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Components of integrated thinking: Evidence from South African listed companies

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Purpose: This article explores three components that need to be addressed as part of an integrated thinking strategy and provides evidence on the state of integrated thinking application in a developing economy.

Design/methodology/approach: The levels of integrated thinking among South African listed companies are obtained using an integrated thinking tool developed and tested by prior literature. The data are then summarised and aggregated into different components using a principal component analysis (PCA). The components are used to develop the core strategies organisations employ to adopt an integrated thinking logic.

Findings/results: Three components account for the highest percentage of the variance in integrated thinking levels and can be used as a reference point to institutionalise an integrated thinking logic in an organisation. Organisations need to focus on: (1) a holistic business awareness and managing of, and reporting on, value creation; (2) stakeholder awareness, communication and corporate accountability; and (3) governance, accountability for sustainability and assurance.

Practical implications: The components offer organisations a practical means to assess and develop their integrated thinking strategies and highlight important sustainability-related implications in a developing economy.

Originality/value: This article refines the indicators of integrated thinking used in prior literature to identify the dominant components that account for the variance in integrated thinking levels among organisations. An organisation can use these components to identify which stage of an integrated thinking logic the organisation is in and how the components can be used as a roadmap to a sustainable outlook and enhanced legitimacy.

Keywords: corporate accountability; governance; integrated thinking; integrated reporting; sustainability; value creation.

Introduction

As a result of the growing social and environmental sustainability challenges (see Adams, 2017; De Villiers & Maroun, 2018), organisations are increasingly required to consider extra-financial information as part of a broader sustainability strategy (Herath et al., 2021). Integrated reporting and thinking are intended to help organisations address sustainability challenges, many of which have material impacts on emerging economies (Ecim & Maroun, 2023).
Integrated thinking is defined as:

> [*T*]he active consideration by an organization of the relationships between its various operating and functional units and the capitals that the organization uses or affects. Integrated thinking leads to integrated decision-making and actions that consider the creation, preservation or erosion of value over the short, medium and long term. (International Integrated Reporting Committee [IIRC], 2021, p. 3)

Although it is accepted that the concept of considering sustainable development and integrated thinking has been present since, at least, the 1980s and 1990s (Gray, 1990; Gray et al., 1995; Guthrie & Parker, 1989; Wiseman, 1982), there is a growing need to formally recognise the process of promoting sustainable development, adopting a multi-capital approach, managing the value creation process and developing mechanisms for an effective post-implementation review (Ecim & Maroun, 2023; Di Vaio et al., 2020; Myeza et al., 2023). This process needs to be communicated to stakeholders who form part of the value-creation process across a broader spectrum (Rinaldi, 2020).

How organisations report on the environmental, social and economic dimensions of their strategies, operations and stakeholder engagement varies among jurisdictions. Over the last 20

years, different types of environmental, social and governance (ESG) reporting have emerged, including early environmental and social reports, sustainability reports and, most recently, integrated reports to report on the value creation process (Adams, 2017). The prominence of different types of environmental, social and sustainability reporting has grown significantly (KPMG, 2020), but how companies report on financial and extra-financial information varies considerably.

For example, in the United States of America (US), sustainability reports are prepared using standards developed by the Sustainability Accounting Standards Board. In Australia, Germany, Italy and the United Kingdom (UK), sustainability reporting, guided largely by the recommendations of the Global Reporting Initiative (GRI), is common. In Brazil, Japan, Spain and South Africa, integrated reports are frequently encountered (IFAC, 2021). Although the content, format and focus of different reports differ, the reports should be underpinned with an integrated thinking logic. In the interest of brevity, the current article refers to 'integrated reports' being any corporate report which, in addition to including traditional indicators of financial position and performance, deals with the economic, environmental and social dimensions of corporate strategies, operations and stakeholder engagement. Put differently, although the reports have different naming conventions, they are essentially communicating an integrated logic by incorporating extra-financial information and a multi-capital outlook.

Sustainability can be viewed through a financial lens where it is accepted that environmental and social considerations also impact the financial considerations of an entity, albeit that these considerations may be a secondary objective (Dumay & Dai, 2017). A broader lens views sustainability as intricately linked to the value creation process, where an organisation actively considers the interconnections between the capitals[1] used or affected (IIRC, 2021). In other words, an integrated thinking logic is applied to decision-making.

Corporate governance tools must be leveraged to communicate and create value and effectively allocate resources and capital (Di Vaio et al., 2020). Integrated thinking can assist in achieving a sustainable business model by means of streamlined reporting systems, mindful allocation of resources, focus on sustainable development goals (SDGs), and a circular approach to value creation (Di Vaio et al., 2020). Sustainability reporting developed because of stakeholder demands for increased environmental and social information (De Villiers, 2017). However, this reporting needs to be imbued with a practical application of an integrated thinking philosophy. Appropriate communication, by way of integrated thinking, can reduce the gap between the organisation's actions and the stakeholder expectations (Raji & Hassan, 2021).

Research is in its infancy with regards to the relationship between integrated thinking and sustainable development; however, there are positive associations that have been identified between applying an integrated thinking logic and improved sustainability performance (Rossi & Luque-Vílchez, 2020). The practical operationalisation of integrated thinking is also still a developing concept (Malafronte & Pereira, 2021). Although organisations have adopted more holistic approaches to business management, this is often superficial and lacks the necessary business management tools to implement integrated structures across the organisation (Haji & Anifowose, 2016). What is required is for organisations to understand the components of internal performance that can lead to sustainable development. In other words, understanding how an integrated thinking logic can be propagated provides a useful contribution to the growing body of literature on integrated thinking.

The establishment of the International Sustainability Standards Board (ISSB) has led to an increased recognition of the significance of incorporating *global* sustainability disclosure standards into decision-making, operations, risk management and performance evaluation. The ISSB's mission, announced at the UN Climate Change Conference (COP26) in November 2021, is to offer investors and capital market participants valuable insights into companies' sustainability risks and opportunities (ISSB, 2021b). This directive highlights the importance of companies adhering to these standards, as they play a key part in assisting stakeholders in making informed decisions. The exposure drafts explain how organisations ought to deal with the interconnections among economic, environmental and social issues which needs to be supported with an underlying integrated thinking logic (ISSB, 2021b). As such, research on how to operationalise integrated thinking in different settings will be broadly applicable to an international audience.

This article aims to directly build on the integrated thinking schematic suggested by Maroun et al. (2023). The schematic has been calibrated by Maroun et al. (2023); however, the indicators have been grouped using the researcher's judgement. This article refines the indicators of integrated thinking and performs a principal component analysis (PCA) to identify the dominant components that account for the variance in integrated thinking levels among organisations. A PCA allows for the analysis of large datasets containing various dimensions per observations and enhances the interpretability of the data. The analysis finds the linear combination of a set of variables with a maximum variance and reduces this to components that can be analysed with a greater degree of efficiency (Dimi et al., 2014; Naynar et al., 2018).

The integrated thinking components derived from the PCA can be used by an organisation to identify which stage of an integrated thinking logic the organisation is in and how the components can be leveraged to focus on enhancing long-term sustainability. The intention is not to alter the schematic, but rather, to group the principles into components which can be used to assess the application of integrated thinking. The current article acknowledges that it is based on a schematic and methodology applied by prior researchers

1.The capitals are 'financial, human, intellectual, manufactured, natural and social and relationship capital' (IIRC, 2021).

(see Maroun et al., 2023); however, the aim is to *complement* this research by illustrating the integrated thinking development in South Africa and to provide concise components of integrated thinking that can be applied by a broader audience using different types of extra-financial reporting. This provides an important practical contribution by expanding on prior literature and contributing to the growing calls to continue to develop practical techniques to evaluate and assess integrated thinking across organisations of all sizes and types (Malafronte & Pereira, 2021). The integrated thinking levels are also compared to, *inter alia*, the organisation's size, leverage, ESG performance and industry. The article also provides initial insights into integrated thinking application post the coronavirus disease 2019 (COVID-19) pandemic. There is a theoretical contribution by expanding on legitimacy theory and linking it to an integrated thinking logic to signal a more holistic outlook rooted in a multi-capital approach. The research contributes to the broader sustainability reporting and environmental accountability literature by providing a practical perspective on integrated thinking.

The remainder of this article is organised as follows. The next section discusses the prior literature to refine the development of integrated thinking indicators with a particular emphasis on sustainability-related research and the link to legitimacy theory. The section that follows provides the methodology, while the analysis of the results is presented subsequently, including a discussion of integrated thinking strategies. The final section provides the conclusion.

Background to sustainability-related research in South Africa

As a starting point, the academic literature relating to sustainability reporting, integrated reporting and integrated thinking is assessed. Using the Scopus Database,[2] a search was performed for relevant literature using the keywords 'sustainability reporting', 'integrated reporting' and 'integrated thinking' from 2011 to 2022 and limited specifically to the subject area 'business, management and accounting'. This was stratified between total global publications and publications specifically limited to South Africa (methodology per Ecim & Maroun, 2023),

When analysing the core theme of sustainability reporting on a broad basis, several, South African-specific case studies were identified. These are summarised in Table 1 and provide further information on sustainability reporting in a South African context which is used to link to potential integrated thinking strategies, particularly in an ESG context.

South Africa ranks 13th in terms of sustainability-related research output. This is indicated in Figure 1 where the UK, Australia and the US produce the highest research output in this field. India, Malaysia, Turkey and Indonesia produce notable outputs from other developing economies. The link strength (represented by the bubble size) indicates the degree to which the country collaborates with other jurisdictions to produce output. South Africa primarily collaborates with Australia, New Zealand, Malaysia and China to produce sustainability-focussed research. The growth in academic interest is being met with a growing practical and regulatory focus (Myeza et al., 2023).

There is room to develop the research on adopting an integrated approach to sustainability reporting and understanding the operationalisation of integrated thinking in the context of developing economies. The Scopus search revealed that there are limited studies on the relationship between integrated thinking and sustainability; however, the core outcomes of sustainability have been identified as a driver of implementing an integrated thinking logic (Herath et al., 2021).

To provide further context, the total research output that specifically focusses on integrated reporting and integrated thinking is illustrated in Figure 2 along with the specific South African contribution to these research areas.

Research on integrated reporting has gained prominence over time; however, the corresponding research on the operationalisation of integrated thinking has been slower. Integrated business management, strategies and decision-making are particularly prevalent given the growing focus on social and environmental dimensions which may have greater impacts on developing economies. It is encouraging to note that South Africa consistently provides a material contribution to integrated reporting (12% over a 12-year period) and integrated thinking (11% over a 12-year period) research. This is likely because of the well-developed reporting environment and strong corporate governance structures in South Africa which allow the organisations in this jurisdiction to be ideal case studies for investigating the implementation of integrated thinking strategies (Maroun et al., 2014). It is important to highlight that a well-developed reporting environment should be preceded by strong management information systems and an integrated thinking logic which considers extra-financial information as part of the broader operations, strategies and decision-making.

Prior literature iterates that disclosures made by management in integrated, or similar, reports can reveal aspects of integrated thinking which are distinct from overall report quality (Dimes et al., 2023). In other words, analysing reports can reveal information about the organisation's integrated thinking strategies which is useful when access to private or proprietary information is limited. On the one hand, impression management cannot be precluded when assessing sustainability or integrated reports, given that these are not subject to the same level of assurance as financial statements. However, on the other hand, these reports are a useful tool to signal an integrated thinking logic and promote legitimacy in the eyes of stakeholders. This is examined in more detail below.

2.Scopus is the largest database of peer-reviewed academic literature and is recognised for the high quality of journals included that are supported by rigorous peer-review processes.

TABLE 1: Sustainability-related research with South Africa as a case study.

Number	Journal	Author	Title	Overview	Application to integrated thinking
1	SAJAR	(Herbert & Graham, 2022)	'Applying legitimacy theory to understand sustainability reporting behaviour within South African integrated reports'	This study identifies the relationship between the application of principles from the IIRC Framework and the total number of sustainability disclosures through the lens of legitimacy theory.	Legitimacy theory will be used to analyse the techniques that organisations use to communicate their integrated thinking logic to stakeholders and the potential mimetic isomorphism in integrated practices.
2	IJA	(Donkor et al., 2021)	'Impacts of combined assurance on integrated, sustainability and financial reporting qualities: Evidence from listed companies in South Africa'	This study finds a strong association between combined assurance quality and both integrated reporting and sustainability reporting qualities illustrating that combined assurance enhances the credibility of sustainability reporting practices.	Combined assurance is important for an organisation to manage its risks and promote corporate accountability as part of a broader integrated thinking strategy.
3	EE	(Latiff & Marimuthu, 2021)	'Water-related sustainability reporting practices amongst South African mining and non-mining corporations'	This study finds that water-related reporting and disclosure requirements of mining companies are poor in terms of disclosure across awareness, management, and leadership, while non-mining companies grasp the severe effect of the water crisis on their businesses and perform better in the study's framework categories.	The context of an organisation in its industry will impact the extent to which broader capitals are integrated as part of the business model and the extent to which that organisation adopts an integrated thinking logic.
4	SEAJ	(Büchling & Maroun, 2021)	'Accounting for Biodiversity and Extinction: The Case of South African National Parks'	This article explores biodiversity reporting in a practical context using South African National Parks.	Biodiversity considerations form part of a natural capital strategy to integrate environmental considerations as part of strategies and business models.
5	JEMT	(Pillay & Obalade, 2020)	'Information content of sustainability reporting on performance of unlisted manufacturing firms in South Africa'	Results indicate that sustainability reporting has a significant positive impact on return on assets with firms enhancing profit and value when adopting sustainability reporting.	Organisations need to rely on primary and secondary communication channels to communicate their integrated strategies to stakeholders. The type and content of the communication in, for example, an integrated report, will influence stakeholder awareness and perceptions.
6	SRJ	(Wachira et al., 2020)	'The adoption of international sustainability and integrated reporting guidelines within a mandatory reporting framework: lessons from South Africa'	The results show a statistically significant and positive association between the adoption of the GRI's guidelines and IIRC Framework. There is increased transparency of non-financial disclosures in environmentally sensitive industries.	Different sustainability frameworks can guide organisations in developing the management information systems necessary to collect, analyse and interpret extra-financial information and use this as part of an integrated strategy. The types of disclosures will vary according to the industry.
7	SAJAR	(Herbert & Graham, 2020)	'Application of principles from the International < IR > Framework for including sustainability disclosures within South African integrated reports'	As a result of the IIRC Framework, South African listed companies increased sustainability disclosures and made use of sustainability-related KPIs to support a more holistic outlook and promote long-term sustainability.	The inclusion of economic, environmental and social dimensions in KPIs should play a key role in promoting integrated thinking and aligning the organisational and management goals.
8	QRAM	(Maroun et al., 2018)	'Biodiversity reporting and organised hypocrisy: The case of the South African food and retail industry'	Companies rely on corporate reporting to illustrate actions and internal management strategies. However, there is evidence that corporate reporting may not present a balanced disclosure as companies need time to change their business practices and integrate biodiversity actions into integrated business models.	It will take time to develop and adopt integrated thinking strategies and organisations will need to develop management information systems over time and cultivate an integrated corporate culture to evidence the benefits of integrated thinking.

IIRC, International Integrated Reporting Committee; SAJAR, South African Journal of Accounting Research; IJA, International Journal of Auditing; EE, Environmental Economics; SEAJ, Social and Environmental Accountability Journal; JEMT, Journal of Environmental Management and Tourism; SRJ, Social Responsibility Journal; QRAM, Qualitative Research in Accounting and Management; GRI, Global Reporting Initiative; KPIs, key performance indicators.

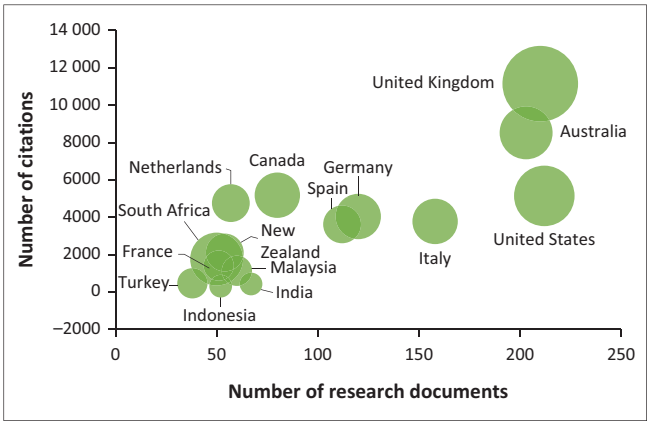
Legitimacy theory

Organisations can use different techniques to communicate information with stakeholders, particularly during a crisis. An integrated thinking logic can form the basis of this communication; however, this is an underdeveloped research area and this study aims to evaluate how integrated thinking can support communication techniques. Communication techniques and strategies require support from prior theories Examples of communication theories include 'attribution theory'(Coombs, 2007), 'framing theory' (Benford & Snow, 2000) and 'situational crisis communication theory' (Coombs & Holladay, 2002). Legitimacy theory provides a related framework in a business context and integrated and sustainability reports are a key part of this process (De Villiers & Van Staden, 2006).

Legitimacy is 'a generalised perception or assumption that an organisation's actions resonate with a socially constructed value system and are, as a result, desirable or appropriate' (Suchman, 1995, p. 574). From an institutional perspective, an integrated thinking logic can become a part of the culture and value of an organisation (Dumay & Dai, 2017). From a strategic perspective, integrated and sustainability reports can be used to maintain the support of key stakeholders (Herbert & Graham, 2022). Companies can use these reports to explain the response to risks, management of operations and implementation of related strategies (Dube & Maroun, 2017). This can inform, iterate or change the perceptions of stakeholders with regard to the organisation's image, crisis management and approach to multi-capital management (Ecim et al., 2020).

A similar process may be at work when organisations consider whether to include information that signals an integrated thinking logic. Disclosures in reports need to illustrate the practical operationalisation of integrated thinking principles. The aim is to lower information asymmetry and provide

details on the 'relationships between [the organisation's] operating and functional units and the capitals the organisation uses or affects' (IIRC, 2021, p. 3). In other cases, an organisation may reduce the extent of reporting to obfuscate adverse details or avoid attention to material deficiencies (Deegan, 2002). Put differently, the absence of an integrated and balanced approach to reporting may signal a weak integrated thinking logic that can impact the long-term sustainability of an organisation. Consequently, disclosures that deal predominantly with economic considerations may signal a poor integration of the capitals and a lack of consideration of extra-financial impacts. Given that the international community is paying increased attention to extra-financial reporting, it is necessary to consider the quantum and content of disclosures dealing with environmental and social considerations as part of a holistic, integrated strategy.

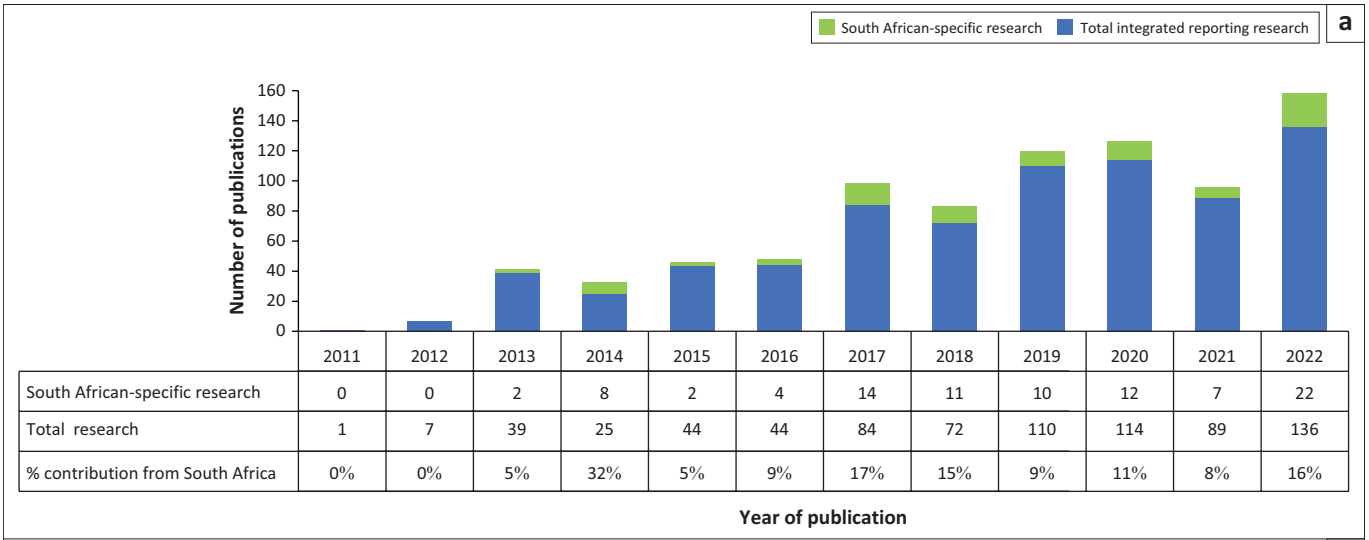


Source: Developed using data from the Scopus database

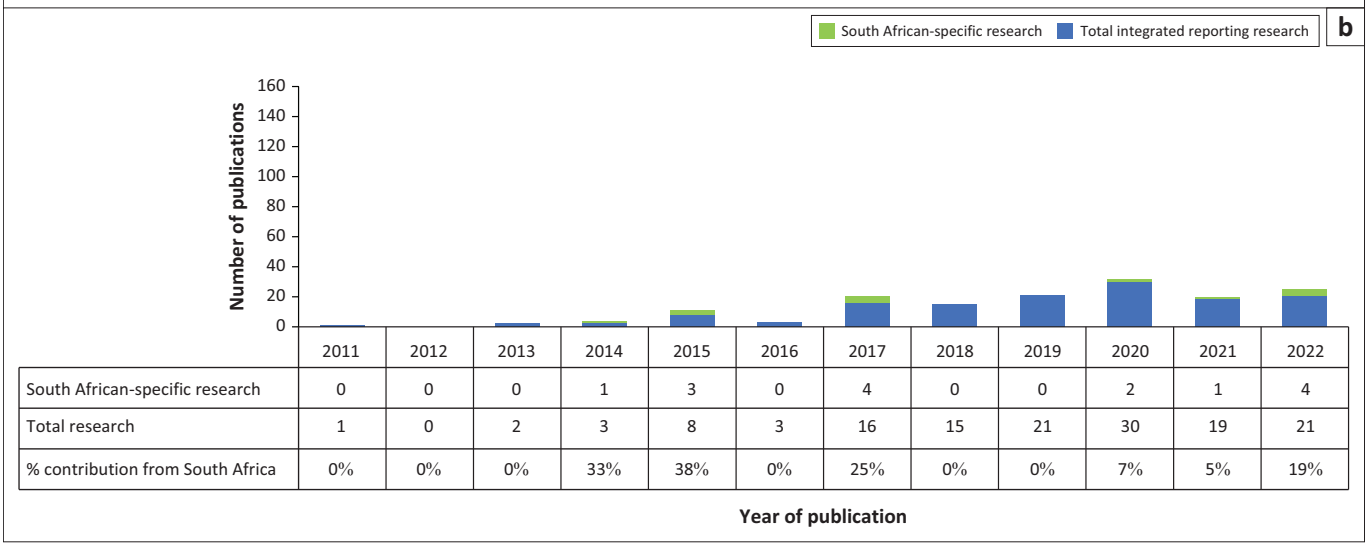
FIGURE 1: Sustainability research output.

Evaluating integrating thinking

Measuring the 'unobservable' or intangible aspects of integrated thinking is no easy task (Malafronte & Pereira, 2021), particularly as an external stakeholder may lack insights into the internal decision-making processes, controls or daily operations of an organisation (Maroun et al., 2023). An organisation's external communication channels play an important role in signalling an integrated thinking logic developing in an organisation (Van Zijl et al., 2017). Reporting on extra-financial information can facilitate this communication.



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
South African-specific research	0	0	2	8	2	4	14	11	10	12	7	22
Total research	1	7	39	25	44	44	84	72	110	114	89	136
% contribution from South Africa	0%	0%	5%	32%	5%	9%	17%	15%	9%	11%	8%	16%



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
South African-specific research	0	0	0	1	3	0	4	0	0	2	1	4
Total research	1	0	2	3	8	3	16	15	21	30	19	21
% contribution from South Africa	0%	0%	0%	33%	38%	0%	25%	0%	0%	7%	5%	19%

Source: Developed using data from the Scopus database

FIGURE 2: Integrated reporting and thinking research.

The IIRC Framework for integrated reporting offers guidance by way of the fundamental concepts and content elements that characterise high-quality integrated reports. This is particularly relevant given that integrated report quality, and the related disclosures can be a predictor of an underlying integrated thinking logic embedded in an organisation (Barth et al., 2017; Dimes et al., 2023). The content elements and related impact on integrated thinking are summarised in Table 2.

Higher levels of integrated thinking are associated with higher-quality reporting. The content elements are a useful starting point to develop mechanisms to identify an integrated thinking logic (see, e.g. Barth et al., 2017; Maroun et al., 2023). Previous studies have found that integrated thinking disclosures reflect the organisation's underlying thinking (e.g. Dimes et al., 2023; Malafronte & Pereira, 2021). The disclosures form part of the constructive legitimacy, and although direct management insights are required, this is a useful starting point for those without direct access to the management of the organisation. Integrated thinking can allow an organisation to consider its environmental impact across the value and supply chain while developing an integrated report (IIRC, 2021).

Maroun et al. (2023) suggest five principles which indicate an integrated thinking logic. The indicators are developed from prior academic literature, practitioner guidance such as the integrated reporting content elements in Table 2 as well as expert interviews. These principles, with their associated indicators, are summarised in Table 3.

TABLE 2: Integrated report content elements.

Content Elements	Integrated report context (IIRC, 2021, p. 56)	Explanation	Towards an integrated thinking logic
Organisational overview and external environment	'What does the organization do and what are the circumstances under which it operates?'	The culture, ethics and values of an organisation need to be communicated. The ownership and operating structure, principal activities and markets and competitive landscape should be illustrated and framed against factors impacting the external environment.	A holistic business assessment is a key feature of integrated thinking. An improved awareness of financial and extra-financial matters and the relevant interdependencies leads to improved decision-making.
Governance	'How does the organization's governance structure support its ability to create value in the short-, medium- and long-term?'	The governance structure needs to support value creation. The leadership composition of the governing body should take cognisance of the need for appropriate skills, diversity and experience to facilitate the decision-making process and implement appropriate monitoring systems. Remuneration and incentives should be linked to value creation across the short-, medium- and long-term including the effects on the capitals.	An organisation's approach to governance includes the appointment of a designated ESG committee and oversight over the integrated and sustainability reporting journey. This is indicative of a coordinated approach to dealing with environmental and social issues and a holistic approach to business management.
Business model	'What is the organization's business model?'	The business model needs to assess the inputs, business activities, outputs and outcomes. The model needs to fulfil the strategic purpose and create value over the short-, medium-and long-term.	Integrated thinking does not require a drastic change of the business model, operations or strategies. With appropriate direction from the governing body, and a commitment to integrated thinking across multiple levels in the organisation, an integrated approach to management can be achieved with incremental changes to sub-systems and processes.
Risks and opportunities	'What are the specific risks and opportunities that affect the organization's ability to create value over the short-, medium- and long-term, and how is the organization dealing with them?'	Risks and opportunities need to be identified and assessed in terms of likelihood, magnitude and time frames. Appropriate mitigation, evaluation and response strategies should be put in place.	A key feature of integrated thinking is the communication of the organisation's value creation across the capitals in terms of quantitative and qualitative information. This involves incorporating financial and non-financial factors into strategic internal decisions and using this information to assess risks and opportunities holistically.
Strategy and resource allocation	'Where does the organization want to go and how does it intend to get there?'	Short-, medium- and long-term strategic objectives need to be defined with appropriate resources allocated. Targets must be measured, tracked and reported.	A robust management information system is essential to collect, analyse and interpret financial and non-financial data. Non-financial data, in particular is often difficult to measure and collect. An entity needs robust internal systems to manage the integrated thinking process which cannot be a scramble to gather information just for a report but must form part of the iterative and continuous decision-making process that informs the strategy and resource allocation. Management controls systems are critical to integrate sustainability into the core business operations to promote accountability, informed decisions and ethical behaviour.
Performance	'To what extent has the organization achieved its strategic objectives for the period and what are its outcomes in terms of effects on the capitals?'	Qualitative and quantitative indicators are required which measure both positive and negative effects on capitals. Key performance indicators (KPIs) should include a blend of financial and extra-financial metrics.	Balanced reporting is facilitated by integrated thinking, where both positive and negative factors are assessed, reported on and actioned as necessary to promote accountability, transparency and stakeholder inclusivity. Assessing both the positive and negative outcomes allows entities to react to problems while simultaneously reassuring stakeholders of the plans in place.
Outlook	'What challenges and uncertainties is the organization likely to encounter in pursuing its strategy, and what are the potential implications for its business model and future performance?'	The organisation must be able to respond to challenges and capitalise on opportunities. The governing body should understand and explain the organisation's outlook to key stakeholders.	The transition from a financial focused outlook to a sustainable and long-term outlook is necessitated by increased stakeholder scrutiny, ESG impacts and the pursuit of a sustainable business model. The organisation needs to be able to adapt to different crises and respond to changing technological and industry-specific developments. Adaptability and future-focused outlooks are critical to an integrated thinking logic.
Basis of preparation and presentation	'How does the organization determine what matters to include in the integrated report and how are such matters quantified or evaluated?'	There needs to be a summary of the materiality determination process, the reporting boundary and the state of compliance with legislation. The financial reporting standards, ESG frameworks and company/industry-specific standards which have been used to prepare an integrated report (or equivalent) should be disclosed.	Integrated thinking enhances stakeholder engagement and accountability. Understanding the stakeholder needs is facilitated by way of integrated thinking. The disclosure of this engagement, including the relevant content elements and guiding principles can highlight the relevant integrated thinking logic that the organisation has adopted.

Source: IIRC. (2021). *The International Integrated Reporting Framework*. Retrieved from https://integratedreporting.org/wp-content/uploads/2021/01/InternationalIntegratedReporting Framework.pdf

ESG, environmental, social and governance.

TABLE 3: Principles to evaluate integrated thinking.

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'
'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'

Source: Reproduced from Maroun, W., Ecim, D., & Cerbone, D. (2023). Refining integrated thinking. *Sustainability Accounting, Management and Policy Journal, 14*(7), 1–25. https://doi.org/10.1108/SAMPJ-07-2021-0268

This schematic will be used to more clearly define the core aspects that management should consider when developing the incremental steps over time to result in a structural change to operations with a view towards long-term sustainability (Baker et al., 2022).

Methodology

Data are collected and analysed using two stages. The first part involves adopting the methodology and sample in Maroun et al. (2023). This includes performing a content analysis and applying a scoring system to obtain integrated thinking scores for organisations. In the second part, the data are reduced using a PCA to extract core integrated thinking themes and strategies which are analysed to determine how organisations are adopting and understanding integrated thinking principles.

Analysing the integrated reports

To gain a sense of the state of integrated thinking in a South African context, the indicators in Table 3 were applied to a sample of South African organisations listed on the Johannesburg Stock Exchange (JSE). Using the same methodology adopted in Maroun et al. (2023), the schematic was applied to a sample of companies using a content analysis to analyse the details in their integrated reports. The schematic was accordingly applied to the same sample size (top 100 JSE-listed companies by market capitalisation) and the same time period (2017–2019) as the study in Maroun et al. (2023). The reason for this is to align with the prior study and to build on this study by evaluating potential components of integrated thinking and providing a more detailed assessment of the state of application by South African companies.

The current study does not make an effort to 'quantify' the report content of integrated reports or test hypotheses. Instead, the research provides an exploratory base for examining the state of South African integrated reporting and its ability to convey an integrated thinking strategy. The aim is to offer recommendations to preparers that can be applied broadly in different settings. This normative approach should not, in itself, be regarded as a threat to validity and reliability (Creswell, 2003). Although integrated reports may not demonstrate the complete extent of integrated thinking taking place in an organisation's decision-making and operations, and 'greenwashing' cannot be precluded when analysing a report (Atkins & Maroun, 2015; Haji & Anifowose, 2016), the report does offer a useful *starting point* for analysing strategies that can be used to adopt integrated thinking.

For each report, each indicator of integrated thinking was scored on a scale of 1 (no disclosures relating to the indicator) to 5 (comprehensive disclosures relating to the indicator) (Maroun et al., 2023). To eliminate subjectivity, a dichotomous scale was used where disclosures were either present or not present. To enhance accuracy, the integrated reports were analysed again several weeks after the initial coding. Given that the scoring system and framework have been developed by prior research, this provides a useful benchmark to use in this study. However, because the scoring system and schematic have not been widely adopted, this is an inherent limitation of the study. Nevertheless, the current study builds on the prior literature and provides additional perspectives which can be tested in other contexts and jurisdictions.

The schematic is also based on well-defined principles from the Integrated Reporting Framework and King IV in conjunction with prior literature to ensure accuracy and completeness. The lead researcher assigned the integrated thinking scores, and this was reperformed by two research assistants working independently. Paragraphs were used as the unit of account to avoid overlooking context and misinterpreting the content. Material differences were flagged for the attention of the lead researcher who determined the final score.[3] The coding process was piloted

3.Statistical measures for inter-coder reliability were not generated as all differences were resolved by the lead researcher through consultation.

with 10 listed organisations before the entire sample was analysed. The results of the pilot study were then used to understand the integrated thinking model and develop preliminary results for the PCA. Results were tabled at two local conferences for additional input.

Principal component analysis

The results from the first stage are analysed using a PCA. Principal component analysis was employed to summarise and aggregate the data into different 'themes' or components. This technique was used because of its widespread and effective use in studying interrelationships between different themes (Dimi et al., 2014; Naynar et al., 2018). A PCA is also appropriate when using a smaller sample size as the intention is to classify the indicators into defined components rather than to extrapolate findings in a positivist sense (Ford et al., 1986). The integrated thinking scores per component are used to evaluate the state of integrated thinking and identify potential relationships between the scores and factors such as, for example, the organisations' size, financial performance, leveraging and industry. By analysing the correlation among the integrated thinking principles and related indicators, this method reduces multiple indicators into an aggregated and more manageable number of principles which can be used to more effectively study the relationship between organisations. To reiterate, the aim of this article is to provide an overview of integrated thinking performance in a South African context and to provide initial insights into strategies that can be adapted to communicate an integrated thinking logic. The PCA provides a useful technique to illustrate these strategies.

To confirm that a PCA is appropriate, a Kaiser–Meyer–Olkin (KMO) test and Bartlett's test of sphericity are applied to the variables. If the degree of correlation between certain variables is weak, these are excluded from the study. Based on prior literature, a KMO value greater than the minimum of 0.6 is recommended (Naynar et al., 2018). Based on the KMO of 0.936, the sample size is adequate. Further, based on the result of Bartlett's test of sphericity, the null hypothesis that the variables included in the analysis are uncorrelated is rejected ($X^2_{[1\ 90]} = 2369.929$, $p < 0.01$). In some instances, variables may load on more than one component which makes the interpretation more complex. To address this, a Varimax method was then used to rotate the initial matrix which minimises the number of variables with high loadings on a component. The Varimax method produces a clearer separation of the components (Naynar et al., 2018). This enhanced the interpretability of the components and was used to generate the final correlation table after six iterations.

Only components with an eigenvalue greater than 1 are retained to enhance the interpretability of the information (Ford et al., 1986). This ensures that the data's exploratory potential is retained (Ford et al., 1986). The result is 19 of the principles per Table 3 grouped into three components.

Each component is analysed and labelled interpretively. The components were labelled by considering the integrated thinking indicators loading on each component in conjunction with the prior academic literature on integrated thinking (see De Villiers & Maroun, 2018; Van Zijl et al., 2017). The labelling was discussed with two independent researchers and a corporate reporting expert to analyse the suitability of the labels and to ensure that the labels resonate with broader audiences and control for researcher bias. This was also presented at academic and practitioner conferences to further discuss and refine the results.

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 tests are used to examine differences in integrated thinking scores according to specific grouping variables. Each of the three components from the PCA is allocated the relevant integrated thinking score obtained from the scoring process of each entity as per the previous section. This allows for variations in the integrated thinking scores and organisational features to be identified. This is consistent with research in the integrated reporting sphere (Malola & Maroun, 2019).

Finally, a complementary analysis is performed where a sample of organisations from the lower and upper quartiles (based on the levels of integrated thinking) are assessed using the scoring system and framework for an extended period (2020 to 2022). This is used to obtain preliminary insights on the integrated thinking levels evidenced post the COVID-19 pandemic and identify future areas of research.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of the Witwatersrand, Human Research Ethics Committee. (No. WSOA-2021-06-03W).

Results

Three components (with an eigenvalue greater than 1) contribute to 52.690% of the variance in integrated thinking. These are used to explain the differences in integrated thinking levels between organisations (refer to Table 4).

Table 5 shows the full component loadings after rotation and the extract of the total variance.

The indicators above are applied with the most prominence by organisations in South Africa and account for the key variances in higher integrated thinking scores. The three components, derived from the analysis, consist of the key strategies to implement integrated thinking, with each component being composed of underlying principles used in the framework. The components also form the pillars of good corporate governance and integrated report quality (IOD, 2016). Where Maroun et al. (2023) suggested various principles to evidence integrated thinking, this article refines this further

to three core strategies to implement integrated thinking and provides more detail on the application by listed companies. The components are labelled interpretively as follows:

- **Component 1:** a holistic business awareness and managing of, and reporting on, value creation;
- **Component 2:** stakeholder awareness, communication and corporate accountability and
- **Component 3:** governance, accountability for sustainability and assurance.

The clustering of subject themes (and their loadings) is used to label the components. The significant principles are noted which explain the components. Certain principles do overlap and cross-load, which owes to the integrated nature of the indicators and highlights the importance of a holistic approach to implement the components.

An analysis of the integrated thinking components

Component 1 (accounting for approximately 40% of the variance in integrated thinking scores) consists of an integrated awareness and holistic understanding of the business. The organisation broadly considers both financial and extra-financial factors related to the external environment, stakeholder needs, and risks and opportunities. This component also comprises integrated leadership commitment and capability with a focus on non-financial metrics to promote long-term value creation and sustainability. These principles illustrate how an entity has a holistic business awareness and manages and reports on value creation. Ultimately, the ability of an organisation to manage multiple capitals as part of a broader integrated strategy, with a view to long-term sustainable development, is fundamental to implementing an integrated thinking strategy. Understanding the interrelationships and interdependencies between multiple capitals is important in achieving a balanced approach to business management where the short-term losses are offset by long-term sustainability and gains. The organisation needs to be aware of holistic internal and external factors that impact risks, management controls, strategies, operations and performance evaluation.

TABLE 4: Extract of total variance explained.

Component	Initial Eigenvalues > 1	% of Variance	Cumulative %
1	7.980	39.900	39.900
2	1.368	6.841	46.741
3	1.190	5.950	52.690

TABLE 5: Principal component analysis.

Principle (Maroun et al., 2023)	Component		
	1	2	3
'1.1: Awareness and understanding of external factors impacting the organisation's operating context'	0.556	-	-
'1.2: Awareness and response to the legitimate needs and interest of stakeholders'	0.441	0.534	-
'1.3: Awareness and understanding of risks and opportunities'	0.653	-	-
'1.4: Awareness and understanding of material themes'	0.711	-	-
'1.5: Articulation of business rationale for sustainability and integrated thinking as a driver of long-term value creation'	0.585	0.438	-
'2.1: Leadership ambition and commitment to an integrated approach to sustainability'	0.698	-	-
'2.2: Diversity of leadership experience'	0.503	0.578	-
'2.3: Strategic positioning of sustainability'	0.589	0.492	
'2.4: Values and ethics'		0.713	-
'2.5: Conscious and relevant adoption of codes and standards'	0.597	-	-
'3.1: Integrated governance'	-	-	0.592
'3.2: Integrated accountability for sustainability'	-	-	0.791
'3.3: Integrated business model'	0.661	-	-
'3.4: Integrated and devolved stakeholder engagement processes'	0.565	0.452	-
'4.1: Non-financial metrics'	0.589	-	-
'4.2: Targets and contextualised performance metrics'	-	0.422	0.464
'4.3: Response to performance'	-	0.603	0.438
'4.4: Integrated assurance'	-		0.618
'5.1: Integrated marketing and communication'	-	0.738	-

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in six iterations.

The integration of social and environmental impacts in business decisions is important to signal the operationalisation of Component 1. Integrated thinking involves a multi-capital consideration of the interconnected activities and outcomes with human capital, natural capital, and social and relationship capital forming the 'building blocks' of ESG performance (IOD, 2016). Incorporating ESG metrics into activities and performance measurements indicates a move from a siloed approach to a collaborative and integrated approach which promotes the long-term sustainability of a company. 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.

Component 2 (accounting for approximately 7% of the variance in integrated thinking scores) builds on the principles of Component 1 but places increased focus on stakeholder needs, stakeholder engagement, and integrated marketing and communication. The focus on stakeholders, integrated communication and corporate accountability needs to be driven by an integrated governance structure that is rewarded on a balanced scorecard approach to support a holistic overview. Organisations need to leverage the views, legitimate needs and priorities of a broad group of internal and external stakeholders to implement an integrated thinking strategy effectively. Combined assurance is important for an organisation to manage its risks and promote corporate accountability. A principles-based approach to risk management, informed by integrated thinking, needs to be implemented by governing bodies to evaluate the risks and business model (Prinsloo & Maroun, 2021). By engaging in robust discussions with an audience interested in more than only financial capital, the organisation will be able to consider, implement and evaluate a more holistic set of objectives and incorporate this into business models. What is also important is that the silos within an organisation are broken down and that effective

communication takes place across the entire organisation so that all 'parts' of the organisation can understand the relevant interconnections and interdependencies that are specific to the organisational context.

Finally, Component 3 (accounting for approximately 6% of the variance in integrated thinking scores) deals mainly with integrated governance, accountability for sustainability and integrated assurance. This component focusses on the organisation's governance structures that support the implementation of the first two components. In a South African context, governance structures have been strong owing to the mandatory application of governance frameworks such as the King Code (Maroun & Cerbone, 2020). Good corporate governance promotes strong management control systems, which can be used to collect, analyse and use data related to both financial and extra-financial information (Bui & De Villiers, 2018). Similarly, a strong culture of sustainability is an indicator of a holistic and integrated approach to business (Rossi & Luque-Vílchez, 2020). By prioritising governance structures and sustainability objectives, organisations can establish an integrated thinking strategy. Although assurance of extra-financial information is not mandatory, this is becoming a topical area with the issue of sustainability-specific standards (see ISSB, 2021a), which will require organisations to more closely consider the extra-financial reporting requirements. In addition, a strong combined assurance function can assist an organisation to implement sustainability standards, manage risks, and assess the impact on the relevant business model.

By establishing these core components in an organisation, the legitimacy of the organisation can be enhanced as stakeholders have the requisite comfort that long-term sustainability is being prioritised. The schematic was applied to the companies to produce integrated thinking scores. Figure 3 summarises the integrated thinking scores associated with each component over the average of the 3-year study period.

Organisations in South Africa are scoring well on the ability to disclose how they manage the interrelationships between the capitals and using this as part of an integrated strategy for long-term sustainability (Score C1 = 76%). This includes disclosing a multi-capital assessment, linking the strategy to the mission and vision statements of the organisation, and disclosing the likelihood, magnitude and timeframes of risks and the associated mitigation strategies.

Organisations are particularly strong when disclosing stakeholder-related information, communication and accountability mechanisms (Score C2 = 87%). Organisations tend to disclose both positive and negative impacts and provide balanced reporting for enhanced accountability. Many organisations aim to manage a crisis through enhanced and transparent disclosures. A combined assurance logic is prevalent in the majority of organisations to enhance

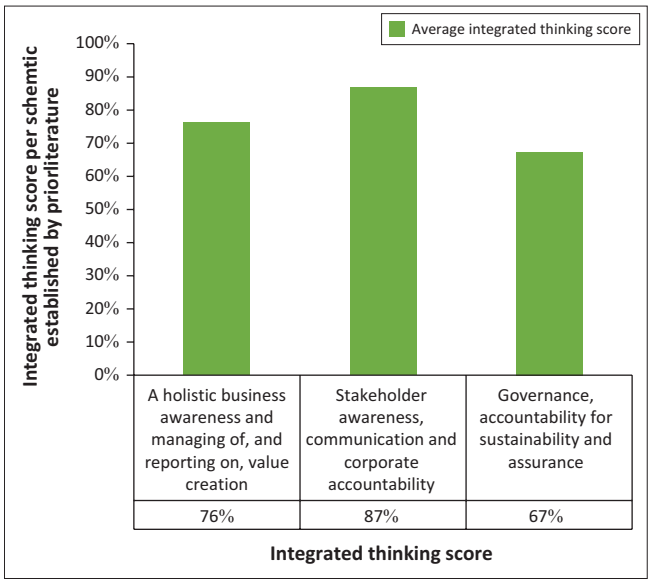


FIGURE 3: Integrated thinking score per component.

legitimacy and accountability for financial and non-financial performance.

Governance, accountability for sustainability and assurance have scored the lowest (Score C3 = 67%). Although organisations do comply with good corporate governance principles of King IV, there is a limited application and disclosure of other sustainability-related frameworks such as, for example, the GRI, AccountAbility[4] principles or the Task Force for Climate-Related Disclosures. Identifying material matters is also challenging, with ESG disclosures not always being quantified and coming across as boilerplate or generic disclosures. In particular, there is a lack of assurance over extra-financial reporting which is often limited to board oversight or internal audits. That external assurance is not being used to assure social, environmental and governance dimensions impacts the overall legitimacy and accountability for these disclosures. Assurance of non-financial information would signal a clear intention from management of legitimising integrated thinking practices and is an important area of future research, particularly given the move towards 'generally accepted' sustainability accounting reporting and the assurance thereof (ISSB, 2021a).

Un-tabulated Kruskal-Wallis *H*-tests indicate that an organisation's size ($H = 0.042$, $p < 0.05$) and leverage ($H = 0$, $p < 0.05$) are statistically significant in relation to the integrated thinking score associated with Components 1 and 2. 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 initiatives. 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. In addition, there is an element of mimetic isomorphism as large companies may

4.Accountability is a global non-profit organisation promoting accountability, sustainable business practices and corporate responsibility.

be influenced by the disclosures that peers are making and may replicate the best practice in order to enhance legitimacy. However, there is a statistically insignificant relationship between financial performance ($H = 0.350$, $p > 0.05$) and the managing of and reporting on value creation. This suggests that the management of value creation may not yield financial benefits, particularly in the short term, as financial capital may need to be traded in favour of natural, human or social and relationship capitals being enhanced. A holistic business awareness may be lacking. However, there is a statistically significant relationship between financial performance ($H = 0.028$, $p < 0.05$) and stakeholder awareness, communication and corporate accountability. The stakeholder engagement process enhances the understanding of stakeholder needs which allows organisations to better execute 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).

The type of industry also has an impact on the ability to manage and report on value creation ($H = 0$, $p > 0.05$) and for stakeholder awareness, communication and corporate accountability ($H = 0.050$, $p < 0.05$). This means that organisations operating in less socially and environmentally sensitive industries (Cho et al., 2015) are scoring higher on this component. These organisations have lower social and environmental accountability requirements which mean that the disclosure of the execution of integrated thinking principles and long-term value-creation initiatives are simpler. The stakeholder engagement process is also more straightforward (because of the industry having fewer social and environmental obligations), which allows the communication to be more effectively demonstrated. This contrasts to highly sensitive industries (such as mining operations) where various social and environmental obligations, initiatives and impacts are more complex. Although these organisations may in fact adopt a higher integrated thinking on an operational level because of the need to consider the capitals more broadly, the integrated disclosures may not illustrate the operationalisation of the integrated thinking philosophy.

There are no significant statistical relationships with Component 3 (governance, accountability for sustainability and assurance) and variables such as firm size, leverage, industry and financial performance. This emphasises that integrated thinking is driven primarily by the first two components. The organisation's internal governance practices are unlikely to directly impact 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). Given that the accountability for sustainability is still developing, this has not yet translated into clear disclosures through an integrated report using well-established sustainability frameworks. As a result, the assurance of this information is also still in a developing stage.

Integrated thinking application by industry

Analysing the results on a more granular level per industry reveals additional insights (refer to Table 6).

Private insurance (average = 32%) and entities operating in real estate investment and services (average = 69%) have the lowest integrated thinking scores on average. Organisations that operate in sectors dealing mainly with financial and manufactured capital may not necessarily disclose the multi-capital impacts to the same extent as an organisation in an environmentally and socially sensitive setting such as mining, general industrials or personal goods. However, the lack of integrated disclosures should not signal that the organisation does not follow an integrated approach. The organisation may still adopt an integrated thinking logic but include limited disclosures because of the material matters impacting the stakeholders being financially focussed. That should not, however, limit the organisation from a more active approach to improving the communication of integrated strategies.

The other industries do show relatively consistent scores across all three components showing that an integrated thinking mindset is taking hold in large, listed organisations in South Africa. It is promising that a developing country is able to utilise an integrated thinking toolkit as many political, social and environmental issues in South Africa can be addressed by adopting a more holistic approach to business.

Complementary analysis

A complementary analysis is performed to assess a sample of organisations with a low (lower tier), average (mid-tier) and high (top tier) integrated thinking score across an extended timeframe (2020–2022) (refer to Figure 4).

Lower tier organisations began to improve the operationalisation of integrated thinking principles in 2019; however, this decreased significantly from 2020 onwards. It is likely that because of the COVID-19 pandemic, in conjunction with increased financial, political and social pressure in a South African context (Myeza et al., 2023), that smaller organisations may have been required to divert funding from management information systems and non-financial matters such as ESG initiatives and focus solely on financial capital and prioritising returns to shareholders rather than the broader stakeholder group. This may, however, be detrimental to long-term sustainability and value creation if the broader business operations are second to purely financial decisions for extended periods of time.

Mid-tier and top-tier firms have also seen a slight decrease in integrated thinking levels post-2019 but this has not been significant and the overall levels are still above 70% showing a good application of integrated thinking principles. During the period of 2020–2022, the organisations avoided disclosures on negative outcomes and poor performance in an attempt to maintain legitimacy in difficult operating

TABLE 6: Integrated thinking scores per industry.

Industry	Average integrated thinking score across factors		
	1. A holistic business awareness and managing of, and reporting on, value creation (%)	2. Stakeholder awareness, communication and corporate accountability (%)	3. Governance, accountability for sustainability and assurance (%)
Automobile and parts	73	90	47
Banks	75	89	62
Beverages	83	85	67
Financial services	74	90	66
Fixed line telecommunications	68	90	60
Food and drug retailers	81	89	67
Food producers	80	91	75
Forestry and paper	80	87	60
General industrials	71	87	71
General retailers	76	88	67
Healthcare equipment and services	78	89	67
Industrial metals and mining	74	83	64
Private insurance	32	17	47
Life insurance	80	89	67
Media	77	93	67
Mining	83	91	70
Mobile telecommunications	83	90	70
Non-life insurance	78	87	73
Oil and gas producers	87	88	67
Personal goods	92	93	87
Pharmaceuticals and biotechnology	73	87	67
Real estate investment and services	65	78	63
Real estate investment trusts	79	90	73
Software and computer services	80	88	63
Support services	85	93	73
Tobacco	73	93	87
Travel and leisure	77	87	80

environments. Although disclosures on the COVID-19 pandemic were made, these were often superficial or generic in nature. Incorporating multi-capital performance measures was also weak with organisations focussing on financial metrics. It is a concern that the integrated thinking spectrum has not improved across the sample. However, un-tabulated results show that post-2020, the stakeholder awareness, communication and corporate accountability component (Component 2) increased by the greatest percentage after the pandemic. This may show that after the crisis, organisations have improved in their understanding of stakeholder needs and how to incorporate, for example, employee and customer welfare in their business decisions.

Given that the extended period was only applied to a limited sub-set of the total sample, these results are preliminary in nature and provide initial insights into the trends over an extended period of time. Results must be interpreted with caution and generalisations cannot be made. Future research will be required to investigate the levels of integrated thinking over an extended period for a larger sample, including a cross-jurisdictional analysis.

Integrated thinking strategies

Using the integrated thinking scores per entity that were generated by applying the integrated thinking schematic, the scores per principle were grouped into the components. As noted above, Component 1 accounted for the majority of the variance. Component 3 scores were relatively consistent across the sample owing to the established use of King-IV principles for governance structures (IOD, 2016). Although companies have experience with different types of sustainability reporting from an integrated reporting perspective, many companies have not yet adopted international best-practice frameworks for specific issues using sustainability reporting. Keeping Component 3 constant, allows the relationship between Component 1 and Component 2 to be examined in more detail.

The components are plotted on a matrix[5] per Figure 5 to highlight potential integrated thinking strategies. The horizontal heading ('x-axis') deals with a holistic business awareness and managing of, and reporting on, value creation, while the vertical heading ('y-axis') represents stakeholder awareness, communication and corporate accountability.

Organisations can be classified into three groups with varying approaches to the operationalisation of integrated thinking. The top right quadrant includes companies with relatively high scores on all three dimensions. These companies deal with multiple capitals as part of their strategic decisions, risk assessment process and integrated business models. The stakeholder identification and engagement processes are sophisticated and are used to inform the business approach and subsequent information reported. This is complemented with a robust materiality determination process which allows the organisation to focus on matters most prevalent to stakeholders. These organisations have prioritised integrated thinking and actively look to implement this at operational and decision-making levels.

The second group of companies have moderately high scores for Component 1 (x-axis) and relatively low scores for Component 2 (y-axis). These organisations take some measures towards implementing a more integrated approach to business management and reporting. Their integrated thinking process is not as sophisticated as the first group of organisations, with the relevant management information systems and stakeholder engagement processes still in the formative phase.

The third group have the lowest scores on Component 1 and Component 2. This does not mean that integrated thinking is absent but rather that it is in an early or 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 and the disclosures may be generic in nature. Performance is evaluated based on financial metrics

5.Initial insights from the matrices were presented at a conference and to an integrated reporting practitioner for further comments.

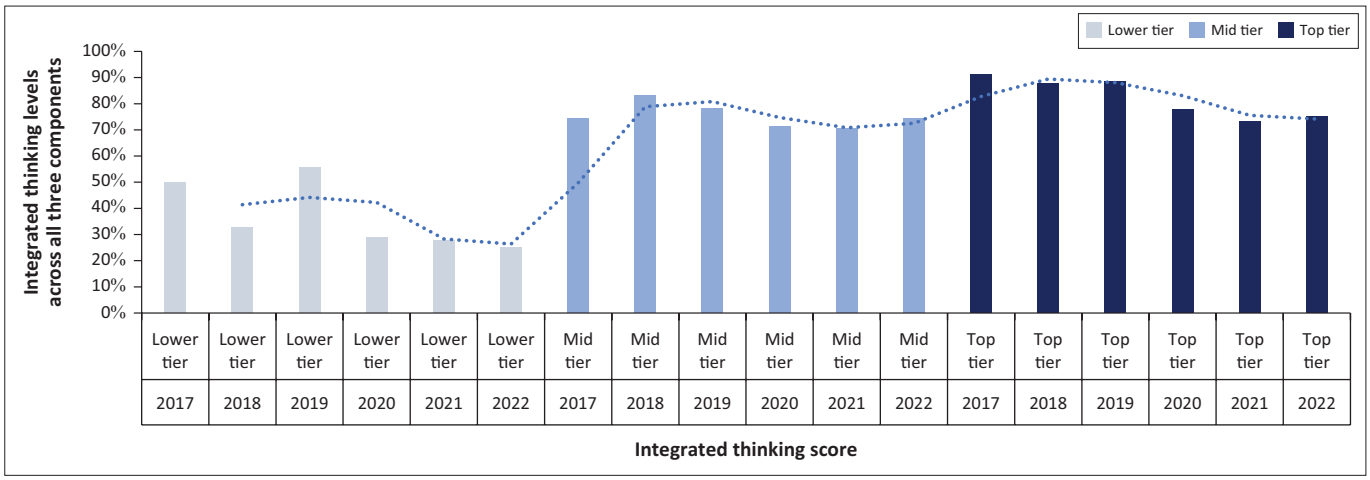


FIGURE 4: Integrated thinking levels of a sample of organisations from 2017 to 2022.

Application of integrated thinking			
A holistic business awareness and managing of, and reporting on, value creation			
		Low	High
Stakeholder awareness, communication and corporate accountability	High	Integrated thinking logic emerging (27% of companies in the sample)	Strong integrated thinking logic in place (43% of companies in the sample)
	Low	Integrated thinking in an early/developmental stage (10% of companies in the sample)	Integrated thinking logic emerging (20% of companies in the sample)

FIGURE 5: Application of integrated thinking.

while extra-financial concerns, particularly environmental disclosures, are lacking.

Entities primarily distinguish on the holistic business awareness and managing of, and reporting on, value creation component. 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 and may show that integrated thinking across the capitals requires improvement.

Based on the complementary analysis (previous section), it is noted that organisations may revert their focus from a multi-capital approach to prioritising financial matters depending on external circumstances such as a crisis. As such, the integrated thinking strategies may fluctuate depending on the adaptability of the organisation. Nevertheless, an established integrated thinking logic will help organisations to better navigate a crisis by way of a holistic understanding of the components of the business, cross-functional collaboration, risk management, adaptability, strategic decision-making, stakeholder engagement and resource optimisation.

As noted in the un-tabulated results in the previous section, there are some significant statistical relationships between integrated thinking and factors such as entity size, leverage, industry and financial performance. Integrated thinking facilitates an understanding of the ESG impacts and may improve 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.

When analysing the relationship between integrated thinking scores and ESG and financial performance, additional integrated thinking application logics are identified. This is presented in Figure 6 with the performance grouped according to the matrix.

This matrix shows that the disclosures in an integrated report can illustrate the levels of integrated thinking in an entity. Communication channels may include primary sources such as corporate, integrated or sustainability report disclosures or secondary channels such as company webpages or media releases.[6] An effective strategy may include a broad coverage which informs stakeholders of the progress and challenges faced by an organisation while an ineffective strategy would be a narrow coverage limiting the reporting to avoid concerning stakeholders. Regardless of the financial or ESG performance, which may be weak, 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 these will be addressed. This is how integrated thinking is put into practice, how it is then disclosed and finally, how it can benefit an organisation. This will help to develop organisations from effective communication channels to disclose weaknesses to advanced communication channels to disclose strengths. Poor communication channels and internalised practices will be an issue for the long-term sustainability of a company. Similarly, an organisation will struggle if there is strong internal performance that is

6.Carbon Disclosure Project scores and industry sensitivity are used as a proxy for ESG performance.

Integrated thinking and ESG/financial performance			
ESG performance[6]/financial performance			
		Low	High
Integrated thinking scores	High	Effective communication channels to disclose weaknesses (64% of companies in the sample)	Strong integrated thinking logic and internalised practice and assurance (9% of companies in the sample)
	Low	Poor communication channels and internalised practice (22% of companies in the sample)	Ineffective communication channels to disclose strengths (5% of companies in the sample)

ESG, environmental, social and governance.

FIGURE 6: Integrated thinking and environmental, social and governance/financial performance.

poorly communicated, as this indicates a breakdown in communication which may lead to future opportunities or risks not being identified. Organisations can therefore focus on communication channels as a key strategic tool to build an integrated thinking logic, rooted in a legitimacy claim, that is applied across multiple levels in an organisation.

Conclusion

The integrated thinking schematic suggested by Maroun et al. (2023) provides a novel framework to measure a company's integrated thinking performance. This study applied the schematic to a sample of listed companies. As a result of the well-developed reporting environment in South Africa, there are high levels of application and disclosure of integrated thinking principles among organisations. Performance measurement and remuneration that is balanced and considers multi-capital performance objectives is lacking and is identified as a weakness across the sample.

This study builds on the schematic by suggesting three core components around which an organisation can develop its integrated thinking strategies. These components are: (1) a holistic business awareness and managing of, and reporting on, value creation; (2) stakeholder awareness, communication and corporate accountability; and (3) governance, accountability for sustainability and assurance. Organisations are in different stages of integrated thinking application being a developing stage, an emerging integrated thinking logic or a strong integrated thinking logic. Developing a multi-capital outlook in the business model, building robust communication channels with stakeholders, implementing a combined assurance approach, developing corporate governance structures and using the guidance of well-established sustainability frameworks are examples of the tools that can be used to develop an integrated thinking mindset. Although the practical operationalisation of integrated thinking is still developing, this study provides a useful starting point for governing bodies and managers interested in creating a framework from which to base an integrated thinking logic.

South African organisations' strong reporting environment is facilitated by an underlying understanding of multi-capital interdependencies, robust stakeholder engagement and developed management information systems. This is supported by strong corporate governance structures. These components of integrated thinking can be used to establish a culture that supports an active drive towards long-term sustainability that is aligned with global best practice and disclosure requirements.

Emerging economies frequently undergo a period of accelerated economic expansion and development. As businesses grow, there is an increasing need to ensure that sustainable growth aligns with corporate and national development objectives that balance economic, social and environmental dimensions. To attract foreign investment and foster the trust of domestic investors, organisations operating in emerging economies must demonstrate integrated thinking principles. The application of integrated thinking by South African organisations offers a guideline for other emerging economies to adopt and replicate. At the same time, the findings are broadly applicable to an international audience as developed nations can also leverage the components to enhance current sustainability imperatives and identify core developmental opportunities in other territories. Given the broad impact of environmental and sustainability issues, it requires a global approach of integrated thinking to address these concerns.

Future research needs to investigate how these strategies are operationalised by way of interviews with various levels of management in an organisation to understand how integrated thinking is practically applied. The components offer investors and stakeholders a useful starting point to analyse organisations and put forward questions to the governing body on how an organisation manages sustainability objectives. However, the current article has only assessed a limited number of companies, over a limited period in one jurisdiction. More work is required in terms of applying various integrated thinking measurement frameworks to both organisations' public reporting and internal information systems, operations and governance structures. Future research also needs to focus on practical case studies to illustrate this relationship. To address social and environmental sustainability challenges, including the consequences of climate change, organisations will need to adopt an integrated approach to management controls, decision-making and operations. This will ensure that sustainable development is prioritised for the long-term viability of the organisation.

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Competing interests

The author has declared that no competing interest exists.

7.This includes the JSE SENS (Stock Exchange News Services) announcements.

Author's contributions

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Data availability

Data sharing is not applicable to this article as data were coded from publicly available integrated reports of JSE-listed companies.

Disclaimer

The views and opinions expressed in this article are those of the author and do not necessarily reflect the official policy or position of any affiliated agency of the author, and the publisher.

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