

INTEGRATED REPORTING <IR> IMPLEMENTATION: THE CONVERGENT PATH AND CONTINGENT ROLE AS AN INITIATIVE TO EFFECTIVE ENVIRONMENTAL REPORTING IN INDONESIA

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ABSTRACT

Purpose: This study aims to examine how the implementation of integrated reporting <IR> with a convergent path and the role of contingent theory for increasing the effectiveness of environmental reporting in sustainable development in Indonesia. **Design/methodology/approach:** As a quantitative systematic literature review, with 100 (one hundred) reviewed articles themed <IR>, and sustainability reporting (SR). Using the c-square test, to measure the role of the theory of truth convergence and the role of contingent theory in explaining the effectiveness of environmental reporting through <IR> implementation. **Findings:** Convergence path with convergence truth theory and contingent theory play a role towards the implementation of <IR> in a low relationship to increase the effectiveness of environmental reporting in Indonesia. **Implication:** Although the integrated reporting framework <IRF> does not mandatory yet require environmental disclosure in reporting, but with the acceptability of value creation over time, this can strengthen the role of environmental reporting in sustainability reporting (SR) which has so far used a historical-evaluative values. **Originality:** the path of convergence in the role of the theory of truth in this research, and the role of contingency theory, has implications for role of policy makers as stakeholder in Indonesia in strengthening the reconstruction of logic with certain scenarios towards the effectiveness of environmental reporting.

Keywords: integrated reporting <IR>, sustainability reporting, convergence truth theory, contingent theory, sustainable development

1. INTRODUCTION

Sustainability reporting is an important part of the global development process (UN, 2017; IIRC, 2018). In the role of integrated reporting <IR> this is related to the focus of attention on investors as users (Burke and Clark, 2016). Therefore, there are efforts related to investment management, to overcome such challenges as the destruction of the natural environment, with the existence of "Wetland Loss Through Sustainable Development" (Bernal, and Netzer, 2020). Then it is related to efforts to "Stop forest areas that lose biodiversity" (Goal 15 Infographic, UN, 2020). Also on the impact of social and environmental costs faced from an investment (Jones, 2012; Artie, 2019). The overall challenge of the impact of investment management is a challenge in the global context to manage investment in investment promotion effectively (UNCTAD, UN, 2018). In turn, this requires efforts to implement accountability for the natural environment (GRI, 2002, 2011). Therefore, there is an interest, in the need for environmental proactivity as stakeholder involvement, which is fulfilled by increasing the effectiveness of environmental reporting, related to the achievement of environmental performance (Alrazi et al., 2015). For Indonesia, environmental reporting has become a part of public accountability, with reference to the

applicable regulations (Law No. 32/2009 replaced by Law Number 11 Year of 2020; Regulation Number 3 of 2014 replaced by the Regulation of Number 1 of 2021; Regulation NO. 51/POJK.03/2017).

Functionally, the effectiveness of environmental reporting in Indonesia requires the application of a convergence path with the existence of various global reference sources (IIRC and GRI). Due to the divergent path between the 2 (two) reporting types (SR) and <IR>, it requires a convergent path (Potter et al., 2013) for the implementation of environmental reporting. In accordance with the context, GRI with sustainability reporting (SR) requires the disclosure of environmental reporting, with the existing conceptual framework and reporting standards (GRI, 2018a, 2018b). Meanwhile, the IIRC with its integrated reporting framework <IRF> (2013a, 2013b, 2020, 2021) does not explicitly require disclosure in reporting environmental aspects (Flower, 2015). However, the IIRC with its business process model in <IRF> can communicate environmental values over time (past, current, future) (Adams, 2015). This is in contrast to GRI whose disclosure method of environmental reporting is historical and evaluative, unlike <IRF> which creates value over time (Adams, 2015).

Implementation of environmental reporting in organizations requires convergence between the GRI Criteria (GRI, 2018a, 2018b) and The IIRC (2013a, 2013b, 2020, 2021) with the theoretical requirements of implementation (Nilsen, 2015). In accordance with the context of organizational management for reporting entities in Indonesia, this requires a theory of truth and contingency theory approaches (Cariveau et al., 2020). Through the role of the theory of truth convergence (Bormann, 1982; Kelly and Glymour, 1989; Rankin et al., 2012; Potter et al., 2013; Liszka, 2019). And the role of contingency theory (Donaldson, 2001; Morton and Hu, 2008; Gordon et al., 2009; Andrew et al., 2013). This approach supports the community for problem solving through education or experience (Custers, 2019). In the context of role theory (Rankin et al., 2012), it helps us understand and improve our world (Rankin et al., 2012). Fulfillment with the role of knowledge information (Rietz, 2018), which uses research information (Herbut, 2017).

Normatively, for an initiative for effectiveness the environmental reporting, it can be explained by grand theory for stakeholder theory within the benefits of stakeholder engagement, as well as aspects of legitimacy theory that provide the basis for accountability in achievement for the level implementation <IR>. With based on an implicit reference to the social contract (Ratnatungan and Jones, 2012) between academia and the community as IIRC stakeholders (IIRC, 2018, 2019). Thereby, to address the environmental accountability normatively, in the context of this implementing environmental accountability (Ratnatunga and Jones, 2012) suggests a voluntary model of the five reporting bottom lines, which one element is the environmental bottom lines (Green report). This model is described in the criteria of primary stakeholders, objectives, strategies, implementation, and results by identifying the focus and criteria for typical of measurers.

Therefore, in order to increase the effectiveness of environmental reporting in organizational accountability (government, private, social) in Indonesia, from the existence of national regulations, for optimal regulation (WBG, 2017) related to global reporting regulations (GRI, The IIRC). Therefore, within this research context, with referring to the arguments put forward, in general, with role contingency and the convergence approach with goal alignment criteria (GRI, IIRC), and the role of contingency theory (Andrew et al., 2013), is relevant as an approach in meeting the criteria <IRF> for the needs of <IR> (IIRC, 2013a, 2013b, 2020, 2021) within enhancement effectiveness of environmental reporting (GRI, 2018a, 2018b) for sustainable development in Indonesia.

Several studies among others were put forward referring to the perspective of environmental reporting within context of the truth theory of convergence, the role of contingency theory, sustainability reporting, integrated reporting <IR>. Facts, There is a lack of consistency in the carbon information of annual financial or corporate responsibility report of world's largest companies (KPMG, 2015). To help integrate the environmental of the SDGS with institutional coordination, partnership, stakeholders engagement (ADB, UN Environment, 2019). With Greenhouse gas (GHG) emissions report within relationship with informed policy development (Burke and Clark, 2016). Facts with role of accounting for carbon with a report card for G250 carbon reporting by sectors (PMG, 2015). Corporate with contingent context for role of performance diverse, such the result of a clear desire of top management to achieve positive impact both from an internal and external point of view (Barth et al., 2017; Vitolla and Raimo, 2018). Facts, that the central, but not unique role of legislation in the adoption and dissemination of integrated reporting (Vitolla et al., 2018). A growing number of city governments worldwide engage in sustainability reporting, voluntarily, due to responding to legal pressures. Diverse practices emerged based on unique choices concerning formats, periodicity, authorship and dissemination efforts (Niemann and Hoppe, 2018). The roles of various powerful stakeholders in influencing corporate social and environmental disclosures, except that shareholders have influenced corporate social and environmental disclosures and creditors have influenced corporate disclosures related to firms' environmental performance (Lu and Abeysekera, 2014). Facts, that social, environmental and governance responsibility (to all stakeholders) appear to be important as a competitive factor of the modern firm (Taliento et al., 2019). Lastly, natural (environmental) information be reported within ISRIP as measuring and reporting progress made towards the SDGs (Hifni et al., 2021).

This research was conducted in relation to the problems and efforts to overcome them, whereas that have been encountered so far with the truth theory and contingent theory. Where a previous studies have shown a link between knowledge and information (Rietz, 2018), which can be connected into a series of previous studies related to the implementation of the SR /TBL and <IR> system. Therefore, we are interested to provide evidence with empirical facts, by asking questions that have not been specifically addressed in the previous research. That is to answer the question, how the role of truth theory (convergence's truth), and the role of contingent theory with information and knowledge from in existing research articles. Which it can be used in explaining, controlling and predicting the enhancement of effectiveness for environmental reporting within sustainable development in Indonesia. Therefore, we stated with the main research questions addressed in this study, namely : (i) Are there differences in the implementation of <IR> within enhancement effectiveness of environmental reporting with the role of convergence truth theory and role of contingent theory ? (ii) How does significance relationship within enhancement effectiveness of environmental reporting with the role of convergence truth theory and role of contingent theory ?

2. RESEARCH METHODS

This research used a systematic literature review (Sneyder, 2019), with using non-parametric statistics. In accordance with the needs and characteristics of the research method used, in this section will be discussed. First, perspective of theory and hypothesis development. Second, to describe the stages in systematic literatures review with quantitative approach. Finally, to present the results, as well as discussion, and conclusions.

2.1. Theories and hypotheses development

GRI, The IIRC, other reporting systems development

Development of a global entity reporting system be classified with the following stages: (i) Financial reporting (1960s), (ii) Financial reporting with management comments, governance and remuneration, environmental accounting (1980s), (iii) Reporting elements in the year of 1980s with addition of sustainability reporting (2000s), (iv) Integrated reporting (2011), (v) global implementation of <IR> (2020) (IIRC, 2011; 2013a, 2013b, 2020,2021). The stages of the reporting system with their various characteristics are presented in table 1 below.

Table 1
The most common features of the types of reporting

Aspects	Financial Reporting (FR)	Sustainability Reporting (SR)	Integrated Reporting <IR>
Objectives	Provide comprehensive summary of organization's financial and operating performance	Communicate economic, environmental, and social impact caused by its every day activities	Concisely communicate how an organization's strategy, governance, performance, and prospect lead to the creation of values over time
Users	Shareholders and prospective shareholders	Key stakeholders (seven organization type)	Focus on investor
Content	Management's discussion and analysis of the financial statements, and Audit report	Content varies greatly. GRI recommends	Content element <IRF>
Reporting Framework	Generally Accepted Accounting Principles	GRI guidelines (GRI3, GRI 4), GRI 101 Foundation, GRI 103 Management approach	International Integrated Reporting Framework <IRF>
Reporting Standard	Financial Accounting Standards	GRI Standards	No Availability
Regulation*)	<i>Law on State/Regional Finance (2003, 2004)</i> <i>Law Number 40 of 2007 concerning Limited Liability Companies</i> <i>Governmental Accounting Standards (2005, 2010)</i>	<i>Financial Services Authority Regulation Number 51/POJK.03/2017</i> <i>Law concerning Environmental Protection and Management in Law Number 11 of 2020.</i> <i>Regulation of the Minister of Environment and Forestry, Number 1 of 2021)</i>	<i>Regulatory Impact Assessment **)</i>
Life cycle of reporting*)	<i>Institutionalized- Diffusion</i>	<i>Learning (voluntary-mandatory)</i>	<i>Discourse (voluntary)</i>
Initial year of implementation of reporting systems *)	<i>1974 (Initial listing of public company in Jakarta stock exchange)</i> <i>- Government financial reporting (cash toward accruals) (Regulation Number 24 of 2005)</i> <i>And with (fully toward accrual) (Regulation Number 71 of 2010)</i>	<i>2009 (Law Nomor 32, 2009)</i>	<i>According to empirical research facts on the application of IR in Indonesia (Dosinta, 2018; Sutiono, 2019)</i>

(Source: Adapted, Burke and Clark, 2016; GRI (2018a, 2018b, 2018c), IIRC (2013b), Biondi and Bracci, 2018)

*) Data is italicized as the practical in Indonesia ; **) as need to implement

In table 1 describes financial reporting as the basis for fulfilling accountability in managing the organization to shareholders, and to prospective of relevant shareholders. Then, with development of a reporting system with information dissemination, as well as the implementation of environmental accounting for responsibilities on environmental aspects. Into the perspective of the sustainability reporting system (Jones, 2010) or with the term Triple Bottom Lines (TBL) reporting (Slaper and Hall, 2011), which it provides accountability from the financial (economic), the people-social, and the planet or environment aspect. However, it is only achieved when there is a balance or a trade-off between these three aspects (Ashraf et al., 2019). Aspects of financial reporting (economic), social, and environmental aspects in TBL or SR are part of the inclusion capitalism within the six capitals of an integrated reporting system

(IIRC, 2013a, 2013b, 2018, 2019, 2020, 2021). Herewith, describes an example of the application of sustainable value creation: The six capitals in a business organization as be stated below.

- 1) Financial (results driven -Eco efficiency, High integrity -Compliance;
- 2) Manufactured (Core business- Energy & GHG Emissions, Increase density- Sustainable transportation;
- 3) Social & Relationship (Integrated supply - Suppliers sustainability management, Target geographies- Community engagement, Social responsibility - stakeholder engagement;
- 4) Human (Safety first- Occupational health and safety, The right people- Employee engagement, Emerging economies- Diversity)
- 5) Natural (Customer satisfaction- Product leadership, Environment- Employee engagement)
- 6) Intellectual (Energy - Environment innovation (Burke and Clark, 2016, p. 9).

Governments, the private sector, and others are taking a second look at the huge body of experience in tackling environmental issues, which can be leveraged to help deliver the SDGs. Furthermore, policy makers need to comprehend better the impact of their policies on the environment, and the importance of delivering the SDGs as an integrated whole (ADB, UN Environment, 2019).

In line with the sustainable development of society which refers to three major components of human existence: economical, ecological and human. The first component is essential, in the sense that the aim of social and economical activity is to satisfy human needs or desires, resulting for the three dimensions of human existence: biological (present in the interactions with the physical, natural environment), social/collective/collective (as a member of some social groups), rational/psychological/spiritual (induced by internal traits, particular to one human being) (Duran et al., 2015).

Referring to the most uses of the global environmental commons that generate specific benefits for some families, small groups, private firms, and local, regional, and national governments. Dilemmas arise when they take far more than their fair share and with overexploitation which threatens sustainable renewal of the existing stock of natural capital. Hence, the global commons needs adaptive governance at the interplay of actors with diverging interests (UN, 2019). Therefore, be needed initiative for environmental accountability, as an approach in increasing the effectiveness of the environmental reporting system.

Environmental reporting of sustainable development

The inclusive capital (IIRC, 2018, 2019) for environmental reporting is sustainable land management and the application of agricultural conservation practices that can support biodiversity and nutrient cycles, provide good quality water, and assist climate change adaptation and mitigation. In turn, for climate change mitigation that can reduce pressure on the soil by reducing the frequency and intensity of extreme events and thereby supporting ecosystems. Recognizing the relationship between biodiversity and ecosystems whose services can support the achievement of the 2030 Agenda with 41 targets in the 12 Sustainable Development Goals, including the goals of human and environmental well-being (UN, 2019). Governance for the global common good must be flexible and polycentric, involving multiple institutions, overarching rules, reciprocal adjustments, local action, and building trust. This type of government can create conditions for mutual learning and coordination for sustainable development accordingly.

Due to many people profit from Earth's resources – at local, national and global levels. When the resource is part of the global shared environment, those who benefit from the use of the resource must neither bear the social and environmental costs of their actions nor bear them only in ways that are spread outside the jurisdiction of national law. In addition, it requires governance for global common interests that is flexible and polycentric, involving multiple institutions, comprehensive rules, mutual adjustment, local action, and building trust. However, the human aspect in sustainable development has a big role, because the concept of equity includes several forms of manifestation in terms of the sustainable evolution of human society. (Duran et al., 2015).

Sustainable development accountability requires environmental reporting accountability with the aim of meeting environmental performance. This requires environmental proactivity, as a voluntary implementation of practices based on initiatives to improve environmental performance (Alrazi et al., 2015). In sustainable development, stated environmental bottom line reporting or green report (Ratnatunga and Jones, 2012) is becoming increasingly common in Business. With increasing public awareness of environmental issues such as global warming, many companies take green reporting very seriously, devoting substantial resources to doing it well. However, this is especially true when it comes to environmental issues where the biggest stakeholder is the Earth itself, and all that inhabit it. This is a good governance perspective on all aspects of the global environment that are mutually supportive (UN, 2019). Therefore, in an effort to improve the performance of environmental sustainability development, it is necessary to be based on and refer to a reporting model that meets the effectiveness of environmental reporting criteria. As in Table 2, presents the environmental reporting model as part of the 5-STAR Reporting index, which describes each aspect with distinctive criteria, focus, and measures/Statements.

Table 2
Typical Measurers /Statements under environmental reporting

Criterion	Focus	Typical Measurers/Statements
1.Primary stakeholders Expectations: As an enumeration of the impact caused on the environment by the corporation's activities and its response	As a summary and candid enumeration of primary expectations of the corporation in protecting the environment	Environmental value added (EnvVA), Air quality, Harmful substances, Waste, Water, wildlife and countryside, Global warning
2.Objectives: As a statement of the corporate environmental objectives and the priorities attached to speci/fic activities	As each programme area which the corporation would report what it will strive to accomplish and what priority it places on various activities	Lead reduction in petrol, Forest damage control, Pollution prevention and control, Screening for lead, Containing level of Genetically Modified Organisms (GMOs), Sewerage sludge reduction, Titanium dioxide (SRD) control, Habitats and species conservation, Comply with international, national, and local conventions
3.Strategies: As a description of corporation's goals in each programme area and of the activities it will carry on	For each priority activity, the corporation will state a specific goal (in quantitative terms when possible) and describe how it is striving to reach that the goal (e.g. to ensure a reduction in pollution caused by the company, it will undertake an investment programme in equipment more efficient in the use of fossil-fuel resources)	Reduce use of landfill spaces for dismantled equipment, Recycle plastics and materials in new products, Reduce use of toxic chemicals in production, Reduce use of ozone depleting substances in products and processes, Reduce use of volatile organic chemicals, Efficient use of fossil-fuel resources
4.Implementation: Statement indicating the resources committed to achieve objectives and goals	As a summary report, in quantitative terms, by activity, of resource costs, direct and indirect, invested by the corporation to undertake the strategies required in achieving environmental goals	Regulatory inspections, Compliance-related activities, Fuel use, Energy use, Water use in manufacturing, Water use per employee, Chemical waste management,
5. Results: As a statement of the	As a summary, describing in quantitative	Air emissions, Chemical emissions,

accomplishments and/or progress made in achieving each objective and each goal	measures when feasible and through objective, narrative statement when quantification is impracticable, the extent of achievement of each objective and each goal	NO ₂ /CO ₂ emissions, Electronic scrap, Reusable packaging, Natural gas, Green house gases, Agriculturally sourced nitrates, Hazardous waste, Water usage, External verification of report, awards and recognitions
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(Sources, Adapted, Ratnatunga and Jones, 2012, p. 247-248)

Reporting on environmental aspects as the context of legitimacy theory becomes the basis for supporting organizational reporting practices and decision making. In the context of positive accounting theory (Rankin et al., 2012), this theory underlies the existence of social contracts between organizations and society (Ratnatunga and Jones, 2012).

Role of convergence theory

Various characteristics of differences (divergent path) between the integrated reporting system and the sustainability reporting system, require a convergence for the implementation of reporting objectives (Potter et al., 2013). The divergent path between sustainability reporting (financial reporting and Environmental, Social, CSR, ESG) requires a convergence path (enhanced sustainability reporting with value creation over time <IRF> and <IR>). It takes a convergent path with the role of the theory of truth convergence. This matter, has coherence theory with the role of this theory in explaining real-world phenomena (Rankin et al., 2012; Herbut, 2017). A theoretical context of the convergence truth theory described with the characteristics of truth communication which is intuitive and reasonable (Liszka, 2019), which is related to attribution theory. In the process of symbolic convergence for an empathic communication, which it can be referred for the context of complete truth at once (Bormann, 1982; Kelly and Glymour, 1989). The truth theory obtained from the role stakeholder with their coordination (Carels et al., 2013), role of regulators for standard setter, in terms of agreements with lobbying between stakeholders (Rankin et al., 2012; Reuter and Messner, 2015). However, a convergence path that appear as need was based on an existing of divergent path (Potter et al., 2013), in turn, requires the involvement of the stakeholder group from the IIRC (IIRC, 2018, 2019).

Role of convergence truth theory

Teori kebenaran sebagai teori yang memberi kita wawasan tentang struktur kemampuan praktis kita untuk memahami realitas (Ludwig, 2000).

The convergence truth theory with the characteristics of intuitive and reasonable truth communication (Liszka, 2019), which is related to attribution theory. In the process of symbolic convergence (Potter et al., 2013) for the alignment of communication content. Convergence refers to the context of complete truth at once (Bormann, 1982; Kelly and Glymour, 1989). The truth is derived from the role of regulators, standards, in terms of agreement, lobbying between stakeholders (Rankin et al., 2012). Several related empirical facts were put forward to underlie the role of this convergence truth theory on the contingency in <IR> implementation, and the level of implementation of <IR>. Facts, according with need for convergence (Flower, 2015; Adams, 2015).

As convergence path manner within conformity base compilation of regulation and standard of reporting (WBG, 2017; Tjahjadi et al., 2020). Facts, that due to the divergent path of some reporting systems towards <IR>, then, it need to convergent path to implement (Potter et al., 2013).

The facts that due to the different paths of some reporting systems to <IR>, it is necessary to implement a convergent path (Potter et al., 2013). The role of active lobbying by professional bodies to enhance value creation (Reuter and Messner, 2015). There is a global coalition (regulators, investors, corporations, standard setters, the accounting profession and NGOs (Carels et al., 2013; Humphrey et al., 2014), which plays an important role in the implementation of <IRF> (Zhou et al., 2017)

Role of contingency theory

Contingency theory was a grand theory provides a role in explaining and predicting phenomena (Otley, 1980; Donaldson, 2001; Morton and Hu, 2008; Andrew et al., 2013). The perspective of the role of contingency theory is put forward in moderating the influence of organizational characteristics on organizational performance. According with the context of a central proposition of contingency theory, where organizational performance depends on the fit between context and organizational structure (Donaldson, 2001; Gordon et al., 2009). Therefore, an organization's effectiveness is met by adjusting the characteristics of the organization to the possibilities in achieving its implementation. Contextually, these characteristics are stated to consist of variables of technology, innovation, environmental change, size and diversification (Morton, and Hu, 2008). The role of contingency theory in the context of organizational development, can be fulfilled through several forms of roles. First, as the role of contingency theory for configuration and complementarity perspectives in building the conceptual richness of contingency theory, as well as in adopting a holistic view of the organizational context. Second, the role of contingency theory is to overcome complexity by adopting a more dynamic organizational design. Third, the role of contingency theory related to creative organizational design in adopting a more artistic, flexible, generative and attractive design approach, through analytical engineering orientation and perspective. And the role of this theory is related to the perspective of performance diversity that can be achieved by the organization (Andrew et al., 2013, p. 394).

Being useful in constructing logical reconstructions in expressing logic in used from the research context. The roles of theories is described in terms of the theory levels of grand/macro, middle range/meso, and application/micro (Klein and Kozlowski, 2000; Neuman, 2014; Hassan and Lowry, 2015; Seroa and Ferreira, 2019). The series of uses of theory in explaining, controlling and predicting these phenomena are represented by the role of information knowledge in the context of practice (Rietz, 2018).

Hypothesis development

Referring to the perspective of stakeholder theory in the benefits of academic involvement, as well as aspects of legitimacy theory that provide a basis for accountability in enhancement environmental accountability through the effective environmental reporting. With there is implicit reference to the social contract (Ratnatungan and Jones, 2012) between academics and the community as IIRC stakeholders (IIRC, 2018, 2019). Herewith, used the truth theory and contingent theory approach (Cariveau et al., 2020) that can support the community for problem solving through education or experience (Custers, 2019). In turn, several propositions as empirical facts for convergent path within role of convergence truth theory and contingent theory are stated, with their respective roles in the implementation of <IR> towards effective environmental reporting.

Therefore, hypothesis development is based grand theory within the logical reconstruction of theoretical aspects into the form of variables, and perform constructs propositions based on middle range theory from empirical facts related to research previously.

Role of convergence truth theory

Referring to the facts that due to the different paths of some reporting systems to <IR>, it is necessary to implement a convergent path (Potter et al., 2013). The role of active lobbying by professional bodies to enhance value creation (Reuter and Messner, 2015). There is a global coalition (regulators, investors, corporations, standard setters, the accounting profession and NGOs (Carels et al., 2013; Humphrey et al., 2014), which plays an important role in the implementation of <IRF> (Zhou et al., 2017).

The role of contingent theory

The facts, that there is a contingency role in creativity that leads to sustainable value creation in <IR> (Melloni et al., 2017). Variety of performance in integrated report <IR> quality (Vitolla and Raimo, 2018). Then, the contingent factor (organizational management context) has a relationship with the level of alignment of <IR> with the IIRC framework (Marrone, 2020). The contingent factor of the type of industry has no impact on its suitability for <IRF> implementation (Al Tarawneh and Al Halalmeh, 2020).

Based on the role of information knowledge (Rietz, 2018) from the truth theory and contingent theory with a broad scope and conception, covering the scope of the role of explanation, control, and prediction at the grand/macro level, middle range/meso level, and application level. /micro theory (Klein and Kozlowski, 2000; Neuman, 2000). 2014; Hassan and Lowry, 2015; Seroa and Ferreira, 2019), for the implementation of teaching with <IR> course design. With referring to the premis, that each of information knowledge has role to inform the trully facts, and where the truth theory and the contingent theory as source of information knowledge. However, respective roles in the implementation of teaching <IR> courses. Based on all these points of view, and with several previous studies that have not concluded in explaining the relationship between the theory of truth and contingent theory on the teaching implemetation of <IR> course, we thereby propose 2 (two) following hypotheses, namely:

Referring to all the empirical facts above, which shows that there are the truth theory and contingent theory (Cariveau et al., 2020). Within convergence truth theory (Potter et al., 2013; Carels et al., 2013; Humphrey et al., 2014; Reuter and Messner, 2015), and role of contingent theory (Andrew et al., 2013). With role of information knowledge in revealing truth and practice (Rietz, 2018). Within explaining the phenomenon of <IR> implementation, which cannot be concluded yet, because it has facts that are in accordance with the theory, and there are facts that are not in accordance with the theory. Therefore, based on all of point of views, therefore, we propose 2 (two) types of hypotheses as follows.

H01: There is no difference in the enhancement environmental reporting due to fulfillment of the convergence path and the role of contingent theory;

H02: There is no relationship between enhancement environmental reporting due to fulfillment of the convergence path and the role of contingent theory.

2.2. The Stages of Systematic Literature Review

Research data collection was carried out through the following stages: Stage 1: Data collection from research articles related to the theme of sustainabilty reporting, sustainability

reporting with <IR> reporting, and themes for integrated reporting <IR>, within a time series of article publications, starting from year of 2012 until the year of 2021 (Table 3). Stage 2: Implementation of a systematic literature review which includes: (i) Determining the structure of a systematic of the articles that being reviewed, (ii) Identification of variables and indicators and items of indicator of research, (iii) determining the steps of a systematic review as a process of review according to research objectives, and (iv) using quantitative analysis with non-parametric statistics.

Table 3
Journal references and proceedings

Year of publication	Reference to		Amount
	Journal	Proceeding/Others	
2012	1		1
2013	1	1	2
2014	2	1	3
2015	13	1	14
2016	8		8
2017	10	1	11
2018	20		20
2019	11	4	15
2020	16	5	21
2021	5		5
Amount	87	13	100

(Source: processed, 2021)

Table 3 presents the composition of articles from journals and articles from other forms of information sources as a reference in a systematic literature review. Articles in forms other than publications through journals include book chapters, conference papers, and other publication media. The articles used as references in this systematic literature review meet the criteria for representativeness of data from the ScienceDirect database, the Ebsco database and the Scopus database (Appendix 1).

Determining the structure of a systematic

Table 4
Structure of a systematic review

Sections	Contents
Introduction	Present the problem and certain issues dealt in the reviewed article <IR>
Methods	Describes research, and evaluation process and Specifies the number of studies evaluated or selected
Result	Describes the quality, and outcomes of the selected studies
Discussion	Summarizes result, limitation and outcomes of research from reviewed article

(Source: Adapted, 2021, Gulpinar and Guclu, 2013, P. 47)

In table 4, shows each section in the article as a source of information to find research data measured according with the research variables, indicators, and within research indicator items.

Identification of variables and indicators and items of indicator

Table 5

Variables with indicators and items of indicator

Variables with indicators	Acronym	Items of indicator
Independent variables: Convergence truth theory	ConTT	Role of stakeholders, Coordination between stakeholders, The role of standard setter, Collective decision towards decision making, and lobbying for professional bodies (Bormann, 1982; Kelly and Glymour, 1989; Rankin et al., 2012; Potter et al., 2013; Carels et al., 2013 Reuter and Messner, 2015; Liszka, 2019).
Role of Contingent theory	RoCT	<IR> role for configuration, Complementary, Suppressing of reporting complexity, Creativity in reporting, Diverse / variety of performance) (Andrew et al., 2013)
Effective Environmental Reporting	EER	Primary stakeholder, Objective, Strategies, Implementation, Results (Ratnatunga and Jones, 2012)

(Source: Processed, 2021)

In Table 5, the identification of variables and indicators as well as indicator items is presented. Each indicator item is measured using a dummy variable, with a nominal scale. Through article review, where for the fulfillment of the criteria of the indicator item being reviewed, a score of 1 is given (if it is mentioned explicitly and implicitly in the article being reviewed), and a value of 0 if there is no fulfillment of the indicator item in the article being reviewed. In Table 5, the identification of variables and indicators as well as indicator items is presented. Each indicator item is measured using a dummy variable, with a nominal scale. Through article review, where for the fulfillment of the criteria of the indicator item being reviewed, a score of 1 is given (if it is mentioned explicitly and implicitly in the article being reviewed), and a value of 0 if there is no fulfillment of the indicator item in the article being reviewed. The results of this measurement into a nominal scale, in turn, used for data analysis to test hypotheses within difference test and in assessing the relationship between variables.

Determining the steps of a systematic review

Table 6

Steps of a systematic review

Steps	Process
Formulation of researchable questions	Select answerable question referring to the reviewed article (SR), <IR> and combining both (SR and <IR> in research
Disclosure of studies	To find the databases and key words (indicators and items of indicator)
Evaluation of its quality	To achieve the quality criteria during selection of reviewed studies
Synthesis	Methods interpretation, synthesis of outcomes

(Source: Adapted, 2021, Gulpinar and Guclu, 2013, P. 47)

Table 6, presents every step to operationalization the systematic review of the research.

Data analysis

The results of direct measurement of indicator items from the reference articles reviewed are then used in the data analysis stage. Using the Chi-Square test and the use of contingency tables in measuring the frequency of observations (Fo) and the frequency of expectations (Fe), to test the different tests from the hypothesis. Then to test the relationship between variables using a correlation test with C-Contingency (Conover, 1980; Howell, 2011).

3.FINDINGS

This section is consists of presenting the findings in the form of a description of the results of the research with descriptive statistics. To present the results of the

measurement/observation of variables in the indicator items, and the results of hypothesis testing.

Descriptive findings

Based on the results of the reviewed articles, descriptive findings are presented, namely: (i) Description of the types of articles and methods used in article research, (ii) Articles in the context of the entity/subject under study and themes of article, (iii) Articles in geographic (continental/country) contexts.

The types of articles and methods used in article research

Table 7:
Types of article and types of method

Types of article		Types of Method	
	Amount		Amount
Design science/Conceptual design	19	Narative/Case analysis	34
Review	21	Content analysis	16
Explanatory survey	37	Statistical method	34
Empiric/Experimental	16	Mix method	3
Qualitatif descriptive/Explotarory study	3	Etnographic	2
Case study	4	Qualitivedata analysis/ Descriptive statistic	11
Amount	100	Amount	100

(Source: Processed, 2021)

Table 7 presents the types of articles and the methods used from the reviewed articles. The data with the types of articles and the methods used in the articles provide a role from the articles reviewed in accordance with the efforts to identify the theory of truth, contingency theory, and the implementation of <IR> in the article.

Articles in the context of the entity/subject under study and themes of article

Table 8
Articles in the context of entities/subjects and themes

Research context of entities/subjects	Amount	Themes of article	Amount
Firms/companies/listed companies/industry	59	Basic concept of SR,TBL,CSR	2
Organizations (global, national), Professional institutions	10	Component, Framework, standard <GRI>	2
HEI, Academics	6	Perspective of IIRF, <IR>, materiality, role of stakeholders , Research for IR	4
Local Governmentt/Country	5	Accountability, environmental Performance, disclosure SR, Research for SR	12
Human, society, SDGs	3	Adoption, integration, diffusion, practices SR, voluntary disclosure	9
Role of Management		SR momentum and IR momentum, voluntary of IR	5
Finanacial reporting, annual report, SR, IR	6	Determinant, driver, Barriers, impact for SR, IR	5
Public sector/service	5	Disclosure, values creation of IR	6
Management	2	Emerging <IR>, IR as Annual report, IR with auditing, Integrated thinking <IT> within IR	3
The IIRC (document)	2	Relation of SR towards IR (Divergent-	18

		Convergent):	
IR preparers	1	Relation of IR towards SR (divergent – convergent)	10
Research of IR	1	Review quality of <IR>, preparers of IR	5
		Adoption, implementation, cases of IR, practice of IR, future of IR	19
Amount	100	Amount	100

(Source: Processed, 2021)

In table 8 presents the composition of all reviewed articles from the context of research referring to the entity or research subject, with the predominance of subjects referring to corporations/companies. Then, the other side shows adoption and implementation of <IR> as the research theme that has the highest frequency, which is mentioned in the articles reviewed.

Articles in geographic (continental/country) contexts

Being of the 100 (one hundred) reviewed articles, it shows the composition of all articles according to the discussion within the geographical context (continent/country).

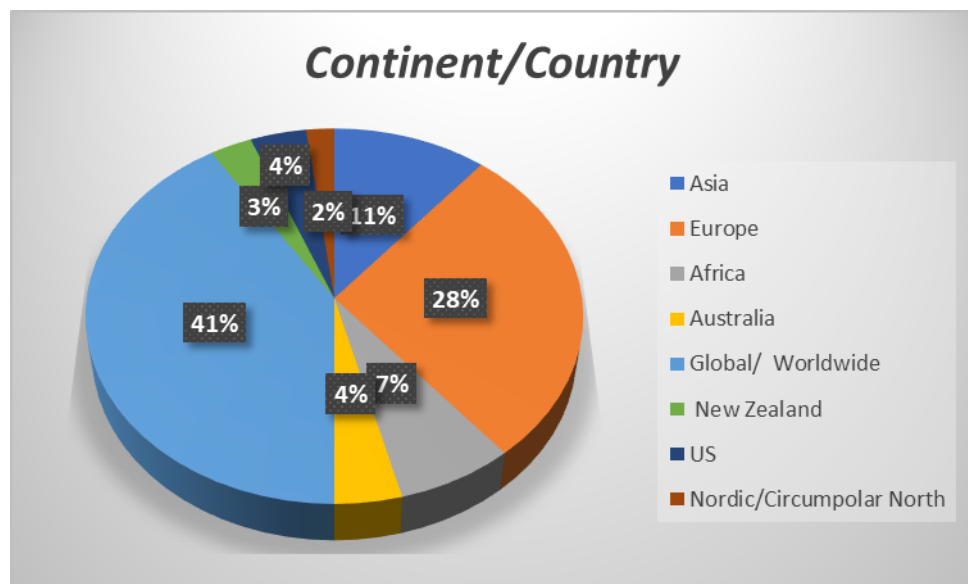


Figure 1: Articles in geographic context (Continent/Country)

In figure 1 presents the distribution of research articles in the context of continents or countries, referring to the scope of research objectives from 100 (one hundred) reviewed articles.

Results of the measurement/observation

The results of the measurement of the frequency of observations for the independent variables consisting of indicators within items of indicator, are presented in Figure 2 below.

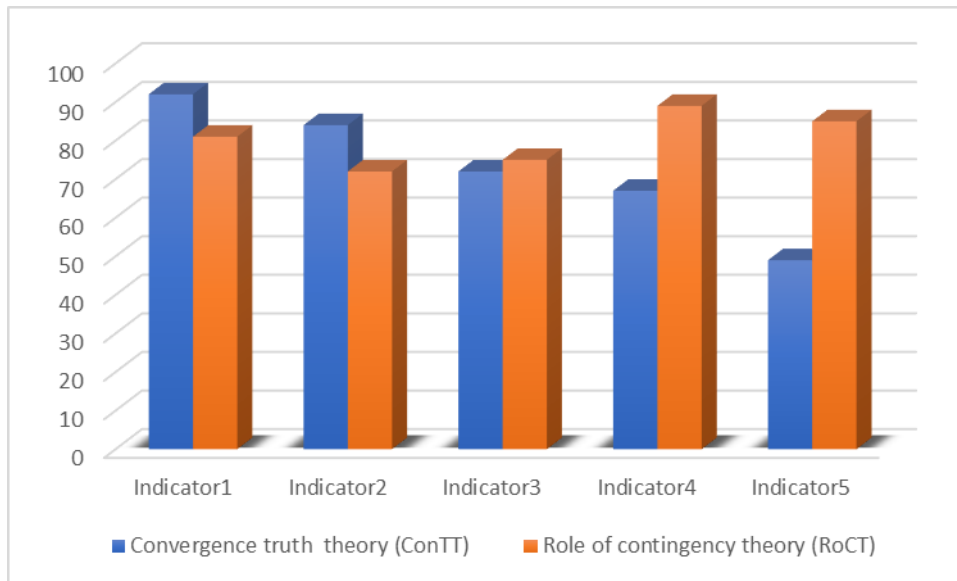


Figure 2 Measurement result of observation frequency (OF)

Figure 2 shows the amount of each frequency of observation for items of indicator research from independent variables. The two groups of measurement data (ConTT and RoCT) are used as data that is processed in determining the relationship between the observed frequency and the expected frequency (Table 9).

Measurement of dependent variable

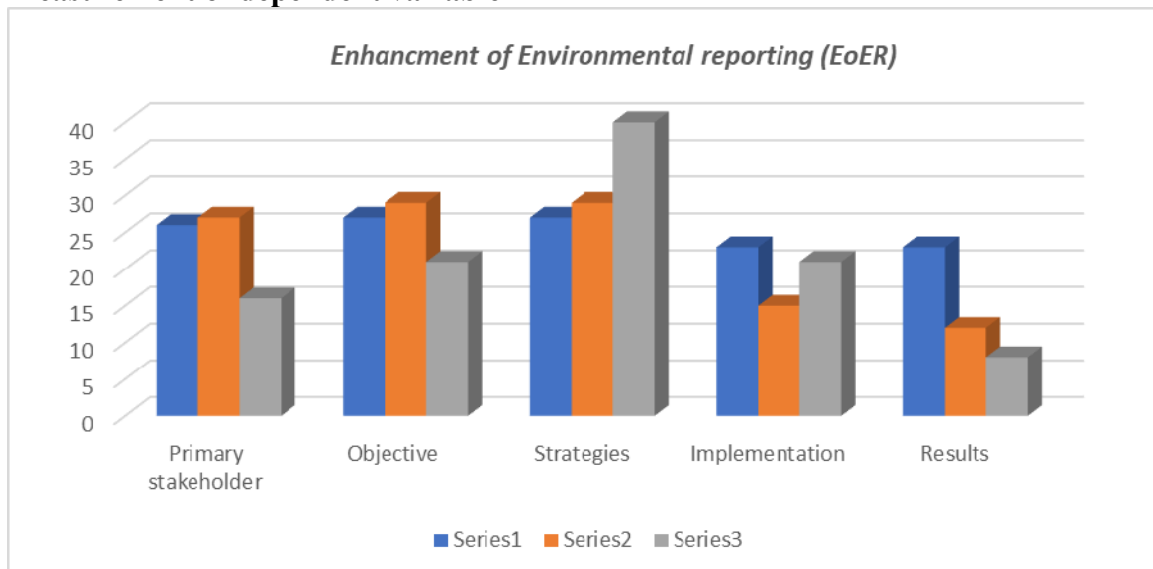


Figure 3: Measurement result of dependent variable

In figure 3, shows the enhancement of environmental reporting, with 5 (five) items of indicator. The measurement result data be described according with reviewed articles (Series 1=Appendix 1.1.; Series 2=Appendix 1.2. and Series 3=Appendix 1.3.). In turn, the data measurement (EER) are used as data that is processed in determining the relationship between the observed frequency and the expected frequency (Table 9).

Hypothesis testing for H01 and H02

The data in Table 9 below is the result of processing within measurement data from frequency of observation (OF), with the data of the expected frequency (EF).

Table 9

Observation frequency (OF) and expectation frequency (EF)

Variables	ConTT	RoCT	EER	Amount
Effective Environment Reporting				
Very effective				
Score 5 (Fo)	32	50	39	121
Fe	40.3333	40.3333	40.3333	
Effective				
Score 4 (Fo)	10	21	13	44
Fe	14.6667	14.6667	14.6667	
Effective enough				
Score 3 (Fo)	34	11	27	72
Fe	24	24	24	
Less effective				
Score 2 (Fo)	18	17	15	50
Fe	16.6667	16.6667	16.6667	
Very less effective				
Score 1 (Fo)	6	1	6	13
Fe	4.3333	4.3333	4.3333	
Amount	100	100	100	300

(Source: processed from primary data, 2021)

The data in Table 9 is the basis for testing the research hypothesis. Hypothesis testing for the different test (H01) was carried out using the chi-square test for goodness of fit. Hypothesis testing H01 is done by comparing table X02 with observations X2 (Table 10), as a basis it can be rejected or cannot be rejected for the research hypothesis H01.

Table 10

Table For Observation for Chi Square

Variables	ConTT	Rof CT	EER	Amount
	-8.3333	9.6667	-1.3333	
	69.4444	93.4444	1.7778	
Xo Observation	1.7218	2.3168	0.0441	4.826
	-4.6667	2.3333	-1.6667	
	21.7778	5.4444	2.7778	
Xo Observation	1.4848	0.3712	0.1894	2.0455
	10	-13	3	
	100	169	9	
Xo Observation	4.1667	7.0417	0.3750	11.5833
	1.3333	0.3333	-1.6667	
	1.7778	0.1111	2.7778	
Xo Observation	0.1067	0.0067	0.1667	0.28
	1.6667	-3.3333	1.6667	
	2.7778	11.1111	2.7778	
Xo Observation	0.6410	2.5641	0.6410	3.8462
Xo Observation				21,8376

(Source: reprocessed from primary data, 2021)

Hypothesis Testing (H01), is a test in assessing whether there are differences in the enhancement in effectiveness of environmental reporting due to fulfillment the convergence path and the role of contingent theory. By testing result of the frequency of observation (OF) and the frequency of expectations (EF) (Table 9), and referring to the contingency and Chi square (Table 10), showed the measurement results of X2 observation with value of 21.8376. Then for the X2 table which is determined by referring to the degrees of freedom from rows with columns (5-1) (7-1) with a significance level of 0.05, be found the value of the chi square table distribution is 15.51. Based on the comparison of X2 observations with value 21.8376, which that is greater than value of X2 table 15.51. It means that H01 can be rejected, within a chi-square significance value of < 0.05 . The results of testing this hypothesis indicated, that there are differences in the level of implementation of <IR> due to the role of truth theory and role of contingent theory.

For the second test of hypothesis (H02) is a test for assessing whether with the differences in enhancement (result of first test of hypothesis), is there degree of relationship in enhancement in effectiveness of environmental reporting due to fulfillment of the convergence path and the role of contingent theory. According with calculating of the value of the Pearson contingency coefficient. With the formulation: $C = \sqrt{XO2 / (N + XO2)}$, we found for the value of $C = 21.8376 / (300 + 21.8376) = 0.2605$. Referring to the Guilford empirical Rule, it shows that the C value = coefficient of association that is limited between $0 < 1$, where: 0 = no association / relationship and 1 = perfect association / relationship. According to the Guilford empirical rule (Engelbrecht, 2002) which explains the meaning of the correlation relationship between the variables. For the C Contingency coefficient of 0.2605, it can be stated that there is a low relationship but sure in the achievement of enhancement in effectiveness for environmental reporting.

4. DISCUSSION

In this section, each research finding is discussed. The first is a discussion of differences in enhancement in effectiveness for environmental reporting and discussion for level of relationship in enhancement environmental reporting. In this section be discussed facts of research with the empirical facts from other research previously and with the grand theory in accounting field that used in research.

Differences in enhancement in effectiveness for environmental reporting

According with facts, that the fulfillment of the theory of truth convergence (role of stakeholders, coordination between stakeholders, the role of standard setters, collective decision towards decision making, and lobby for professional bodies). Concominantly, also revealed that the role of contingency theory (role for configuration, complementary, suppressing of reporting complexity, creativity in reporting, diverse / variety of performance). Both of these theories has a role in enhancement effectiveness of environmental reporting. In organizations that already have organizational reporting systems, both financial reporting systems and sustainability reporting systems.

The perspective of the role of the convergence truth theory and role of contingent theory, gives a special meaning as well as the meaning of the simultaneous role in explaining, and predicting the increase in environmental reporting for entities in Indonesia. In the role of micro-level theory which refers to the application theory with each research variable. It is explained within the aspects of convergence truth theory in 5 (five) criteria for items of indicator, and in 5 (five) criteria for items of indicators of contingent theory. Then, in the role at the meso level as a middle range theory that explains the relationship between variables between item indicators of

convergence and contingency towards increasing the effectiveness of environmental reporting. As well as the role of convergence theory and contingency theory in explaining the grand theory or macro level from the phenomenon enhancement of the effectiveness of environmental reporting, in general, which is related to multiple aspects (Klein and Kozlowski, 2000; Neuman, 2014; Hassan and Lowry, 2015; Seroa and Ferreira, 2019). The results of this study are in harmony with (Cariveau et al., 2020) with facts, that being there is a role of theory of truth approach, and a contingent theory. Conformity with facts that Information is one of many resources that can contribute to knowledge. Then, that knowledge is ability to purposefully go on with practice (Rietz, 2018).

Role of convergence truth theory towards effective environmental reporting

The results of data measurement and hypothesis testing showed the role of convergence theory and contingency theory in the relationship with the effectiveness of environmental reporting (Ratnatunga and Jones, 2012). First, the role of convergence theory of truth which is represented in the largest order in fulfilling the convergence aspect, namely: the role of stakeholders (92), stakeholder coordination (84), the role of standard setters (72), collective decisions on group decision making (67), lobbying by professional bodies (49). The role of the theory of truth convergence in explaining the level of effectiveness of the application of environmental reporting, showed a relative value of 42.00% in a very effective and effective level.

Based on facts, we can be viewed that the implementation of <IR> needs the role of each stakeholder group (business and other reporting entities, providers of financial capital, framework developers and standard setters, accounting profession, policy makers, regulators and exchanges, civil society, academia, and IIRC) (IIRC, 2018, 2019). In line with facts, with conclude that different groups of stakeholders grant different types of legitimacy. First, few studies discuss the legitimacy of a standard-setter, especially in the area of non-financial reporting. Second, our study considers the legitimacy granted by all the categories of stakeholders (Dumitru and Guse, 2017). According to the truth contest of convergence, it is necessary to strengthen the role of the multi-stakeholder framework (United Nation Global Compact Principle, Global Reporting Initiative (GRI G3)- Reporting Guidelines, ISO 26000: Social Responsibility, United Nations Principles for Responsible Investment) (Carels et al., 2013). In the context of global norms (IIRC, 2018), the implementation of <IRF> requires a coordinating role with international and national accounting bodies (IFAC, IASB, FASB, AICPA), international and national regulators, consulting and advisory bodies (NGOs such as, GRI, Carbon Disclosure Project, World Intellectual Capital Initiative (Humphrey et al., 2014).

The results of this study with the fact that the role of the theory of truth convergence has a congruence between the facts and the empirical facts of related research (Cariveau et al., 2020). It refers to the fact, that the <IR> process results in a more balanced disclosure of material aspects of sustainability (Montecalvo et al., 2018). In this matter, facts shows that the IIRC Framework published in 2013 has supplemented the GRI guidelines and the AA1000 standards, already used all over the world (Salvioni and Bosetti, 2014). Therefore, with this facts of the research, has conformity with due to the divergent path between Sustainability reporting and <IR>, so a convergence path is needed to implement the reporting role (Potter et al., 2013). The importance of the lobby approach in the role of stakeholders as reporting entities on issues of materiality and the relationship between integrated reporting and other existing reporting frameworks (Reuter and Messner, 2015). Research related the fact that the organization's relationship to external guidelines has evolved from its pragmatic adoption as a means of seeking

external legitimacy, which is not limited by the dissemination of voluntary guidelines (Beck et al., 2017). Then, with the results obtained that the level of alignment of integrated reports with IIRF is directly correlated with the role of stakeholders and the coordination that can be provided (Tudor et al., 2020). Being need with collaboration between the IIRC with other standard setters (from the field of audit) as the best away from overcoming for integrated report (Oprisor, 2015).

Being from other side, the facts of this study also have differences with other related empirical research facts. Namely research that shows non-relationship of the management's role and the role of regulation in the implementation of regional government sector reporting (Hifni, 2017). Facts, that very few stakeholders use the Integrated Reports <IR> as their main source of financial and investment information, and that these reports are seen as additional information. Annual and interim financial reports by companies are still the mainstay for corporate financial information (Rensburg and Botha, 2014). However, in the requirements for companies listed on the capital market to issue integrated reports in Indonesia. There are facts, in five selected companies that researched, with fulfillment the outline most elements of the integrated reporting content, and its guiding principles <IRF> although they are not comprehensive (Tjahjadi et al., 2020).

The fact that the results of this study, for Indonesia, shows the criteria for the role of stakeholders as the dominant aspect in the convergent path that determines the effectiveness of environmental reporting. Meanwhile, lobbying support by professional bodies is an aspect whose role is still less dominant, so it needs to be strengthened in this aspect. This empirical fact, is in agreement with the previous fact, which shows, the only integrated reporting dimension with a similar pattern between the two regimes is ethical leadership and compliance with laws, codes, rules, and standards. This previous study contributed to the need to consider institutional differences in studying the issue of integrated reporting and provided regulators with the need to prepare relevant standards as a guide for the implementation of integrated reporting (Chariri, 2019). Furthermore, in accordance with the facts, it also showed that there were a need for convergence in the context of regulations such as in Indonesia, related to the need for a basic reference for compiling regulations that meet alignment in facilitating reporting objectives. For environmental reporting in Indonesia, the readiness of the effectiveness of environmental reporting has been supported by complete reference to accounting standards in financial reporting (financial accounting standards for companies that go public, for small-medium scale companies, State-Owned Enterprises/Regional-owned enterprises, for businesses). sharia-based, accounting standards and regulations for the government sector) (Hifni, 2018). Also need for convergent path with regulations related to sustainability reporting objectives (relevant laws and regulations) aligned with reporting objectives integrated with the <IRF> criteria (IIRC, 2013a, 2013b, 2020, 2021).

Role of contingent theory

The fact that the role of contingency theory for the effectiveness of environmental reporting is explained in the order of dominant roles <IR> as the role of creative design (89), <IR> as the role of performance diversity (85), <IR> as reporting configuration (81), <IR> the role of reporting to suppressing complexity (75), and with <IR> complementary reporting roles (72). The role of contingency theory in explaining the implementation level of effectiveness environmental reporting, showed the relative value of 71.00 % within level very effective and effective. The fact that the role of this contingent theory has meaning in explaining the conditional application of <IR>, with the perspective of a dominant role, namely as reporting creativity for organizations, to the reporting system that has been implemented so far. This fact is in line with the quality of integrated reports that fulfill the dual purpose of increasing external information and better internal decisions. Within variety of performance as contingent of

economic consequence within integrated report <IR> quality (Barth et al., 2017; Vitolla and Raimo, 2018). Facts, referring to the diverse performance, which there are two-directional association between non-financial disclosures and sustainability performance (Rezaee., and Tuo, 2017).

Facts, the basic argument presented in this paper is that the relation between ERM and firm performance is contingent upon the appropriate match between ERM and the following factors affecting (Gordon et al., 2009). From a policy perspective, facts, demonstrates just how much the IIRC's prospects for success in reconfiguring the corporate reporting field depend on its ability to reconfigure the mainstream investment field (Humphrey et al., 2017). In turn, for sustainable value through by <IR> with complete and balanced, i.e., broadly including all material matters, both positive and negative, in a balanced way. In turn, to fulfill performance (financial versus nonfinancial/sustainability) (Melloni et al., 2017). Furthermore, for Indonesia, the fact of the role of contingency theory for the effectiveness of environmental reporting shows a dominant role as well as a role that needs to be increased in the context of the role of <IR> as complementary reporting roles. The role of contingency theory in explaining the implementation level of effectiveness environmental reporting, showed the relative value of 71.00 % within level very effective and effective. There is the challenge to the effectiveness of environmental reporting is related to the fact that the role of this contingency theory is different from the previous related study, with facts, that the complexity of the organization is not able to moderate the relationship between <IR> and firm value (Nurkumalasari et al., 2019). Also with other contingent factors, with referring to the type of industry, that has no impact on its compormabilty to implementation the <IRF> (Al Tarawneh and Al Halalmeh, 2020). In line with (Andrew et al., 2013), an <IR> role for configuring reporting is also suggested from a policy perspective. Where, how much the IIRC's prospects of success in reconfiguring the corporate reporting field depend on its ability to reconfigure mainstream investments. As discussed, more generally this aspect emphasizes the theoretical significance of considering the organization-wide connections of related fields in institutional analysis for configuration efforts (Humphrey et al., 2017).

Relationship in enhancement of effectiveness environmental reporting

Referring to the result of this research, with being facts a low relationship but sure in the achievement of enhancement for environmental reporting. This fact gives meaning, for the effectiveness of environmental reporting with need for the perspective availability of determinants of factors towards effectiveness of environmental reporting (Ratnatunga and Jones, 2012). A challenge to increase the effectiveness of environmental reporting, it is important to be fulfilled it by considering the perspective of the big theory of accounting, in addition to the theory of legitimacy, as well as identifying determinant factors that are internal and external to the organization (Ara and Harani, 2020). Factor role of theory that is applied as an explanatory tool (antecedent), such as stakeholder theory, institutional theory, stewardship theory, signaling theory. Also with role of theory which is applied as a consequence (such as agency theory) of fulfilling <IRF> implementation. Strengthening the explanatory aspects of the contingency side related to the expansion of the aspects perspective which is used. Such as internal determinants (Self-interest; Industry size; governance, Business model, Stakeholder Management, Non-financial Parameters, Financial performance, Market Orientation, Ownership Structure, Growth Potential, Managerial Attitude, Corporate Reputation, and Motivations). As well as conformity with external determinants (Regulatory pressure, Sector, Geographical location, Media attention, Market Force, Cultural Dimension). Meanwhile, in terms of path convergence, that it is more important to strengthen the characteristics of convergence elements whose fulfillment is not yet dominant (such as the need for lobbying with related professional entities). Implementation of

theory is required with implementation science (Rietz, 2018) which has progressed towards increased use of theoretical approaches to provide better understanding and explanation of how and why implementation succeeds or fails. Therefore, for its implementation enhancement of effectiveness environmental reporting, an evaluation framework is needed within stages of RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) (Nilsen, 2015).

5. CONCLUSIONS

In conclusion of this study, we reveal 3 (three) insights as development perspectives to enhance the effectiveness of environmental reporting, particularly for Indonesia.

First, according to the objectives and benefits to be achieved through this research activity, it can be concluded that this research provides facts and insights about the role of convergence theory of truth and the role of contingency theory. A fact and insight about the role of information knowledge (Rietz, 2018) with core information from each item indicator of convergence theory of truth and the role of contingency theory. To inform with information knowledge for the implementation of integrated reporting, that increases the effectiveness of environmental reporting. The new thing that can be revealed for this research is the suitability through logical reconstruction of the significant role of the influence given by the theory of truth convergence as a convergent path (Potter et al., 2013) with sustainability reports in environmental reporting. Then the alignment with the role of contingency theory (Andrew et al., 2013) on the effectiveness of environmental reporting (Alrazi et al., 2015). With facts showing that information and knowledge (Rietz, 2018) of the theory of truth convergence and the role of contingency theory have been supported by data, to become a source of information about environmental reporting, and for practice and decision making to achieve environmental reporting effectiveness (Ratnatunga and Jones, 2012).

Second, referring to the results of research that show the significant role of the theory of truth convergence on the implementation contingency of <IR> for increasing the effectiveness of environmental reporting, although with a low but definite relationship in the achievement of improving environmental reporting. This fact provides insight into the important role of IIRC stakeholder groups in aligning their coordination, as a significant determinant of the creative design role and <IR> as the performance diversity role. In accordance with the perspective of a country in implementing <IR> (Biondi and Bracci, 2018), then for Indonesia, the level of implementation of the reconstructed <IR> also depends on its acceptance practices. First, where the practice of financial reporting in Indonesia as the basis for compliance with sustainability reporting has a fairly mature life cycle stage. With a level of diffusion that can covering almost for all reporting entities. Second, that the sustainability reporting system, which has also been implemented voluntarily, has entered the organizational learning stage, and has also been supported by laws and regulations, thus requiring a regulatory impact assessment (WBG, 2017), need for convergent path (Potter et al., 2013) for the laws and regulations as base compilation which in accordance with <IRF>. It becomes the basis for entities in Indonesia to improve the effectiveness of environmental reporting (Ratnatunga and Jones, 2012). Therefore, the convergent path can be applied simultaneously with creativity to increase environmental reporting obligations. Within the need for sustainable development (IIRC, 2018, 2019) through value creation (past, present and future) according to the <IRF> reference, and as the mandatory activity basis for environmental reporting from GRI (GRI, 2018a, 2018b) for sustainable development (UN, 2017).

Third, however, we realize that this study has limitations, such as, we have limitations in systematic literature review which still uses manual processes in collecting and measuring data, until we find the results of research using statistical methods. Finally, for further research that

fits this theme, be needed to strengthen with extend for various variables with the support of a more comprehensive study.

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APPENDIX 1

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1.1. Sustainability Reporting Theme

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The Indonesian government's efforts to improve sustainable development performance continue to be pursued, with the support of a law on environmental protection and management (Law Number 32 of 2009 was replaced by Law Number 11 of 2020). Then, the elaboration of the Law in setting the Company Performance Assessment Program in Environmental Management (Regulation of Minister of Environment and Forestry Number 1 of 2021- which replaces the Regulation of the Minister of the Environment Number 03 of 2014). Although there is a formal reference (accounting standards and laws and regulations) as base undertaken environmental reporting accordingly for financial reporting for every types of entities in Indonesia (Hifni, 2018), however, the context of sustainability reporting in Indonesia, such for the private sector is still voluntary. In fact, the implementation of an environmental sustainability reporting system for entities in Indonesia, although formally supported by regulations, practically, it still does not meet the alignment with the criteria for the integrated reporting system <IR> with the <IRF> (IIRC, 2013a, 2013b, 2020, 2021), as

well as with sustainability reporting criteria from global references (GRI, G3, G4) with established sustainability reporting standards (GRI, 2018a, 2018b). From a theoretical perspective, the aspect of environmental disclosure as a phenomenon that can be explained and predicted in accordance with the theory of legitimacy and stakeholder theory of the grand theory of accounting (Rankin et al., 2012; Ratnatunga and Jones, 2012).