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An assessment of integrated thinking levels among JSE-listed entities

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An assessment of integrated thinking levels among JSE-listed entities

A research report submitted by

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II. List of abbreviations and acronyms

Abbreviation/Acronym	Description
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CFO	Chief Financial Officer
ESG	Environmental, Social and Governance
GRI	Global Reporting Initiative
IIRC	International Integrated Reporting Council
IR	Integrated Reporting
ISAE	International Standard on Assurance Engagements
JSE	Johannesburg Stock Exchange
KPI	Key Performance Indicator
MCS	Management Control Systems
RQ	Research Question
SMEs	Small and Medium-sized Enterprises
SDG	Sustainable Development Goals

Abstract

Integrated thinking involves a holistic, multi-capital approach to decision-making and operations to promote value creation and sustainability. The IIRC has defined integrated thinking and promoted its value extensively. However, there is a lack of information, both in practice and in academic literature, dealing with how to implement and evaluate integrated thinking. This study assesses integrated thinking in terms of the definition, the benefits and challenges of implementation and the controls necessary to implement this concept. A model developed by Trialogue is then used to evaluate integrated thinking levels based on underlying principles/indicators. This framework is applied to a sample of 97 JSE listed entities' integrated reports, and, using a qualitative content analysis approach, the framework is used to score the integrated thinking levels. Results reveal that entities in South Africa are scoring well on integrated thinking principles, primarily geared through the strong governance and reporting structures in place. Remuneration and performance management have, however, been identified as a weakness. Using an exploratory factor analysis, results reveal that three factors contribute to a high portion of the variance in integrated thinking. These factors are [1] managing of and reporting on value creation; [2] stakeholder awareness and corporate accountability; and [3] governance. This has revealed that entities are in different stages of integrated thinking application being an early/ developing stage, an emerging integrated thinking logic or a strong integrated thinking logic. Significant statistical relationships are identified between the factors and entity-specific metrics which point towards potential drivers of integrated thinking. An integrated thinking framework can be used as a practical tool by stakeholders to gauge and benchmark the level of integrated thinking taking place in an entity. An entity can also use this framework as a guiding tool on the steps needed to execute on various integrated thinking principles.

Keywords: Integrated thinking, Integrated reporting, Sustainability, Report quality, IIRC

1: Introduction

1.1: Purpose of the study

This thesis investigates integrated thinking based on information included in integrated reports. Using a normatively developed integrated thinking framework[1], instances of best and worst practice of integrated thinking disclosures are highlighted. The results of applying this framework are also used to assess what factors predominantly account for the variance in integrated thinking levels. A framework can be used by organisations as a guideline to implement integrated thinking. This is also a practical means for external stakeholders to evaluate integrated thinking using publicly available information. This study assesses the appropriateness of the proposed framework and the resulting insights emerging from the application of the framework to a sample of 97 JSE-listed entities.

1.2: Context of the study

The business world has seen many changes to the underlying constructive ideology behind running a business[2] (Tweedie & Martinov-Bennie, 2015). What was once a profit and financial-orientated business model has evolved into a holistic system needed to sustain a business in the long-term (ibid). The move from a financial focused model to a sustainable and long-term outlook developed as a result of multiple corporate scandals (see Jones, 2011), a greater appreciation for the ESG impact of a business (Brown, Dillard & Marshall, 2006), a stakeholder inclusive approach intended to reduce information asymmetry (De Villiers & Hsiao, 2017) and the pursuit of a sustainable business model (De Villiers & Maroun, 2017). Holistic thinking, equally emphasising capitals of a business, is favoured by investors over quantitative financial information (IIRC, 2021; Malafronte & Pereira, 2020; Oliver, Vesty & Brooks, 2016; IIRC, 2013; Lev & Zarowin, 1999).

To manage the changing business environment, an in-depth analysis of the business activities is required by an organisation (De Villiers, 2017). The amalgamation of financial and non-financial information (IIRC, 2021) culminated in integrated reporting (IR), heralded as the solution to financial reporting shortcomings (Dumay, Bernardi, Guthrie & Demartini, 2016). The non-financial assessment and integrated disclosures are used to gauge business risk and are increasingly

[1] This framework is developed by Trialogue, a corporate responsibility consultancy firm. Refer to Section 3.
[2] The terms “organisation”, “business”, “company” and “entity” are used interchangeably for stylistic purposes.

important to stakeholders' decisions (IIRC, 2021; Ghio & McGuigan, 2020; Atkins & Maroun, 2015; Dawkins & Ngunjiri, 2008).

IR is underpinned by the concept of integrated thinking (IIRC, 2021). The IIRC's[3] long-term vision is that integrated thinking is embedded within businesses and results in an "efficient and productive capital allocation, [acting] as a force for financial stability and sustainability" (IIRC, 2021, p.2). Integrated thinking facilitates improved communication channels with interdependencies, trade-offs and connection of capitals being a key feature (ibid).

Integrated thinking is defined as (IIRC, 2021, p.3):

> "the active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects."

Atkins & Maroun (2018, p.751) note that in "1978, in a speech to the Australian Conservation Foundation in Canberra, Prince Phillip provided an overview of what we now refer to as integrated thinking". This highlights how, more than 40 years ago, there was a drive for business sustainability with a high level of importance placed on multiple capitals and the value of non-financial impacts (ibid). In this context, integrated thinking has been, and still is, a developing concept (IIRC, 2021; Malafronte & Pereira, 2020; Tweedie & Martinov-Bennie, 2015; IIRC, 2013).

In response to the concerns of traditional financial reporting, a global financial crisis[4] and the growing sustainability focus, there is a call for an increased adoption of integrated thinking (IIRC, 2021; Malafronte & Pereira, 2020; Wits, 2020; Tweedie & Martinov Bennie, 2015). Consequently, this study is concerned with assessing and applying a framework which can be utilised to evaluate integrated thinking levels and promote this within organisations.

1.3: Research problem

Given the importance of business sustainability in the current economic context, the use of integrated thinking is an important driver of long-term sustainability (Rossi & Luque-Vilchez, 2020)

[3] The IIRC formed a global coalition to develop a framework for Integrated Reporting based on the six capitals and value creation (IIRC, 2021). Refer to the IIRC (2021; 2013) for relevant definitions.

[4] This has been perpetuated by the coronavirus pandemic (SAcoronavirus, 2020), highlighting the need for entities to holistically assess long-term sustainability through consideration of multiple capitals (IIRC, 2021; Wits, 2020). Organisations are required to illustrate how they are managing the crisis in terms of the social construct and natural resource constraints (Maroun, 2017b). Integrated thinking represents a mechanism to respond to a crisis and reassure stakeholders of the plans in place (Wits, 2020).

and enhanced stakeholder communication (Malafronte & Pereira, 2020). There is, however, limited practical guidance on how to implement and subsequently evaluate the integrated thinking levels and internal operationalisation of this concept (Rossi & Luque-Vilchez, 2020; Malafronte & Pereira, 2020; IRC, 2018; Tweedie & Martinov-Bennie, 2015). An integrated thinking framework can provide organisations with a means to assess, implement and improve/remedy current practices. By way of assessing trends in integrated thinking levels in a South African context, drivers of integrated thinking can be identified.

The current research utilises and assesses a normative framework to evaluate integrated thinking. The operationalisation of an integrated thinking framework will provide a basis from which to evaluate an organisation's disclosures of its execution of integrated thinking principles. Factors which account for the variance in an organisation's integrated thinking levels can then be determined. The following are the two core research questions (RQ) developed:

RQ 1: What are the levels[5] of integrated thinking (according to the normative framework) among South African-listed companies based on the information being included in their integrated reports?

The second research question examines possible determinants of integrated thinking (based on the results from RQ1):

RQ2: What are the possible determinants of higher levels of integrated thinking?

RQ2 is broken down into the following sub-questions:

RQ2.1: Is there an association between the financial performance and leveraging of an organisation and the level of integrated thinking?

RQ2.2: Is there an association between the size of an organisation and the level of integrated thinking?

[5] "Levels" of integrated thinking refer to the five-point rating scale developed by Trialogue that ranges from no disclosure of integrated thinking principles (Level 1) to a comprehensive explanation of principles outlining the relevance and application to value creation and integration (Level 5) (see Section 4.2). To rank the levels, each principle and sub-principle/indicator (see Table 3) will be explicitly identified by way of a dichotomous questionnaire and weighted equally (see Section 4.4) to demarcate the "levels" of integrated thinking.

RQ2.3: Is there an association between the ESG performance of an organisation and the level of integrated thinking?

RQ2.4: Are integrated reports, accompanied by separate sustainability/other reports, and overseen by a separate ESG committee, associated with the level of integrated thinking?

1.4: Contributions of the study

The extent and quality of IR disclosures have been examined in detail (see Malola & Maroun, 2019, Bernardi & Stark, 2018; De Villiers, Pei-Chi & Maroun, 2017; Zhou, Simnett & Green, 2017; Beck, Dumay & Frost, 2015), however, integrated thinking, as its own core principle, has not been considered extensively (Tweedie & Martinov-Bennie, 2015). There is a lack of a specific standard or framework guiding preparers and external stakeholders on the implementation and evaluation of successful integrated thinking practices (Malafronte & Pereira, 2020; Tweedie & Martinov-Bennie, 2015). Considering the interrelationship between integrated reporting and integrated thinking (IIRC, 2021), this concept merits further attention. This paper provides such a platform through the assessment, application and insights of an emerging framework.

With research on the concept of integrated thinking in its infancy, the findings of this study will answer the call for further research on means to evaluate integrated thinking practically (Malafronte & Pereira, 2020; IR, 2019; De Villiers *et al*., 2017; Tweedie & Martinov-Bennie, 2015). This research develops and applies a framework to integrated reports to assess integrated thinking levels. This identifies factors which account for the variance in integrated thinking levels. Concurrently, the research adds to the limited body of integrated thinking research (Rossi & Luque-Vilchez, 2020; Tweedie & Martinov-Bennie, 2015), drawing on qualitative and quantitative assessments of an emerging framework applied to integrated reports in a South African context. This can be utilised in practice to assist entities with operationalising integrated thinking to unlock the benefits of integrated thinking presented in this paper. Entities can also gear their internal controls to achieve higher levels of integrated thinking and understand the factors impacting the levels. The research makes an important practical contribution by providing a frame of reference for organisations and stakeholders to conceptualise integrated thinking.

1.5: Assumptions, limitations and delimitations

This thesis will only deal with the application of the integrated thinking framework in the context of South African integrated reports. Best practice disclosures, integrated thinking levels, and the

resulting factor variance and drivers in these levels will not be assessed in different jurisdictions. Findings should be generalised with caution.

A further limitation to this study is that all information to score the integrated thinking is obtained from the integrated reports. There is an assumption that an entity will disclose its integrated thinking practices through publicly available information (Farooq & Maroun, 2017). However, disclosures may not illustrate the application of integrated thinking, or, disclosures may be withheld to maintain a competitive advantage in the industry (McNally, Cerbone & Maroun, 2017; Oliver *et al*., 2016). Similarly, disclosures can be an attempt at greenwashing as the legitimacy is a façade rather than an actual operationalised practice (ibid). Consequently, what is being reported is not a perfect proxy for integrated thinking as a strong report quality may coexist with weak internalised integration (McNally *et al*., 2017; Oliver *et al*., 2016; Tweedie & Martinov-Bennie, 2015). Refer to Section 4.4 for data reliability and validity measures and Section 6.2.2 for additional limitations and future research agendas. This study provides an important steppingstone in the evaluation of integrated thinking and potential interrelationships with other factors (Section 3.2). The study will not aim to redefine integrated thinking, but rather, to establish principles to execute and evaluate integrated thinking (Section 3.1).

1.6: Structure of the thesis

The remainder of the report is structured as follows. Section 2 provides an assessment of prior literature on integrated thinking. This will form the foundation upon which a framework can be developed. Section 3 provides the emerging evaluation framework rooted in prior literature principles. Section 4 deals with the methodology for implementing the framework in the context of the research questions. Section 5 presents the results and discussion of the study and Section 6 provides the relevant summary and conclusions.

2: Literature review

In 2013, the IIRC developed a framework for IR which aimed to be a cornerstone in the development of a holistic manner of reporting communication which appeals to the various needs of a broad group of stakeholders (IIRC, 2021). The IIRC's framework is intended to provide information which addresses the six capitals, namely, financial, manufactured, intellectual, human, social and relationship and natural capital (IIRC, 2021). The IR Framework aims to go beyond the existing sustainability frameworks by integrating financial, environmental and social

metrics to report more comprehensively on how value is generated for stakeholders over the short-, medium- and long-term timeframes (IIRC, 2021).

The IR framework introduces the concept of integrated thinking (see Section 1.2). This literature review builds on the different facets of integrated thinking to apply this to an evaluation framework.

Key features of integrated thinking include:

- Responding to stakeholders' legitimate needs and interests,
- Responding to the risks and opportunities in the external environment,
- Assessing the outcomes and trade-offs of an interconnected and interdependent set of activities and capitals and
- A multi-timeframe analysis of activities, performance and outcomes.

adapted from IIRC (2021)

Interestingly, integrated thinking, as a key word, appears a total of only 14 times in the IIRC (2021) Framework. The IR Framework focuses mainly on the definition, the value of implementing integrated thinking and the connectivity of information concept (see IIRC, 2021). There is limited information within the IR Framework explaining how an entity should both implement and potentially evaluate its integrated thinking in a practical context (Dumay & Dai, 2017; Tweedie & Martinov-Bennie, 2015). While research on integrated thinking and its relationship with integrated reporting is limited (ibid), preliminary findings suggest that high quality integrated reporting cannot be achieved without integrated thinking (De Villiers, Hsiao & Maroun, 2020b).

The IR Framework was revised in January 2021, amending the definition of integrated thinking. It clarified that integrated thinking considers, not only the creation (see IIRC, 2013 definition), but also the preservation and erosion of value (IIRC, 2021). Despite the importance of integrated thinking being emphasised (IIRC, 2021), no further implementation guidance was provided.

There are case studies (see Appendix 8) which attempt to show integrated thinking in practice, however, the outcomes do not address how integrated thinking can be evaluated by an entity. Integrated thinking promotes integrated decision-making and actions to consider value creation, preservation and erosion over a multi-timeframe horizon (IIRC, 2021). The case studies do not provide details on how to implement integrated thinking across a wide range of organisations nor the specific steps to achieve integrated decision-making capabilities (IIRC, 2021b) (Appendix 8). A more specific framework is required for practical application.

An emerging body of academic research deals with the benefits of integrated thinking (Section 2.2). It will be useful for companies to understand how to operationalise and evaluate integrated thinking to unlock the benefits. It is also essential to highlight the value and benefits of integrated thinking to emphasise the importance of a study delving further into this concept.

2.2: The benefits of integrated thinking

Table 1 summarises the benefits of integrated thinking highlighted by the prior research.

Table 1: Key benefits of integrated thinking

Benefits	Literature	Section reference
Enhancing information systems: Improved internal decision-making and external reporting.	IIRC (2021); Stubbs & Higgins (2014)	2.2.1
Holistic business overview: Augmenting management's understanding of the business based on a holistic assessment of the capitals and value creation, thereby improving risk/opportunity identification, strategic decisions & business alignment. This includes transparent and integrated business reporting models, which result in positive organisational change.	IIRC (2021); Barth, Cahen, Chen & Venter (2017); Velte & Stawinoga (2017)	2.2.2
Improving internal and external communication channels: Breaking down silos, promoting inter-firm communication and stakeholder engagement.	Rinaldi (2020); Dumay & Dai (2017)	2.2.3
Balanced business assessment and legitimacy: Increasing awareness and accountability of an organisation's economic, environmental and social impact. Multi-horizon focus across short-, medium- and long-term timeframes.	Ghio & McGuigan (2020); Rinaldi (2020); IRC (2018); Beck *et al*. (2015)	2.2.2 & 2.2.4
Higher quality integrated reporting.	IIRC (2021)	4.4

2.2.1: Enhancing information systems

The IIRC's Framework aims to show the value creation process through the capitals (IIRC, 2021). This fundamentally impacts the perspective of various stakeholders ranging from providers of financial capital[6] to employees, shareholders, managers, environmentalists, auditors, customers and the media (De Villiers, 2017). These parties derive value from the disclosure of different capitals.

The IIRC (2021) notes that information systems for both internal and external reporting will be enhanced by applying integrated thinking. This will also enhance management's understanding

[6] Providers of financial capital are the key target group per the IIRC framework (Dumay *et al*., 2016).

of the business and strategy through an assessment of both financial and non-financial factors impacting the capitals and the value creation (ibid).

An entity needs robust internal systems to manage the integrated thinking process which cannot be a scramble to gather information just for a report (Stubbs & Higgins, 2014). Management controls systems (MCS) are critical to integrate sustainability into the core business operations to promote accountability, informed decisions and ethical behaviour[7] (Bui & De Villiers, 2017). MCS are a key mechanism used to support data as there need to be rules, routines and practices involved in compiling such data (ibid). Integrated thinking means that this information should be obtained and used on a continuous basis throughout the year and not just for the reporting process. The integration and incorporation of sustainability objectives into the MCS will result in behaviour which is consistent with the sustainability objectives (De Villiers & Maroun, 2017).

Integrated thinking does not require a complete overhaul of the business model and strategy (McNally *et al*., 2017). Provided there is sufficient direction from the governing body and commitment to integrated thinking at all levels of the organisation, a more integrated approach to business management can be achieved with incremental changes to systems, processes, and structures (Stubbs & Higgins, 2014). Integrated thinking can enhance internal processes and data collection which will have a positive by-product of improved decision-making and reporting.

2.2.2: Holistic business overview

A holistic business assessment is a key feature of integrated thinking (IIRC, 2021). IR, in conjunction with stakeholder engagement via integrated thinking, can "reduce information asymmetry[8] about the capitals that affect value" (Barth *et al.,* 2017, p.47). An improved awareness of non-financial aspects can then lead to a more informed investment (Barth *et al*., 2017). Holistic integration means that organisations cannot simply staple the ESG report and the annual reports as this is a combined report lacking integration (Zhou *et al*., 2017). Integration of financial and non-financial information is an iterative process that implies:

- Communication of the organisation's value creation across the capitals in terms of quantitative and qualitative information,

[7] Per Bui & De Villiers (2017) MCS framework, formal controls consist of strategic and operational boundary/operating controls while informal controls focus on shared values and beliefs of the entity.
[8] Information asymmetry arises from the separation of ownership (principals) and control (agents).

- Incorporating financial and non-financial factors into strategic internal decisions[9] and
- Using the above to assess risks and opportunities holistically.

developed from IIRC (2021); Barth et al. (2017)

The above factors speak to an ethos of integrated thinking embedded in the business processes that can enhance management's business understanding to improve decision-making. The principles-based approach of the IIRC Framework allows for freedom to tailor IR to the entity's requirements (Barth *et al*., 2017; Velte & Stawinoga, 2017). IR aims to improve sustainability reporting by introducing the concept of interconnection among the various aspects of a business (IIRC, 2021). This results in a more transparent and integrated business reporting model based on guiding principles and content elements[10] (IIRC, 2021). The more integrated thinking is embedded in the organisation, "the more naturally will the connectivity of information flow into management reporting, analysis and decision-making" (IIRC, 2021, p.3). Velte & Stawinoga (2017, p.314) state that integrated thinking leads to advancements in reporting and governance to promote "strategic decision making and the creation of sustainable stakeholder value". By balancing the consideration of all capitals, this can lead to improved strategic decisions which lead to improved outputs and outcomes for the respective capitals (IIRC, 2021).

An improved integration in the business (both internally and what is reported externally) results in an improved capital market channel, in conjunction with better internal decision-making (Barth *et al*., 2017). Lower analyst forecast errors, reductions in cost of equity capital and increased market returns are cited as financial benefits of IR (De Villiers *et al.,* 2017; Zhou *et al*., 2017). This highlights the importance of IR disclosures, particularly focused on the application of integrated thinking. These disclosures suggest a higher integration of the IIRC Framework and an improvement in these two channels (see Barth *et al*., 2017). Internalising integrated thinking allows for a consistent application of key business processes to improve overall business viability (De Villiers *et al*., 2020b; Dumay & Dai, 2017).

[9] Given the focus on remuneration policies of executives, the use of integrated thinking in incorporating financial and non-financial metrics will be of relevance, particularly in a strained economic environment.

[10] The guiding principles are strategic focus and future orientation; information connectivity; stakeholder relationships; materiality; conciseness; reliability and completeness; consistency and comparability. The content elements are organisational overview and external environment; governance; business model; risks and opportunities; strategy and resource allocation; performance; outlook; basis of preparation (IIRC, 2021).

2.2.3: Improving internal and external communication channels

Dumay & Dai (2017) find that after adopting the IR Framework, entities develop working groups from different departments to think holistically about the connection of the data between a separate financial and sustainability report. This process allows for the identification of new risks and opportunities (ibid) which promotes the strategic direction of the firm. Streamlined internal communication and the related actions are an output of integrated thinking. Internal practices need to be communicated externally (Rinaldi, 2020). Entities disclose information they view as important and gear the level of detail according to the importance and salience of stakeholders (Barth *et al*., 2017; Majoch, Hoepner & Hebb, 2017). Improving the data collection throughout the year (Section 2.2.1) results in an entity more effectively utilising the data for both internal and external communication purposes. This will allow the evaluation of the capitals, including inputs, outcomes and activities (IIRC, 2021) to be better understood and communicated.

Integrated thinking enhances stakeholder engagement and accountability (Rinaldi, 2020) which may lead to improvements in control systems and, ultimately, value creation for stakeholders (De Villiers *et al*., 2017). This is achieved through a constantly evolving exchange where each stakeholder requires a different type of engagement and approach (Rinaldi, 2020). This fluid and dynamic approach of integrated thinking allows for a holistic assessment of the risks and opportunities for each individual stakeholder (ibid). Understanding the stakeholder beliefs/attitudes and the impact on the organisational reasoning is facilitated via integrated thinking (Rinaldi, 2020). This gears stakeholder engagement and accountability. The disclosure of this engagement can impact the framework for the evaluation of integrated thinking levels.

2.2.4: Balanced business assessment and legitimacy

Balanced reporting is facilitated by integrated thinking, where both positive and negative factors are considered (IRC, 2018). Entities may incorporate these issues into their confidential, internal decision-making process, however, disclosure is essential to promote accountability, transparency and stakeholder inclusivity (IRC, 2018). Assessing both the positive and negative outcomes allows entities to react to problems while simultaneously reassuring stakeholders of the plans in place (ibid).

IR and integrated thinking can be used to achieve various levels of legitimacy, including during a crisis[11], which needs to be managed and disclosed to stakeholders (see Maroun, 2017b; Suchman, 1995). The continuous adoption of integrated thinking can become engrained in the internal philosophy of the entity as a strategic legitimacy tool (Beck *et al*., 2015). Ghio & McGuigan (2020) held an interview with Mervyn King[12] who notes that integrated thinking can revolutionise an entity's thinking and is developed through a discussion of the value creation process by different divisions and levels in the business. Integrated thinking ensures that there is a holistic process to assess risks and related opportunities, improving internal and external perceptions.

A framework to evaluate integrated thinking and identify gaps in application is important in order to capitalise on the proposed benefits. Similarly, analysing the barriers to integrated thinking warrants research in order to develop a framework to evaluate integrated thinking.

2.3: Barriers to integrated thinking

Table 2 summarises the barriers to implementing integrated thinking highlighted by prior research.

Table 2: Key challenges/barriers to integrated thinking

Challenges/barriers	Literature	Section reference
Financial capital focus: Marginalisation of stakeholders in favour of a shareholder-centric management approach. An emphasis on financial capital hinders the management of and reporting on other capitals.	IRC (2018); Dumay *et al*. (2016); Oliver *et al*. (2016)	2.3.1
Prescriptive approach to integrated thinking: Check-box application of principles for reporting which stifles innovation.	Atkins & Maroun (2015)	2.3.2
Communication deficiencies in the organisation: Report length is excessive, greenwashing and poor disclosures of impacts.	Atkins & Maroun (2015); Stubbs & Higgins (2014)	2.3.3
Limited cultural impact: The existing organisational structure and culture hinder integrated thinking.	Dumay & Dai (2017); Stubbs & Higgins (2014)	2.3.3
Difficulties understanding the connectivity among different capitals and their relevance for the business model, including natural resource constraints.	Dumay, Guthrie & La Torre (2019); Dumay & Dai (2017)	2.3.4

[11] How South African companies leverage IR to legitimise their actions/responses to the Coronavirus global pandemic, credit downgrade to junk status and other external circumstances is important. Integrated thinking can aid in responding to a crisis and in ensuring the survival and sustainability of the entity.
[12] Mervyn King is a key contributor to King IV which specifically advocates integrated thinking and underpins a stakeholder-inclusive approach, sustainable development and IR (IOD, 2016).

Table 2: Key challenges/barriers to integrated thinking		
Challenges/barriers	**Literature**	**Section reference**
Data collection issues and failing to recognise the fact that outputs, even if planned, can have negative outcomes.	IIRC (2021); Oliver *et al*. (2016)	2.3.5
Evaluation and assurance of integrated thinking levels.	De Villiers *et al*. (2017); Tweedie & Martinov-Bennie (2015)	2.3.6

2.3.1: Financial capital focus

The IR Framework's focus remains on current and future providers of financial capital (see IIRC, 2021; IIRC, 2013). The fact that there is an explicit focus on financial capital may marginalise other stakeholders and long-term sustainability of the other capitals (Dumay *et al*., 2016). This impacts a proactive approach to integrated thinking (McNally *et al*., 2017). Entities may gear their decisions to financial goals rather than a holistic incorporation of all capitals (Dumay *et al*., 2016; Oliver *et al*., 2016). It has been recommended that the IIRC emphasise that IR considers multiple stakeholders as the current framework fails to address stakeholder accountability (IRC, 2018).

The revised IR Framework states that companies should take actions which consider the creation, preservation or erosion of value and take accountability for these actions (IIRC, 2021). The company has a responsibility to providers of financial capital but needs to fulfil these responsibilities in a sustainable manner (IIRC, 2021; Tweedie & Martinov-Bennie, 2015). Integrated thinking should incorporate stakeholder considerations (Rinaldi, 2020) and the connectivity of capitals (Grassmann, Fuhrmann & Guenther, 2019). This addresses a wider range of stakeholders beyond a focus on providers of financial capital. A true integration will address and consider all capitals, circumventing the focus on only providers of financial capital (IIRC, 2021). A framework for integrated thinking can practically address these concerns. A framework can also add a level of accountability for the entity towards the stakeholders (Tweedie & Martinov-Bennie, 2015).

2.3.2: Prescriptive approach to integrated thinking

A check-box approach to reporting hinders the usefulness of integrated reports and is contrary to an integrated thinking ethos (Atkins & Maroun, 2015). An organisation needs to embrace integrated thinking principles throughout its everyday operations in order to realise the benefits for all stakeholders (Section 2.2). Additionally, having repetitive or lengthy disclosures will not

allow stakeholders to assess the integrated thinking implementation taking place (Atkins & Maroun, 2015). An organisation should not use a potential framework as a prescriptive guide as this can hinder flexibility and innovation (Oliver *et al*., 2016). An integrated thinking evaluation tool needs to be used as a guideline to identify areas of improvement and implement processes throughout the organisation, including an integrated thinking ethos.

2.3.3: Communication deficiencies in the organisation and limited cultural impact

Integrated thinking occurs at three levels namely (1) the governing body; (2) executives and (3) senior management[13] (IRC, 2018). Simply looking at an integrated report (as supervised by a governing body) may not illustrate the full extent of integrated thinking taking place at lower levels of an organisation (ibid). Different levels within an organisation may not explicitly see the benefits of integrated thinking and reporting[14] (Oliver *et al*., 2016). Without a measurable output of results and change, integrated thinking as a concept, may remain in the background as an ideology, rather than a conscious effort of application. Companies attempt to include case studies and human capital assessments, exhibiting integrated thinking at lower levels (see TFG, 2019 for an example). These case studies represent a level of soft thinking (Oliver *et al*., 2016) necessary to elevate integrated thinking. Integrated thinking needs to be institutionalised across all levels in a company to be successful. This implementation across all levels is a key challenge. A framework assists in providing a guideline to achieve this ethos throughout an organisation.

Consultants may be enlisted to assist with preparing the integrated report, yet this may go completely against the integrated thinking notion. The use of consultants suggests a lack of involvement by the board, increases agency risk and also gives rise to the perception that management is not sure how their own entity is creating value (Atkins & Maroun, 2015). The organisation will have to work together within its divisions to achieve the integration of information. Cross functional teams need to share knowledge and experiences to ensure that IR is valid, accurate and complete (Stubbs & Higgins, 2014). A lack of a coherent team structure, defined roles/responsibilities and board guidance impacts on the ability to execute organisation-wide integrated thinking principles (see Section 3.1).

One of the primary goals of IR is to support integrated thinking as it promotes a behavioural change in an entity in conjunction with an increase in collaboration between departments within

[13] Senior management should demonstrate a “commitment and ability to recognise and incorporate the multiple salient factors in financial decision-making and strategy” (Oliver *et al*., 2016, p.231).
[14] This is true for lower levels of employees, adversely impacting integrated thinking (Oliver *et al*., 2016).

the entity (Dumay *et al*., 2019). Dumay & Dai (2017, p.574) investigate the concept of integrated thinking as a "cultural control" and analyse how it operates. The researchers find that integrated thinking can "[clash] with the existing organisational culture rather than driving the new organisational culture" (ibid). The study notes that the tone set by management does not necessarily filter through into everyday operations, contrary to the expectations of integrated thinking (Dumay & Dai, 2017). Departments need to understand one another to identify opportunities and improve overall efficiency and effectiveness (Dumay & Dai, 2017). A lack of entity-wide implementation is a barrier to integrated thinking in the organisation.

Despite the existence of a framework, integrated thinking is not something that can be uniformly applied by all entities (Dumay & Dai, 2017). This is because not all entities lack connectivity among the underlying constructive strategy, governance, performance or departments (ibid). The IIRC Framework delves into detail on why to adopt integrated thinking but lacks clarity on how to implement this (Dumay & Dai, 2017). The effectiveness of integrated thinking as a cultural tool may be limited and may not make a noticeable impact if the practical application is not understood (Dumay & Dai, 2017; Stubbs & Higgins, 2014).

An interesting conjecture by Dumay & Dai (2017) is that a successful company has possibly already embodied integrated thinking to be successful, hence the IIRC's use of this term is not necessarily revolutionary in nature. The IR Framework's usefulness then lies in communicating the practical application and outcomes to stakeholders. This then leads back to communication of integrated thinking as a key barrier to internalising the concept successfully. Inundating management's processes with rigorous requirements to think of connectivity, trade-offs and interdependencies can also detract from independent, tactical and practical thought processes (Dumay & Dai, 2017). An integrated thinking framework can simplify the thought process by pinpointing issues in systems, processes or structures that entities may need to focus on, and ultimately, disclose.

2.3.4: Difficulty in understanding the capital interconnections and interdependencies

Integrated thinking appears to be the foundation, driver and outcome of IR all in one (Dumay *et al*., 2019). This has a level of complexity. Challenges of integrated thinking include understanding the ambiguous concept and how capitals connect and impact internal practices, particularly from a sustainability perspective (Dumay *et al*., 2019; Dumay & Dai, 2017). There is difficulty in understanding the connectivity of capitals to the business model and identifying negative impacts (ibid). Dumay *et al*., (2019) note that despite attempts to provide a theoretical basis for integrated

thinking, the IIRC and current literature do not succeed in this but reiterate what the capitals already say (ibid). Research shows that report preparers and affected stakeholders research integrated report quality to a higher degree than the concepts related to integrated thinking and its benefits and applications (ibid). This lack of understanding integrated thinking hinders the conscious application and evaluation of integrated thinking throughout an organisation.

2.3.5: Difficulties in obtaining relevant data and assessing negative outcomes

The benefits of integrated thinking on internal systems are explored in Section 2.2.1. However, having these systems in place for data collection, monitoring and sorting is a challenge, particularly for smaller entities (Velte & Stawinoga, 2017; Oliver *et al*., 2016). Without appropriate underlying data, the entity will not be able to make informed decisions and execute integrated thinking principles. Preparers of integrated reports seek guidance on how to attach monetary value to the capitals to measure the progress (Oliver *et al*., 2016). However, working towards a quantitative goal may cause more harm through not responding to the dynamic environment (ibid). Having a specified committee, governance structure, stakeholder engagement and management ownership (Stubbs and Higgins, 2014) ensures that information in the report is of a high-quality and compiled ethically. Knowing what data are needed assists in establishing systems to monitor performance (Alrazi, De Villiers & Van Staden, 2015). Data collection, however, still forms a key challenge.

Entities also continue to struggle with an appropriate balance of reporting (IIRC, 2021), choosing to focus on positive aspects to maintain legitimacy (Suchman, 1995). This adversely affects integrated thinking as, internally, the organisation may not be addressing the negative outcomes appropriately (see Section 2.2.4) and, externally, stakeholders lack the requisite security that the entity is appropriately addressing issues.

2.3.6: Evaluation and assurance of integrated thinking levels

The IIRC does not require assurance on the integrated report nor over integrated thinking levels. This can lead to questions about the credibility of underlying information, unless specific assurance[15] is obtained on the reports (Tweedie & Martinov-Bennie, 2015). Data for this need to be validated, similar to the emphasis placed in a financial report (De Villiers & Maroun, 2017). Stakeholders need to have the assurance that what is reported is a fair and balanced reflection

[15] ISAE 3000 allows for a blend of reasonable and limited levels of assurance over a sustainability report. Assurance and data collection need to be balanced with time, cost and incentive (Farooq & Maroun, 2017).

of the entity (De Villiers & Hsiao, 2017; Alrazi *et al*., 2015). There are also limitations to assessing the information in integrated reports as disclosures may be Machiavellian, boilerplate or focused only on positive aspects (McNally *et al*., 2017). This poses a challenge to integrated thinking as external stakeholders would require an output to evaluate the integrated thinking levels. This speaks to developing a proxy to evaluate integrated thinking (Malafronte & Pereira, 2020). Increased regulation/assurance may, however, not be the answer, as integrated thinking practices should be a cultural driver rather than an enforced requirement (Dumay *et al*., 2019). This is a current challenge faced in the integrated and sustainability reporting sphere.

Integrated thinking promotes dialogue which will hold an entity accountable for its actions through communication within the entity and to external stakeholders (Tweedie & Martinov-Bennie, 2015). A caveat is that it may be a weak accountability mechanism because the "extent of integrated thinking occurring cannot be directly disclosed, measured or audited" (Tweedie & Martinov-Bennie, 2015, p.55). Engaging in integrated thinking requires the development of new manners of "measuring, managing and disclosing information" (De Villiers *et al*., 2017, p.454). To increase the reliability of disclosures, the implementation of a specific audit standard seems to be necessary to overcome this challenge. A guided analysis of integrated thinking (by way of a framework) may assist in the accountability process in the absence of specific assurance.

These barriers and related controls can be built into a framework to guide stakeholders in assessing how an entity responds to problems. An entity can also use the framework to navigate the challenges while improving the underlying systems and processes.

Dumay *et al*., (2019) concludes that to understand the implementation of integrated thinking, research needs to move away from the outcome and focus on internal practices and practical application of this ideology. Dumay *et al*., (2019, p.15) redefine integrated thinking as follows:

> "The collective ability of managers and employees to be aware of the company's strategy to create value and how it relates to their day-to-day and evolving functions, so that there is alignment between the overall strategy, available resources (capitals), and the decisions and actions made by managers and employees in the short, medium, and long term."

Based on the above definition, the strategy of the company will have to be both sustainable and to embody value creation for stakeholders. This stresses the need for a guideline to integrated thinking application. The next section will analyse a framework for evaluating integrated thinking

based on underlying principles and associate indicators which have a theoretical underpinning in the theory of integrated thinking, report quality and other models.

3: Assessing a framework for evaluating integrated thinking

To evaluate integrated thinking, a model developed by Trialogue[16] is used. Trialogue has developed one of the first integrated thinking frameworks. It is built on five principles and associate indicators to assist organisations in bolstering and applying integrated thinking. Refer to Table 3 for the proposed framework.

Table 3: Trialogue's integrated thinking framework

Principle	Indicator
Principle 1: Integrated awareness and understanding The organisation demonstrates clear awareness and understanding of the connectivity and interdependence of matters material to its ability to create value over time.	1.1. Awareness and understanding of external factors impacting the organisation's operating context
	1.2. Awareness and response to the legitimate needs and interest of stakeholders
	1.3. Awareness and understanding of risks and opportunities
	1.4. Awareness and understanding of material themes
	1.5 Articulation of business rationale for sustainability and integrated thinking as a driver of long-term value creation
Principle 2: Integrated leadership commitment and capability Leadership provides the mandate for integrated thinking and makes a deliberate and coordinated effort to connect and integrate matters material to organisational sustainability.	2.1. Leadership ambition and commitment to an integrated approach to sustainability
	2.2 Diversity of leadership experience
	2.3. Strategic positioning of sustainability
	2.4. Values and ethics
	2.5. Conscious and relevant adoption of codes and standards
Principle 3: Integrated structures Organisational structures and systems are conducive to integrated decision making and reporting	3.1 Integrated governance
	3.2 Integrated accountability for sustainability
	3.3. Integrated business model
	3.4 Integrated and devolved stakeholder engagement processes
	3.5 Integrated systems, technologies and processes
Principle 4: Integrated organisational performance management Performance management of targets and KPIs is balanced and integrated to express the holistic and comprehensive performance of the organisation over the short, medium and long term.	4.1. Non-financial metrics
	4.2. Targets and contextualised performance metrics
	4.3. Response to performance
	4.4. Integrated assurance

[16] Trialogue is a corporate responsibility consultancy firm conducting research into business sustainability and practical consultancy services in the corporate and social investment field (see https://trialogue.co.za/).

Table 3: Trialogue's integrated thinking framework	
Principle	**Indicator**
Principle 5: Integrated External Communication Communication to external stakeholders offer an accurate, holistic, balanced and integrated view of the organisation's performance and ability to create value over the short-, medium- and long term.	5.1 Integrated marketing and communication 5.2 Integrated external reporting

3.1: Assessment of the underlying principles of the framework

Each of the principles in Trialogue's model is discussed in more detail below.

3.1.1: Principle 1 (P1)

P1 embodies an integrated awareness and understanding of the connectivity and interdependence of matters material to an organisation's ability to create value over time. This concept is rooted in the definition of integrated thinking (Section 1.2). An entity can execute this principle by actively assessing the interconnections and interdependency of capitals used for value creation as espoused by the IIRC (2021). The internal and external factors impacting the business (see Alrazi *et al*., 2015) need to be understood to develop an appropriate response to the risks and opportunities (Section 2.2.2). Understanding how different stakeholders fit into this response (see Barth *et al*., 2017; Majoch *et al*., 2017) illustrates an integrated awareness of the business and an augmenting of management's understanding of the entity (Section 2.2.2). Despite the IIRC framework retaining a financial capital focus (Section 2.3.1), it is necessary for an organisation to have an understanding and consideration of the impacts of the business on multiple stakeholders (IRC, 2018). This allows a business to articulate its sustainability objectives for long-term value creation (see Tweedie & Martinov Bennie, 2015).

Oliver *et al*., (2016) looks for ways in which integrated thinking can be observed in practice as there is a disconnect between the disclosures and practical application. Oliver *et al*., (2016) suggests a framework to assess the practical application of integrated thinking through assessing the hard and soft forms of thinking. This assesses the entity's values and beliefs over sustainability, the use of financial and non-financial data in decision-making and learning through stakeholder collaboration (ibid). An integrated awareness of the business activities and capitals (see Section 2.2.4) incorporates the aforementioned assessment, highlighting the long-term impacts on economic, social and environmental factors (IRC, 2018). P1 provides indicators to

identify the application of an organisation's understanding and awareness of its capitals, activities, material themes, stakeholder needs and interconnections.

Malafronte & Pereira (2020) identify that an organisation's practical application of policies is a proxy of integrated thinking. This involves an overarching strategy and vision by integrating capitals of the business. By way of an integrated awareness and understanding of the business (P1), an entity can implement policies that derive value for stakeholders across the various capitals. This promotes sustainability and long-term value creation for multiple stakeholders.

3.1.2: Principle 2 (P2)

P2 speaks to the leadership of the entity and management of the entity taking responsibility for the direction of the company (Section 2.2.3). This element arises out of a need for the tone at the top of the entity (IOD, 2016) to drive the integrated thinking ethos. This ethos needs to permeate the different levels in the business (IRC, 2018).

Research has identified four key areas of integrated thinking, these being external value focus, integrated planning, effective governance/oversight and integrated communication (see IFAC, 2015). P2 indicators assist in assessing the organisation's board structure, the commitment to sustainability and integration, the adoption of codes and the values of the entity. The approach to, and disclosure of, sustainability objectives can be leveraged as a strategic legitimacy tool (Beck *et al*., 2015) (Section 2.2.4). The external value focus is evidenced in the CEO and CFO analysis of the business which also highlights future business plans. The experience and diversity of the board structures speaks to the effective governance and oversight to execute plans (see IOD, 2016). Management need to have plans in place to execute on the sustainability objectives (Section 2.2.4) and then communicate the output and outcomes (IIRC, 2021) both internally and externally (Section 2.2.3).

Guthrie, Mannes-Rossi & Orelli (2017) note that internalisation is vital to promote change in an organisation through cross functional teams and the involvement of directors in the preparation of reports. Management can exhibit their commitment to organisational sustainability by establishing a strong culture of integrated thinking (Section 2.3.3) which drives the organisational values and ethics (see Dumay & Dai, 2017). Exhibiting a commitment to corporate sustainability is noted as a proxy of integrated thinking (Malafronte & Pereira, 2020). Indicators of this commitment to sustainability can be evaluated through the leadership structures, the entity's value and ethics as well as the practical adoption and outcomes of codes and standards.

3.1.3: Principle 3 (P3)

An organisation needs to have appropriate structures in place to support integrated decision-making and reporting (P3). These structures need to be supported by good corporate governance principles (see IOD, 2016), high levels of accountability (Rinaldi, 2020; Tweedie & Martinov-Bennie, 2015), continuous stakeholder engagement (Rinaldi, 2020) and implementing robust systems, technologies and processes (Stubbs & Higgins, 2014). These indicators allow an entity to execute P3 and develop a holistic business overview (Section 2.2.2).

Well-developed information systems analysing financial and non-financial elements (Section 2.1.1) provide the necessary data for an integrated analysis to take place. This analysis is supported via stakeholder engagement (Section 2.2.3) which is a critical element of P3 to exhibit integrated thinking (see Rinaldi, 2020). Engaging with stakeholders, quantifying performance and having controls in place is essential to contextualise and support how problems are managed (McNally *et al.*, 2017). This provides the necessary structure for informed decision-making to take place which considers value creation for multiple stakeholders across multi-timeframe horizons.

Alrazi *et al*., (2015) develops a framework for sustainability accounting and IR influences. The model is premised on determinants to reporting including organisation characteristics[17], stakeholder pressure and external factors. Stakeholder engagement (Section 2.2.3), sustainability MCS (Section 2.2.1) and sustainability accounting are the drivers for proactivity within this framework (ibid). This leads to a report (integrated, sustainability or other) which enhances accountability, leading to increased legitimacy and stakeholder satisfaction (ibid). Disclosures should speak to addressing these factors, illustrating integrated thinking practices.

It is important to have a proactive assessment of multi-capital opportunities and how capitals contribute in a mutually reinforcing manner (see the "spring model" suggested in IR, 2019). Developing a purpose, materiality framework, cross-department thinking and training are methods to implement integrated thinking (IR, 2019). P3 aims to address these concepts by way of an integrated structure focusing on key indicators of sustainability, a combined business model and stakeholder engagement. The materiality framework is assessed in P1.

Proactivity within a framework is the key aspect for the accounting to be transformative (Atkins & Maroun, 2018; Alrazi *et al*., 2015). Integrated thinking should transcend disclosures made

[17] These include organisation size, internalisation, values, managerial attitude/motivations, strategy, financial performance, organisational culture and governance (Maroun, 2017a; Alrazi *et al*., 2015).

because of compliance pressure/impression management (Atkins & Maroun, 2018) (Section 2.3.2). The framework should be proactive in terms of stakeholder engagement, monitoring management systems and driving the strategy of the business (Atkins & Maroun, 2018; Alrazi *et al*., 2015). These factors are considered when scoring the P3 indicators. Integrated structures support the development of an integrated business model. An integrated business model, addressing all capitals (IIRC, 2021), will lead to higher levels of integrated thinking (Section 2.2.2).

Malafronte & Pereira (2020) find that proxies of integrated thinking (policies, monitoring and improvement) need to look at the commitment towards setting objectives to meet an integrated strategy across a multi-timeframe horizon (see also Section 2.2.4). An integrated structure allows an entity to implement practical policies, monitor the output and outcomes of these integrated policies/strategies and to identify areas of improvement. The indicators in P3 offer an execution strategy to achieve the integrated strategy objectives.

3.1.4: Principle 4 (P4)

P4 focuses on performance measurement. The implementation of KPIs and related disclosures can paint a better picture on achieving certain milestones (Dumay & Dai, 2017; Oliver *et al*., 2016). This depicts levels of internalised integrated thinking and provides the relevant metric to measure P4. These KPIs should interlink with multiple capitals and create sustainable outcomes (Oliver *et al*., 2016). The indicators of P4 focus on non-financial metrics, contextualising performance holistically in terms of economic, social and environmental impacts and the response to this performance. This should address both positive and negative outcomes (IIRC, 2021) (Section 2.2.4). This provides a monitoring and improvement assessment which speaks to an ethos of integrated thinking (Malafronte & Pereira, 2020). Performance across the capitals (IIRC, 2021) needs to be a proactive drive throughout the organisation (Oliver *et al*., 2016) to ensure sustainability and company longevity (see Atkins & Maroun, 2018). The organisation's outputs and outcomes (see IIRC, 2021), and their measurement, is an important internal and external indicator of integrated thinking execution (P4).

Integrated assurance (Section 2.3.6) is another indicator loading on P4 which aims to provide comfort to external stakeholders. The level of assurance and controls over information disclosed will drive the external perceptions of the integrated thinking application (Section 2.2.4). This includes the internal processes to verify the data management uses in the integrated decision-making process (Stubbs & Higgins, 2014). External assurance then provides the requisite comfort

to stakeholders that the information disclosed is valid, accurate and complete (De Villiers & Maroun, 2017). Assurance in the IR sphere is still a developing practice (Section 2.3.6).

3.1.5: Principle 5 (P5)

P5 looks at the external communication channels (Section 2.2.3; 2.3.3 & 2.3.6). IR is well developed in South Africa, having been a listing requirement since 2010, where King III's adoption by the JSE resulted in it becoming the first stock exchange requiring the preparation of an integrated report or an explanation of why this was not prepared (Maroun, Coldwell & Segal, 2014). Listed entities, in particular, have been preparing and improving integrated reports over a period of more than 10 years, however, there needs to be a mindful application and internalisation of the report (Malafronte & Pereira, 2020; McNally *et al*., 2017). P5 assesses any additional reports and other communication channels. These can provide further details of the entity's performance and activities. An integrated report should be an overall summary of all aspects and the related interconnections. Additional reports, such as a sustainability report (see Section 3.2.2) can then delve into the detail.

It is recognised that integrated reports are not the only source of information for stakeholders as websites and media also process information in a more reactive and proactive manner (Zhou *et al*., 2017). Integrated thinking disclosures can take place through other reporting avenues (see Oliver *et al*., 2016; Stubbs & Higgins, 2014). Similarly, the broad disclosures of the concept in an integrated report may conceal the lack of practical application. This is a limitation of this study in applying the integrated thinking framework only to the integrated report. However, using an integrated report to evaluate integrated thinking provides an initial basis to develop a framework. Future studies (see Section 6) can then build on this framework development and application.

The underlying indicators (Table 3) can indicate whether an entity executes the principles of integrated thinking. By way of identifying the relevant disclosures which illustrate an indicator, the level of integrated thinking can be evaluated. This can then be compared to other entity-specific metrics to determine potential determinants of integrated thinking.

With the above points in mind, the two primary research questions considered by the remainder of this thesis are:

> **RQ 1: What are the levels of integrated thinking (according to the normative framework) among South African-listed companies based on the information being included in their integrated reports?**

RQ2: What are the possible determinants of higher levels of integrated thinking?

Understanding potential drivers and determinants of integrated thinking is important in applying the framework. The next section develops the theory behind potential metrics and the relationship that these have with integrated thinking principles.

3.2: Potential interrelationships between integrated thinking and other metrics

This research will examine whether there is an association among integrated thinking factors and financial performance; leverage; entity size; environmental performance and reporting mechanisms (Refer to Section 4.3 for the methodology and Section 5.3 for the results).

3.2.1: Financial performance, leverage and entity size metrics

A business adopting an integrated approach to resource allocation, strategies, risk assessments and performance measurements can result in improved liquidity (Barth *et al*., 2017), better internal decision-making capabilities (ibid), reductions in cost of equity capital (De Villiers *et al*., 2017) and increased market returns (Zhou *et al*., 2017) (See Section 2.2.2). This suggests that a higher level of integrated thinking may improve the financial performance and leverage of an entity, improving overall business viability (De Villiers *et al*., 2020b; Dumay & Dai, 2017). An entity disclosing its integrated thinking practices signals the appropriate managing of economic, social or environmental concerns (Malola & Maroun, 2019) to reassure investors of the processes taking place (Barth *et al*., 2017; Maroun, 2017b). This may signal higher investment interest through stakeholders understanding the financial position and leverage strategies of the entity (ibid).

RQ2.1: Is there an association between the financial performance and leveraging of an organisation and the level of integrated thinking?

Certain organisational features such as entity size and governance structures have been noted as possible determinants of IR (Malola & Maroun, 2019; De Villiers *et al*., 2017). This also implies that larger entities have the resources to apply the structures and processes necessary for integrated thinking to take place throughout the organisation (Rinaldi, 2020). Smaller entities may not see the benefit of processes to produce an integrated report (Velte & Stawinoga, 2017) and will not have the culture, controls or reporting processes to implement high quality reporting (De Villiers *et al*., 2017). However, different size entities can still adopt integrated thinking which further stresses the need for a framework.

RQ2.2: Is there an association between the size of an organisation and the level of integrated thinking?

3.2.2: Social/environmental performance and reporting mechanism metrics

An integration of social and environmental impacts in IR disclosures can signal the implementation of integrated thinking (Oliver *et al*., 2016; Adams, 2013). Integrated thinking involves a multi-capital consideration of the interconnected activities and outcomes (IIRC, 2021). Human capital, natural capital and social and relationship capital are the building blocks of ESG performance (IOD, 2016). Management needs to address holistically these capitals in terms of the activities, outcomes and outputs to drive an increase in ESG performance. Incorporating ESG metrics into activities and performance measurements indicates a move from siloed to integrated thinking (IOD, 2016) where a balanced business assessment is present (see Section 2.2.4).

Addressing environmental issues promotes the long-term sustainability of a company (IIRC, 2021). Concurrently, social issues are important in order to consider multiple stakeholders and respond to their legitimate needs and interests while responding to the external environment (ibid). Finally, sustainable development looks to leverage on integrated thinking principles to promote the societal context, stakeholder inclusivity and good governance practices (IOD, 2016). The objectives of integrated thinking and enhanced ESG performance are aligned in that they aim to promote sustainable development over a long-term horizon, balancing multiple capitals and stakeholders (see Section 2.2.2).

The following research question is developed:

RQ2.3: Is there an association between the ESG performance of an organisation and the level of integrated thinking?

This report assesses the ESG performance of a business through three proxies for social and environmental impacts. Firstly, this includes classifying companies by industry and allocating an impact score (Malola & Maroun, 2019; Michelon, Pilonato & Ricceri, 2015). These industries include ‘mining/industrial’, ‘financial services’ and ‘other industries’ (ibid). Organisations which operate in a socially sensitive industry are considered to disclose additional information on ESG impacts (Malola & Maroun, 2019; Cho, Guidry, Hageman & Patten, 2012). The mining/industrial industries are classified as sensitive industries, therefore having a higher impact score (ibid).

The second proxy for environmental performance is the Carbon Disclosure Project (CDP), which runs a global disclosure system for companies to manage environmental impacts (CDP, 2020). This project allocates scores to organisations, based on the social and environmental impacts, particularly on the organisation's impact on climate change, forests and water security (ibid).

Finally, the JSE Socially Responsible Development Index (SRI) can be used as a proxy for an entity's environmental performance. This index reviews the All Share Index against a set of ESG concerns, promoting sustainable and transparent business practices (JSE, 2021). ESG frameworks enhance a business through consideration of broader implications of business activities on the environment and society (Malola & Maroun, 2019; De Villiers *et al*., 2017; Dumay *et al*., 2016).

A company's approach to governance includes the appointment of a separate ESG committee and committees overseeing additional integrated/sustainability reports. This can be indicative of a more coordinated approach to dealing with environmental and social issues (Alrazi *et al*., 2015). This approach can be a predictor of higher quality reporting (Malola & Maroun, 2019) and, by inference, higher levels of integrated thinking.

Similarly, the prior research finds that the preparation of a separate sustainability report is an indicator of a stronger commitment to managing ESG issues (Malola & Maroun, 2019; De Villiers *et al*., 2017; Michelon *et al*., 2015; Cho *et al*., 2012) and better quality non-financial reporting (Malola & Maroun, 2019; De Villiers *et al*., 2017; Alrazi *et al*., 2015). A separate sustainability report is a proxy for the quality of ESG disclosures (ibid) and may indicate better underlying systems and processes to obtain data and support detailed reporting (Alrazi *et al*., 2015). A successful integrated report blends sustainability standards with integrated thinking (De Villiers *et al*., 2017). Applying the same logic to integrated thinking, the final sub-question is:

> **RQ2.4: Are integrated reports, accompanied by separate sustainability/other reports, and overseen by a separate ESG committee, associated with the level of integrated thinking?**

The number of pages in the integrated report will also be recorded in order to determine whether the length of information disclosed has a relationship with integrated thinking levels. This assessment will be an ancillary statistical test to the above research questions. The effect of time on integrated thinking levels will also be explored by assessing the changes in integrated thinking scores across the study period.

The Trialogue model provides an emerging evaluation tool for organisations and stakeholders to gauge the levels of integrated thinking taking place. This framework is applied to a sample of listed entities in order to obtain integrated thinking level scores. These scores are used to address the research questions. The methodology is discussed next.

4: Methodology

The current study is grounded in an interpretive approach to collecting and analysing data (Maroun, 2012; Baker & Bettner, 1997). A mixed methods approach is adopted according to a two-stage process to address RQ1 and RQ2. The first stage will include content analysis (Section 4.2) and a factor analysis (Section 4.3) to evaluate what companies disclose in their integrated reports and to gauge the level of integrated thinking. The second stage (Section 4.3) will involve using quantitative methods to test for associations among identified determinants and the levels of integrated thinking. Because the study builds on an existing body of work dealing with sustainability and integrated reporting and does not develop or expand on theory, it is not regarded as a grounded study (Baker & Bettner, 1997).

4.1: Sample

The study is based on the Top 100 JSE-listed companies by market capitalisation (as at 31/12/2018) which had also prepared integrated reports at the time of data collection. Five entities were excluded because they formed an entity in the same group of companies (for which the report was already assessed) or reports were not available. Two entities[18] which fell outside of the Top 100 (and were used in the pilot study discussed below) were included judgementally to assess the levels of integrated thinking disclosure of smaller entities. This left a final sample of 97 entities. Refer to Appendix 1 for the sample list.

Given the well-developed reporting environment in South Africa, coupled with the requirement to prepare an integrated report per King IV (IOD, 2016; Maroun *et al*., 2014), integrated reports are used as the reporting channel through which to assess the integrated thinking application. Given that integrated reporting by South African listed companies is *de facto* mandatory (IOD, 2016), self-selection bias associated with voluntary reporting is reduced[19] (Barth *et al*., 2017; Zhou *et al*.,

[18] These include Allied Electronic Corporation and EOH Holdings Limited. These were part of the pilot study.
[19] This concern is navigated as this study's selected sample are all JSE-listed entities who are mandated to comply with King IV principles, which includes advocating integrated thinking communicated through an

2017). Stubbs & Higgins (2014) also note a preference for mandatory disclosure because of regulations leading to more substantial disclosure and reporting improvements.

The largest listed companies are included in this study. This controls for the possibility that a lack of resources or technical expertise (Malola & Maroun, 2019), lack of financial analyst following (ibid) or a lack of experience in applying the IR Framework (IIRC, 2021) will impact the report quality (Malola & Maroun, 2019; De Villiers *et al*., 2017). If the report quality is impacted, this adversely impacts the organisation's ability to disclose integrated thinking execution (Barth *et al*., 2017). The largest listed companies are more likely to have the resources and controls (Stubbs & Higgins, 2014) to obtain the data necessary to implement integrated thinking principles[20]. The sophisticated reporting environment can be leveraged to disclose the integrated thinking execution to stakeholders (De Villiers *et al.*, 2020b).

Integrated thinking disclosures of large, listed entities can be used to develop a roadmap to best practice disclosures which can guide the execution of integrated thinking principles. Further applications in a practical business sphere can then be explored. Despite the large sample, the objective of this study is not to extrapolate findings but to explore the level of South African integrated thinking application for a defined period and to examine possible drivers and factors of integrated thinking. This is comparable with studies conducted to determine report quality and drivers (Prinsloo & Maroun, 2020; Malola & Maroun, 2019; De Villiers, Rinaldi & Unerman, 2014; Hrasky, 2011) but adapted to focus specifically on integrated thinking. Because this is an emerging framework; findings should be generalised with caution.

The period of review covers the 2017, 2018 and 2019 financial years. There were few reporting or regulatory developments that took place in this period which would specifically impact the nature of integrated thinking disclosures. This ensures a control measure for the scores developed through the framework. King IV was adopted during the period under review (IOD, 2016), however, the impact of this would be to strengthen regulations and governance practices. Integrated governance, values, ethics and the adoption of codes are indicators of the execution

integrated report. King IV notes that entities need to "apply and explain" how the principles of good governance (which includes the preparation of an integrated report) are practiced (IOD, 2016).

[20] SMEs also have the potential to capitalise on the benefits of integrated thinking when operationalised. However, these entities may not necessarily have the need nor the ability to disclose this, which makes the measurement framework difficult to apply. As such, it is beyond the scope of this research.

of integrated thinking principles (Table 3). King IV principles speak to incorporating governance standards in operationalising integrated thinking. This is a valid contributing regulatory change.

The 2019 period provided the most recent set of reports published at the commencement of this research. Two comparative periods are used to assess the trends in the integrated thinking levels. The framework has been applied to a large sample group of 97 entities with three reports per entity. This allows the researchers to identify how the framework can be applied and to produce a high number of integrated thinking scores. The sample also represents a wide range of industries. The framework has been applied to 26 different industries (see Appendix 2), providing a holistic assessment of integrated thinking disclosures across organisations in different economic, social and environmental contexts.

4.2: Data collection

The research examines the primary integrated reports issued to stakeholders. Separate sustainability reports, ESG checklists, interim results, investor presentations and companies' webpages are not included in the analysis. This is because an integrated report should encapsulate underlying ESG, financial and other metrics (Zhou *et al*., 2017) (see Section 3.1.5 and 3.2.2).

Following a similar approach to that used by the environmental (Gray, 2006), sustainability (Cho, Laine, Roberts & Rodrigue, 2015) and integrated reporting (Maroun, 2018) literature, qualitative content analysis is used to collect data for addressing RQ1. Content analysis is used because of its suitability for dealing with material which is not consistently formatted, while highlighting trends and investigating both text and graphic disclosures (Krippendorff, 2013). Content analysis is a popular means for coding and scoring different types of disclosures in accordance with a normative framework (Guthrie, Petty, Yongvanich & Ricceri, 2004). The approach involved a two-stage process.

Firstly, each report for each entity and financial year under review was read several times to gain a sense of its content and structure (Solomon & Maroun, 2012). The reports were re-examined to identify disclosures dealing with the principles/indictors outlined in Table 3 (Section 3). This resulted in different types of disclosures being aggregated according to the principles/indicators. Examples included: details on governance structures, ESG performance indicators, explanations of strategies/business models and the materiality determination process. Qualitative and

quantitative disclosures were evaluated. Pictures, graphs and tables were examined to the extent that these formed part of a section in the integrated reports rather than in their own right.

The result was a detailed theme table which included integrated report disclosures classified according to one or more of the principles outlined in Table 3. The disclosures were recorded separately for each company. The frequency of disclosures per principle per company was recorded. The total number of disclosures per principle was also noted. Examples are provided in Section 5.

Secondly, scores were awarded to each indicator based on a five-point scale by the researcher. The scoring process was inherently subjective. Refer to Section 4.4 for the validity/reliability of the scoring process and the management of the inherent subjectivity. Trialogue developed a rating scale to assess the execution of integrated thinking principles. The generic rating scale to be applied:

- Level 1: No relevant disclosure or evidence of response relating to sub-principle
- Level 2: Boilerplate / superficial description of response to sub-principle without any substantiation of relevance and or application to value creation
- Level 3: Basic explanation of response to sub-principle, including limited or incomplete outline of relevance, application to value creation and integration to related sub-principles
- Level 4: Good explanation of response to sub-principle, including an informative but not comprehensive outline of relevance, application to value creation and integration to related sub-principles
- Level 5: Comprehensive explanation of response to sub-principle, including a comprehensive outline of relevance, application to value creation and integration to related sub-principles.

The scores per indicator are aggregated in two ways:

- The scores per indicator are used to calculate a mean, minimum and maximum score per integrated reporting principle as per Table 3. Refer to Section 5.2, Table 5.
- The scores per indicator are grouped/aggregated using an exploratory principal component analysis with Varimax rotation[21]. As is the standard in the social sciences, only

[21] This is a technique used to aggregate a large number of variables. This is done by extracting the maximum variance common to the variables and reducing them to a single factor or score.

components with an eigen values greater than 1 will be retained to balance exploratory power with ease of interpretation. Similarly, the rotated component matrix will include elements with a loading greater than 0.4 (refer to Appendix 5 and Appendix 6). The results from the component analysis will be used to 'calibrate' the integrated thinking schematic (Figure 8) and provide additional insights. Refer to Section 4.3 for further information on the data analysis for the factor analysis.

4.3: Data analysis

A mixed methods approach is followed. The first part of the results relies on a qualitative assessment of the disclosure checklist. An interpretive assessment highlights examples of integrated thinking disclosures of high and poor quality categorised by integrated thinking themes or principles (see Table 3).

In scoring the integrated reports and performing the content analysis, examples of best and worst practice for disclosure of integrated thinking principles are identified. A limitation to this study is that all information to score integrated thinking is obtained from the integrated reports. As such, the integrated thinking is only being evaluated on what is disclosed in the report (see Sections 3.1.5 and 3.2.2). Future studies (Section 6.2.2) can address the delimitation. A summary of best and worst practice indicators noted across the sample is provided (Section 6, Table 11).

Each indicator consists of key disclosure item questions developed by Trialogue to underpin the execution of the principle. Each report for each entity was then read several times and the disclosures dealing with the principles/indicators (Table 3) were then scored according to the five-point scale (Section 4.2). It is important that the disclosures highlight how the entity is executing the specific principles. By way of analysing the reports, entities which scored a level of 5 for certain indicators are included in Section 5.1 to illustrate the best practice examples. A level of 5 is awarded when the disclosure exhibits a high performance across all the underlying indicators of that principle. The analysis of the disclosure includes the scorer being able to identify the indicators being comprehensively discussed in an integrated and interconnected manner. The indicators require a yes/ no answer to analyse the disclosure in the integrated report. The binary outcome reduces the subjectivity in assessing the disclosure checklist. This set of sub-questions per indicator are then aggregated to obtain a percentage score to analyse the level of the indicator and then further analysed to score the principle (see Section 4.4).

The average integrated thinking scores per principle per year are then determined (Section 5.2). This is calculated as an average of the 97 entities in the sample per year. This allows for trends in the integrated thinking levels in a South African context to be assessed. The average, maximum and minimum integrated thinking scores across all three periods are determined to support the descriptive analysis of integrated thinking execution among JSE-listed entities. To analyse the integrated thinking performance further, the percentage of entities scoring below 70% per principle per year is determined and tabulated (Section 5.2). This provides a more comprehensive picture of the changes in the performance of principles over time to identify the weaker and stronger areas of integrated thinking execution. For example, this analysis reveals that more than one third of entities in the sample have consistently scored below 70% on Principle 4 which supports the subsequent discussion in the results. The calibration test (see Section 4.4) then compares the integrated report quality scores to the integrated thinking level scores (Section 5.3.2) to corroborate that report quality is linked to higher levels of integrated thinking (Barth *et al*., 2017).

Next, the integrated thinking indicators were grouped using an exploratory factor analysis. The factor analysis revealed three dominant factors accounting for the variance in integrated thinking scores. Refer to Section 5.3 for details on the factor determination. The factors include:

- managing of and reporting on value creation,
- stakeholder awareness and corporate accountability and
- governance

The scores generated per indicator were used to calculate an integrated thinking score for each of the above factors. Results are presented in Section 5.3 and Appendix 7. The scores are presented graphically and, together with examples of best and worst practice obtained from integrated reports, are used to address RQ1.

To address RQ2, for each entity, additional data were collected for the respective financial years under review. The data were obtained from reputable company statistic sources. Refer to Section 3.2 for the background rationale and research in selecting the metrics below. The data include the size of the companies, their financial performance measures, leverage, ESG performance measures (industry impact score, CDP score and SRI index), the presence of a separate ESG committee, whether sustainability or other reports are prepared and the number of pages in the integrated report. Each of these is treated as a grouping or independent variable. The integrated

thinking scores (generated from the factor analysis) are compared for the different levels of the grouping/independent variables (Table 4) considering each separately to evaluate possible interconnections between integrated thinking levels and the grouping variables.

Descriptive statistics are used to show differences in the different elements and integrated thinking scores for the 2017-2019 reports. Not all of the data were normally distributed. Kruskal Wallis, Jonckheere-Terpstra and Mann-Whittney U Tests are used to examine differences in integrated thinking scores according to each of the variables under review. Each of the three factors from the factor analysis above are allocated the relevant integrated thinking score obtained from the scoring process of each entity. These statistical tests determine if integrated thinking scores (per factor analysis) vary with the level of the grouping and independent variable and the sign of any associations. This is consistent with research in the integrated reporting sphere (see Prinsloo & Maroun, 2020; Malola & Maroun, 2019). The variables and statistical tests are summarised below.

Table 4: Summary of variables used in the statistical analysis

Grouping variable	Assessment[22]	Statistical approach[23]	Background theory
Size	Entities are allocated to a size quartile based on the natural log of total assets of the entity.	H statistic & J-T statistic	Section 3.2.1 RQ2.2
Financial Performance	Entities are allocated to a quartile based on the "return on assets" metric. This is determined by taking the profit after tax divided by the total assets of the entities.	H statistic & J-T statistic	Section 3.2.1 RQ2.1
Leverage	Entities are allocated to quartiles based on the debt/equity ratio of the entity which is derived by dividing the total liabilities by the equity of the respective entities.	H statistic & J-T statistic	Section 3.2.1 RQ2.1
Industry	Entities are allocated a score dependent on the environmental impact within the specific industry: mining/industrial [value of 3]; financial services [value of 2] and other industries [value of 1] (ranking per Michelon *et al*., 2015). Refer to Appendix 2[24].	H statistic & J-T statistic	Section 3.2.2 RQ2.3
CDP	CDP scores are obtained (see CDP, 2020) for the available entities and scored as per Appendix 3. The scores are allocated to each company and obtained from 2016 – 2018. A one-year lag is used to allocate the scores to the	H statistic & J-T statistic	Section 3.2.2 RQ2.3

[22] 1 is allocated to the lowest quartile (i.e. smaller size/weaker financial performance/higher leveraging/weaker ESG scores) and 4 to the highest quartile (higher performing metrics).
[23] The three statistical tests used in the quantitative assessment are the Kruskal-Wallis H (H statistic); Jonckheere-Terpstra Test (J-T statistic); and Mann-Whitney U (U statistic).
[24] In total, 24 entities are allocated to mining/industrial; 38 to financial services; and 35 to other industries (Appendix 2 – Total of 97 entities).

Table 4: Summary of variables used in the statistical analysis			
Grouping variable	**Assessment[22]**	**Statistical approach[23]**	**Background theory**
	periods under review in this study of 2017-2019. Each entity is allocated to a quartile for statistical analysis. This represents ESG performance and is an ordinal score developed independently by the CDP.		
SRI	The JSE Socially Responsible Development Index (SRI) index was obtained with each entity (JSE, 2021) either being on the list (Yes) or not being included (No). This is used as a sensitivity test.	U statistic	Section 3.2.2 RQ2.3
Separate ESG Committee	It was determined whether each entity had a separate ESG committee (Yes or No)	U statistic	Section 3.2.2 RQ2.4
Separate sustainability report prepared	It was determined whether each entity had a separate sustainability report (Yes or No)	U statistic	Section 3.2.2 RQ2.4
Other reports	It was determined whether each entity had other reports issued (Yes or No)	U statistic	Section 3.2.2 RQ2.4
Pages	The number of pages in the integrated report was recorded	H statistic & J-T statistic	Section 3.2.2

Each factor is ranked individually to run the relevant statistical test. The Kruskal–Wallis H tests is a non-parametric method for testing whether samples originate from the same distribution. It is used for comparing three or more independent samples of equal or different sample sizes (see Prinsloo & Maroun, 2020; Malola & Maroun, 2019). This is used to determine whether there is a statistically significant difference between the integrated thinking score per factor and the grouping variable under review. The Jonckheere-Terpstra test is used to determine whether there is a significant statistical difference and the direction of the relationship. It predicts how the differences in the dependent variable depend on the ordinal nature of the groups of the independent variable (see Prinsloo & Maroun, 2020). Mann-Whitney-U Tests are used to perform a sensitivity test for the statistical variance in integrated thinking levels and variables (Table 4). This test is appropriate[25] as the relevant data is non-parametric in nature and is not normally distributed.

[25] A Kruskal Wallis H and Mann-Whitney U-test was considered more appropriate as the aim of the paper is not to delve into variances in quality measures to establish causal relationships (see Malola & Maroun, 2019). Multiple regression/structural equation models were not developed for the purposes of this research.

Consistent with the prior research (see Malola & Maroun, 2019), a 5% significance threshold is used. The study is exploratory and seeks to provide an emerging framework for integrated thinking. As a result of the subjectivity in the scoring process, limited period under review and the fact that data about firms' internal application of integrated thinking have not been obtained through case studies or interviews, the results should not be interpreted as implying a causal relationship between drivers and integrated thinking. This is an inherent limitation which will need to be addressed by more detailed econometric analysis in the future (see Section 6).

4.4: Validity and reliability of data

To ensure validity and reliability of the data, the following steps were taken:

- The proposed framework and scoring composition has been developed by an independent consulting firm (Trialogue) which has several years' experience with assisting companies with their integrated reports and supporting management systems. Trialogue and the researchers consulted on various aspects of the model and scoring process. In addition, each of the framework's elements was grounded in the relevant prior research (Section 2 and Section 3.1) to ensure accuracy and completeness.
- Scores used to determine the level of integrated thinking were assigned by the researcher and evaluated by two research assistants working independently. For each principle and the relating sub-principles/indicators, a set of questions was developed to explicitly exhibit that principle. To reduce subjectivity, the question required either a yes or no response (binary outcome) to the checklist sub-question (the underlying checklist is not included in this report). For the sub-principle, these yes/no responses were then added and expressed as a percentage to weight each sub-principle/indicator evenly and ensure that any potential overlaps between the five levels is minimised. The sub-principle/indicator scores were then added and shown as a percentage for each of the five main principles[26]

[26] For example, Indicator 1.1 (Table 3) will include the assessment of the Chairman's statement to identify whether the statement makes specific reference to, inter alia, political, social or environmental factors (Alrazi *et al*., 2015) as part of the sub-questions in the dichotomous questionnaire. This will be answered as either a "yes" or "no" independently by the researcher and two research assistants and then weighted with the other sub-questions to obtain a percentage for that indicator and, ultimately, the principle's overall percentage score when aggregated with the other indicators. This is then applied to the five-point scale. These sub-questions have been developed through the assessment of the framework by the lead researchers and Trialogue in conjunction with the prior literature analysis (Section 2 and Section 3). The dichotomous questionnaire is completed for each company to evaluate the principles.

(to obtain the score on the five-point scale and limit the subjectivity in directly allocating the level through the use of the binary outcome sub-questions).

- Disclosures are analysed using paragraphs as the unit of account to avoid overlooking context and misinterpreting content. Disclosures are analysed per indicator and then grouped by principle using the model developed by Trialogue (Table 3).
- Material differences were flagged for the attention of the lead researcher who determined the final score[27]. There were specific criteria to dictate the judgement with limited complexities to rate the respective reports. The framework is, therefore, simple to apply. This has benefits to a company looking to operationalise the framework to enhance integrated thinking.
- The researchers understand integrated reporting and the IIRC framework. All researchers hold, at minimum, undergraduate degrees in accountancy/auditing with experience in analysing integrated reports.
- The framework is supported by relevant literature and robustly assessed (Section 2 and Section 3). The research is supported by the large sample size used which assesses the framework against the top JSE listed entities.

- The coding process was piloted with eleven listed companies before the entire sample was analysed[28]. The researcher and Trialogue evaluated the selected companies independently.
  - These eleven companies were firstly analysed by three research groups. To avoid inter-coder reliability problems, the lead researcher then coded all the data for the pilot study to confirm the research group results. Differences were examined and resolved by the lead researcher.
  - The researchers (for both the pilot and main study) used the same standardised questionnaire to rate the entities based on the framework per Table 3 (Section 3).
  - Trialogue (a third-party consultancy firm) reviewed the results of the pilot study. This included the application of the framework, factor analysis used, observations noted and conclusions reached based on the results of the pilot study. This

[27] Statistical measures for inter-coder reliability were not generated as all differences were examined and resolved by the lead researcher through consultation. A pilot study was undertaken to calibrate the application of the model.

[28] The eleven companies in the pilot study have been marked with an asterisk in Appendix 1. These companies were selected based on convenience rather than on using a statistical approach.

confirmed that the scoring process and outcomes were aligned with Trialogue's intended methodology and use for the framework. The results were contrasted to ensure accurate and consistent scoring. All differences were resolved before the main sample was scored.

- The results of the pilot were then used to understand the integrated thinking model and develop a scoring composition analysis for the pilot group. This was assessed in line with the integrated thinking literature and instances of best and worst practice for disclosure were noted. The pilot study indicated initial trends to be explored across a larger sample. The study also ensured that the scoring groups were using the integrated thinking framework with immaterial differences noted.
- The Kaiser-Meyer-Olkin measure is used to test for adequate sample sizes when running the factor analysis. Bartlett's test of sphericity, is used to evaluate the null hypothesis that the variables included in the analysis are uncorrelated.
- The results for the Kruskal Wallis and Mann-Whitney Tests are corroborated by changing the measures of the grouping variables. For example, company size will be evaluated using the log of total revenue rather than total assets and ESG performance will be measured using the JSE-FTSE index scores instead of those generated by the CDP. The sample will also be separated randomly into 3 groups and the results of the non-parametric tests will be re-run to control for unobserved firm factors which may be affecting the results. The tests will also be run using the factor scores and the scores per integrated thinking principle (see Table 3).

The next section looks at the calibration tests to enhance validity and reliability.

4.4.1: Calibration test for the integrated thinking framework

The researchers acknowledge that the approach followed to gauge integrated thinking and score each report is inherently subjective. As a result, the quality scores reported in the EY Awards (EY, 2020) are introduced to calibrate the integrated thinking scores (see Malola & Maroun 2019). Integrated report quality features and indicators have been explored in depth in extant literature (see IIRC, 2021; Atkins, Buchling, Cerbone, Lange, Maroun, Kok & Van Zijl, 2020; Malola & Maroun, 2019; Van Zijl, Wostmann & Maroun, 2017; IIRC, 2013). Integrated report quality has also been explored through a practical assessment of integrated reports (see EY, 2020). The EY

Excellence in Integrated Reporting Awards[29] assess integrated reports on a scale from lowest to highest quality being “Progress to be made”, “Average”, “Good”, “Excellent”, “The Top 10” and “Honours” for the highest quality of reporting (EY, 2020). Refer to Appendix 4 for the allocation of scores based on the rankings.

From analysing the adjudication criteria of the top performing entities in the EY awards, several key drivers of report quality are noted. The integration and linking of the different capitals and resulting value creation disclosure was a critical focal point (EY, 2020). Interestingly, there is no direct mention of the term “integrated thinking” in the adjudication description for any of the Top 10 companies, however, the paragraphs do inherently, if not directly and explicitly, point to a level of integrated thinking resulting in the high report quality. Other entities in the Top 10 are lauded for value creation, long-term strategic outlooks, trade-off disclosures, stakeholder engagement, governance, disclosure on risks and opportunities and connectivity (EY, 2020). These points are all key words to describe integrated thinking in literature (Section 2).

These awards, however, look at the overall compliance with the IR Framework and not necessarily at the integrated thinking application. Oliver *et al*., (2016) cautions against meeting compliance expectations at the expense of internalising what is reported. The EY report notes that there are negative trends in the reports assessed of JSE-listed entities[30] including insufficient links between KPIs and business management, a lack of reporting of negative items and the impact on the environment (EY, 2019). These concepts are addressed through adopting integrated thinking. An evaluation framework will pinpoint issues to be resolved.

Integrated report quality features and indicators point to a sophisticated reporting environment which, in practical terms, can only be achieved if integrated reports are supported by an underlying commitment to integrated thinking (De Villiers *et al*., 2020b). A high quality report should be indicative of integrated thinking taking hold at the respective organisation (Barth *et al*., 2017). Conversely, superficial and repetitive reports point to a less sophisticated approach to integrated thinking or a situation where integrated thinking is being applied by only parts of an organisation (Cho *et al*., 2015). Assessing integrated reports will assist in identifying the indicators of integrated thinking taking place, or lacking, in an entity. The IR quality can be used as a calibration test for an integrated thinking framework to confirm that the scoring process results in a reasonable

[29] Other models also exist to assess report quality (see Malola & Maroun, 2019). Rankings can be viewed as a legitimising tool (Suchman, 1995), so, internalisation is critical to incorporate into a framework.
[30] The JSE mandates the application of King IV which advocates integrated thinking and the preparation of an integrated report (IOD, 2016).

assessment (see Section 5.3.2, Appendix 4 and Appendix 6). This calibration to report quality provides a suitable quality measure and triangulation to corroborate the findings of this study.

5: Results and discussion

The results present the analysis of the levels of integrated thinking and trends observed in a South African context. Section 5.1 presents the qualitative analysis of the best and worst practice disclosures noted. Section 5.2 analyses the integrated thinking scores obtained from applying the framework to the sample of reports. Section 5.3 explores the factor analysis and the statistical analysis of the interrelationships between integrated thinking and the respective variables to assess the research questions. Finally, Section 5.3.2 provides the calibration test of the integrated thinking scores to the report quality as part of the validity and reliability measures.

5.1: An analysis of integrated thinking disclosures

This section highlights how the integrated thinking framework is applied to disclosures[31] in an integrated report and the execution of the principles per Table 3. The use of this framework has the potential to add value through guidance on the execution of integrated thinking principles. Table 11 (Section 6.1) summarises the extracts included in Section 5.1 to provide a disclosure summary of best and worst practice for integrated thinking disclosures.

5.1.1: Principle 1: Integrated awareness and understanding

As noted in Section 3.1.1, illustrating the interdependence and interconnections of capitals is a key indicator of integrated thinking. In Figure 1.1, there is a summary of the financial performance metrics which speaks to financial capital. However, the integrated report shows how capitals impact the line items of financial statements. This integrates the different capitals and shows a holistic thinking process is applied.

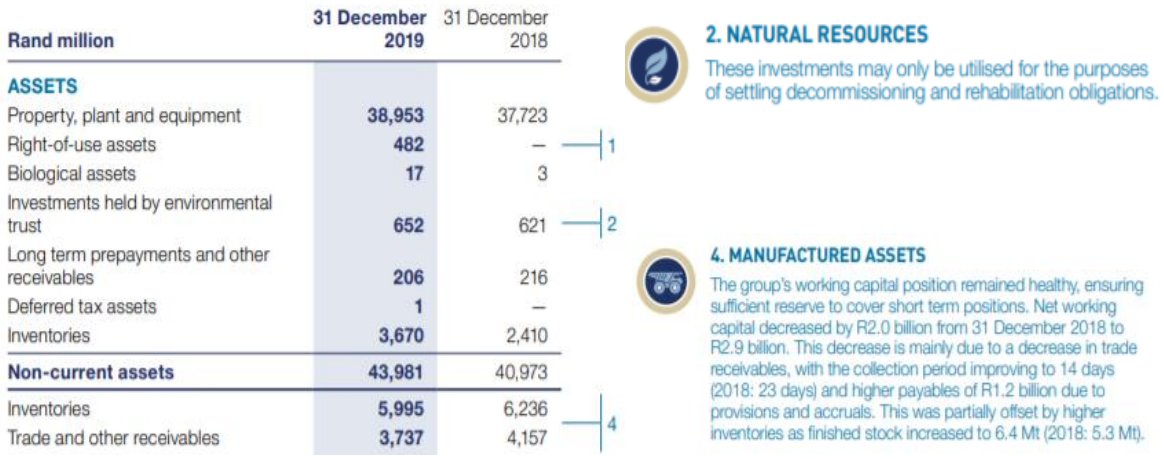
For example, In Figure 1.1, the investment held by the environmental trust is linked to natural capital and how this investment impacts rehabilitation obligations. This provides a monetary assessment of the impact of the other capitals (see Section 2.3.5), showing a higher level of integrated thinking. The integration of financial and non-financial metrics is critical for long-term,

[31] Note: All extracts are obtained from publicly available integrated reports and are included for illustrative purposes. References to lower quality disclosures are the outcomes of the report quality assessments in conjunction with the application of the framework scoring model and are not an overview of the actual business intentions/performance. Extracts from published reports should be read in conjunction with the full report itself including its notes.

sustainable value creation. Management have a clear understanding of how the business operates from a financial perspective (Section 2.3.1) but also aim to balance a holistic impact on other capitals.

Figure 1.1*:* Kumba Iron Ore's capital integration with financial results
Source: Kumba Iron Ore (2019) p.60

<Extract of the Statement of Financial Position>



Rand million	31 December 2019	31 December 2018
ASSETS		
Property, plant and equipment	**38,953**	37,723
Right-of-use assets	**482**	–
Biological assets	**17**	3
Investments held by environmental trust	**652**	621
Long term prepayments and other receivables	**206**	216
Deferred tax assets	**1**	–
Inventories	**3,670**	2,410
Non-current assets	**43,981**	40,973
Inventories	**5,995**	6,236
Trade and other receivables	**3,737**	4,157

1
2
4

2. NATURAL RESOURCES

These investments may only be utilised for the purposes of settling decommissioning and rehabilitation obligations.

4. MANUFACTURED ASSETS

The group's working capital position remained healthy, ensuring sufficient reserve to cover short term positions. Net working capital decreased by R2.0 billion from 31 December 2018 to R2.9 billion. This decrease is mainly due to a decrease in trade receivables, with the collection period improving to 14 days (2018: 23 days) and higher payables of R1.2 billion due to provisions and accruals. This was partially offset by higher inventories as finished stock increased to 6.4 Mt (2018: 5.3 Mt).

Case studies of actual initiatives and outcomes highlight the interdependencies and trade-offs framed within the social/environmental impact. The disclosure below in Figure 1.2 indicates management's initiatives across the various time-frames. This highlights the objectives of the initiatives. The outcomes of this are then explored throughout the subsequent pages of the report. The stakeholder engagement, key interests and impact on the capital is also disclosed to illustrate the internalised practice of stakeholder engagement (Rinaldi, 2020). Ultimately, Kumba's report came 2nd in the Top 10 with Honours in the EY IR Awards 2020 (EY, 2020). The entity also scored 81% on this study's integrated thinking framework. This highlights a relationship between report quality and integrated thinking which can be used as a calibration test.

Figure 1.2: Kumba Iron Ore's case study and strategy assessment
Source: Kumba Iron Ore (2019) pp. 4-5



STRATEGY

In 2017, Kumba embarked on its "Tswelelopele" (Ore to Awe) transformation journey aimed at unlocking our full potential and delivering sustainable value for all our stakeholders. To make Kumba more competitive within the context of volatile global markets, our strategic ambition is to ensure that we eliminate fatal incidents through a culture of zero harm, increase the life of mines to 2040, unlock an additional US$10/tonne margin improvement by 2022 and that we again become the employer of choice in South Africa. To protect the longer-term sustainability of the Company, we are also exploring opportunities to build high-impact ventures that leverage Kumba's capabilities and resources, while operating in a circular economy and remaining relevant in a de-carbonising world.

HORIZON 1 (short term): Operating our assets at their full potential

We have identified various short term initiatives aimed at improving productivity and enhancing product quality as efficiently as possible. These strategic initiatives, which require limited capex investments and use current available technologies, include:

- **operating assets at their full potential** – by improving equipment efficiency and further enhancing labour productivity at our mines
- **reducing external spend** – through a mixture of commercial levers (driving price and supplier consolidation improvements) and technical levers (optimising specifications, demand management and total cost of ownership)
- **improving organisational effectiveness** – optimising our Anglo Operating Model and driving efficiencies though a leaner and more effective head office and shared services function
- **optimising our product portfolio** – thereby maximising price premia

We believe that these initiatives could deliver a US$7/tonne margin improvement over a one to three-year time frame.

HORIZON 2 (medium term): Leveraging our endowment

In addition to improving the performance of our current assets, we have identified selected opportunities to leverage our endowment, grow our core business and further extend life-of-mine. These opportunities include:

- **unlocking our logistics capacity** to reach 100% of the current rail and port capacity
- **beneficiating in situ and stockpiled/ discard materials** through ultra-high dense media separation (UHDMS) technologies
- **realising various life-extension projects** around Kolomela through exploration
- **identifying specific business development initiatives** to consolidate the Northern Cape region
- **reducing the carbon footprint** at our operations

These opportunities are more complex to deliver than Horizon 1, require higher capital investment and time, and are largely dependent on successful negotiations with external stakeholders or on external factors such as technology development. We are confident, however, that they could deliver a further US$3 per tonne in margin improvements and potentially extend the life of our Northern Cape operations to 2040.

HORIZON 3 (long term): Optimising competencies and assets to sustain and expand the business

While Horizons 1 and 2 focus on core business activities, Horizon 3 involves identifying a wide range of potential business extension opportunities that fit well with Kumba's strategic direction, while operating within a circular economy and remaining relevant within a de-carbonising world.

These opportunities seek to leverage Kumba's capabilities and resources, including its access to the broader Anglo American group, and its agility as a mid-tier player.

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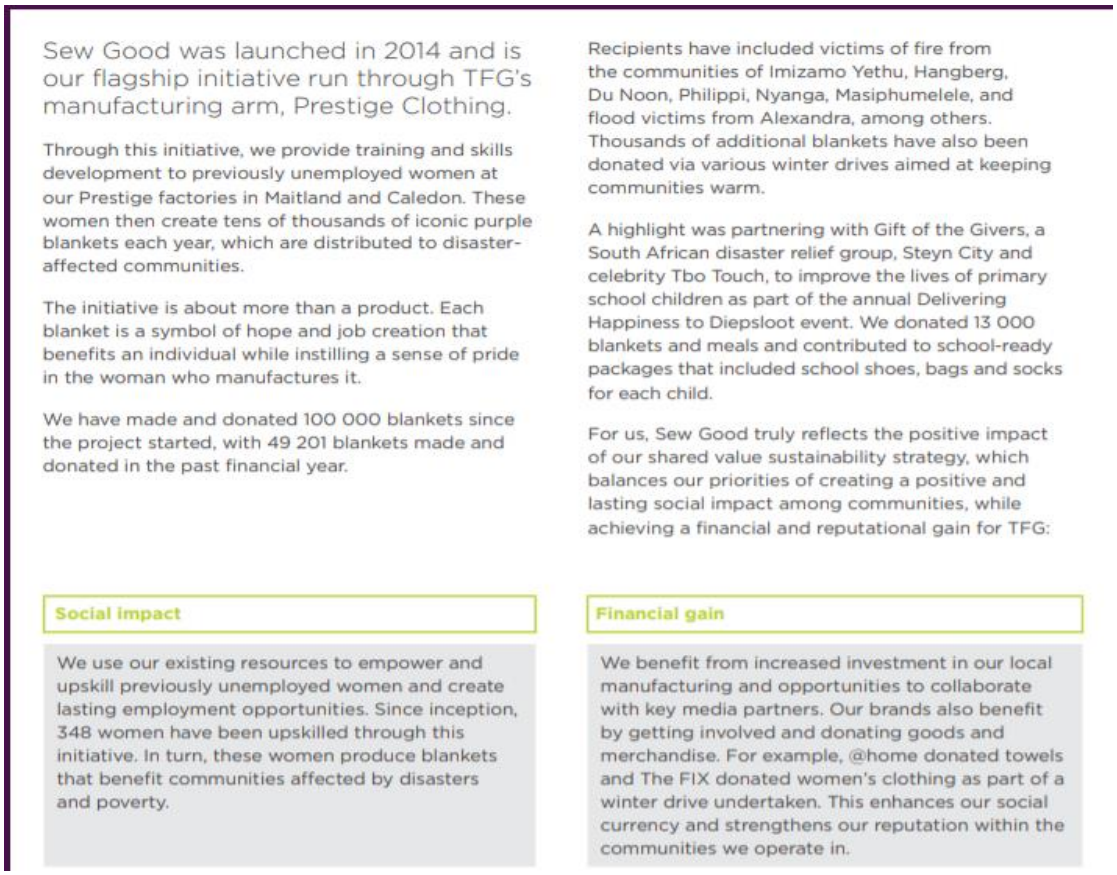
THREE TRANSFORMATION HORIZONS

STAKEHOLDER	ENGAGEMENT CHANNEL	KEY INTERESTS, CONCERNS OR EXPECTATIONS	IMPACT ON CAPITALS
Investment community, shareholders, BEE partners Shareholders/investors (Anglo American plc, IDC and PIC), including our BEE partners (Exxaro and SIOC CDT) Sell-side and buy-side analysts	• Investor days and roadshows • SENS announcements • Website • Results reporting presentation • Mine visits • Analyst round table • Individual meetings • Investor conference • Board meetings	• Impact of coronavirus on sales and supply of critical equipment and capital spares • Management of costs and mining inflation • Impact of unscheduled maintenance on production, costs and capital expenditure • Securing mining rights and other regulatory issues • Transformation and empowerment status • Payment of dividends • Dingleton resettlement • Managing logistical constraints on Iron Ore Export Channel • Environment, social and governance issues • Technology roadmap	

The Foschini Group (TFG) also discloses case studies of the impact of initiatives undertaken to address the various capitals. This high quality disclosure informs stakeholders of practical events which took place and indicates the operationalisation of integrated thinking. There are clear

activities and outcomes of the Sew Good project (Figure 1.3 below) on both social and financial impacts. This demonstration is effectively visible output of an entity taking cognisance of the different capitals and creating value for multiple stakeholders (Section 2.2.2 and 3.1.1). This report translated into a “Good” quality rating (EY, 2020) with a corresponding 85% integrated thinking score for 2019.

Figure 1.3: TFG’s initiatives
Source: TFG (2019) p.32



Sew Good was launched in 2014 and is our flagship initiative run through TFG's manufacturing arm, Prestige Clothing.

Through this initiative, we provide training and skills development to previously unemployed women at our Prestige factories in Maitland and Caledon. These women then create tens of thousands of iconic purple blankets each year, which are distributed to disaster-affected communities.

The initiative is about more than a product. Each blanket is a symbol of hope and job creation that benefits an individual while instilling a sense of pride in the woman who manufactures it.

We have made and donated 100 000 blankets since the project started, with 49 201 blankets made and donated in the past financial year.

Recipients have included victims of fire from the communities of Imizamo Yethu, Hangberg, Du Noon, Philippi, Nyanga, Masiphumelele, and flood victims from Alexandra, among others. Thousands of additional blankets have also been donated via various winter drives aimed at keeping communities warm.

A highlight was partnering with Gift of the Givers, a South African disaster relief group, Steyn City and celebrity Tbo Touch, to improve the lives of primary school children as part of the annual Delivering Happiness to Diepsloot event. We donated 13 000 blankets and meals and contributed to school-ready packages that included school shoes, bags and socks for each child.

For us, Sew Good truly reflects the positive impact of our shared value sustainability strategy, which balances our priorities of creating a positive and lasting social impact among communities, while achieving a financial and reputational gain for TFG:

Social impact

We use our existing resources to empower and upskill previously unemployed women and create lasting employment opportunities. Since inception, 348 women have been upskilled through this initiative. In turn, these women produce blankets that benefit communities affected by disasters and poverty.

Financial gain

We benefit from increased investment in our local manufacturing and opportunities to collaborate with key media partners. Our brands also benefit by getting involved and donating goods and merchandise. For example, @home donated towels and The FIX donated women's clothing as part of a winter drive undertaken. This enhances our social currency and strengthens our reputation within the communities we operate in.

Risk identification is critical for being able to respond to future events and implement the appropriate mitigation systems (Section 2.2.2 and 3.1.1). This will be particularly important going forward in light of the global Coronavirus pandemic (see SAcoronavirus, 2020), which illustrated how fragile a business model can be. Vodacom illustrates the different facets of magnitude, likelihood and time-frames of material risks in Figure 1.4. This illustration is often found lacking in risk disclosure across the sample of entities. For each risk, Vodacom then ranks the risk and provides context and mitigating strategies. The report links then provides a quick link to the relevant strategy for more information, providing stakeholders with a detailed and interconnected

assessment of the response. Stakeholders can then increase their confidence in the entity's internal risk management process. If this disclosure is missing, it can point to potential issues in how the company would then respond to underlying risks and related opportunities and what the risk assessment processes are.

Figure 1.4 Vodacom Group Ltd's illustration of magnitude, likelihood and time-frames of risks
Source: Vodacom Group (2019) pp. 22-23



Principal risk	Context	Mitigating actions	Strategy
1 **Cyber threat** (All markets) **Speed of impact** Very rapid **Rating: 1** (2018: 8)	An external cyber attack, insider threat or supplier breach – malicious or accidental – could result in service interruption and/or the breach of confidential data, with resulting negative impacts on customers, revenues and reputation, and potential costs associated with fraud and/or extortion.	▸ World-class security vendors commissioned to enhance sophisticated attacker detection. ▸ Ensure that all projects are undertaken with security in mind. ▸ Cyber incident response, containment and focus monitoring for the Vodacom Group of companies. ▸ Continuous security improvement programmes undertaken to manage the security risk. ▸ Assurance programmes are in place that incorporate both the internal and external review of where our data is held. ▸ Layers of security controls applied to protect our infrastructure that stores and transmits confidential information. ▸ Vodafone Security Risk, Control and Assurance Framework applied.	

Materiality determination is a poorly disclosed factor across the integrated reports in this sample. The disclosure is often reduced to a boilerplate definition with a strong focus on the financial capital aspect. However, Telkom illustrates their process in more detail in Figure 1.5. The material themes for the operating environment, stakeholder determination, strategic risks and board

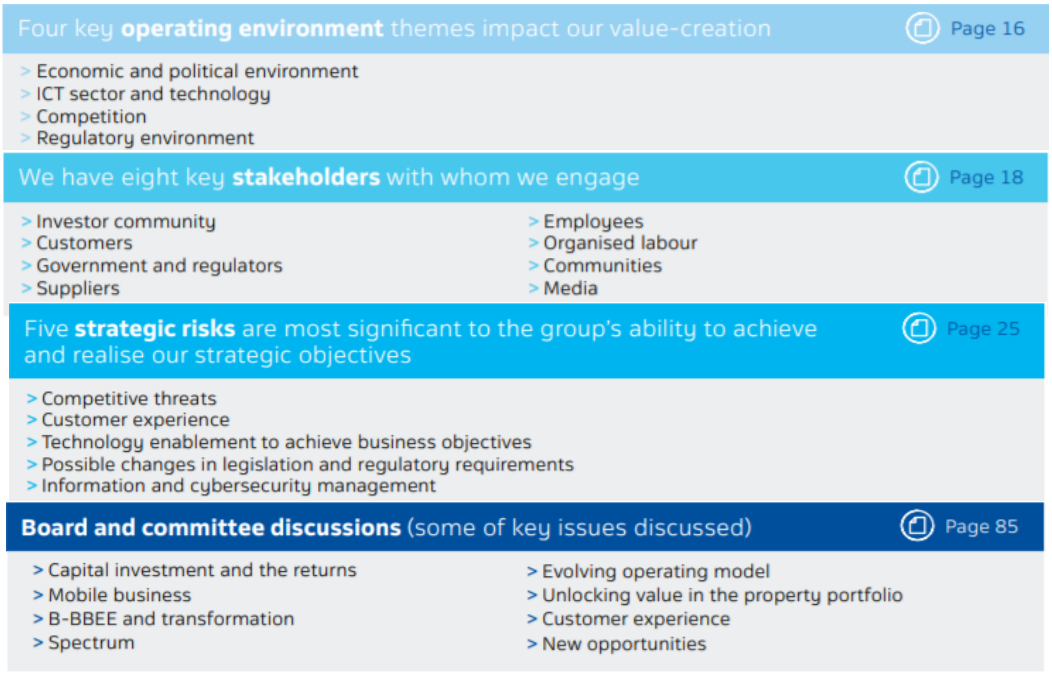
discussions are highlighted. Each facet of this is then linked to the subsequent pages where the process for selecting these items is highlighted. The matter pertaining to each respective material theme is then elaborated upon. The interconnections to other facets of the report are also discussed. The prioritisation process and prior year material themes are also discussed on the subsequent pages. Stakeholders can then understand how the entity determines material themes which are the focus of the integrated report. This allows for a constructive engagement on key themes to ensure the reports are not repetitive and long (Section 2.3.3), but rather, focus on critical judgements and the impact.

Figure 1.5: Telkom's materiality determination process
Source: Telkom SA SOC (2019) p.15

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Material aspects of our value-creation process

We define our material themes as the factors that substantively affect our ability to create value for our stakeholders over time. Our material themes determination process is set out below. Management's materiality determination process and material themes were approved by exco and the audit committee.



The risk assessment of Allied Electronic Corporation (Figure 1.6) contrasts with Vodacom's assessment (Figure 1.4). This is the main disclosure of the challenges/risks in this integrated report. This superficial disclosure lacks the execution of an integrated awareness as the challenges are not robustly assessed and provide a poor link to the capitals and the mitigating strategies. This illustrates how a risk assessment devoid of magnitude and likelihood presents a superficial picture. If this level of disclosure points to the same weaker levels of actual analysis

and response within the entity's risk divisions (see Section 3.1.3), this may highlight potential weaknesses. This also links to P3 in terms of integrating the business model and establishing accountability which will lack if the entity does not take ownership of the risks. Stakeholders may be concerned that an entity is not addressing these risks based on the disclosure.

Figure 1.6: Allied Electronic Corporation Ltd's high level risk assessment
Source: Allied Electronic Corporation (2019) p.30

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Challenges

• The group had an acting CFO for the entire year and this presented some challenges

• We elected PwC as our new external auditor for the Altron group, which required additional management input in conveying operational and institutional knowledge

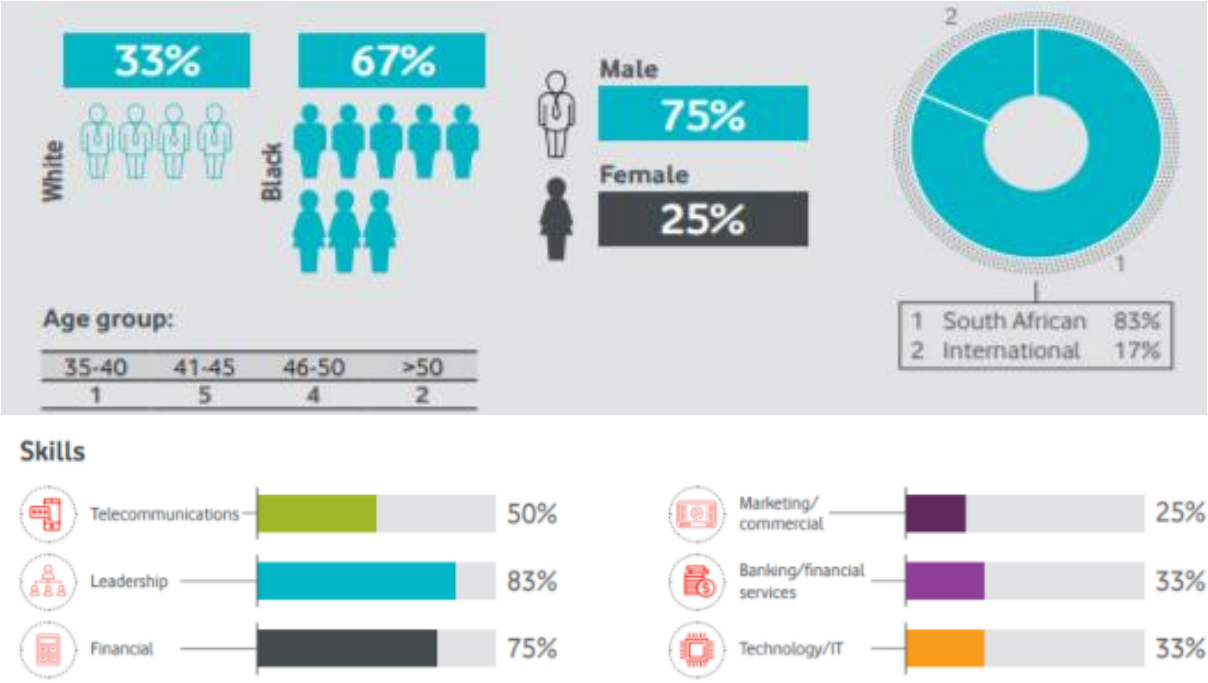
• Several new accounting standards were implemented during the year

• Ongoing focus and attention on collecting outstanding debtors

5.1.2: Principle 2: Integrated leadership commitment and capability

Board structures have been disclosed well across the reports in the sample. This is rooted in South Africa's adoption of King IV which mandates the appropriate composition, diversity and skill among board members (IOD, 2016). The majority of the reports highlight the diversity of the board in terms of race, age, gender, nationality and skills. Each board member's qualifications are then discussed, as well as memberships on various boards. This is important for stakeholders to understand who is accountable for decisions and who is running the business operations and overseeing those charged with governance. The links to remuneration/performance rewards (Principle 4) are then also important to highlight as this gives context to the to board structures and what value they generate for a firm. An example is provided in Figure 2.1 below.

Figure 2.1 Vodacom Group Ltd's illustration of the board structure
Source: Vodacom Group (2019) pp. 65-66



An entity needs to have a conscious adoption of relevant codes (Section 3.1.2). This can include the adoption of the GRI and SDGs. This disclosure shows that the reports deal with a range of ESG indicators aimed at stakeholders as part of a broad communication strategy (Malola & Maroun, 2019). The inclusion of these codes also conveys an element of legitimacy (Section 2.2.4). It is then important to highlight how these codes are applied and the outcomes of the application, measuring performance year on year. Figure 2.2 illustrates an example of this principle disclosure.

Figure 2.2 Vodacom Group Ltd's adoption of SDGs
Source: Vodacom Group (2019) p.3



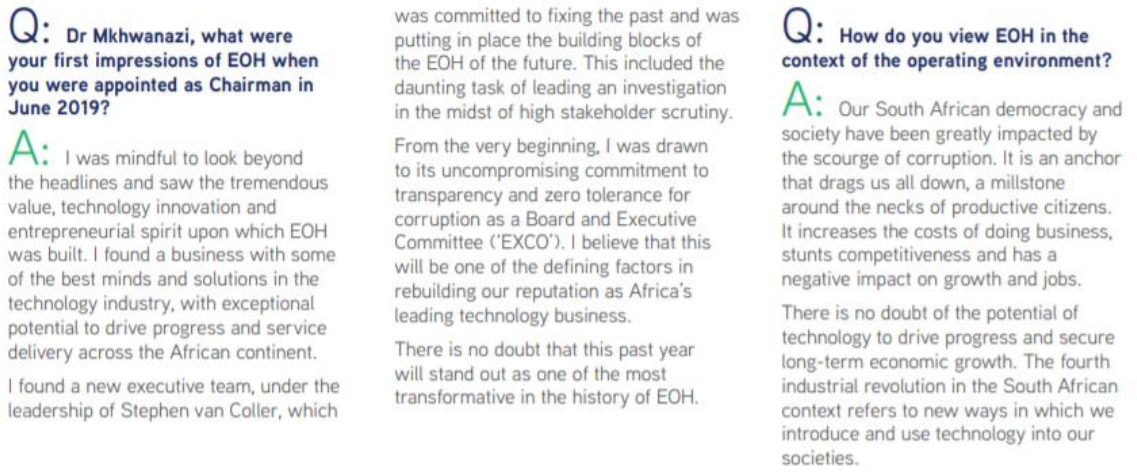
Delivering societal value through our core purpose

Vodacom's core purpose is 'connecting for a better future'. The United Nations Sustainable Development Goals (UN SDGs) provide the best articulation of what that 'better future' looks like, setting a clear long-term agenda to end poverty, protect the planet and ensure prosperity for all by 2030. Vodacom is committed to playing its role, as a private sector company, in the attainment of these goals, supporting governments, communities, businesses and individuals to build a better future. Through our core business of providing increased access to reliable and accessible voice and data services, we are making an enormous contribution to national and global developmental objectives.

Vodacom has identified and prioritised the following eight Sustainable Development Goals, where we believe we can have the most meaningful impact. Our approach to delivering on these goals is reviewed in our suite of integrated reports, with the most detail provided in our Sustainability report 2019.

Per Section 3.1.2, it is important to note how the skill/diversity of the board translates into a practical outcome. EOH Holdings presented the Chairman's and CEO's reports in a "Question and Answer" format (Figure 2.3) which, ultimately, constrained the disclosures and did not sufficiently address the capitals in a concise and summarised manner. The interconnections were lost as the key board members did not discuss the company holistically. This format lacked the depth of information to illustrate the integrated thinking process among high level executives.

Figure 2.3: EOH Holdings Q&A lacking depth
Source: EOH Holdings (2019) p.17



Q: Dr Mkhwanazi, what were your first impressions of EOH when you were appointed as Chairman in June 2019?

A: I was mindful to look beyond the headlines and saw the tremendous value, technology innovation and entrepreneurial spirit upon which EOH was built. I found a business with some of the best minds and solutions in the technology industry, with exceptional potential to drive progress and service delivery across the African continent.

I found a new executive team, under the leadership of Stephen van Coller, which was committed to fixing the past and was putting in place the building blocks of the EOH of the future. This included the daunting task of leading an investigation in the midst of high stakeholder scrutiny.

From the very beginning, I was drawn to its uncompromising commitment to transparency and zero tolerance for corruption as a Board and Executive Committee ('EXCO'). I believe that this will be one of the defining factors in rebuilding our reputation as Africa's leading technology business.

There is no doubt that this past year will stand out as one of the most transformative in the history of EOH.

Q: How do you view EOH in the context of the operating environment?

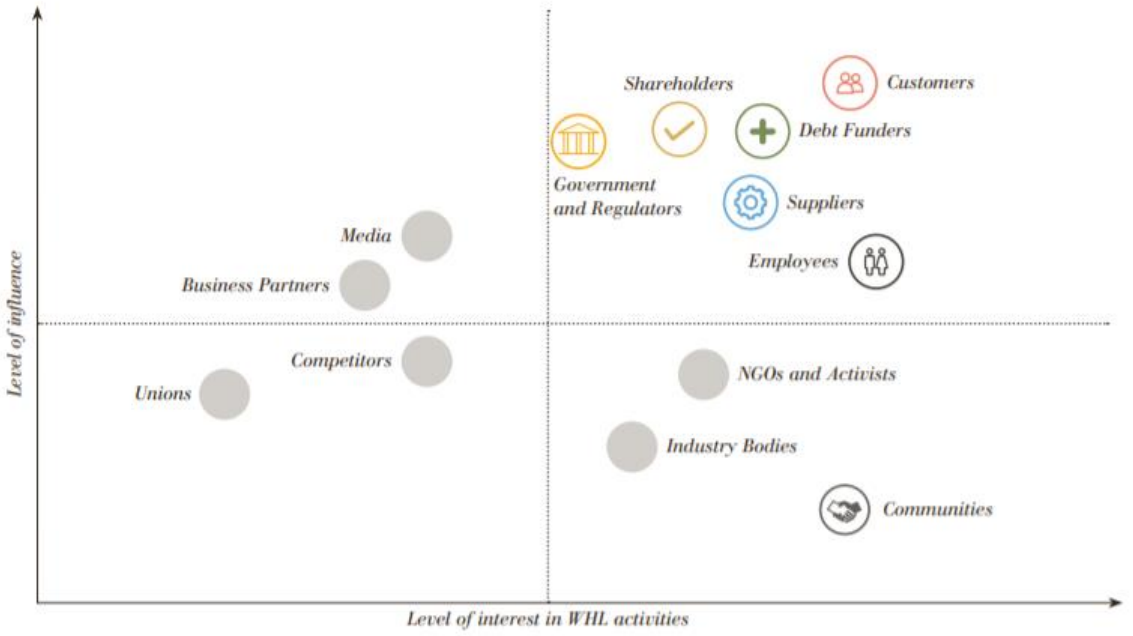
A: Our South African democracy and society have been greatly impacted by the scourge of corruption. It is an anchor that drags us all down, a millstone around the necks of productive citizens. It increases the costs of doing business, stunts competitiveness and has a negative impact on growth and jobs.

There is no doubt of the potential of technology to drive progress and secure long-term economic growth. The fourth industrial revolution in the South African context refers to new ways in which we introduce and use technology into our societies.

5.1.3: Principle 3: Integrated structures

Stakeholder engagement is a core aspect of integrated thinking (Section 2.2.3 and 3.1.3). Figure 3.1 illustrates the stakeholder engagement process which specifically speaks to P3. By engaging stakeholders (Rinaldi, 2020), an entity is able to operationalise their integrated thinking and put systems in place to ensure the long-term value creation for a broad group of stakeholders that go beyond providers of financial capital. The matrix speaks to assessing both the level of influence and level of interest of a broad group of stakeholders. The report then discusses how the engagement takes place with these groups and what the outcomes are. Stakeholder engagement facilitates the process of an entity identifying the specific needs which transcend a financial focus and create long-term value. This epitomises the concept of integrated thinking.

Figure 3.1: Woolworths Ltd's detailed stakeholder engagement matrix
Source: Woolworths Holdings Ltd (2019) pp. 19-20



CUSTOMERS
Issues which are material to our customers are identified through daily interactions in our physical stores and our digital and social media platforms. Customer focus groups and surveys provide clear input to identify their requirements, interests, and concerns.

EMPLOYEES
Employee engagement occurs on a daily basis in the normal course of business, and formal one-on-one engagements are undertaken through biannual performance assessments, regular training, and career and personal development discussions. Business and strategy updates, roadshows, electronic staff communication, employment equity forums, and employee magazines keep employees informed about general business issues and priorities. Annual employee satisfaction surveys are a key tool for employees to voice their concerns and expectations.

SUPPLIERS
The interests and concerns of suppliers are identified in the normal course of business and at annual supplier conferences. Suppliers are expected to adhere to codes of conduct, including our Good Business Journey principles. Regular reviews and assessments of suppliers are also conducted through supplier audits and supplier scorecards.

GOVERNMENT AND REGULATORS
We have a dedicated function that ensures that we are active corporate citizens, including enabling proactive government relations and managing participation in industry affairs. We share insights and concerns with government, and also gain invaluable information which allows the Group to mitigate risks, explore opportunities, and partner with the relevant stakeholders on the different countries' socio-economic and environmental initiatives.

Vodacom goes into more qualitative and quantitative depth on each capital with an outcome-driven approach, focusing on both positive and negative factors. The integrated thinking ethos is epitomised in the trade-off paragraph (Figure 3.2) where the interconnection and interdependency among the capitals is outlined. This implies that Vodacom takes the extra step to internalise and implement this thought process, leading to a higher application of integrated thinking. The inputs, activities and balanced outcomes show that Vodacom has integrated structures in place for accountability, engagement and processes (P3).

Figure 3.2 Vodacom's capital trade-off assessment
Source: Vodacom (2019) p.14

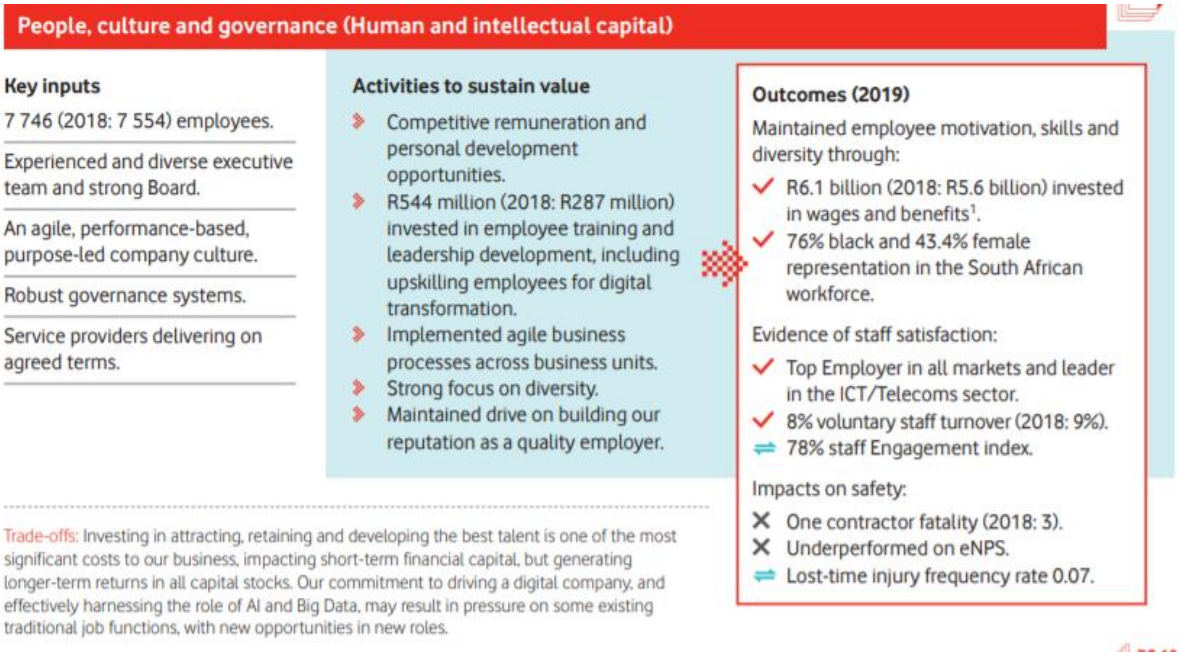
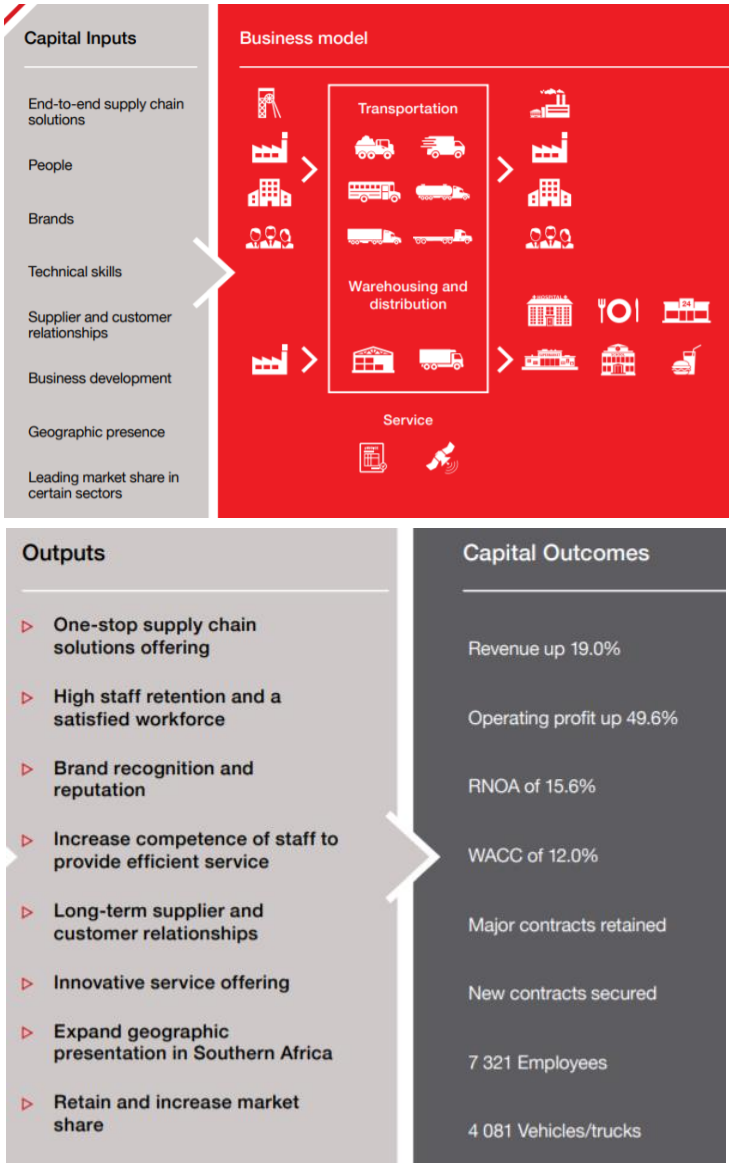


Figure 3.3 below illustrates boilerplate disclosure. There is limited understanding and connection of the capitals (Section 2.3.4). A lack of focus on all of the capitals can destroy value creation and prevent long-term sustainability (IIRC, 2021). This is also evidenced in the Super Group report scoring a "Progress to be made" in the Quality Awards (EY, 2020) and a 58% integrated thinking score. This entity will need to focus on the impact of the other capitals and the related risks and opportunities. The pictures do not add context. There is limited information for stakeholder understanding which can translate into the view that the entity also lacks an integrated understanding (P1) and structure (P3). The application of the integrated thinking framework was able to identify this gap. Creating a working group to focus on capitals and identify risks/opportunities will assist in bringing in this connection (Section 2.2.3) - managing the business with a long-term view (Atkins & Maroun, 2018).

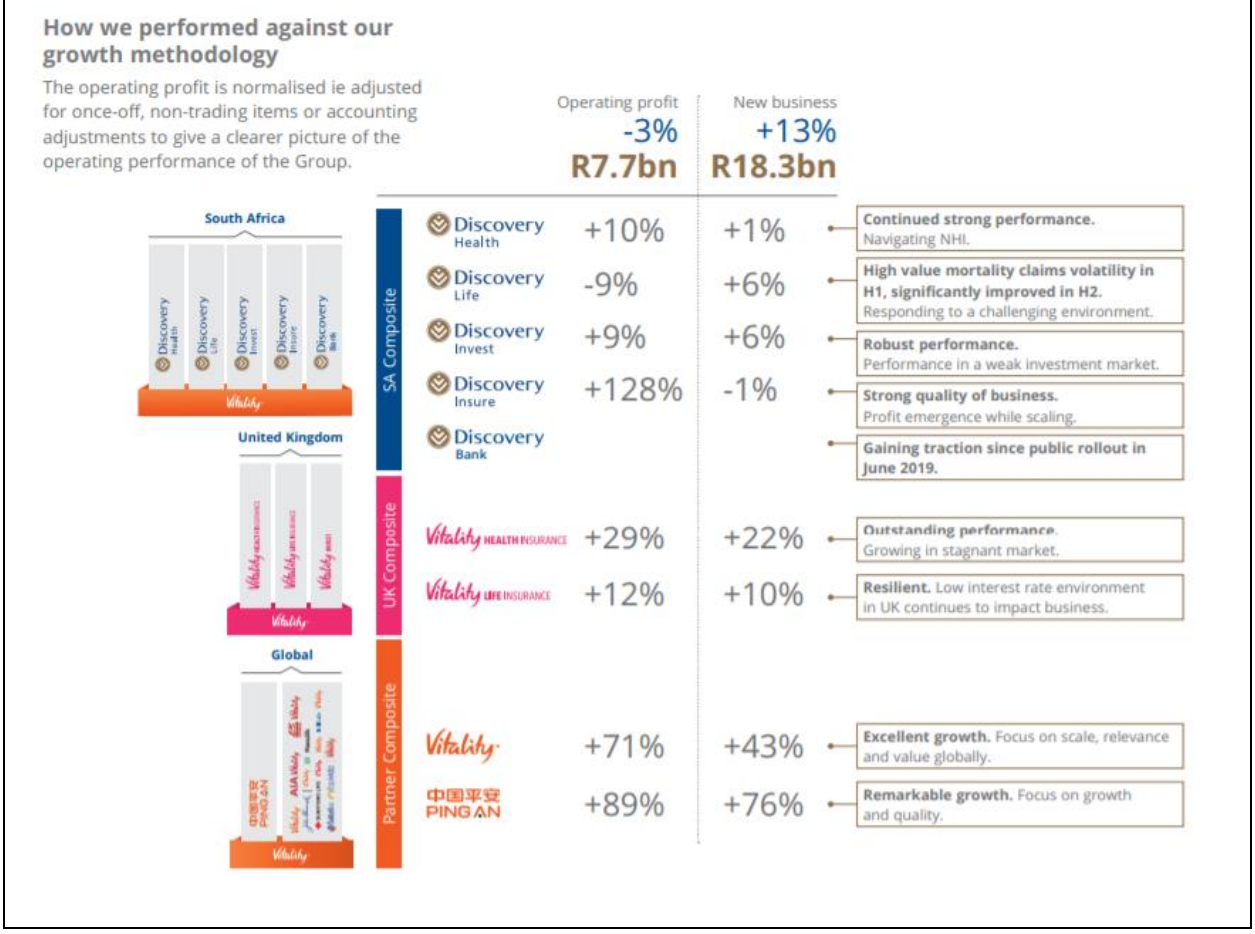
Figure 3.3: Super Group's disconnected capital disclosure
Source: Super Group (2019) p.22-23



5.1.4: Principle 4: Integrated organisational performance management

Figure 4.1 illustrates the importance of disclosing financial performance as a key business driver. This allows stakeholders to understand the performance of the business. Disaggregating the performance across business models shows the value at a granular level, identifying specific risks and opportunities. Relaying the performance against the goals is critical to understand progress.

Figure 4.1: Discovery Ltd's disaggregated business model performance assessment
Source: Discovery (2019) p.46



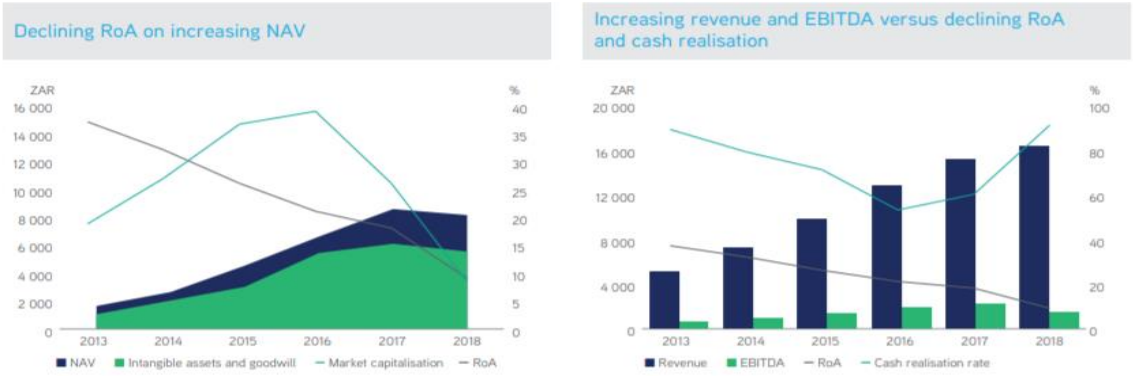
A key aspect of integrated thinking is to assess both positive and negative factors (Section 2.2.2 & 2.2.4). This is illustrated in EOH Holdings Ltd's report (Figure 4.2 below) where the company takes responsibility for prior governance issues. This illustrates to stakeholders how these matters will be resolved and what controls have been put in place, aiming to repair legitimacy (Maroun, 2017).

Figure 4.2: EOH Holdings Ltd open and transparent disclosures
Source: EOH Holdings Ltd (2019) p.19

Q: Could you explain the qualification of the opening balance sheet?

A: When I joined EOH less than a year ago, it became evident that the organisation had historically placed a strong focus on growth in revenue and profit to the detriment of careful balance sheet management, with a lack of presentation or analysis of monthly balance sheets at EXCO meetings and the review of the Group balance sheet only twice a year with the release of our interim and annual results. For this reporting period ended 31 July 2019, our primary focus was to ensure we had a closing balance sheet that provided a credible basis upon which investors and shareholders could make decisions.

The fact that EOH's balance sheet shrank from R8,1 billion to R1,9 billion in the space of less than a year suggests that there was more at play than simply a different outlook and increased focus by new management on the strength of the balance sheet. This reduction in net asset value suggests something far more fundamental in terms of weaknesses in the application of accounting policies and interpretations in prior periods. For many of the adjustments identified, we found that there were already indicators when looking at historic performance. This is demonstrated in the graphs below.



Entities generally scored poorly in P4 (performance measures), however, Telkom was better in this regard (although this was also Telkom's weakest principle execution score). Figure 4.3 illustrates the KPI's adopted and shows a holistic measurement strategy, incorporating financial and non-financial metrics with simple and understandable disclosures. This allows stakeholders to have increased assurance that executives are rewarded based on the long-term sustainability of the company. This highlights the importance of a balanced capital approach, rather than a financial focus (Section 2.3.1).

Figure 4.3: Telkom's KPI measures
Source: Telkom SA SOC (2019) p.109

Weighting	Category	Key metrics	Measures
40%	Financial	- Delivers robust revenue growth - Grow investment earnings - Provides a satisfactory return on shareholders investment - Ensures long-term financial sustainability	- Percent increase in total revenues - Percent increase in EBITDA - Percent return on invested capital (ROIC) - Increase in FCF
25%	Executing key strategic milestones	- Allocate resources in the most productive way to enhance value - Effective operating model, establish separate SMB division - Align and grow top-line growth and adjacencies markets	- Total shareholder return - Market cap premium to net asset value (NAV) - Percent top line growth - Analyst ratings of Telkom group - BCX turnaround percent growth - SMB business growth and profit margins
		- Expand and improve enabling infrastructure technology platform - Connect customers through fixed, mobile and fibre solutions - Deliver infrastructure and service solutions to corporate customers	- Market share - Percent increase in customer base - Percent improvement in network efficiency
20%	Customer experience	- Empowers staff to provide excellent service to all customers - Ensures a high level of retention of existing customers	- Orange index - Customer retention index - Composite score improvement
15%	People goals (leadership and employees)	- Talent management - Succession plans for executive management - Identify top talent and critical skills - Acquires and inspires employees to develop to their maximum potential	- All executive positions to be mapped - Identified successors for each position - Retention of top talent/critical skill specialists - Quality of succession pipeline

Performance measures which are financial focused can be detrimental to long-term sustainability (Section 2.3.1). Figure 4.4 below contrasts with Figure 4.3 above, with a focus on financial performance as well as a lack of detail on the outcomes of the performance measures.

Figure 4.4: Super Group's financial focussed KPI metric
Source: Super Group (2019) p.54

Executive directors

TARGETS	Bonus weighting %	CEO Maximum bonus achieve-ment %	CFO Maximum bonus achieve-ment %
Profit before tax growth >9%	25.0	30.0	25.0
Return on net operating assets >WACC +30% premium (2018: 12.3%)	25.0	30.0	25.0
HEPS growth >9%	40.0	40.0	40.0
Discretionary personal KPIs	10.0	10.0	10.0
Total	**100.0**	**110.0**	**100.0**

5.1.5: Principle 5: Integrated external communication

Integrated reports have embraced technological and digital advancements and have become more interactive by linking different reports and sections within reports. This is done by way of innovative hyperlinks and report links. This reduces repetition and enhances the ideology of interconnectedness and interdependencies. Some integrated reports lacked information and required users to read other lengthy reports (such as a governance report) to obtain the information. However, certain entities summarised this excellently within the integrated report and then provided the link to additional information. Vodacom and Woolworths' integrated reports were particularly good in this regard (Figure 5.1).

In contrast, some reports were very long, with Sanlam, as an example, being 244 pages, not including the annual financial statements, emphasising the length of the report. This overload of information does not assist stakeholders and may be indicative of management not having the appropriate MCS (Section 2.2.1) in place to obtain data which are useful for decision making. The overload of information may conceal problems or show a lack of understanding of the material themes (P1). There is room for continuous improvements to be observed across the principles to better embody integrated thinking. Interestingly, integrated thinking, as a concept, is rarely mentioned in any of the integrated reports in the sample and the application was not discussed in detail, highlighting the underdevelopment of the concept in practice.

Figure 5.1 Vodacom Group Ltd's linked report
Source: Vodacom Group (2019) p.3



As is explored in the next section, a factor analysis reveals that three dominant factors account for the variance in integrated thinking scores. The best and worst practice disclosures noted above have been assessed against these factors to provide a disclosure summary for an entity to assess in guiding the execution and disclosure of integrated thinking principles. This is presented in Section 6, Table 11.

The next section analyses the results and trends by applying the integrated thinking framework to the sample of integrated reports. This includes assessing the scores across the principles of the framework and the trends noted in a South African context.

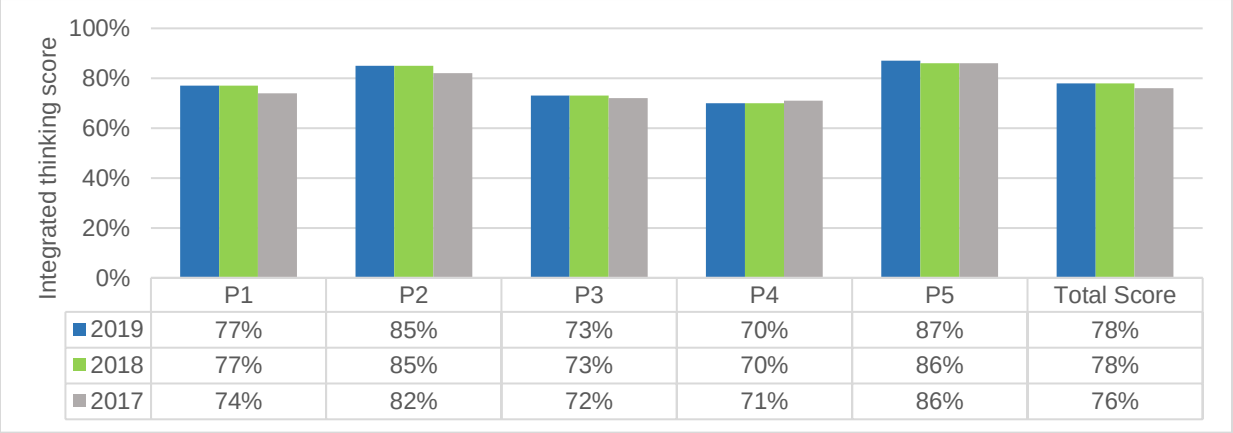
5.2: Integrated thinking scores

Figure 6 shows the average scores of the principles per Table 3 (Section 3) across the study group over the three-year period. Notable observations are the high score across all the principles with a high level of consistency across the periods. There has been neither a material deterioration nor an improvement in the scores.

Although there may be an expectation of an improvement over a three-year period, there are other factors to consider. The economic environment in South Africa is deteriorating because of

fiscal pressure, political uncertainty, weakened exchange rates, load shedding, a credit downgrade and COVID-19 (De Villiers, Cerbone & Van Zijl, 2020a). Companies may focus on financial capital and short-term solutions rather than integrated report disclosure.

Figure 6: Average integrated thinking scores per principle across the 97 entities scored



	P1	P2	P3	P4	P5	Total Score
2019	77%	85%	73%	70%	87%	78%
2018	77%	85%	73%	70%	86%	78%
2017	74%	82%	72%	71%	86%	76%

Table 5 below shows the average, minimum and maximum scores per principles for the sample. This shows that P4 (70%) is the weakest principle and P5 (86%) is the strongest principle. The maximum scores indicate that there are entities which achieve a perfect application of the indicators in the respective principles. In contrast, some entities score very poorly, particularly across P1-P4. This illustrates that there is currently a gap in the execution of integrated thinking among South Africa's largest organisations.

Appendix 6 includes the distribution of entities in the EY Awards. This shows that there has not been a material improvement in report quality across the corresponding study period. This serves as a calibration check in terms of the integrated thinking scores which have also not illustrated material improvements over the study period. Entities are encouraged to focus on integrated thinking to manage the challenging economic, social and environmental circumstances. The link to financial performance is explored in Section 5.3.

Table 5: Summary of key metrics per principle of the entire population across three periods

Principle	Average Score	Maximum Score	Minimum Score
P1	76%	100%	40%
P2	84%	100%	12%
P3	73%	95%	25%
P4	70%	90%	30%
P5	86%	100%	70%

Despite a lack of material improvement in integrated thinking scores and report quality, it must be noted that the scores are still high in terms of integrated thinking (all principles scored at least 70% on average in the study group), while approximately half of the reports assessed by EY are ranked, at minimum, as "good" in terms of quality (Appendix 6). This is indicative of the established culture of corporate governance and reporting in a South African context (Prinsloo & Maroun, 2020).

Assessing the principles with below average scores provides further insights. Refer to Table 6.

Table 6: Percentage of entities in the study group scoring below 70% per principle against the integrated thinking framework over a three-year period [32]

Principle	Percentage of entities in 2019 scoring below 70%	Percentage of entities in 2018 scoring below 70%	Percentage of entities in 2017 scoring below 70%
P1	24%	19%	33%
P2	5%	9%	11%
P3	22%	29%	33%
P4	36%	36%	33%
P5	1%	0%	1%

P4 (Average 2019 = 70%; Figure 6) is identified as the weakest scoring principle across the study group over the three-year period. This is supported by Table 6 above with more than one third of the study group scoring below 70% on average on this principle in 2019. This is a significantly larger number of entities having a lower score than in relation to the other principles. P4 speaks to remuneration policies and KPI indicators being aligned across the capitals, blending financial and non-financial indicators. The scores show that an improvement in remuneration policies and KPI setting is necessary. KPIs should interlink with multiple capitals and create sustainable outcomes (Dumay & Dai, 2017; Oliver *et al*., 2016). The current emphasis is on financial metrics. How remuneration policies are being used to promote value creation in the short- and long-term is overlooked. This is important in line with the current COVID-19 pandemic which necessitates companies to reassess their business models, amend their remuneration policies and realign KPI's (De Villiers *et al*., 2020a) by implementing integrated thinking principles (see Wits, 2020).

P3 is the second weakest principle and is an area requiring improvement. With a 73% score in 2019 and 2018 and 72% in 2017 (Figure 6), the principle indicators do score well but require improvement with 22% of entities scoring below 70% in 2019 per Table 6. This indicator focuses on the underlying integrated structures in an entity, including the interconnection and

[32] The percentage per column will not cast to 100% as this table looks at entities scoring below 70% across principles and not equal to and above 70%. Entities may score below 70% in some, but not all, principles.

interdependencies of capitals. Specific focus is placed on accountability, the business model, systems and processes and stakeholder engagement. Disclosures dealing with ESG metrics are not consistently integrated with the explanation of how value is being generated over the short-, medium, and long-term. The disclosures are detailed but they are usually qualitative and lack quantified measures of performance or a review of actual outcomes versus planned objectives (Malola & Maroun, 2019). Exactly how governing bodies and executives ensure a multi-capital approach to business management is not consistently explained in the integrated reports. Disclosures dealing with leadership responsibility are limited to broad compliance statements or references to codes of conduct. Examples detailing how these codes are operationalised are scarce.

For P1 (as the median principle), ESG issues may be identified as strategic considerations or business risks but how the respective business models and internal controls are operated or changed could not be determined. Similarly, the sampled companies did not consistently explain how material issues are identified. Materiality is being framed primarily in monetary terms. This has impacted the P1 score across entities. The materiality determination process may be impacting an entity's understanding of its own material themes and how to address this.

P2 has scored well with an 85% average in 2019 (Figure 6) and only 5% of the entities in the study group scoring below 70% in 2019 (Table 6). This is illustrative of the leadership structures in entities with board diversity, leadership commitment and adoption of governance and ethics standards being cornerstones to this principle. The company structures are particularly significant in a South African context with the promotion of diversity among board members including entities promoting Broad-based Black Economic Empowerment programmes.

P5 is the top scoring principle among entities with an 87% average in 2019 (Figure 6) and only 1% of entities scoring less than 70% (Table 6). This principle highlights integrated external communications. Although not a statutory requirement, most listed companies have been preparing integrated reports from 2009/2010 (Atkins & Maroun, 2015). Financial and non-financial disclosures should provide a comprehensive account of performance, but this is a challenge for most organisations (De Villiers *et al*., 2020b). The same is true for the sampled companies. What has been noted is that some companies have limited information in their integrated reports with detail being included in ESG or governance reports. However, the value in an integrated report comes in by summarising the detail from those reports and then referencing those reports.

What is encouraging to note is that despite the fact that the integrated thinking scores have not had a significant upward movement over the three-year period (Figure 6), Table 6 illustrates a notable improvement in the stratification of entities scoring below 70% from 2017 to 2019 across four of the five principles. The improvement is most notable in P1 indicating that more entities are obtaining a heightened awareness of the external factors impacting the business, identifying the relevant risks and opportunities and using this to address holistically stakeholder needs across the capitals. Only P4 has again shown a weakness. With more than a third of companies scoring lower than 70% in this principle, it questions organisational performance management/measurement. The framework provides entities with an implementation roadmap.

The next section assesses the research questions in the context of the factor analysis.

5.3: Assessment of the RQs through the development of integrated thinking factors

The integrated thinking indicators were grouped using an exploratory factor analysis. The factor analysis reveals three dominant factors accounting for the variance in integrated thinking scores. The exploratory factor analysis is used to aggregate Trialogue's integrated thinking indicators (see Table 3, Section 3). The factor application and scores by the sample is assessed to determine common trends exhibited in a South African context. These factors are used to test the research questions and determine the possible interrelationships between the variables (Section 4) and integrated thinking levels.

Principal component analysis was conducted on the subject matter types with the Varimax method with Kaiser Normalisation used to aggregate subject matters. The Rotation has been converged in 6 iterations. To balance ease of interpretation with exploratory power, only components with an eigenvalue greater than 1 are retained (Appendix 5). The Kaiser-Meyer-Olkin measure of sampling adequacy suggests that the sample size is adequate (KMO = 0.936) and, based on the result of Bartlett's test of sphericity, the null hypothesis that the variables included in the analysis are uncorrelated is rejected ($X^2_{[1\ 90]} = 2369.929$, $p < 0.01$). Appendix 5 shows the full component loadings after rotation.

The factor analysis and subsequent indicators loading on each factor are presented in Table 7. The factors were labelled by the researcher based on the integrated thinking indicators loading on each factor and the prior research (see De Villiers *et al*., 2020b; Maroun, 2019; De Villiers and Maroun, 2018; Van Zijl *et al*., 2017). For validity and reliability, the labelling was discussed with two independent researchers and was also tabled at a meeting with Trialogue's integrated

reporting specialists. The aim was not to reach a consensus on the definition of integrated thinking but to ensure that the chosen labels resonate with broader audiences and control for researcher bias.

The scores generated per indicator were used to calculate an integrated thinking score for each of the above factors. The factors include:

- managing of and reporting on value creation [Factor 1],
- stakeholder awareness and corporate accountability [Factor 2] and
- governance [Factor 3]

These factors consist of the key components of integrated thinking, with each factor being composed of underlying principles which were used in the framework. The factors also form the pillars of good corporate governance and integrated report quality (IOD, 2016). As per Section 4, the factor analysis was run on the 11 pilot study companies which revealed the same factors contributing to the variance in integrated thinking levels.

Table 7 shows the principles which load on each of the respective factors. The clustering of subject themes (and their loadings) is used to label the components. The significant principles are noted which explain the factors.

Table 7: Principles loading on each of the factors

X-Axis: Managing of and reporting on value creation	Y-Axis: Stakeholder awareness and corporate accountability	Plot size: Governance
1.1. Awareness and understanding of external factors impacting the organisation's operating context	1.2. Awareness and response to the legitimate needs and interest of stakeholders	3.1 Integrated governance
1.2. Awareness and response to the legitimate needs and interest of stakeholders	1.5 Articulation of business rationale for sustainability and integrated thinking as a driver of long-term value creation	3.2 Integrated accountability for sustainability
1.3. Awareness and understanding of risks and opportunities	2.2 Diversity of leadership experience	4.2. Targets and contextualised performance metrics
1.4. Awareness and understanding of material themes	2.3. Strategic positioning of sustainability	4.3. Response to performance
1.5 Articulation of business rationale for sustainability and integrated thinking as a driver of long term value creation	2.4. Values and ethics	4.4. Integrated assurance

Table 7: Principles loading on each of the factors		
X-Axis: Managing of and reporting on value creation	**Y-Axis: Stakeholder awareness and corporate accountability**	**Plot size: Governance**
2.1. Leadership ambition and commitment to an integrated approach to sustainability	3.4 Integrated and devolved stakeholder engagement processes	
2.2 Diversity of leadership experience	4.2. Targets and contextualised performance metrics	
2.3. Strategic positioning of sustainability	4.3. Response to performance	
2.5. Conscious and relevant adoption of codes and standards	5.1 Integrated marketing and communication	
3.3. Integrated business model		
3.4 Integrated and devolved stakeholder engagement processes		
4.1. Non-financial metrics		

Factor 1 comprises of integrated awareness and understanding which includes an understanding of the external environment, stakeholder needs and risks/opportunities. This understanding needs to be framed in an integrated business model and stakeholder engagement process. This factor also comprises the key themes of integrated leadership commitment and capability with a focus on non-financial metrics. These principles illustrate how an entity manages and reports on value creation.

Factor 2 includes certain elements of Factor 1 with more focus on stakeholder needs, stakeholder engagement and integrated marketing and communication. There is also the principles of integrated leadership commitment and capability with an inclusion of performance metrics and responses to the performance. These principles can be summarised into stakeholder awareness and corporate accountability.

Finally, factor 3 deals primarily with integrated governance and accountability for sustainability. This is framed against responses to performance and integrated assurance of underlying information. This factor speaks to governance principles within an entity. Factor correlations with various variables are reported in Section 5.3.1. Section 6 concludes on the observations of applying the factor analysis to the entities in the study. The factor scores for all three factors have remained consistent over the study period, in line with the consistency per Figure 6.

5.3.1: Interrelationship between integrated thinking factors and the research questions

Table 8 presents the statistical tests run on the integrated thinking scores of the respective entities and the relevant grouping variables.

Table 8: Statistical association of integrated thinking factors and variables

Variable	Factor 1			Factor 2			Factor 3		
	N = 290								
	H-statistic	Std J-T statistic	J-T statistic	H-statistic	Std J-T statistic	J-T statistic	H-statistic	Std J-T statistic	J-T statistic
Size	0.042*	1.809^{+}	0.070*	0.206†	0.320^{+}	0.749†	0.519†	0.406^{+}	0.685†
Financial Performance	0.350†	-0.103^{-}	0.918†	0.028*	2.127^{+}	0.033*	0.149†	-0.578^{-}	0.563†
Leverage	0.000*	3.825^{+}	0.000*	0.021*	0.955^{+}	0.340†	0.581†	-1.240^{-}	0.215†
Industry	0.000*	5.432^{+}	0.000*	0.050*	-2.135^{-}	0.021*	0.125†	1.051^{+}	0.293†
CDP	0.000*	5.363^{+}	0.000*	0.483†	-0.135^{-}	0.893†	0.370†	1.234^{+}	0.217†
Pages	0.017*	1.519^{+}	0.129†	0.064†	-0.392^{-}	0.695†	0.232†	0.453^{+}	0.650†

*****Significant at the 5% level (2-tailed) **†**No significance **+**Positive relationship **-**Negative relationship

It is important to highlight that there is an element of causality in the results presented in that the integrated thinking can cause changes in the relevant drivers while the drivers can also cause changes in the level of integrated thinking. Structured Equation Modelling (SEM) Analysis was not run on these results and this is an avenue for future research (Section 6). The results do, however, point towards certain relationships which can form the basis for investigating the drivers of the key factors of integrated thinking.

Factor 1

Considering Factor 1, size ($H = 0.042$, $p < 0.05$), leverage ($H = 0$, $p < 0.05$), industry ($H = 0$, $p < 0.05$), CDP levels ($H = 0$, $p < 0.05$) and the number of pages ($H = 0.017$, $p < 0.05$) are all statistically significant. Furthermore, based on the J-T statistic, size, leverage, industry and CDP levels are statistically significant with a significant upward trend.

Entities which are larger in size will likely have more resources to manage the controls around integrated thinking implementation and will also have the ability to obtain more financing to manage value creation. In addition, these entities may have better ESG initiatives and be able to disclose the higher levels of sustainability coming through in the value creation process.

Interestingly, there is a statistically insignificant relationship between financial performance and the managing of and reporting on value creation as per the results of this study. This suggests that the management of value creation may not yield the financial benefits expected of higher quality thinking.

Factor 2

Considering Factor 2, financial performance ($H = 0.028$, $p < 0.05$), leverage ($H = 0.021$, $p < 0.05$) and industry ($H = 0.050$, $p < 0.05$) are all statistically significant. Based on the J-T statistic, financial performance is statistically significant with a significant upward trend. Industry is statistically significant with significant downward trend.

Entities which have a higher financial performance will exhibit higher levels of integrated thinking as loaded on stakeholder awareness and corporate accountability. The stakeholder engagement process enhances the understanding of stakeholder needs which allows organisations to execute better on stakeholder needs. This can lead to higher levels of financial performance through a multi-capital approach addressing a wide range of stakeholders (Barth *et al*., 2017).

As the industry has a strong negative relationship, this means that organisations operating in socially less sensitive industries (Cho *et al*., 2012) are scoring higher on this factor. These organisations have a lower corporate accountability (socially and environmentally) which means that the disclosure of the execution of integrated thinking principles and long-term value creation initiatives is simpler. The stakeholder engagement process is also simpler (due to the industry having fewer social and environmental obligations) which allows the communication to be more effectively demonstrated. This contrasts to the highly sensitive industries where various social and environmental obligations, initiatives and impacts are more complex. This results in a need for robust disclosures which may not be prevalent leading to a lower integrated thinking score.

Factor 3

There are no significant statistical relationships with Factor 3 (governance) and the variables. This suggests that there is no significant statistical relationship among the underlying governance processes which lead to integrated thinking and firm size, financial performance, leverage, industry, CDP or number of pages in the report. This emphasises that integrated thinking is driven primarily by the first two factors. The organisation's internal governance practices are unlikely to impact directly the execution of integrated thinking principles. Governance practices can provide a foundation for sustainable development, understanding the societal context, stakeholder

inclusivity and good corporate citizenship (IOD, 2016). Despite the lack of a significant statistical relationship, the underlying governance is important to develop the ethos of integrated thinking.

5.3.2: Sensitivity tests and calibration of results

A sensitivity analysis was further performed using a Mann-Whitney U-test in order to determine whether there is a relationship between the factors and other variables (refer to Section 3.2 and Section 4 for further explanation on the variables selected).

Table 9: Sensitivity analysis

Variables	**Factor 1**	**Factor 2**	**Factor 3**
	U-statistic	U-statistic	U-statistic
SRI	0.004*	0.659†	0.593†
Separate ESG Committee	0.022*	0.011*	0.111†
Separate SR prepared	0.000*	0.031*	0.011*
Other Reports	0.000*	0.000*	0.865†

*Significant at the 5% level (2-tailed) †No Significance

The table above indicates that there is a significant statistical relationship ($p < 0.05$) between being included on the SRI Index and having a separate ESG committee, sustainability report and other reports when assessing Factor 1. These variables have some effect on the level of integrated thinking exhibited through managing and reporting on value creation. Having these committees and including additional reports on sustainability impacts suggests that a firm has higher levels of integrated thinking. Similarly, a separate ESG committee, sustainability reports and other reports have a significant statistical relationship ($p < 0.05$) with Factor 2 which is stakeholder awareness and corporate accountability. Natural capital and social and relationship capital can more clearly be addressed through a specific ESG committee. Additional reports consider the impact of these stakeholders and promote accountability. This indicates higher levels of integrated thinking. For Factor 3 (governance), only a separate SR report is significant statistically ($p < 0.05$). This suggests that the governance practices are not significantly impacted by a separate ESG committee and that there are other factors that impact the governance.

From a quantitative perspective, certain variables exhibit statistically significant relationships with the factors which explain the variance in integrated thinking. This paper provides preliminary areas of future research into how integrated thinking, when operationalised, can be driven by certain variables and may conversely drive other variables through a potential causal relationship.

The integrated thinking scores were contrasted with the quality measures reported in the EY Excellence in Integrated Reporting Awards for 2020 (EY, 2020). EY gauges the quality of

integrated reports according to the application of the guiding principles and the content elements (see IIRC, 2021; EY, 2020). The adjudication does not deal specifically with integrated thinking but, as explained in Section 3.2, integrated thinking should result in better quality integrated reports. Table 10 shows that integrated thinking (gauged according to the Trialogue model) is associated with better quality reports to an extent. The EY scores of 1 and 2 (representing lower report quality) have lower integrated thinking scores when compared to scores of 3, 4 and 5 (representing higher report quality) per Table 10.

Entities which have sound reporting controls in place will also be able to use the data output in gearing their decision-making processes (Section 2.2.1). It is, however, noted that the integrated thinking score does not differ materially between report quality that is good, excellent or a Top 10 entity. This is an interesting finding in that there may be a plateau in how much integrated thinking execution can come across through disclosures alone. Some individual entities also scored low on IRQ rankings and high on the integrated thinking score and vice versa, however, this eliminates on average. This implies that certain reports have good quality indicators but lack disclosures which point towards a lack of internalising integrated thinking.

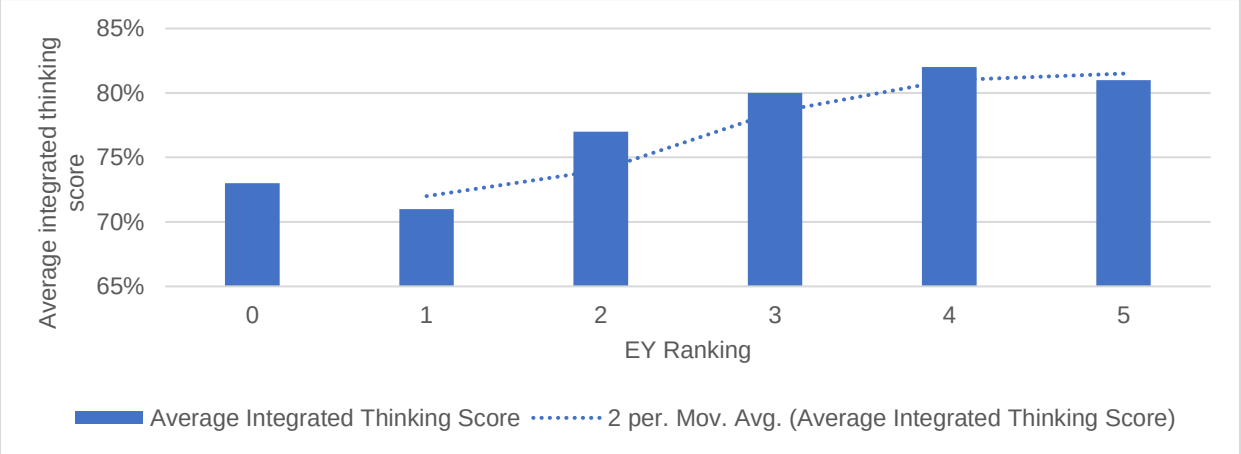
Table 10: Average integrated thinking score (per the Trialogue model) per principle stratified according to the EY integrated report quality score

	Average Score of Principle per Trialogue Framework at the EY IRQ Level – 2019 Integrated Reports				
EY IRQ Level	**1**	**2**	**3**	**4**	**5**
Principle – Trialogue Framework	**Lower Quality Reporting**		**Higher Quality Reporting**		
P1	72%	76%	79%	80%	81%
P2	78%	85%	88%	87%	88%
P3	67%	74%	75%	72%	75%
P4	69%	69%	74%	72%	76%
P5	85%	85%	89%	86%	87%

Despite certain outliers, on average, it is evident that a higher report quality does indicate higher levels of integrated thinking taking place. This is supported by Figure 7 below which shows that the integrated thinking score increases as the report quality per EY is higher. For each entity, the integrated thinking score per year is compared to the EY ranking per year. Note that an EY Ranking of 0 results from those companies not being ranked in the EY awards as it falls outside of their methodology for selecting companies. An average integrated thinking score for all entities in the study group per EY ranking is then calculated. The figure below illustrates an improvement from an EY ranking of “needs improvement” [1] through to “excellent” and “Top 10” reports [4 and

5] on average across all 97 companies in the amalgamated three periods under review. The three periods have been amalgamated to assess an overall comparison over the study period.

Figure 7: Average integrated thinking scores amalgamated over the three year study period compared to the corresponding EY report quality levels



This shows that the control measure of IRQ scores supports the model being used in this research paper. This will allow stakeholders to assess and benchmark entities according to the framework and gear their decisions through how well an entity is executing the principles. Executing these will have benefits (Section 2.2) and, once the challenges are overcome (Section 2.3), an entity will benefit from a multi-capital and holistic approach to managing the entity. The five principles of the Trialogue model can be executed by an entity of any size. Naturally, the disclosures and data controls will have different levels of complexity and cost-benefit assessments, depending on the entity size.

Given that there is a relationship between integrated thinking and reporting (Barth *et al.*, 2017), the EY awards tracking the results of the integrated thinking scores on average supports the validity and reliability of the results of the proposed framework in this study.

6: Summary and conclusion

This thesis assessed a model developed by Trialogue and used it to evaluate integrated thinking levels among JSE-listed entities. The model can guide entities in applying principles of integrated thinking and can also be used by stakeholders to gauge and evaluate integrated thinking levels. The thesis finds that the model is rooted in prior literature and concurs with the findings of other researchers in the field of integrated thinking (see Section 2 & 3). The five principles of the model are [1] integrated awareness and understanding; [2] integrated leadership commitment and

capability; [3] integrated structures; [4] integrated organisational performance management and [5] integrated external communication. Each principle has implementation indicators. The model has been used to evaluate the sample group of companies. A summary of results is presented below.

6.1: Summary of results

By analysing the integrated reports, best and worst practice examples have been illustrated in disclosing an entity's practical application of integrated thinking. The examples presented in Section 5.1 are assessed against the integrated thinking factors to provide a disclosure summary for an entity to assess. This has been summarised below.

Table 11: Disclosure summary of best and worst practice - qualitative assessment of IR

Factor	Best Practice	Worst Practice
Managing of and reporting on value creation	• Multi-capital assessment with trade-offs **(Figure 1.1 & 3.2)** • Strategy is linked holistically **(Figure 1.2, 1.3 & 3.2)** • Hyperlinks used for connectivity and reference to additional reports **(Figure 1.4 and 5.1)** • Summary of ESG impacts from other, detailed reports (**Figure 2.2 and 5.1)** • Link financial data to non-financial data/capitals **(Figure 1.1, 3.2 & 4.3)** • Company specific case studies **(Figure 1.2 & 1.3)** • Likelihood, magnitude and time-frames for risks disclosed **(Figure 1.4)** • Detailed materiality determination process **(Figure 1.5)** • Detailed KPIs based on financial/non-financial metrics **(Figure 4.3)** • Technology integration **(Figure 1.4 and 5.1)**	• High level/superficial risk assessments **(Figure 1.6)** • Generic, boilerplate disclosures **(Figure 1.6, 2.3 & 3.3)** • Limited capital disclosures and lack of connectivity of information across the report **(Figure 3.3)** • Long disclosures **(Section 5.1.5)** • Lack of application of the IIRC Framework **(Figure 3.3)** • Poor format of report lacking insight and analysis **(Figure 2.3)**
Stakeholder awareness and corporate accountability	• Detail of engagement channels, key concerns/expectations **(Figure 1.2)** • Link the stakeholders to capitals and value creations **(Figure 3.1)** • Company specific case studies **(Figure 1.2 & 1.3)** • Detailed stakeholder matrix analysis **(Figure 3.1)**	• Generic, boilerplate disclosures **(Figure 1.6 & 3.3)** • Greenwashing by including detailed ESG metrics without explicitly assessing the impact of these metrics, setting targets and explaining outcomes and impact on stakeholders **(Figure 3.3 & 4.4)**

Table 11: Disclosure summary of best and worst practice - qualitative assessment of IR		
Factor	**Best Practice**	**Worst Practice**
	• Accountable for targets and reporting on positive and negative outcomes **(Figure 3.2, 4.1 & 4.2)**	• Limited stakeholder engagement with focus on providers of financial capital **(Figure 3.3 & 4.4)**
Governance	• Transparent disclosures **(Figure 4.2)** • Detailed disclosure on board activities, outcomes and direction **(Figure 2.1 & 4.3)** • ESG impact **(Figure 1.1, 2.2)**	• Generic, boilerplate disclosures **(Figure 2.3)** • Limited application of other codes **(Figure 3.3.)**

The integrated thinking framework provides an emerging and initial base on which to measure a company's integrated thinking performance. This report applied the framework to a sample of listed companies and found that the application and disclosure of integrated thinking principles was strong among the listed entities which owes to the well-developed reporting environment in South Africa. The sample revealed that there is, however, progress to be made when focusing on performance measurement and remuneration geared through a holistic incorporation of both financial and non-financial capitals and disclosing this in an understandable manner.

Three factors account for a significant portion of the variance in integrated thinking levels (see Section 5.3). The factors include managing of and reporting on value creation [Factor 1]; stakeholder awareness and corporate accountability [Factor 2] and governance [Factor 3].

Integrated thinking scores per entity were generated by applying the integrated thinking framework to the sample (see Section 4). The scores per principle were grouped to the factors. Factor 1 accounted for the majority of the variance between the entity scores, followed by Factor 2. Factor 3 performance was relatively consistent across the sample. This is possibly because of King-IV providing extensive guidance on ethical and effective leadership notwithstanding its principle-based approach (IOD, 2016). At the same time, South African companies have experience with different types of sustainability reporting. By keeping Factor 3 constant, this allows the relationship between Factor 1 and Factor 2 to be examined.

The factors are plotted in a matrix per Figure 8 below. The horizontal heading ("x-axis") deals with managing and reporting on value creation while the vertical heading ("y-axis") represents stakeholder awareness and corporate accountability. There is considerably more variation in the indicator scores making up the first (x-axis) and second factors (y-axis). The respective indicators relate mainly to integrated awareness and understanding (P1), integrated leadership commitment and capability (P2) and integrated structures (P3). The companies under review can be classified

into three groups with different approaches to the application of integrated thinking. The top right quadrant includes companies with relatively high scores on all three dimensions. These companies deal with different capitals to the greatest extent of the organisations under review as part of their strategy, risk assessment and business models. Stakeholder identification and engagement processes are sophisticated and used to inform the information included in reports, supported by a well-developed materiality determination process.

The second group of companies have moderately high scores for managing and reporting on value creation (x-axis). They have relatively low scores for stakeholder awareness and corporate accountability (y-axis). These organisations are understood as taking some steps towards implementing a more integrated approach to managing and reporting on their business. Their integrated thinking process is not as sophisticated as the first group of companies with the relevant control systems and stakeholder engagement processes still being developed.

The third group have the lowest scores on the x- and y-axis. This does not mean that integrated thinking is absent but that integrated thinking is in an early/developmental stage. The companies deal with different economic, environmental and social issues in their integrated reports but there are fewer indicators of these being managed as part of a multi-capital strategy. Performance is gauged mainly in financial terms with governance systems focused on economic dimensions.

Entities primarily distinguish on the managing of and reporting on value creation factor. This may indicate that companies do not yet understand how to integrate the capitals holistically and then use this for value creation. This hints at a financial focus still being prevalent within entities (Section 2.3.1) and may show that integrated thinking across the capitals requires improvement. The Trialogue model offers a practical means for external stakeholders to evaluate integrated thinking using publicly available information. The results show that integrated thinking can be understood as a function of an organisation’s commitment to holistic governance, the management and reporting on value creation and the level of stakeholder engagement and corporate accountability.

The principles of the integrated thinking framework (Section 3) can provide the roadmap to apply and then execute the logic better and ultimately report on this. Figure 8 presents a matrix to assess the four groups of integrated thinking application based on their scores on the first two factors:

Figure 8: Application of integrated thinking			
Managing and reporting on value creation			
		Low	High
Stakeholder awareness and corporate accountability	High	Integrated thinking logic emerging	Strong integrated thinking logic in place
	Low	Integrated thinking in an early/developmental stage	Integrated thinking logic emerging

At some organisations, a strong integrated thinking logic is in place. These entities have a relatively sophisticated approach to value creation, stakeholder engagement and accountability for financial and non-financial performance. At other entities, an integrated approach to business management is starting to emerge. An awareness of multi-faceted value creation is evident, supported by underlying systems, processes and governance structures to varying extents. In other cases, integrated thinking is still in an early or development stage. Value creation continues to be understood in predominantly financial terms and the underlying management systems remain focused on economic considerations (Section 2 and 3).

Preliminary analysis (Section 5.3.2) reveals that there are some significant statistical relationships between integrated thinking and various drivers. This thesis presents avenues for research into the drivers of integrated thinking with a call to explore the interrelationships in more depth.

Integrated thinking facilitates an understanding of the ESG impacts/initiatives and improves ESG performance which enhances a sustainable business model and good corporate governance. The variables identified in this study can be positively impacted by integrated thinking being executed internally in an organisation. The organisation can then disclose this to strengthen legitimacy and communication channels. Associations that are statistically significant with certain metrics are noted on some of the integrated thinking factors, however, these will require further assessments to pinpoint the impact. This paper provides a foundational basis for these assessments.

When analysing the relationship between integrated thinking scores and ESG/financial performance the researcher also identified additional integrated thinking application logics. There

was a mix of entities in the sample with poor integrated thinking scores and high ESG/financial performance levels as well as high integrated thinking scores and low ESG/ financial performance levels. Other entities had high integrated thinking scores and high ESG/ financial performance levels with the converse also present.

Figure 9: Integrated thinking and ESG/financial performance			
ESG Performance[33]/Financial Performance			
		Low	High
Integrated thinking scores	High	Effective communication channels to disclose weaknesses	Strong integrated thinking logic and internalised practice
	Low	Poor communication channels and internalised practice	Ineffective communication channels to disclose strengths

This matrix illustrates that the disclosures in an integrated report can illustrate the levels of integrated thinking in an entity. Despite the performance, which may in fact be poor, it is critical for an entity to transparently disclose this poor performance to stakeholders so that stakeholders are aware of it. The company can then put plans in place to address these shortcomings and illustrate how this will be addressed. This is how integrated thinking is put into practice, how it is then disclosed and finally, how it can benefit an entity. This will help to move an entity from effective communication channels to disclose weaknesses to advanced communication channels to disclose strengths. Poor communication channels and internalised practice will be an issue for the long-term sustainability of a company. Similarly, adverse impacts on an entity will be experienced if there is a strong internal performance that is poorly communicated as this indicates a breakdown in communication (Section 2.2.3). This may lead to future opportunities or risks not being identified.

A similar phenomenon is noted when assessing the other variables. There are entities exhibiting high and low integrated thinking scores whether they are larger or smaller size entities; have

[33] CDP scores, industry sensitivity and SRI index are used as a proxy for ESG performance. The higher ESG performance also includes a separate ESG committee and the use of sustainability/other reports.

higher or lower leveraging; are accompanied by sustainability/other reports or an ESG committee or have high or low page numbers in the integrated report. The significant statistical relationships and upward/downward trends noted do provide a basis for how integrated thinking may drive variables (and vice-versa) on average over a large sample.

However, entities are defined in four groups of integrated thinking application and the associated performance in underlying variables. This indicates that a strong integrated thinking logic can result in positive results. Similarly, a lack of integrated thinking application can yield adverse impacts across factors such as financial and ESG performance. There is an area where entities are exhibiting higher integrated thinking logic with poor performance and vice-versa. These particular cases warrant further research to understand whether the integrated thinking application is lacking in disclosure rather than practical execution. Conversely, the strong integrated thinking logic may be identifying weaknesses in performance to improve in the future or the disclosures may be a sophisticated attempt at greenwashing or increasing legitimacy.

6.2: Conclusion

The research has presented a framework to evaluate the integrated thinking levels based on the execution of underlying principles rooted in prior literature. The application of the framework reveals trends in the integrated thinking levels among JSE listed entities. A disclosure checklist is developed which can serve as a proxy to aid the improvement of integrated thinking. The integrated thinking scores then reveal three primary factors accounting for a high variance in integrated thinking levels. These factors are used to test the association of the level of integrated thinking and variables.

Table 12: Summary of research question findings

Research Question	Findings
RQ1	Entities in South Africa are scoring well on integrated thinking principles, primarily geared through the strong governance and reporting structures in place. Remuneration and performance management have, however, been identified as a weakness. There have not been material changes in integrated thinking levels across the study period. Three factors contribute to a high portion of the variance in integrated thinking levels. These factors are [1] managing of and reporting on value creation; [2] stakeholder awareness and corporate accountability; and [3] governance. This has revealed that entities are in different stages of integrated thinking

Table 12: Summary of research question findings	
Research Question	**Findings**
	application being an early/developing stage, an emerging integrated thinking logic or a strong integrated thinking logic.
RQ2	Possible determinants of higher levels of integrated thinking include financial performance, leverage, size, ESG performance, separate ESG committees and additional report preparation. These determinants impact different factors of integrated thinking as noted in the sub-questions. This allows future researchers to build on the principles per Section 3. The key associations of variables with integrated thinking levels are evaluated below.
RQ2.1	Financial performance is statistically significant with a significant upward trend in terms of the impact on stakeholder awareness and corporate accountability (Factor 2). Leverage is statistically significant with a significant upward trend in terms of the impact on managing of and reporting on value creation (Factor 1).
RQ2.2	Entity size is statistically significant with a significant upward trend in terms of the impact on managing of and reporting on value creation (Factor 1).
RQ2.3	ESG performance (as measured by the CDP score, industry sensitivity and SRI index) is statistically significant with a significant upward trend in terms of the impact on managing of and reporting on value creation (Factor 1).
RQ2.4	Integrated reports, accompanied by sustainability/other reports, and overseen by an ESG committee are statistically significant in terms of the impact on managing of and reporting on value creation (Factor 1) and stakeholder awareness and corporate accountability (Factor 2). A separate sustainability report is statistically significant in terms of its impact on governance (Factor 3).

These variables have an impact on different factors of integrated thinking levels. The execution of integrated thinking principles primarily enhances the management of and reporting on value creation as well as the stakeholder awareness and accountability. By means of adopting a multi-capital approach with a view to long-term value creation (Factor 1), while considering multiple stakeholders' needs and remaining accountable to stakeholders (Factor 2), an organisation can improve its financial performance and leveraging. This will be evidenced in terms of improving information systems, understanding the business holistically, improving communication and a balanced business assessment (Section 2.2). This will impact the application of integrated thinking and stage of adoption presented above.

Finally, this study has shown that higher quality reporting is linked, on average, to higher levels of integrated thinking (see Section 5.3.2 for the calibration tests). This is consistent with the findings in Barth *et al*., (2017) and the prior literature.

6.2.1: Implications and contributions of the thesis

From a local and international perspective, IR forms one of the challenges and solutions to navigating the current economic sphere (Dumay *et al*., 2016). Integrated thinking is a key emerging trend. The framework highlights that there are important questions for management and governing bodies to consider which include:

- Has the organisation's strategy, risk assessment and business model been aligned and updated to include the relevant economic, environmental and social issues?
- Have stakeholder needs been evaluated and incorporated in business practices?
- What processes are in place to identify material issues and track external changes?
- Are the necessary systems in place to collect data on the different capitals, evaluate their interconnections and assess how they are incorporated into the value creation process?
- How are KPIs developed and evaluated to ensure long-term value creation?
- What MCS are required to safeguard the capitals and organisational objectives?
- Are the policies developed to promote integrated thinking sufficiently dynamic and adaptable? Do they strike a balance between being too generic and overly prescriptive?

developed from (De Villiers et al., 2020b; IFAC, 2020)

The framework provides a basis for these questions. Consideration of these questions will allow an entity to achieve a higher level of integrated thinking. This will ultimately unlock the benefits of integrated thinking. The challenges to integrated thinking can also be navigated through consideration of the elements of the framework. Evaluating an organisation's commitment to and application of integrated thinking is not simple. The internal mechanisms which simultaneously support and are changed by the application of integrated thinking cannot be observed directly by external stakeholders. The organisation's integrated report can, however, provide insights.

In the current space of the COVID-19 pandemic, the implementation of integrated thinking and the resulting benefits will be important for companies to negotiate the challenging environment. The interconnection of capitals and long-term value creation, while engaging stakeholders and adapting to risks and capitalising on opportunities, will ensure the long-term sustainability of the

company. The COVID-19 pandemic iterates the importance of an integrated approach to developing strategies, managing risks and reporting to stakeholders. A multifaceted approach to doing business is essential for generating value and ensuring business continuity (IIRC, 2021; IOD, 2016). In this context, Trialogue's model provides an easy-to-apply tool which can be used by organisations and their stakeholders to define and evaluate integrated thinking. It does not provide a scientific 'measure' of the level of integrated thinking but can be used to compare organisations, identify limitations and inform improvements to business processes.

Weaknesses identified in the application of integrated thinking do not mean that integrated thinking is absent. The organisations under review may follow a comprehensive approach for developing strategies, mitigating risks and maximising value for stakeholders but are not including the details in their integrated reports. It must also be remembered that it will take time to develop appropriate integrated thinking frameworks and report these effectively to stakeholders. Recommendations for managers and governing bodies include the following:

- Risks and opportunities need to be identified and evaluated using a multi-capital approach which balances economic, environmental and social issues equally.
- Risks and opportunities should be linked more clearly to corporate strategies and an explanation of exactly how business models (and related operations) are being modified.
- The leadership role played by executives and governing bodies needs to explicated.
- Explain the application of ethics/codes of best practice in the business context.
- Conceptualise performance more broadly. KPIs should deal with ESG factors in addition to economic ones, across all time-frames.
- Governance structures tend to focus on financial performance and compliance. Monitoring functions and the strategic activities should deal with multiple capitals.
- The accounting infrastructure needs to be carefully evaluated to ensure that the necessary data are available to support internal decision making and reporting to stakeholders. MCS and assurance should drive objectives and safeguard resources.

6.2.2: Limitations and areas of future research

The limitations of this study include:

- The sample was limited to JSE-listed entities and South African integrated reports (which are a mandatory requirement for listed entities). No other jurisdictions or voluntary reports were considered. Findings must be generalised to other jurisdictions with caution.

- Only large, listed entities' reports were assessed. Organisations in the SME sector were not considered.
- All information to score the integrated thinking was obtained from the integrated reports. No other reports or sources of information were used. Interviews, case studies and practical application was not assessed beyond integrated report disclosures.
- Poor disclosures do not always indicate that an entity lacks integrated thinking in practice (see Section 2.3). Weak disclosures may indicate that an entity lacks an understanding in how to disclose their execution of integrated thinking. Weak disclosures may also point to principles where the entity needs to improve the internal practices. This study does not consider that poor disclosures may not be indicative of poor integrated thinking in practice.
- The quantitative assessment only analysed whether a significant statistical relationship may exist. No further econometric analysis was conducted.
- The factor analysis was run based on the underlying integrated thinking scores generated, which was an inherently subjective process. Further analysis and application of the model will be required.
- Finally, the scoring process was only based on the output of the Trialogue model. It will be necessary to develop additional integrated thinking indicators and proxies to enhance the measurement framework and reapply the model to assess the impact on the results.

Despite the limitations, this study provides an important contribution in providing an emerging framework to evaluate integrated thinking, which has not been explored in depth and is an underdeveloped concept both in academia and practice. Further potential drivers are identified which opens up avenues for further research. By analysing integrated reports in more detail, in conjunction with further qualitative and quantitative methodologies, the framework can be expanded and improved to incorporate more detailed principles.

Further research agendas may include:

- Assess the application of the framework and methodology to a larger sample size, across multiple jurisdictions.
- Expand the study by interviewing organisations to understand the practical application of integrated thinking. This includes how it has changed the entity pre- and post-actively acknowledging the concept through a case study methodology. Investigate alternative channels through which integrated thinking can be evaluated. This will overcome the

inherent limitation of this study in only assessing integrated report disclosures to evaluate integrated thinking levels.

- Evaluate the integrated thinking level variations among different industries and the trends emerging in the disclosures.
- Investigate how strategies, governance, performance and departments are connected.
- Consider a Structured Equation Modelling Analysis. This can show interrelationships and whether firm size, industry and IR quality drive integrated thinking and how much that variable concurrently impacts the former variables. This can also develop additional factors which account for variance in integrated thinking levels.
- Investigating how integrated thinking is operationalised in the SME sector. Further research can include a cost-benefit analysis, an investigation into the value of disclosures versus implementation and tracking the execution of principles.
- Investigating the impact of integrated thinking principle execution in response to the COVID-19 pandemic and how integrated reports are disclosing a company's response to the pandemic.
- Investigating how the concept of integrated thinking is understood and interpreted by different stakeholders through an interview process.
- Establishing internal and external assurance practices over integrated thinking disclosures.
- Investigating entities which had accounting scandals or business failure and using the integrated report preceding such an event to rank the underlying disclosures against the integrated thinking framework. This could determine whether the lack of certain integrated thinking disclosures may be indicative of potential issues and may yield early warning signs.

The benefits of integrated thinking lend themselves to a need for companies to utilise this within the operations, reporting and communication. Future research will help to practically clarify this concept and allow organisations and stakeholders to evaluate integrated thinking levels. This will aim to improve the levels of integrated thinking in the South African business landscape with the hope of improving stakeholder communication, the management of capitals and value creation as well as the governance structures. The benefits will then materialise for multiple stakeholders through an ethos of integrated thinking.

7: Appendices

Appendix 1: List of entities assessed in the study

*** Eleven entities included in the pilot study assessment**

Number	Alpha	LongName	Industry	Market Capitalisation ZAR 'Billions - 31/12/2018	EY 2019 Awards Ranking
1	ANH	Anheuser-Busch InBev SA NV	Beverages	1 619	1
2	NPN	Naspers Ltd -N-	Media	1 269	2
3	BTI	British American Tob plc	Tobacco	1 153	2
4	GLN	Glencore plc	Mining	781	4
5	BHP	BHP Group Plc	Industrial Metals & Mining	642	2
6	CFR	Compagnie Fin Richemont	Personal Goods	489	1
7	AGL	Anglo American plc	Mining	453	4
8	FSR	Firstrand Ltd	Financial Services	368	2
9	SBK	Standard Bank Group Ltd	Banks	289	4
10	SOL	Sasol Limited	Oil & Gas Producers	265	5
11	VOD	Vodacom Group Ltd*	Mobile Telecommunications	242	5
12	SLM	Sanlam Limited*	Life Insurance	178	3
13	S32	South32 Limited	Industrial Metals & Mining	174	1
14	MTN	MTN Group Ltd*	Mobile Telecommunications	168	3
15	AMS	Anglo American Plat Ltd	Mining	145	5
16	ABG	Absa Group Limited	Banks	137	4
17	NED	Nedbank Group Ltd	Banks	135	5
18	CPI	Capitec Bank Hldgs Ltd	Banks	129	1
19	SHP	Shoprite Holdings Ltd	Food & Drug Retailers	112	3
20	MNP	Mondi plc	General Industrials	112	3
21	RMH	RMB Holdings Ltd	Financial Services	111	2
22	OMU	Old Mutual Limited*	Financial Services	111	3
23	DSY	Discovery Ltd*	Life Insurance	105	3
24	REM	Remgro Ltd	Financial Services	103	3
25	KIO	Kumba Iron Ore Ltd	Industrial Metals & Mining	91	5
26	BID	BID Corporation Ltd	Health Care Equipment & Services	89	1
27	ANG	Anglogold Ashanti Ltd	Mining	75	3
28	PPH	Pepkor Holdings Ltd	General Retailers	72	1
29	BVT	Bidvest Ltd	General Industrials	70	2
30	GRT	Growthpoint Prop Ltd	Real Estate Investment Trusts	69	2
31	NRP	NEPI Rockcastle Plc	Real Estate Investment & Services	65	1
32	MRP	Mr Price Group Ltd	General Retailers	63	3
33	APN	Aspen Pharmacare Hldgs Ltd	Pharmaceuticals & Biotechnology	62	3
34	WHL	Woolworths Holdings Ltd*	General Retailers	58	4
35	PSG	PSG Group Ltd	Financial Services	57	1
36	RMI	Rand Merchant Inv Hldgs Ltd	Life Insurance	56	2

Number	Alpha	LongName	Industry	Market Capitalisation ZAR 'Billions - 31/12/2018	EY 2019 Awards Ranking
37	RDF	Redefine Properties Ltd	Real Estate Investment Trusts	56	5
38	INP	Investec plc	Financial Services	54	2
39	TBS	Tiger Brands Ltd	Food Producers	52	2
40	EXX	Exxaro Resources Ltd	Oil & Gas Producers	49	4
41	CLS	Clicks Group Ltd	Food & Drug Retailers	49	3
42	HMN	Hammerson plc	Real Estate Investment & Services	47	2
43	SAP	Sappi Ltd	Forestry & Paper	45	4
44	MEI	Mediclinic Int plc	Health Care Equipment & Services	44	3
45	RNI	Reinet Investments S.C.A	Financial Services	43	1
46	QLT	Quilter Plc	Financial Services	42	2
47	GFI	Gold Fields Ltd	Mining	41	4
48	ASR	Assore Ltd	Industrial Metals & Mining	40	1
49	SPP	The Spar Group Ltd	Food & Drug Retailers	40	2
50	TFG	The Foschini Group Limited	General Retailers	39	3
51	TRU	Truworths Int Ltd	General Retailers	39	5
52	NTC	Netcare Limited	Health Care Equipment & Services	39	5
53	LHC	Life Healthc Grp Hldgs Ltd	Health Care Equipment & Services	39	4
54	CCO	Capital&Counties Prop plc	Real Estate Investment & Services	36	2
55	AVI	AVI Ltd	Food Producers	36	1
56	SNT	Santam Limited	Nonlife Insurance	34	2
57	PIK	Pick n Pay Stores Ltd	Food & Drug Retailers	33	4
58	TKG	Telkom SA SOC Ltd*	Fixed Line Telecommunications	32	4
59	ARI	African Rainbow Min Ltd	Industrial Metals & Mining	32	3
60	LBH	Liberty Holdings Ltd*	Life Insurance	31	4
61	ITU	Intu Properties plc	Real Estate Investment Trusts	29	3
62	VVO	Vivo Energy plc	Oil & Gas Producers	27	2
63	IMP	Impala Platinum Hlgs Ltd	Mining	27	5
64	MMI	MMI Holdings Limited	Life Insurance	26	1
65	DCP	Dis-Chem Pharmacies Ltd	Food & Drug Retailers	25	2
66	TSH	Tsogo Sun Holdings Ltd	Travel & Leisure	25	3
67	BAW	Barloworld Ltd	Support Services	24	3
68	RES	Resilient REIT Limited	Real Estate Investment Trusts	24	1
69	DGH	Distell Group Hldgs Ltd	Beverages	24	2
70	SGL	Sibanye Gold Limited	Mining	23	3
71	MSM	Massmart Holdings Ltd	Food & Drug Retailers	22	3
72	NHM	Northam Platinum Ltd	Mining	22	3
73	KAP	KAP Industrial Hldgs Ltd	General Industrials	22	1
74	FFA	Fortress REIT Ltd A	Real Estate Investment & Services	22	1
75	HYP	Hyprop Inv Ltd	Real Estate Investment Trusts	21	2
76	PFG	Pioneer Foods Group Ltd	Food Producers	20	3

Number	Alpha	LongName	Industry	Market Capitalisation ZAR 'Billions - 31/12/2018	EY 2019 Awards Ranking
77	ITE	Italtile Ltd	General Retailers	18	1
78	VKE	Vukile Property Fund Ltd	Real Estate Investment Trusts	18	1
79	MTH	Motus Holdings Ltd	Automobiles & Parts	18	N/A
80	BAT	Brait SE	Financial Services	16	2
81	EPP	EPP N.V.	Real Estate Investment & Services	16	1
82	TTO	Trustco Group Hldgs Ltd	Financial Services	15	1
83	GTC	Globe Trade Centre S.A.	Real Estate Investment & Services	15	1
84	KST	PSG Konsult Limited	Financial Services	15	2
85	CML	Coronation Fund Mngrs Ld	Financial Services	14	3
86	JSE	JSE Ltd	Financial Services	14	3
87	IPL	Imperial Logistics Ltd	General Retailers	14	N/A
88	MSP	MAS Real Estate Inc.	Real Estate Investment & Services	14	3
89	HAR	Harmony GM Co Ltd	Mining	13	2
90	RCL	RCL Foods Limited	Food Producers	13	3
91	RLO	Reunert Ltd	General Industrials	13	4
92	SPG	Super Group Ltd	General Retailers	13	1
93	HCI	Hosken Cons Inv Ltd	General Industrials	11	1
94	SRE	Sirius Real Estate Ltd	Real Estate Investment & Services	11	1
95	MTM	Momentum Met Hldgs Ltd*	Financial Services	33	N/A
96	AEL	Allied Electronics Corp A*	Software & Computer Services	9	N/A
97	EOH	EOH Holdings Ltd*	Software & Computer Services	2	0

Appendix 2: Industries in the study sample

Industry	Number of entities in the industry	Grouping for "Industry test"
Automobiles & Parts	1	Other industries
Banks	4	Financial services
Beverages	2	Other industries
Financial Services	14	Financial services
Fixed Line Telecommunications	1	Other industries
Food & Drug Retailers	6	Other industries
Food Producers	4	Other industries
Forestry & Paper	1	Mining/Industrial
General Industrials	5	Mining/Industrial
General Retailers	8	Other industries
Health Care Equipment & Services	4	Other industries
Industrial Metals & Mining	5	Mining/Industrial
Life Insurance	5	Financial services
Media	1	Other industries
Mining	9	Mining/Industrial

Industry	Number of entities in the industry	Grouping for "Industry test"
Mobile Telecommunications	2	Other industries
Nonlife Insurance	1	Financial services
Oil & Gas Producers	3	Mining/Industrial
Personal Goods	1	Other industries
Pharmaceuticals & Biotechnology	1	Other industries
Real Estate Investment & Services	8	Financial services
Real Estate Investment Trusts	6	Financial services
Software & Computer Services	2	Other industries
Support Services	1	Mining/Industrial
Tobacco	1	Other industries
Travel & Leisure	1	Other industries
Total	**97**	

Appendix 3: CDP levels and associated score allocated

CDP Level	CDP Ranking	Score Allocated
A	Leadership level	1
A-	Leadership level	2
B	Management level	3
B-	Management level	4
C	Awareness level	5
C-	Awareness level	6
D	Disclosure level	7
D-	Disclosure level	8
E		9
E-		10
F	Failure to provide sufficient information to be evaluated	11
F-		12
G		13
G-		14
AQ(SA)	Answered via another listed company also in sample	0

scores obtained from CDP (2020)

Appendix 4: EY rankings and associated score allocated

EY Ranking	Score Allocated
Progress to be made	1
Average	2
Good	3
Excellent	4
Top 10 Company	5

rankings obtained from EY (2020)

Appendix 5: Rotated Component Matrix

Principle – Refer to Table 3, Section 3	Component/Factor		
	1	2	3
1.1	0.556		
1.2	0.441	0.534	
1.3	0.653		
1.4	0.711		
1.5	0.585	0.438	
2.1	0.698		
2.2	0.503	0.578	
2.3	0.589	0.492	
2.4		0.713	
2.5	0.597		
3.1			0.592
3.2			0.791
3.3	0.661		
3.4	0.565	0.452	
4.1	0.589		
4.2		0.422	0.464
4.3		0.603	0.438
4.4			0.618
5.1		0.738	
5.2			

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converged in 6 iterations.

Extract of Total Variance Explained			
Factor	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7.980	39.900	39.900
2	1.368	6.841	46.741
3	1.190	5.950	52.690

Appendix 6: EY Integrated Report Quality awards distribution – ranked lowest (1) to highest (5)*

	Percentage of entities falling within the respective ranking		
EY Ranking	**2018**	**2019**	**2020**
1 – Progress to be made	26%	25%	20%
2 – Average	28%	25%	29%
3 – Good	24%	28%	29%
4 – Excellent	12%	12%	12%
5 – Top 10	10%	10%	10%

**This table is based on all of the companies included by EY in their assessment of report quality (EY, 2020) rather than only the entities used in this study. This is to holistically assess report quality in a South African context. For context, 101 entities are included in the EY assessment in 2018 and 2019 and 100 entities in 2020. Please note that the EY awards rank the prior year integrated reports. As such, the 2018 awards are based on the 2017 year-end integrated reports; 2019 awards on the 2018 reports and the 2020 awards on the 2019 reports thus corresponding with the periods used in this study.*

Appendix 7: Factor analysis by industry

Industry	Average integrated thinking score of total principles (2019)	Average integrated thinking score across factors (2019)		
		1. Managing and reporting on value creation	2. Stakeholder awareness and corporate accountability	3. Governance
Automobile & parts	72%	73%	90%	47%
Banks	76%	75%	89%	62%
Beverages	80%	83%	85%	67%
Financial services	76%	74%	90%	66%
Fixed line telecommunications	73%	68%	90%	60%
Food & drug retailers	81%	81%	89%	67%
Food producers	82%	80%	91%	75%
Forestry & paper	78%	80%	87%	60%
General industrials	75%	71%	87%	71%
General retailers	78%	76%	88%	67%
Health care equipment & services	79%	78%	89%	67%
Industrial metals & mining	74%	74%	83%	64%
Private insurance	27%	32%	17%	47%
Life insurance	80%	80%	89%	67%
Media	80%	77%	93%	67%
Mining	83%	83%	91%	70%
Mobile telecommunications	83%	83%	90%	70%
Non-life insurance	78%	78%	87%	73%
Oil & gas producers	83%	87%	88%	67%
Personal goods	91%	92%	93%	87%
Pharmaceuticals and biotechnology	76%	73%	87%	67%
Real estate investment & services	68%	65%	78%	63%
Real estate investment trusts	81%	79%	90%	73%

Industry	Average integrated thinking score of total principles (2019)	Average integrated thinking score across factors (2019)		
		1. Managing and reporting on value creation	2. Stakeholder awareness and corporate accountability	3. Governance
Software & computer services	80%	80%	88%	63%
Support services	85%	85%	93%	73%
Tobacco	80%	73%	93%	87%
Travel & leisure	79%	77%	87%	80%

Appendix 8: Summary of "integrated thinking in action" case studies provided by the IIRC

Questions	ABN AMRO (leading bank in Netherlands)	Solvay (global chemical company)
What led an organisation to embed integrated thinking	• Needed a tool to focus on long term value creation • Wanted to anticipate the needs of their clients and react to this • Noted that alignment was needed across the organisation	• Needed a tool to focus on long term value creation and the impact on stakeholders • Align reporting scope and boundaries to external standards • Aimed to create an integrated management system to assess outputs, outcomes and resulting value creation
How did they approach integrated thinking	• Materiality assessment to understand drivers of value • Began by focusing on sustainability-related factors • Needed to use integrated thinking to improve the integrated reporting process	• Created internal, integrated dashboards • Moved from a report based on what the organisation wanted to communicate to a report on what stakeholders wanted to hear about • Changed indicators that had been set by the organisation
How they used integrated thinking to shape their strategy	• Used integrated thinking to shape the value creation strategy which was holistic and grounded in the drivers of value • Operationalised purpose to focus on clients (which will create value for all stakeholders) • Created differentiators to create long-term value	• Conducted surveys, individual interviews, listening sessions and leadership dialogues • Move away from superficial, qualitative impacts to focus on areas of real impact, increase it and describe in • Empower business units and assign responsibilities and specific mandates • Leadership focus
How integrated thinking has helped them to deploy their strategy	• Brings together individuals form different departments • Created a "Corporate Integrated Thinking Community" with members an ambassador for a value creating topic ○ Embed value, monitor and report to the strategy department • Monitor the process, measure outcomes and monetise impact on stakeholders • Categorise impacts across the six capitals	• Embedded the purpose in the code of conduct • Redesigned internal processes to support the sustainability approach • Ranking system introduced for each business unit to rate performance across customers, employees, plant, investors, suppliers and local communities • Monitor the execution • Transitioned from short term incentives to comprehensive KPIs • Assess sustainable development issues and deploy a strategy • Leverage internal integrated dashboards

Questions	ABN AMRO (leading bank in Netherlands)	Solvay (global chemical company)
What the benefits have been	• Improved decision making • Heightened transparency with stakeholders • Understand the outcomes of indirect impacts • Merging of financial and non-financial impacts improves anticipation of client's needs • Faster transition to digitisation in light of the pandemic • Ethos of creating value and long-term sustainability	• Identify new challenges • Assess perspective of broader range of stakeholders • Evaluate outputs impact on environment • Connectivity improved between departments • Implementation of integrated management system with data sharing

Adapted and summarised from IIRC (2021b)

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V: Candidate's Declaration

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Faculty of Commerce, Law and Management

Candidate's Declaration

Name of Candidate:	Dusan Ecim
Person Number:	717414
Degree:	Master of Commerce (Accounting)
Supervisor / Co-Supervisor:	Warren Maroun / Dannielle Cerbone
School:	School of Accountancy
Title of Thesis/Dissertation/ Research Report:	An assessment of integrated thinking levels among JSE-listed entities

Candidate's Declaration:

i. I hereby submit my PhD Thesis/Masters dissertation for examination (circle applicable).

ii. I confirm that my signed declaration in terms of Rule G9.7 is included in each copy of the thesis/ dissertation.

iii. I have checked all copies of my thesis/ dissertation and declare that no pages are missing or poorly reproduced.

iv. I hereby submit a CD/USB containing a PDF version of my submission for examination and _____2_____ bound copies.

Candidate's Signature: _____ **Date:** __30 July 2021___