisted of (1) readability and clarity of the document implied in the presence of index, graphs, tables, glossary, references to various sections of the document, and hyperlink to external sources, firm website or other documents; (2) conciseness means the

number of pages; and (3) accessibility in term of hard-copy documents versus website accessibility. This low quality may be due to the the firm decision to more concentrate their efforts on the easier task, such as focus on form aspects and have give limited efforts to improve the content of integrated report, which requires substantial resources to adapt internal processes, cost, IT systems, etc. The relevant costs (both explicit and implicit) sustained by (IR)implementation was not adequately covered by its benefits. Hence, it is too costly to provide an extensive disclosure on integrated report (Core, 2001; Watts and Zimmerman, 1986).

### 3. Research Method

The integrated reporter data were collected from IIRC database for the period of 2016 and 2017, particularly for the European firms only, therefore there were 126 integrated report as the final sample. It is then codified using content analysis (Weber, 1990) by referring and improving the code from the previous studies (Pistoni, Songini, and Bavagnoli, 2018; Sriani and Camfferman, 2018) and International Integrated Reporting Framework 2013 established by the IIRC. We considered five areas to be analyzed: 1) Conciseness, 2) Accessibility, 3) Readability and clarity of document, 4) Reliability, and 5) Content element.

**Table 1.** Main feature of the sample 63 firms, 126 firm year observation in 2016 and 2017

Category	Industry	Total	Percentage
1	Manufacture	17	27%
2	Mining	7	11%
3	Utilities and Services	17	27%
4	Finance	10	16%
5	Other	12	19%
	TOTAL	63	100%

*Source:* Data Processing, 2019

Table 1 depicts the final sample used in this study. The biggest sample is derived from manufacturing, utilities, and services companies. It is then followed by other sectors and finance companies. Table 2 below describes the scoring area for content analysis purposes. Realibility aspect only used categorical score (1 and 0), however other scoring area applied continuous scale. Previous studies conducted by Pistoni, Songini, and Bavagnoli (2018), Hammond and Miles (2004) and Sriani and Camfferman (2018) used categorical score (0 and 1) and continuous scale (0,1, and 2), respectively. Despite of dummy variable, this more comprehensive continuous scale is used to grasp a more exhaustive analysis of the integrated reporting quality by capturing more variation among the (IR)reporter. The detailed description of each scoring area are available below, except for detailed content element is presented in Appendix 1.

**Table 2.** Scoring area

Item	Number of items	Type and range	Maximum Score
Conciseness	1	Scale (0-4)	4
Accessibility	1	Scale (0-5)	5
Readability & clarity of document	1	Scale (0-7)	7
Reliability	2	Categorical (0 and 1)	2
Content element	40	Scale (0-5)	200

*Source:* Data Processing, 2019

The steps below is to develop a scoring system to assess each area of integrated reporting quality. Quantitative scales is identified to measure comparative score and allow a further analysis (Milne and Adler, 1999). This study develops a new scoring systems that extensively applied in the previous research and validated in the areas of CSR and sustainability (Gray et al., 1996; Romolini et al., 2014), and accounting, particularly in financial report's disclosure (Botosan, 1997).

This study used 5 areas to be analyzed with:

- 1) Conciseness with the maximum score of 4 when the companies published integrated report less than 75 pages. Conciseness is considered as an important area because (IR) aims to deliver a concise but comprehensive report as presented in table 3.
- 2) Accessibility with the maximum score of 5, available in table 4.
- 3) Readability and clarity of document with 7 as a maximum score. This area is classified as low, medium, and high level of integration as explained in table 5.
- 4) Reliability area presented in table 5, used categorical scale ( 0 and 1) implies the absence or presence of the item. A score of 0 was given in the case of the absence of the item, while a score of 1 was given if the item was included in the IR document. The maximum score for this area is 2.
- 5) Content element used more comprehensive categorical scale compared to the previous studies. To each item was given a score between 0 (absence) and 5 (very high), according to the classification category presented in Table 7. There is 40 items of content element (available in Appendix A), hence the maximum score achievable is 200.

**Table 3.** Scoring system for conciseness

Score	Description
0	Not applicable
1	More than 225 pages
2	From 151-225 pages
3	From 76-150 pages
4	0-75 pages

*Source:* Data Processing, 2019

**Table 4.** Scoring system for accessibility

Score	Description
0	Not applicable
1	Only hard copy document
2	Report available on the firm website only as PDF
3	Report available on the firm website as PDF, word file, etc
4	Report is highly accessible, user can select their preference issues/ sections
5	Report is highly accessible, user can select their preference issues/ sections and create a personalized report

*Source:* Data Processing, 2019

**Table 5.** Scoring system for readability and clarity of document

Score	Description
1	Report quite not clear, absence of any element that can facilitate reading and comprehension of document such as table, graphs, picture, etc
2	A low level of integration, that is information is presented in silo, with no connections with other sections in the report. Description mainly qualitative, scarce use of graphs, tables, and pictures, absence of glossary/ index of the document
3	A low level of integration, that is information is presented in silo, with no connections with other sections in the report. Description mainly qualitative, Adequate presence of tables, graphs, and pictures, but with only few explanation
4	A moderate level of integration between suggested elements, for example, the strategy is linked to the performance, Graphs, tables, and pictures facilitate comprehension of document, extensive/ equilibrium explanation between narrative flow and graph/table
5	A moderate level of integration between suggested elements, for example, the strategy is linked to the performance, Graphs, tables, and pictures facilitate comprehension of document, extensive/ equilibrium explanation between narrative flow and graph/table, and any references to another section of document to avoid information redundancy

6	A high level of integration, for example Very good use of graphs, tables, and pictures, detailed index with references to another section of document and hyperlink to another document, firm website, etc
7	A high level of integration, a very good layout with index, graph, and tables clearly connected with narrative qualitative flow, detailed index with hyperlink and references to another section of document

Source: Data Processing, 2019

**Table 6.** Scoring system for reliability

Score	Description
1	Integrated report audited by external/independent auditor
1	Awarded integrated report

Source: Data Processing, 2019

**Table 7.** Scoring system for content element

Score	Description
0	Content element absent
1	Content element present, but poor description
2	Content element present, description mainly based on some quantitative information and not supported by of graph/table
3	Content element present, balanced description of graph/ table, quantitative and qualitative information
4	Content element present, good and detailed description of graph/ table, quantitative and qualitative information
5	Content element present, excellent and detailed description of graph/ table, quantitative and qualitative information, using any references/ hyperlink referred to IR guideline/ other section of document

Source: Data Processing, 2019

We applied a methodology to analyze the scores consisting of the steps below:

- i. Describing the whole sample of 126 integrated report for the period of 2016 and 2017 to grasp a general view of the of the IR quality in European firms, particularly to the five areas that we already identified above;
- ii. Comparing the relative total scores for each area by dividing total average score with the maximum score, to investigate which areas were best taken care and which areas were not looked by the (IR)reporter;

Observing the trend and comparing the average scores for the year 2016 and 2017, and examining the statistical significance of the means differences (McNemar, 1947).

#### 4. Result and Discussion

To analyze the quality of integrated report in five different aspects, this study presents firstly, findings for the overall sample of 126 integrated reports issued in 2016 and 2017 by 63 European firms. It is then followed by the investigation of the difference of integrated report between 2016 and 2017.

##### 4.1. Analysis of the whole sample

Table 8 depicts the analysis of the whole sample of 126 integrated reports. There is a high variability for the integrated report quality as described by a substantial difference score for each section. The content element shows the highest different score depicted by the highest standard deviation (29,54) with the minimum score of 24 and the maximum score of 158. This difference can be due to the discretion given for the preparer to choose the items/ elements to be presented in their integrated reports.

At a glance, readability and clarity of document received the highest attention from the preparer with the average score of 5.36 and the maximum score of 7. There is 67 reports out of 126 reports (53%) reach above the

average score. It means that those reports are a moderate level of integration, for example, the strategy is linked to the performance, graphs, tables, and pictures facilitate comprehension of the available information. Hence, it shows a moderate quality.

Then, the second highest attention is accessibility area with the average score of 2.63. However, only 42 reports (33%) achieved above the average score. This score implies that those reports are available on the firm website as PDF format, word file, etc. Hence, most of them (84 reports or 67%) are available on the firm website as PDF format only.

**Table 8.** Analysis of 5 aspects

Area	Range	Min	Max	Mean	Stand. Dev
Total conciseness score	0-4	0	4	2.21	1.03
Total accessibility score	0-5	2	4	2.63	0.92
Total readability and clarity of document	0-7	1	7	5.36	1.16
Total reliability score	0-2	0	2	1.06	0.43
Total content element score	0-200	24	158	89.56	29.54

Source: Data Processing, 2019

Among the four aspects, content element area get the lowest attention from the preparer with the average score of 89.56 and the maximum score of 200. It has the highest variability as well as captured by the highest deviation standard with the minimum score of 24 and the maximum score achieved is 158. There is only 60 reports out of 126 reports (48%) reached the above average score. It means that the rest of them still have a limited (IR) element disclosure.

As for the reliability aspect, this study found that a large majority of the sample have been audited externally (93%). There is no requirement from the IIRC that integrated report should be audited by the external auditor. However only a fifth of them, 16 out of 126 integrated reports, received awards for the integrated report quality (21%). It means that there is considerable room for improvements of the firm’s integrated report quality.

**Table 9.** Reliability aspect

Reliability	NO	%	YES	%	Total	%
External audit	9	7%	117	93%	126	100%
Awards	100	79%	16	21%	126	100%

Source: Data Processing, 2019

Also the content element area, the results suggest that in general, the content of integrated report still need to be improved. There is a high variability in each content elements and poor disclosure presented by the preparer. Table 9 shows that business model is the best-attended area obtaining an average score of 17.60 out of a maximum score of 35. It is then followed by governance with the average score of 12.43 out of a maximum score of 25. The fewest attention is given to performance aspect receiving an average score of 10.15 out of the maximum score of 25. There is 61 out of 126 reports (48%) reached above the average score. However, business model area still needs the improvement as we can see that there is a high variability of disclosure among the firms, depicted by a minimum score of 6 and the maximum score of 30. Approximately a half of the reports reached a score of 17.60 or more (46% or 58 out of 126 integrated reports). Then, for the governance area, only 57 out of 126 (45%) integrated reports reached a score of 12.43 or more.



**Table 10.** Content element area

Content Element	Range	Min	Max	Mean	Stand. Dev
Organizational overview and operating context	0-45	5	35	20.06	6.82
Governance	0-25	4	25	12.43	3.72
Business model	0-35	6	30	17.60	6.06
Risk and opportunities	0-20	1	16	9.22	3.31
Strategy and resource allocation	0-25	1	20	10.48	4.39
Performance	0-25	1	20	10.15	4.93
Outlook	0-15	2	14	6.25	2.77
Basis of preparation and presentation	0-10	0	9	3.36	2.29

Source: Data Processing, 2019

In light of these research findings, we conclude that the disclosure quality for the integrated report in European firm on average is a moderate quality as supported by the average score of 5.36 from readability and clarity of document. For instance, the strategy is linked to the performance, graphs, tables, and pictures facilitate comprehension of the available information in the integrated report. Among the four aspects, more than half of the sample also pointed out the highest attention to the readability and clarity of documents and accessibility aspects. However, the lowest attention is given to the content element area.

Accordingly, this study rejects hypotheses 1 stated that integrated reports published by European firms on average show a low quality. This research findings of moderate quality of integrated report is in line with the two theories already explained before. First, the proprietary cost theory states that firms limit their voluntary disclosure because of the existence of disclosure cost, for instance the measurement of data, communication and elaboration, and the diffusion of company's strategic information that can give the advantages for competitors (Dye, 1986; Verrecchia, 1990; Wagenhover, 1990). Second, according to agency theory, there is differences between shareholder need for information disclosure and managerial disclosure incentives. Firm managers particularly risk-averse, are reluctant to provide more disclosure because a high disclosure can escalate shareholder and stakeholder's ability to discipline them (Nager, et al., 2003).

We did not calculated a total score of all areas, because of the independence and heterogeneity of the five areas inspected and the difference of the measurement scales as well. These difference would encourage a bias and unclear interpretation. For example, the accessibility area with the maximum score of 5, would be underrepresented in a total score ranging from 0 to 200 made up from the total score of content element area.

#### **4.2. Trend analysis in 2016 and 2017**

This section provides the examination of the integrated report's trend from 2016 to 2017 separately for each area. Table 10 shows the results of paired sample t-test for integrated report in 2016 and 2017 in 5 areas: conciseness, accessibility, readability and clarity of document, reliability, and content element. The results of accessibility and reliability aspects are similar for 2016 and 2017 as depicted by the same score in those years (no change is statistically significant). Although there is an small increase of 0.02 of conciseness area, this study found a statistically not significant as a results from a-paired sample t-test, from 2016 (mean= 2.19) to 2017 (mean= 1.74),  $p$ -value = 0.85 (two-tailed).

An interesting result are found in the readability and clarity and content element area that show a statistically significant result. Readability and clarity's score increased from 2016 (mean= 2.65) to 2017 (mean= 5.29),  $p$ -value= 0.00 (two-tailed). It implies that on average, there is improvement of the published integrated report from a low level of integration or a low integrated report quality to moderate quality. A low level of integration in 2016 here means that there is no connection with other sections of information presented in the integrated report. They used mainly qualitative analysis and few graphs, table, and pictures with a limited explanation. Then, in 2017,

there is a significant improvement to be a moderate quality. This implies the firms improve the integration of suggested elements, for instance, the strategy is linked to the performance, Graphs, tables, and pictures facilitate comprehension of document. It is also supported with an extensive/ equilibrium explanation between narrative flow and graph/table, and any references to another section of document to avoid information redundancy.

In the content element area, there is also a statistically significant increase of 5.03 as described in table 11 below from 2016 (means= 86.79) to 2017 (means= 86.79) to 2017 ( means= 91.83), *p-value* = 0.00 (two-tailed). It implies that there is improvements for integrated report quality particularly in the content element area. This result is then described more briefly in table 12.

**Table 11.** Trend analysis of each scoring area

Area	2016	2017	2016-2017	
	<i>Average</i>	<i>Average</i>	<i>Average</i>	<i>p-value</i>
Conciseness	2.19	2.21	0.02	0.85
Accessibility	2.65	2.65	0.00	1.00
Readability and clarity	2.65	5.29	2.64***	0.00
Reliability	1.06	1.06	0.00	1.00
Content element	86.79	91.82	5.03***	0.00
p-value of paired sample t-test, two-tailed \ ‘*’, ‘***’, ‘****’ denote significance at .05, .01, and .001 level				

Source: Data Processing, 2019

Table 12. provides the empirical findings of each content element analysis. All in all, 5 out of 8 parts of content elements are statistically significant. They are organizational overview and operating context (an increase of 0.69, *p-value*= 0.05), governance (an increase of 0.71, *p-value* = 0.00), business model (an increase of 0.85, *p-value*= 0.00), risk and opportunities (an increase of 0.97, *p-value*= 0.00), and performance area (an increase of 0.67, *p-value* = 0.01). However, the results are not significant for some areas, for instance, strategy and resource allocation, outlook, and basis of preparation and presentation.

**Table 12.** Trend analysis of content element area

Content Element	2016	2017	2016-2017	
	<i>Average</i>	<i>Average</i>	<i>Average</i>	<i>p-value</i>
Organizational overview & operating context	19.65	20.34	0.69**	0.05
Governance	12.11	12.82	0.71***	0.00
Business model	17.15	18.00	0.85***	0.00
Risk and opportunities	8.77	9.74	0.97***	0.00
Strategy and resource allocation	10.16	10.68	0.52	0.08
Performance	9.73	10.40	0.67***	0.01
Outlook	6.00	6.40	0.40	0.04
Basis preparation & presentation	3.23	3.42	0.19	0.12
p-value of paired sample t-test, two-tailed \ ‘*’, ‘***’, ‘****’ denote significance at .05, .01, and .001 level				

Source: Data Processing, 2019

At a glance, we observed that the highest increase of content element is business model disclosure. This finding suggested that the European firms pay more attention to improve their value creation disclosure then describe them in the business model as a core element of the integrated report. They also presented their business input, process, output, and outcome more clearly and comprehensively in 2017 compared to 2016. Although the efforts to improve the content of integrated report requires substantial resources, for instance, to adapt internal processes, cost, IT systems, etc, this significant increase means that the firms perceived that the relevant costs (both explicit and implicit) sustained by (IR)implementation was adequately covered by its benefits.

According to these research findings for this 5 areas, hence we conclude that there is an partial increase of integrated reporting quality of European firms from 2016 to 2017. This increased is occurred in 2 aspects, namely readability and clarity of documents and content element area as a whole. Therefore, the hypotheses 2 states that the integrated reporting quality of European firms improves from 2016 to 2017 is partially accepted. This finding is inline with the agency theory stating that the demand for disclosure emerges from agency conflict between managers and outsiders. Voluntary disclosure is useful for companies (Welker, 1995), especially to provide the higher volume of relevant information to the outsiders, hence it can diminish the information asymmetries (Maria, et al., 2017).

We did not calculated a total score of the single areas, because of the independence and heterogeneity of the five areas inspected and the difference of the measurement scales as well. These difference would encourage a distorted and unclear interpretation. For instance, the conciseness area with the maximum score of 4, would be underrepresented in a total score ranging from 0 to 200 made up from the total score of content element area.

## 5. Conclusions

The aims of this research is to assess the integrated report quality on European firms. The international (IR) framework and previous studies are used to improve a scoring scheme using content analysis. This research used 5 scoring area for quality assessment, namely conciseness, readability and clarity of document, accessibility, reliability, and content element area. It is then used to examine the implementation of (IR)framework in sample companies (63 European firms in the period of 2016 and 2017) and the changes, if any, from 2016 to 2017.

The first results shows that European firms published a moderate quality of integrated report. Hence, hypothesis 1 stated that integrated reports published by European firms on average show a low quality is not accepted. The second results suggested that there is a partially significant increase of integrated report quality on European firms on 2016 to 2017, particularly for readability and clarity of document and content element area. Hence, hypothesis 2 stated that the integrated reporting quality of European firms improves from 2016 to 2017 is partially accepted. This research contributes particularly to the more comprehensive scoring scheme for 5 areas, especially for content element, compared to the previous study. It also gives the insight for the (IR)adopter, IIRC, and government as well regarding with the integrated reporting implementation.

This study has some limitations because of a limited sample focusing on European firms only. The second limitation is that, there is a subjectivity in conducting content analysis to assess the integrated reporting quality. Regarding with these limitations, the future research can try to increase their sample, investigate the different quality of integrated report on each sector and region, and develop more comprehensive scoring scheme for quality assessment of integrated report.

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