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2025

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Emdin, Danit . (2025). Evidence of integrated thinking in performance evaluation metrics: A review of listed entities in the United Kingdom [Master's dissertation, University of the Witwatersrand, Johannesburg]. WIReDSpace. https://hdl.handle.net/10539/49341

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Evidence of integrated thinking in performance evaluation metrics: A review of listed entities in the United Kingdom

A research report submitted by

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in partial fulfilment of the requirements for the degree of
Master of Commerce
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List of abbreviations and acronyms

Abbreviation/Acronym	Description
CDP	Carbon Disclosure Project
ESG	Environmental, Social and Governance
GRI	Global Reporting Initiative
IFRS	International Financial Reporting Standards
IIRC	International Integrated Reporting Council
IR	Integrated Reporting
ISSB	International Sustainability Standards Board
IT	Integrated Thinking
ITS	Integrated Thinking Score
LSE	London Stock Exchange
KPI	Key Performance Indicator
MDG	Millenium Development Goal
MSCI	Morgan Stanley Capital International
NFRD	Non-Financial Reporting Directive
RQ	Research Question
SDG	Sustainable Development Goals
SDR	Sustainability Disclosure Requirements
SME	Small and Medium-sized Enterprises
TCFD	Task Force on Climate-related Financial Disclosures
TNFD	Taskforce on Nature-related Financial Disclosures

Foreword

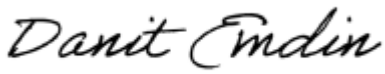
This dissertation examines the link between performance evaluation metrics and integrated thinking. Sections 1 – 5, outline a schematic for evaluating the extent to which performance evaluation metrics cover the holistic management of financial or extra-financial resources in accordance with an integrated thinking philosophy is proposed. The schematic is then applied to a sample of listed entities to illustrate its functionality and the extent to which "performance evaluation metrics aligned with integrated thinking principles" are included in extra-financial reports. The data collected are from a source that is publicly available, as such, ethics clearance is not required, but an ethics waiver was obtained. Ethics clearance / waiver number: WSOA-2024-11-27W. The first five sections of this dissertation have been structured as a research paper. At the time of writing, the paper was under review at "Sustainable Development" journal. Review reports are pending.

Sections 1 – 5 are complemented by four core appendices.

- Appendix A provides additional information on how the proposed metric schematic outlined in Section 2.3 reconciles to earlier research.
- Appendix B provides complementary analysis of performance evaluation metric reporting trends.
- Appendix C provides additional complementary sensitivity test analysis.
- Appendix D provides examples of the best and worst practices by the sample of companies reviewed for Sections 1 – 5.

Sincerely,

Danit Emdin



Abstract

This research investigates the extent to which performance evaluation metrics incorporate elements of an integrated thinking logic. To measure the alignment of these metrics with integrated thinking principles, a “performance evaluation integrated thinking index” (the Index) is developed. The index is based on fourteen indicators of integrated thinking drawn from academic and professional literature, which evaluate the alignment of performance evaluation metrics with integrated thinking. The application of the Index is demonstrated using a sample of annual reports from organisations listed in the United Kingdom in 2014, 2018, and 2022. A content analysis is performed to identify disclosures related to performance evaluation metrics which are then assessed using the Index. The results are calibrated using well-established integrated thinking proxies to confirm the robustness of the index for assessing integrated thinking in performance evaluation metrics.

The findings reveal that, from 2014 to 2022, there was an increase in the application of integrated thinking in performance evaluation metric disclosures. The increase in integrated thinking principles was a result of the increased use of materiality and integrated tools to monitor performance evaluation metrics, a move away from predominantly financially focused metrics, and the incorporation of the Sustainable Development Goals (SDGs) and multi-capital outcomes in performance evaluation metrics. The Index offers practitioners, standard-setters, and academics a simple method for assessing the extent of integrated thinking, with the potential for application to other publicly available information and across different jurisdictions. In addition, the Index can guide stakeholders in evaluating whether management is effectively implementing long-term value creation and sustainability initiatives.

Keywords: Extra-financial reporting, integrated thinking, key performance indicators, multi-capital approach, performance evaluation, performance evaluation metrics.

1: Introduction

Integrated thinking is defined as:

> "The active consideration by an organization of the relationship between its various operating 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" (VRF, 2021, p.53).

In other words, an integrated logic involves how an organisation considers its risk management practices, strategies, operations and performance evaluation, considering both financial and extra-financial matters (Malafronte and Pereira, 2020, Oliver et al., 2016).

As organisations have continued to struggle with the adoption of integrated thinking (Malafronte and Pereira, 2020, Maroun et al., 2023a), several initiatives have emerged to assist organisations with operationalising integrated thinking. For example, codes of corporate governance strengthen governance and accountability structures by establishing committees which oversee social and environmental matters and consider broader stakeholder groups as part of decision-making (Athanasakou et al., 2024, Kaplan, 2009). Enhancing management control systems to collect, analyse and report on extra-financial data provides management with the day-to-day data for integrated decision-making (Bui and Villiers, 2017). The adoption of sustainability-related frameworks such as the Global Reporting Initiative (GRI), European Union's Non-financial Reporting Directive (NFRD), Task Force on Climate- and Nature-related Financial Disclosures (TCFD/TNFD) and the International Integrated Reporting Framework (the Framework) allows organisations to align their business models and strategies with environmental and social objectives (Athanasakou et al., 2024). However, these practices can often be marginalised in favour of the financial imperatives of shareholders and management.

To align the organisational goals of integrated thinking with individual and stakeholder goals, performance incentives can be used to institutionalise a more integrated approach to decision making (Maroun et al., 2023a, Oliver et al., 2016). Organisations use performance evaluation metrics as tools to assess the performance of the entity, its executives and management in achieving strategic objectives and to inform stakeholders of the achievement of organisational and managerial milestones (Dumay and Dai, 2017, Oliver et al., 2016). Additional remuneration often depends on the successful execution of predetermined performance evaluation metrics. Historically, organisations have favoured financially focused metrics over extra-financial metrics because of to the former's ease of definition, quantification, and

evaluation, while environmental and social metrics tend to be overlooked (Bellucci et al., 2020, Grassmann et al., 2019, Herbert and Graham, 2020, Maroun et al., 2023a).

Existing studies have discussed the role of performance evaluation metrics in setting targets, driving continuous improvement, and developing standards for sustainability reporting (Wallage, 2000). Largely overlooked are the specific types and content of performance evaluation metrics. While some research has explored the relationship between performance evaluation and sustainability (Oshika and Saka, 2017, Dantas et al., 2021) , there is a lack of detailed guidance on implementing and evaluating performance evaluation metrics aligned with integrated thinking principles.

Consequently, a "performance evaluation integrated thinking index" (the Index) is developed to assess the alignment of performance evaluation metrics with integrated thinking principles, drawing from normative frameworks such as the Value Reporting Framework (VRF) and Non-Financial Reporting Directive (NFRD) and relevant academic literature (Alrazi et al., 2015, Herbert and Graham, 2020, Maroun et al., 2023a, Oshika and Saka, 2017). To demonstrate the application of the Index, the study identifies evidence of integrated thinking in the performance evaluation metrics of the Top 40 listed entities in the United Kingdom (UK) over an extended period. To confirm the validity of the Index, the results are calibrated using established integrated thinking proxies such as the Carbon Disclosure Project (CDP), environmental, social and governance (ESG) scores, and an overall Integrated Thinking Score (ITS) (refer to Section 3).

This research makes, at least, five contributions. Firstly, the research aims to contribute insights into how performance evaluation metrics can be refined to incorporate proactive measures and embrace an integrated thinking approach as the research expands on the dimensions of integrated thinking within the context of performance evaluation metrics. Investors who are unsure whether performance evaluation metrics are merely superficial or genuinely reflect a proactive approach to performance incentives can benefit from this index by using it for performance appraisals, investment decisions and assessing whether organisations are aligning their metrics with meaningful, long-term goals and targets or if they are merely surface level metrics. Future research will be required to perform case studies on specific entities to better understand how the performance evaluation metrics are practically implemented and whether the disclosures are an accurate representation of management's intentions.

Secondly, the study focuses on the UK, applying the index to companies listed on the London Stock Exchange. Research on performance incentives in developed economies has predominantly focused on sustainability issues in isolation (Maltz et al., 2018, Frost et al.,

2005), regulatory shifts requiring organisational performance to be analysed using performance metrics (Elzahar et al., 2015) and the demand for advanced performance measurement techniques such as lean practices in a non-production context which creates short-term efficiency and quality and a longer-term competitive advantage (Kristensen et al., 2022). More needs to be done to examine how to operationalise metrics aligned with integrated thinking principles. There is also a lack of empirical research which provides details on the current practices of leading organisations in developed economies. As a developed country with robust financial and extra-financial reporting standards[1], the UK offers well-documented corporate reports to identify performance metrics aligned with integrated thinking principles, with the findings broadly applicable to other jurisdictions, including developing economies.

Thirdly, this research is timely as a result of the release of new reporting standards which focus on performance evaluation and sustainability-related disclosures. Examples include IFRS 18[2], S1[3] and S2[4]. IFRS 18 prescribes the updated presentation and disclosure requirements in financial statements, specifically the disclosure of management-defined performance measures. The heightened disclosure requirements can attract increased stakeholder attention, and the Index can be used, on the one hand, to develop more performance evaluation metrics aligned with integrated thinking principles and, on the other hand, to evaluate the metrics implemented by organisations. IFRS S1 and S2 iterate the need for a more holistic approach to risk management, strategies, operations and performance evaluation. Integrating aspects of sustainability and environmental considerations in performance evaluation metrics facilitates an integrated approach. Similarly, this approach can be guided and evaluated using the Index and applying this to different industries and jurisdictions.

Fourthly, the research can guide stakeholders in identifying key areas to scrutinise when evaluating whether management is implementing measures aimed at long-term value creation and sustainability. Additionally, academics studying the types and quality of performance evaluation metrics across different jurisdictions may find this index valuable because it provides a single framework to compare and assess performance evaluation metrics across different jurisdictions. The aim of this study is not to generalise its findings but rather to propose an index which facilitates the exploration of integrated thinking as reflected in performance evaluation metrics. Since the study does not seek to quantify these metrics, a mathematically

[1] Examples of standards include the United Kingdom's Sustainability Disclosure Requirements (SDR), Global Reporting Initiative (GRI), and the Task Force on Climate-related Financial Disclosures (TCFD)
[2] IFRS 18: Presentation and Disclosure in Financial Statements
[3] IFRS S1: General Requirements for Disclosure of Sustainability-related Financial Information
[4] IFRS S2: Climate-related Disclosures

precise measure is unnecessary. Instead, the development of a targeted index is more suitable, offering a tailored approach to assess performance evaluation metrics effectively, unlike broad proxies which may lack relevance or measures which are entirely absent.

Finally, the study contributes to the broader discourse on sustainable development by examining how performance evaluation metrics can integrate sustainability principles. Through the development and application of the Index, the research highlights the role of holistic performance metrics in driving long-term value creation beyond financial measures. By incorporating multi-capital approaches and aligning organisational practices with the Sustainable Development Goals, the research provides a framework for assessing how organisations balance financial and extra-financial objectives. These insights not only enhance understanding of integrated thinking but also offer a practical tool for evaluating metrics which embed sustainability into decision-making processes, ultimately supporting global efforts to tackle complex socio-environmental challenges.

The remainder of this paper is set out as follows. Section 2 presents the literature review while Section 3 details the method followed. Section 4 and 5 present the results and conclusion respectively. Additional appendices are included to provide supplementary information.

2: Literature and background

Traditionally, organisational performance was measured solely by financial metrics, a practice which dates back to the industrial era (Barker, 1991). Organisations used measures such as return on investment, cash flow, market share increase and return to shareholders to make key decisions in an organisation, such as whether to discontinue a product, invest in new machinery, expand the organisation or assess the adequacy of the capital return (Barker, 1991).

The foundation of integrated thinking in performance evaluation dates back to the 1950s when General Electric developed a set of performance measures which covered aspects such as profitability, market share and employee attitudes (Kaplan, 2009). During the 1980s, research suggested that organisations should integrate extra-financial indicators into their performance measurement. However, few organisations adopted these indicators, opting instead to retain a performance measurement system focused primarily on financial metrics (Kaplan, 2009).

The balanced scorecard (BSC) was formally introduced by Kaplan and Norton (1992). The BSC is the most widely used performance measurement system and represents the formal evolution from a limited set of financial metrics to a holistic coverage of both financial and extra-financial metrics. The BSC evaluates performance across four perspectives:

- **Financial**: Focuses on how the organisation appears to its shareholders and tracks metrics such as revenue growth and return on investment.
- **Customer**: Emphasises how customers view the organisation, often measured through customer satisfaction and retention rates.
- **Internal processes**: Assesses the efficiency of internal operations with KPIs such as cycle time or productivity.
- **Innovation and learning**: Evaluates the organisation's ability to improve and create future value, which may include metrics on employee training or process improvements.

These perspectives help organisations gain a comprehensive view of their operations while aligning performance measures with strategic goals, in this way supporting integrated thinking principles (Henri, 2006). The BSC framework helps to communicate an organisation's strategic goal at all levels, from top management to front-line employees (Kaplan and Norton, 1992).

During the 2000s, in response to the financial crises of this period, organisations recognised the need to expand their focus beyond purely financial metrics in their operations and performance evaluations (Malik et al., 2020). This shift included incorporating risk management into organisational objectives and adopting the balanced scorecard for performance metrics, reflecting a move toward integrated thinking (Al-Tuwaijri et al., 2004, Malik et al., 2020).

In line with this, operationalising integrated thinking can confer legitimacy in the eyes of an organisation's multi-stakeholder group. Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995 p. 574).

This alignment helps organisations ensure that their performance evaluation metrics support their strategy, activities, and the interests of all stakeholders (Dumay and Dai, 2017a). Just as stakeholder theory moves from a purely financial focus to including all stakeholders (Parmar et al., 2010), incorporating extra-financial metrics into performance evaluation helps ensure that essential stakeholders' interests are represented (Kaplan, 2009). Organisations often implement evaluation systems which align with industry standards or regulatory expectations, even if these practices do not directly enhance performance. Institutional theory examines how organisations are shaped by external regulations, standards, and cultural values, resulting in uniformity and persistence through mechanisms like isomorphism while also permitting transformation driven by institutional innovators (Dacin et al., 2002). Within the

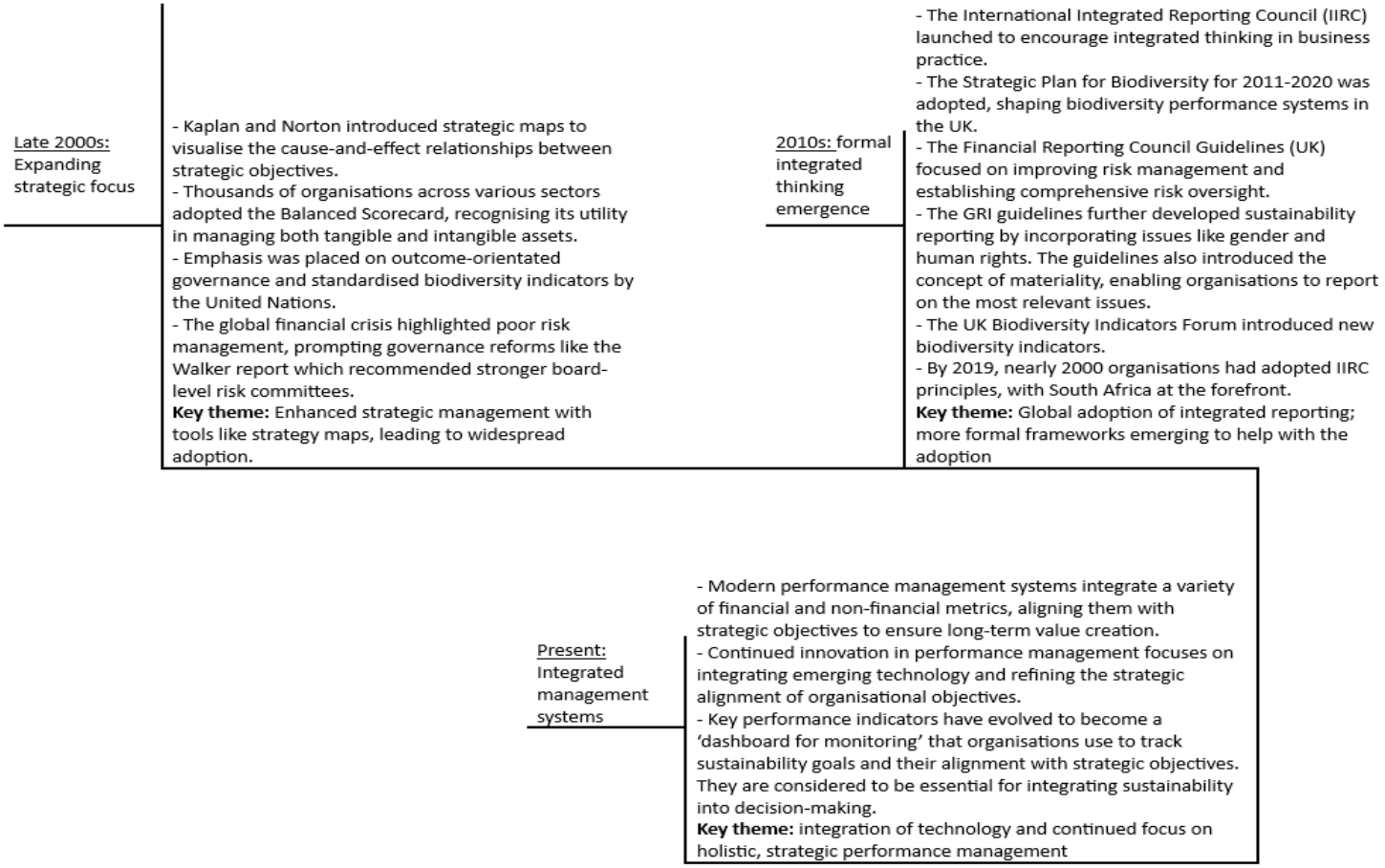
research space, the theory behind including extra-financial performance evaluation metrics has been around since the 1950s. However, it was not practically adopted within organisations during this time as businesses were focused on shareholder wealth and maximising profits (Kaplan, 2009).

More recently post 2020, performance evaluation metrics in organisations include both financial and extra-financial indicators demonstrating the shift towards an integrated thinking mindset (Maroun et al., 2023a) driven by standard setters and regulators. For instance, the IFRS S1 and S2 require the disclosure of sustainability and climate-related information, and the European Commission's Non-Financial Reporting Directive further emphasises this trend. Many organisations leverage digital technology (Al-Htaybat and von Alberti-Alhtaybat, 2018), such as dashboards and artificial intelligence, to track and evaluate these metrics and assess their alignment with strategic objectives, which is central for making integrated decisions within the organisation (Mans-Kemp and Viviers, 2018). Figure 1 provides a comprehensive timeline summary of the evolution of performance management.

Figure 1: Timeline of performance management practices



Figure 1 continued: Timeline of performance management practices



Adapted from Kaplan (2009), Mans-Kemp and Lugt (2020), Al-Tuwaijri et al. (2004), Dissanayake (2020), Epstein and Roy (2003), Malik et al. (2020), Sobkowiak (2022)

2.1.2 History of extra-financial reporting in the United Kingdom

The history of extra-financial reporting in the UK is closely tied to broader European and global trends regarding environmental disclosure and corporate responsibility (Barbu et al., 2022). The concept of extra-financial reporting in the UK gained momentum in the 1990s, reflecting an increasing awareness of corporate responsibility towards more than just financial considerations but including environmental sustainability (Barbu et al., 2014). Early on, much of the reporting was voluntary, driven by companies' desires to showcase their environmental credentials to stakeholders and improve their corporate image (Barbu et al., 2022).

Over time, the need for mandatory frameworks became more evident as voluntary disclosures varied significantly in terms of content, quality and scope (Barbu et al., 2022). By the early 2000s, the UK began to see more formalised expectations regarding environmental reporting with the introduction of the International Accounting Standards (IAS) and the International Financial Reporting (IFRS) in 2005 (Barbu et al., 2014). Although these standards are focused on financial disclosures, they laid the groundwork for more structured reporting practices, which have been expanded to include disclosure of extra-financial information, such as IFRS 18 and IFRS S1 and S2.

For example, IFRS 18 prescribes the disclosure of management-defined performance measures, defined as any income or expense used in public communications outside the financial statements, intended to convey management's view of an aspect of the entity's financial performance, provided it is not explicitly excluded as a management-defined performance measure by the standard. Additionally, IFRS 18 includes a section on capital disclosure. It requires entity's objectives, policies and processes for managing all forms of capital. This includes specific qualitative information about each type of capital.

The Sustainability Disclosure Requirements supports alignment with standards from the International Sustainability Standards Board (ISSB) currently consisting of IFRS S1 and S2. While the UK has not yet adopted the ISSB's IFRS S1 and S2, the government is currently reviewing them for approval, aiming to make them accessible to UK organisations. The Financial Conduct Authority (FCA) plans to include IFRS S1 and S2 standards in disclosure rules by mid-2024, with implementation set for reporting periods beginning 1 January 2025 with the first reports expected in 2026. However, for now, organisations are encouraged to implement the standards voluntarily, as they are expected to enhance and eventually replace the Task Force on Climate-related Financial Disclosures (TCFD) framework in the UK (ICAEW, 2024).

In 2017, the European Non-Financial Reporting Directive (NFRD) came into effect in the UK, compelling large companies to disclose non-financial information, including environmental, social and employee-related matters (EU, 2014). The implementation of the directive marked a significant shift from voluntary to mandatory reporting, aiming to increase transparency and comparability across European companies (Barbu et al., 2022).

Subsequent to organisations adopting the EU's NFRD, the United Kingdom is no longer a member of the European Union. As a result, the UK developed its own requirements in relation to extra financial reporting. Effective in 2022, listed organisations in the UK are required to report under the UK's Sustainability Disclosure Requirements (SDR) and additional climate-related mandates The key components are summarised in Table 1 (HM Government, 2021, 2022) .

Table 1: key components of UK Sustainability Disclosure Requirements

Aspect	Details
Corporate Disclosures	Organisations must report on sustainability-related risks, opportunities, and impacts, aligning with TCFD and the UK Green Taxonomy. Disclosures cover governance structures, strategy impacts, risk management, and performance metrics.
Governance and Risk Management	Organisations must describe governance arrangements for managing climate-related risks and opportunities, clarify board-level roles, and detail integration of climate considerations into overall risk management processes.
Mandatory TCFD-Aligned Reporting	The SDR mandates TCFD-aligned climate disclosures under the Companies Act 2006, applicable to organisations on listed securities.
Use of International Standards	SDR supports alignment with ISSB standards (IFRS S1 and S2), harmonising with TCFD to ensure globally consistent sustainability reporting.
Metrics and Targets	Organisations must disclose specific metrics and targets, including taxonomy-aligned metrics, environmental performance against targets, and financial implications of sustainability factors.
Transition Plan	Organisations must publish credible transition plans supporting the UK's net-zero commitment, detailing actions, interim milestones, and accountability mechanisms to guide long-term sustainability goals.
Scenario Analysis for Resilience	Organisations are required to conduct scenario analysis to evaluate the resilience of business models under various climate scenarios.
Additional Regulatory Interaction	SDR aligns with the Financial Conduct Authority's regulations, Streamlined Energy and Carbon Reporting (SECR) and international standards to ensure integrated reporting. The Financial Reporting Council monitors compliance with these disclosures.

All of the changes in the NFRD and SDR is evidence of a more holistic approach to corporate accountability and the UK's broader goal of fostering sustainable development. The SDR is an active step towards stronger and more reliable sustainability governance and disclosure in the United Kingdom (Primec and Belak, 2022).

2.2 Integrated Thinking

Performance evaluation metrics aligned with integrated thinking principles enable organisations to assess both financial and extra-financial elements, promoting responsible business practices which support long-term sustainability (Herbert and Graham, 2020). These metrics also enhance stakeholder engagement and improve cross-departmental collaboration by breaking down silos and aligning individual and corporate objectives (Raji and Hassan, 2021). However, their implementation presents challenges, such as integrating diverse sustainability frameworks and quantifying extra-financial metrics, complicating the practical adoption of integrated thinking (Alrazi et al., 2015).

A key difficulty in developing these metrics is that management may struggle to understand the interconnection between different capitals and their contributions to value creation within the business model (Dumay and Dai, 2017). Additionally, limited resources and underdeveloped information systems may result in incomplete data, while the absence of robust ESG practices can lead to superficial metrics (Herbert and Graham, 2020). Tools such as artificial intelligence and dashboards can help overcome these hurdles by improving data collection and analysis, facilitating the integration of these metrics (Al-Htaybat and von Alberti-Alhtaybat, 2018).

The following challenges are identified:

Cultural Barriers: Many organisations continue to operate within a siloed, financially driven mindset. A short-term performance culture, often reinforced by traditional incentive systems, adversely impacts the adoption of integrated performance metrics. Whether those charged with governance genuinely buy-in to an integrated logic versus a compliance-driven or impression management tactic may impact the ability to effectively integrated more holistic performance measures (Dumay and Dai, 2017).

Operational Barriers: Translating integrated thinking into performance metrics often requires the management control systems to be updated and adapted to be able to appropriately collect, analyse and report on extra-financial information. Organisations often tend to lack the necessary sophisticated systems to analyse extra-financial data such as natural and social

capital indicators and, as a result, cannot effectively integrate this into performance evaluation (Dimes and de Villiers, 2021, Steenkamp et al., 2025).

Resource-Based Barriers: Smaller organisations, or those in resource-constrained environments, may lack the analytical tools, expertise or systems to assess and report interdependencies between capitals and the relevant impact on performance (Malola and Maroun, 2019).

Business model incompatibilities: Translating complex strategic goals (such as long-term sustainability) into measurable, actionable performance indicators is a challenge for organisations and may sometimes lead to incompatibility with the underlying business models. This may result in a misalignment between what is measured and what matters strategically to a broader stakeholder group (Ecim et al., 2025, Gutmayer et al., 2022).

As a result, there are conceptual and systemic barriers to achieve an integrated performance evaluation tool. Nevertheless, a framework to implement integrated performance metrics will assist in highlighting deficiencies and developing an action plan toward a more sustainable organisation.

Reporting both positive and negative outcomes across various capital dimensions promotes strategic alignment, informed decision-making, and transparency with stakeholders (VRF, 2022b). However, some organisations may under-report poor performance, deeming it insignificant (Di Vaio et al., 2020). There's also the risk that metrics aligned with integrated thinking principles become a compliance exercise, potentially masking real issues to meet financial incentives (Samkin, 2012, Massa et al., 2015, Ahmed Haji and Anifowose, 2016). Addressing negative performance indicators proactively can drive positive change and broaden the organisation's understanding of risks, opportunities, and impacts (VRF, 2022b).

In the absence of direct access to management of an organisation, corporate reports can provide a useful source of information related to integrated management practices (Dimes et al., 2023). Extra-financial reports reflect the disclosure by management to stakeholders of the operations, strategic objective and most importantly, the performance of an organisation. These disclosures are not only used as a way of showing compliance, but also offering insights into the implementation of integrated thinking in organisations (Dumay and Dai, 2017, Dimes et al., 2023).

The research question (RQ) to be addressed by the paper is:

> **RQ 1: To what extent is integrated thinking evidenced in the performance evaluation metrics disclosed by the top 40 listed entities in the United Kingdom?**

As a result, the remainder of Section 2 relies on prior academic research, complemented by reporting and governance standards, to identify the core "elements" of performance evaluation metrics aligned with integrated thinking principles. Each is discussed below.

2.2.1: Integrated Thinking Indicators

Principles of integrated thinking which can be evidenced in performance evaluation metrics are discussed below. **Note that I1 – I10 have been adapted from Ferreira et al. (2024) and include additional academic literature.** I11 – I14 have been added by the current paper to expand the Index further and apply it to a new jurisdiction.

I1: Assurance of Metrics (AS)

Organisations committed to sustainable performance aim to disclose credible extra-financial information. The challenge lies in distinguishing one from those organisations whose extra-financial information are merely surface-level (Simnett et al., 2009). Engaging an independent expert to verify extra-financial reports help address this, as it ensures the report's accuracy and completeness (Simnett et al., 2009, Cohen and Simnett, 2015). Moreover, formal approval of performance evaluation metrics and reviews of progress help companies ensure that all material matters are addressed. Organisations should ensure that performance evaluation metrics are reliable and complete (ISSB, 2023a).

Research supports that extra-financial report assurance serves as a valuable signal, with studies showing that independent verification positively impacts an organisation's cost of capital, financing access and forecast reliability (Simnett et al., 2009, Cho et al., 2014). However, Adams and Evans (2004) caution that some organisations might misuse assurance for impression management, using it lend unsubstantiated extra-financial reporting claims an appearance of credibility (Behnam and MacLean, 2015, Clarkson et al., 2019). Still, stringent assurance standards act as safeguards, making it difficult to use extra-financial report assurance deceptively. By engaging an external assuror, organisations demonstrate genuine extra-financial reporting commitment, especially when the assurance covers multiple extra-financial areas, signalling proactive, organisation-wide efforts to extra-financial reporting (Simnett et al., 2009, Prinsloo and Maroun, 2021).

I2: Timeframe (T)

Integrated thinking is entrenched in the idea of long-term sustainability. As a result, in order to incorporate the integrated thinking principles into performance evaluation metrics, the metrics should be established over the short, medium and long-term (VRF, 2021). If all the metrics are only short-term, this will go back to the prior focus of financial metrics only, thereby dismissing the importance of the longevity of organisations (VRF, 2021, ISSB, 2023a).

In line with the balanced scorecard approach, both lagging and leading indicators should be used to avoid an excessive focus on short-term financial results, which can undermine long-term value creation (VRF, 2021). Performance evaluation metrics should be designed to balance immediate financial rewards for management and employees with long-term incentives which drive sustainable growth and value for investors and other stakeholders (Pigatto et al., 2023a).

I3: Number of SDGs addressed (C_{SDG})

SDGs provide a framework for addressing and incorporating financial, social and environmental objectives. By addressing various sustainable development goals, this approach demonstrates a proactive stance toward performance evaluation metric development, fosters alignment with the organisation's cultural values and integrated thinking logic. This approach enables a comprehensive evaluation of the organisation and enhances management's insight into its operations (VRF, 2021, ISSB, 2023a). Despite these goals being aimed at the supra-national level, organisations can use these principles to define sustainability with reference to issues such as climate change, health and well-being or poverty reduction; to enable a better understanding of an organisation’s extra-financial impacts and inform how it evaluates its performance in more than just monetary terms.

In addition, not all organisations cannot equally impact all the SDGs to the same extent as a result of their specific operations and industries. However, there are “industry averages” that organisations will be compared to in order to assess their impact on the SDGs as an additional test of the index.

I4: Number of capitals addressed (C_{CAP})

Integrated thinking involves recognising and incorporating various forms of capital into performance evaluation metrics. This approach emphasises understanding how different types of capital—not only financial—impact and are influenced by an organisation’s operations, including social, environmental, and long-term considerations (IIRC, 2021). Organisations must manage employee skills and well-being (human capital), protect

biodiversity and ecosystem services (natural capital) and maintain strong relationships with stakeholders such as investors, employees, customers and suppliers (social and relationship capital). At the same time, the organisation must also ensure the efficient use of physical assets such as buildings and machinery (manufactured capital), maintain economic stability (financial capital) and leverage intellectual property and innovation (intellectual capital) to drive long-term success.

Metrics which account for these diverse capital objectives enable organisations to measure and communicate their value creation more comprehensively. Additionally, effective performance evaluation metrics require addressing the connections and necessary trade-offs between different types of capital. Fluctuations in the availability and impact of these capitals can significantly affect performance metrics (IIRC, 2021). In addition, not all organisations can equally impact all the capitals to the same extent as a result of their specific operations and industries. However, there are “industry averages” organisations will be compared to in order to assess their impact on the capitals as an additional test of the index.

I5: Level of application of metric (APP)

Adoption of integrated thinking should not be limited to an organisation’s governing body; it requires active engagement across all levels of the organisation. Every part of the organisation must grasp the strategic and operational priorities set by management, including both financial and extra-financial factors. While employees’ roles in achieving these goals may vary, fostering an organisation-wide culture that supports integrated thinking is key to promoting co-ordinated, meaningful actions (Stubbs et al., 2014, Rinaldi, 2020). To support this, performance management systems need to be tailored to suit all organisational levels (Bui and Villiers, 2017).

Performance measures must extend beyond executives to apply to managers and employees at all levels, ensuring alignment with the organisation’s integrated strategy and performance evaluation metrics can serve as a cultural guideline (Mans-Kemp and Viviers, 2018, Dumay and Dai, 2017).

I6: Stakeholder engagement (SE)

An organisation's business model should encompass the expectations of both internal and external stakeholders. Failing to meet stakeholder expectations can jeopardise an entity's legitimacy, potentially compromising its reputation and survival. Limited engagement with stakeholders hinders an organisations' ability to fulfil their needs (Oshika and Saka, 2017, Sakunasingha and Derakhshan, 2013, Sukhari and de Villiers, 2018). As such an organisation

can ensure longevity through value creation for all stakeholders by considering their expectations comprehensively - not only shareholder expectations - thereby ensuring a commitment to integrated thinking principles through a holistic management perspective.

I7: Materiality (MAT)

Every company, regardless of its size, must identify the key issues critical to its operations and address them through performance evaluation (VRF, 2021). Entities are required to disclose significant details about sustainability-related risks and opportunities which can reasonably affect their outlook. Since these issues vary between entities, it is crucial for organisations to explain how they determine what is material. Additionally, the conceptual framework mandates that organisations disclose all information that is material to the users of that information, which includes when determining performance evaluation metrics (ISSB, 2023a).

In line with the organisation's evolving extra-financial reporting, double materiality enhances ESG and sustainability reporting by incorporating both financial and impact materiality (Baumüller and Sopp, 2021). Financial materiality - an inside-out approach - examines how an organisation's operations impact the environment and society. In contrast, impact materiality - an outside-in approach - evaluates how environmental and social factors affect the organisation's financial performance (Baumüller and Sopp, 2021). Double materiality acknowledges that an organisation's success increasingly depends on addressing both its impact on the external environment and the risks it faces from external changes (Delgado-Ceballos et al., 2022).

Double materiality supports comprehensive performance evaluation metrics which align sustainability impact with operational and financial performance, fostering a more resilient and accountable business model (Delgado-Ceballos et al., 2022). An organisation's ability to manage climate risks and resource use (outside-in) is crucial for long-term financial stability, while its commitment to sustainable practices (inside-out) strengthens reputation, regulatory compliance, and stakeholder relationships (Baumüller and Sopp, 2021).

I8: Factors influencing achievement of metric (FAC)

Organisations should refrain from setting performance evaluation metrics which can be impeded by external factors such as market sentiment. As such, performance evaluation metrics should be established with the presumption that the organisation possesses the capability to attain these objectives. Therefore, this approach also mitigates the risk of fraudulent activities aimed at meeting performance evaluation metrics (VRF, 2021).

I9: Post-implementation review (REV)

An integrated thinking mindset emphasises the importance of continuous improvement and addressing shortcomings. Post-implementation reviews of performance evaluation metrics are crucial for this process as they allow organisations to evaluate the effectiveness and relevance of their metrics aligned with integrated thinking principles after implementation (Maroun et al., 2023a). By assessing whether the metrics are meaningful and aligned with the organisation's overall objectives, these reviews help ensure that performance evaluation remains relevant. Feedback and discussions from various stakeholders further contribute to refining these metrics and identifying any areas that may need adjustment. Taking corrective actions based on these insights signals a commitment to an integrated mindset.

I10: Comparative information (COMP)

Comparative information will be useful to stakeholders as they decide how the organisation is performing, if the performance evaluation metrics of an organisation are not comparable with its competitors, it will be complex for stakeholders to evaluate and track performance of the organisation (ISSB, 2023a, Oshika and Saka, 2017).

I11: Integrated Strategic Analysis (STRAT)

Integrated thinking involves assessing progress against targets and taking corrective action as needed (Maroun et al., 2023a), making strategic analysis an essential component of this approach. Consistency in performance evaluation metrics over time is important (ISSB, 2023a) but these metrics should be adjusted to address stakeholders' changing needs. Organisations should, therefore, monitor metrics performance year-on-year (VRF, 2021, ISSB, 2023a). Performance evaluation metrics should support the overall organisation's strategy rather than just divisional goals, fostering an organisation-wide culture of integrated thinking that extends beyond the governing body (Dumay and Dai, 2017). Cross-functional working groups between divisions can also facilitate information-sharing, identifying collaboration opportunities and then act as an early-warning system for emerging challenges (Stubbs et al., 2014). These groups can also participate in calculating and analysing metrics, providing insights for management (Stubbs et al., 2014).

When setting specific targets, it is critical to align them with the organisation's broader objectives and work consistently towards achieving these targets to drive long-term value creation (Kaplan, 2009). Stakeholders should be able to link specific metrics to accountable personnel, enabling rewards for exceeding the targets set and boosting morale. Conversely,

accountability should be upheld if performance falls short of the target, ensuring a focus on continuous improvement within the organisation (Mans-Kemp and Viviers, 2018).

Ultimately, the governing body should develop a comprehensive view of performance by balancing financial and extra-financial dimensions. Strategic analysis should be used to integrate these insights into the organisation's goals and performance evaluation, supporting a commitment to value creation (Dimes et al., 2023).

I12: Integrated performance evaluation metric rationale (RAT)

Disclosing the rationale behind each performance metric is essential to support integrated thinking in an organisation because it clarifies how each metric aligns with the organisation's broader value creation goals (Athanasakou et al., 2024, ISSB, 2023a). When stakeholders understand why specific metrics are tracked, it helps demonstrate how these metrics link with the organisation's overall strategy (Athanasakou et al., 2024, Herath et al., 2021). Moreover, explicating the reasons for each metric provides insights into how the organisation's activities contribute to sustainable outcomes and stakeholder value, helping guide decision making (Parmar et al., 2010, Kaplan, 2009).

Linking metrics to specific laws and regulations also shows the organisation's compliance and commitment to legal standards (ISSB, 2023a). It assures stakeholders that the organisation operates responsibly and mitigates potential legal risks (Malik et al., 2020). For example, financial disclosure metrics linked to accounting standards reflect adherence to regulatory financial reporting requirements and disclosing metrics related to environmental regulations reflect the organisation's compliance with sustainability laws.

By making the connections between the metrics explicit and related to laws and regulations, the organisation fosters a culture of accountability and alignment with its integrated approach to achieving sustainable growth (Dumay and Dai, 2017).

I13: Integrated Tools (TOOL)

According to Alrazi et al. (2015), a well-designed information system is pivotal for enhancing the quality of extra-financial reports, which makes leveraging their performance management and information systems essential to collect and analyse information relating to their performance evaluation metrics (HM Government, 2021). By integrating different technologies such as artificial intelligence and dashboards into performance evaluation metrics, organisations can collect and analyse diverse data sets – financial and extra-financial – in real

time, fostering a more integrated view of their performance (Al-Htaybat and von Alberti-Alhtaybat, 2018).

Dashboards visualise performance evaluation metrics from multiple sources, aligning organisational goals with broader strategic objectives (Yigitbasioglu and Velcu, 2012). On the other hand, artificial intelligence enables predictive insights, helping organisations proactively address potential risks or opportunities (Dumitrascu et al., 2020).

Risk management is a crucial consideration for organisations when setting performance evaluation metrics (Ilhan et al., 2023). In addition, organisations are required to describe their governance arrangements for managing climate-related risks and opportunities, clarifying roles at the board level and detailing integration of climate considerations into overall risk management processes (HM Government, 2022). Organisations are required to conduct scenario analysis to evaluate the resilience of their business models under various climate scenarios (HM Government, 2022). By integrating risk assessment procedures and sensitivity/scenario analysis into the evaluation of these metrics, organisations can embed an integrated thinking approach by ensuring that they assess not only their current success but also their preparedness for future uncertainties, ultimately supporting sustainable value creation and resilience (ISSB, 2023b).

As such, integrating tools such as performance management and information systems, technology and risk management frameworks is essential for a comprehensive approach to performance evaluation.

I14: Business model and value creation (VAL)

The process of value creation is closely intertwined with diverse factors, including external influences, interactions with stakeholders, and the dynamic interplay of multiple sources. These elements not only reflect the outcomes of the company but also highlight its internal capacity for innovation and creativity (Nada and Győri, 2023, ISSB, 2023a). Business models and value creation are increasingly shaped by the Sustainable Development Goals (SDGs) as organisations align their strategies with global priorities like environmental stewardship, social equity and economic growth. Performance evaluation metrics linked to sustainable development fosters innovation, enhances brand reputation and drives long-term profitability by meeting stakeholder demands (Adams, 2020).

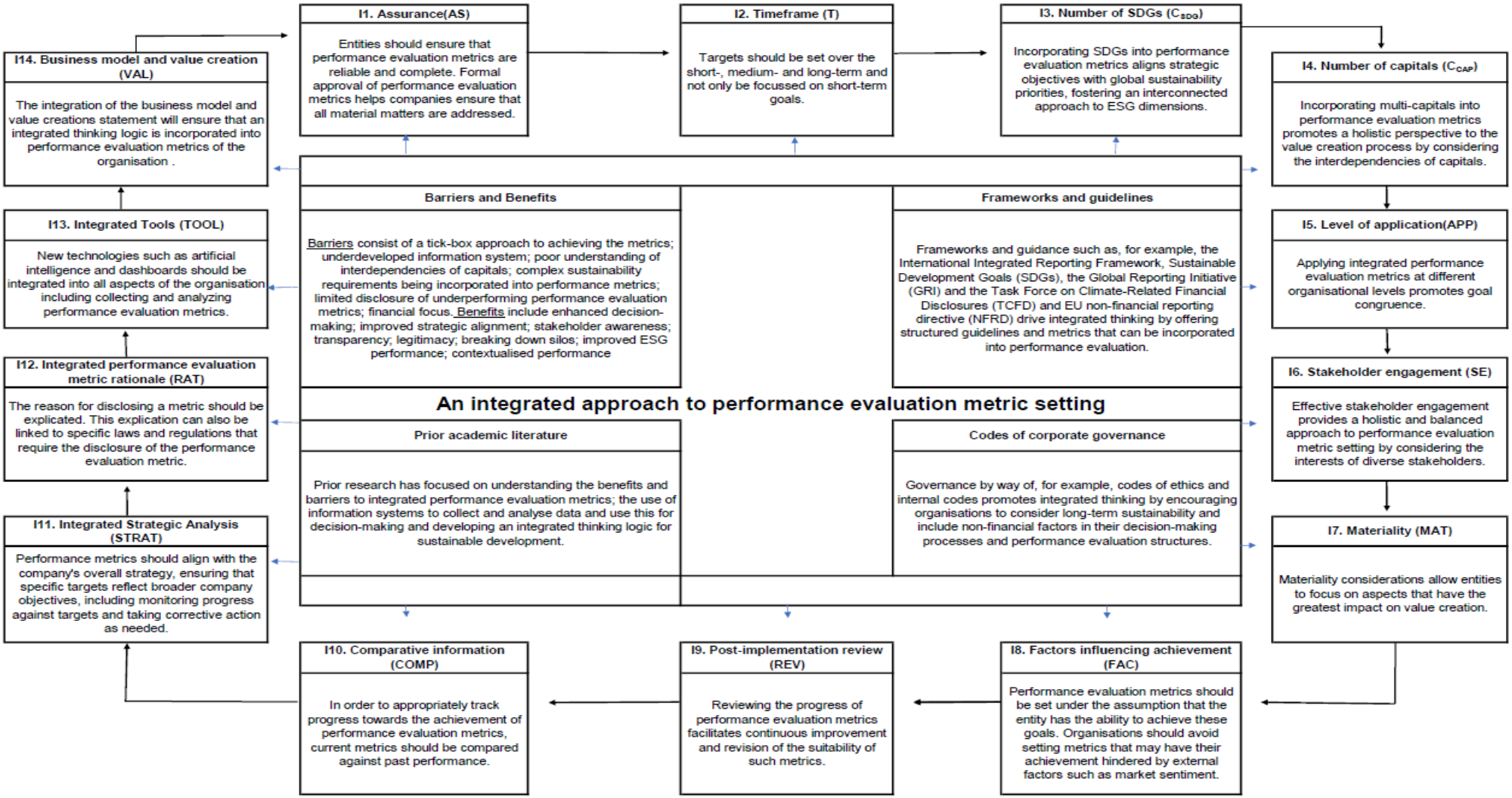
By incorporating the organisation's business model and value-creation statement into performance evaluation metrics, a thorough view of value creation is achieved, recognising

the interconnectedness of resources, stakeholder relationships, and external factors (ISSB, 2023b). This approach allows performance metrics to move beyond financial indicators, capturing value across social, environmental, and intellectual dimensions (Nada and Győri, 2023). Aligning the business model with these metrics encourages the organisation to consider long-term impacts, drive innovation, and meet diverse stakeholder expectations (Athanasakou et al., 2024).

To ensure that an organisation's efforts align with its value-creation goals and support sustainable growth, it is essential to set metrics which are specific, measurable, attainable, and relevant to the organisation (Kaplan, 2009). This approach leads to more resilient, adaptable, and sustainable metrics which reflect the full range of the organisation's value-creation efforts (Athanasakou et al., 2024).

Appendix A provides a summary of how the indicators are mapped to the prior literature. The key indicators of integrated thinking in performance evaluation metrics are summarised in Figure 2. By applying the Index to a sample of organisations' annual reports, the appropriateness of the tool to gauge levels of integrated thinking in performance evaluation metrics can be tested. Refer to Section 3.1 for the application of these indicators to the Index.

Figure 2: Indicators of integrated thinking in performance evaluation metrics



3. Method

The current study is based on an interpretive paradigm. The Index is applied to a sample of listed companies to illustrate the functionality of the index. The results are then calibrated by using established integrated thinking proxies.

3.1 Sample

The research is based on the Top 40 London Stock Exchange (LSE)-listed organisations by market capitalisation (as at 07/03/2024) which have prepared extra-financial reports[5]. Organisations require advanced information systems and a conducive environment to illustrate the utilisation of the Index. By focusing on the Top 40 LSE-listed entities, this approach acknowledges the potential constraints such as resource or technical insufficiency hindering the implementation of robust controls for performance evaluation, or a deficiency in experience in applying integrated thinking and deploying performance evaluation metrics within the organisation (Malola and Maroun, 2019). The study does not include the application of the Index to small-to-medium-sized entities. It is important to exercise caution when making general conclusions.

The reporting environment in the UK is well established as a result of strong regulations, transparency, high corporate governance standards, expertise in the profession and a strong focus on sustainability and investor confidence (Council, 2022). Extra-financial reports are expected to encapsulate ESG, financial and other metrics (Zhou et al., 2017). Organisations that do not have extra-financial reports will be excluded.

Extra-financial reports are used to evaluate performance evaluation metrics given that the United Kingdom's Sustainability Disclosure Requirements mandates the preparation and disclosure of non-financial information in their annual report (HM Government, 2022) (see Section 2). To ensure that the company wide performance evaluation metrics disclosures were captured, a keyword search was run on each extra-financial report. These keywords are the most relevant phrases, ideas and topics identified within prior performance evaluation literature (Busco et al., 2021, Herbert and Graham, 2020). The set of keywords may also be adapted during the scoring process included the terms "key performance indicator", "KPI", "performance evaluation", "metric", "remuneration", "evaluation" and "performance evaluation metrics". Disclosures were analysed using each performance evaluation metric as the unit of account to avoid overlooking context and misinterpreting content.

[5] Extra-financial reports are an annual report that include both financial and extra-financial information. The UK requires organisations on listed securities to publish a director's report (relating to governance per the Companies Act 2006) and strategic report that contains extra-financial information relating to sustainability and the environmental reports.

According to the disclosure requirements, non-financial information should include information necessary to understand the development, performance, position and impact of the entity's activities, as it relates to at least environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters. The content should include at least a description of the entities' business models, related policies and due diligence process, policy outcomes, the main risks arising from the extra-financial matters out of the entities' operations and extra-financial key performance indicators (HM Government, 2022).

The period of review covers the 2014, 2018 and 2022 financial years. 2014 is used as the starting point in this study because it is the year in which the Non-Financial Reporting Directive (NFRD) (EU, 2014) was adopted, including in the UK[6] (see Section 2). The NFRD is utilised to ascertain the active steps incorporated into developing performance evaluation metrics, which consider both financial and extra-financial information.

The second period captured is 2018 which is one of the first years in which the undertakings of the directives had to be reported on in the annual reports (EU, 2014). At this stage, an integrated thinking logic has had time to mature and develop to be reflected in the business model, strategy, risk assessment, operations, control systems and importantly for this research, in the related performance evaluation structures. Additionally, the Millenium Development Goals, which were subsequently rebranded as the Sustainable Development Goals in 2015 and aspects of a multi-capital approach have also had time to be incorporated in the organisation's business model (UN, 2015b, Herath et al., 2021). This also represents the midpoint of 2014 and 2022 to assess the progression of integrated thinking in performance evaluation metrics over time.

Finally, the 2022 reports are used as this represents the second year post-COVID-19 pandemic and provides insights into sustained integrated thinking practices as well as the impact of the new Sustainability Disclosure Requirements (see Section 2) resulting in the changes expected to be implemented in the subsequent years' disclosures (Fiechter et al., 2022). The new disclosure requirements include the UK's net-zero commitment amongst other requirements, as such the 2022 reports should evidence credible transition plans detailing actions, interim milestones, accountability mechanisms and how organisations incorporated extra-financial considerations more broadly in their disclosures, including in performance evaluation metric disclosures. The new Sustainability Disclosure Requirements aim to guide long-term sustainability goals.

[6] The United Kingdom was a member of the European Union during this period

Preliminary analysis of a sample of companies during pilot testing reports in 2020, 2021 and 2022 has validated that there are negligible changes in performance evaluation metrics on a year-on-year basis. As a result, it is preferable to explore potential changes in performance evaluation metrics using a four-year interval, as this will more effectively highlight shifts in performance evaluation practices.

3.2 Data collection

Each performance evaluation metric is scored based on the indicators provided in Table 2. The maximum possible score is 14. Judgment is limited as the score is based on the presence or absence of a specified disclosure made by the organisation. Each performance evaluation metric in the report was read multiple times and is included in a thematic table for assessing each indicator. A disclosure checklist corresponding to Table 2 will be employed to mitigate subjectivity and ensure minimal bias in evaluating the indicators. The data collection tool and findings will undergo review by a second reviewer (supervisor) to guarantee the reliability of the collected data. Any inconsistencies will be addressed by the lead researcher and resolved before analysing the results. Appendix D provides examples of the data that were coded.

Table 2: Performance Evaluation Integrated Thinking Index (Index)

Indicator	Index Formula
Assurance of PEM (AS)	$$AS = \sum_{c=1}^{t=1}(CA + AP + MON) \div 3$$ Where AS is the level of assurance for company c in year t. A score of 1 will be applied where each of the following is present: combined assurance over the PEM (CA), formal approval of the PEM (AP) and monitoring of the progress of achievement of the PEM (MON). A score of 0 will be applied for the absence of these factors
Timeframe (T)	$$T = \sum_{c=1}^{t=1} k \div 3$$ Where T is the timeframe in which the PEM is measured for company c in year t. A score of k = 1 will be awarded for a short, 2 for medium and 3 for long-term timeframe available to achieve the PEM. Short-term PEMs are attainable within 12 months of implementation, medium-term ranges between 1 and 5 years, and long-term exceeds 5 years
Number of SDG addressed (C_{SDG})	$$C_{SDG} = \sum_{c=1}^{t=1}(SDG_1 + SDG_2 \ldots + SDG_{17}) \div 17$$ Where C_{SDG} is the number of SDGs addressed by the PEM. A score of 1 will be awarded for each SDG addressed. [7]
Number of capitals addressed (C_{cap})	$$C_{cap} = \sum_{c=1}^{t=1} Cap_1 + Cap_2 \ldots + Cap_6) \div 6$$ Where C_{CAP} is the number of capitals addressed by the PEM. A score of 1 will be awarded for each capital addressed. [8]
Level of application of PEM (APP)	$$APP = \sum_{c=1}^{t=1}(S + NE + E + Co) \div 4$$

[7] Not all organisations can equally impact all the SDGs to the same extent as a result of their specific operations and industries. However, there are "industry averages" which organisations will be compared to in order to assess their impact on the SDGs as an additional test of the index.

[8] Not all organisations can equally impact all the capitals to the same extent as a result of their specific operations and industries. However, there are "industry averages" which organisations will be compared to in order to assess their impact on the capitals as an additional test of the index.

	Where LEV is the organisational level at which the PEM applies. A score of 1 will be awarded for each horizon covered: staff[9] (S), non-executives (NE), executives (E) and the company as a whole (Co).
Stakeholder engagement (SE)	$$SE = \sum_{c=1}^{t=1} k \div 2$$ Where SE is the level of stakeholder engagement performed in setting the PEM. k = 1 if there is stakeholder engagement on the remuneration policy and k = 2 if there is an explicit statement of SE on both the remuneration policy and the issue that the PEM seeks to address.
Materiality (MAT)	$$MAT = \sum_{c=1}^{t=1} k$$ Where MAT is the indicator of whether materiality was considered in setting the PEM. A score of k = 1 was awarded where materiality was considered and 0 where it was not mentioned.
Factors influencing the achievement of PEM (FAC)	$$FAC = \sum_{c=1}^{t=1} k$$ Where FAC is the nature of factors impacting the achievement of the PEM. A score of k = 0 is awarded where external factors exist and a score of k = 1 is awarded where only internal factors exist.
Post-implementation review (REV)	$$REV = \sum_{c=1}^{t=1} k$$ Where REV is evidence of a post-implementation review performed over the PEM. A score of k = 1 is awarded where a post-implementation review is performed, and a score of k = 0 where it is not.
Comparatives provided (COMP)	$$COMP = \sum_{c=1}^{t=1} k$$ Where COMP is an indicator that prior year results were provided for the PEM. A score of k=1 is awarded when comparatives are provided and k=0 when they are not.
Integrated Strategic Analysis (STRAT)	$$STRAT = \sum_{c=1}^{t=1} (P + M + A + T + CFG + GRP) \div 6$$ Where STRAT is the level of integrated thinking incorporated into the PEM. A score of 1 will be applied where each of the following is present: the performance of the PEM in relation to last year (P), management remuneration linked to the PEM (M), adjustments are made to the PEM for time and space (A), an explicit target is set for the PEM (T), if there is collaboration with cross functional groups for this PEM (CFG), if the PEM is applied at a group level (GRP).
Integrated PEM rationale (RAT)	$$RAT = \sum_{c=1}^{t=1} k \div 2$$ Where RAT is an indicator that the reason for disclosing the PEM is explicated. A score of k=1 is awarded where the reason for the PEM is explicated, a score of k=2 is awarded where the reason for the PEM is explicated and the link of the PEM to laws and regulations is also explicated.
Integrated Tools (TOOL)	$$TOOL = \sum_{c=1}^{t=1} (AI + ANA + RAP + SYST + DASH) \div 5$$ Where TOOL is evidence of integrated tools being used to monitor and control the PEM. A score of 1 will be applied where each of the following is present: artificial intelligence is used to set, track and evaluated the PEM (AI), there is a sensitivity or scenario analysis of the PEM (ANA), risk assessment procedures are performed in relation to the PEM (RAP), the organisation has a well-developed management control system and information systems in place to collect and process data on PEM (SYST) and the organisation has a performance evaluation dashboard in place (DASH).
Business model and value creation (VAL)	$$VAL = \sum_{c=1}^{t=1} (BM + VC + SMAR) \div 3$$ Where VAL is an indicator that the PEM is linked to the business model and creates value for the organisation through the PEM being specific, measurable, attainable and relevant. A score of 1 will be applied where each of the following is addressed by the PEM: the PEM links to the organisation's business model (BM), the PEM links to the value creation statement of the PEM (VC) and the PEM is specific, measurable, attainable and relevant (SMAR).

3.3 Data analysis

Following a similar approach to prior extra-financial reporting literature, content analysis is used to collect the data for RQ1 (Maroun, 2018). Content analysis is suitable for dealing with material which was not consistently formatted, while highlighting trends and investigating both text and descriptive statistics.

[9] This horizon covers staff excluding directors and prescribed officers. All horizons are mutually exclusive.

Data per the frequency table (table 2) is used to evaluate the extent of integrated thinking in performance evaluation metrics. The extent of integrated thinking was be described using the following expression:

$$PE = AS + T + C_{SDG} + C_{CAP} + APP + SE + MAT + FAC + REV + COMP + STRAT + RAT + TOOL + VAL$$

The maximum possible score is 14. However, it was unlikely that organisations scored maximum and so it is important to evaluate the integrated thinking on a spectrum including improvements over time and relative to other organisations in the same industry.

Not all organisations can equally impact all the SDGs and capitals to the same extent as a result of their specific operations and industries. However, there are "industry averages" which organisations were compared to in order to assess their impact on the SDGs and capitals as an additional test of the index. The extent of integrated thinking is reported in total, supported by a battery of calibration tests to evaluate whether the Index is appropriate.

3.4.1 Calibration test

The scores generated using the Index are compared to established integrated thinking proxies used as grouping variables per the prior academic literature. The grouping variables included an ESG impact score, Carbon Disclosure Project (CDP) score as well as the integrated thinking scores (ITS) developed by Maroun et al. (2023a)[10].

The ESG impact score measures a company's resilience to, and management of, long-term industry material environmental, social and governance (ESG) risks which aligns with an integrated thinking philosophy (Malafronte and Pereira, 2020). This includes the internal management and monitoring of the integration of economic, environmental and social dimensions. This provided an external database to assess whether ESG factors were incorporated into an organisation's strategies, operations and actions and was a reasonable proxy for integrated thinking used in prior studies (Malafronte and Pereira, 2020).

A CDP score is an assessment of a company's environmental impact. The CDP assigns scores to businesses based on their social and environmental effects, focusing on their influence on climate change, forests, and water security. The CDP score per company for each year under review was obtained. CDP scores per climate change, water security, and

[10] To evaluate integrated thinking, a model developed by Maroun et al (2023) was used. Maroun et al (2023) developed an integrated thinking framework comprising of five principles, this framework aids organisations in applying integrated thinking.

forestry were captured, and the average CDP score per company taking into account all three categories of scores was calculated (CDP, 2020).

Finally, the ITS was developed to gauge an organisation's overall alignment with integrated thinking principles and has been tested by prior literature (Maroun et al., 2023a). This schematic was developed by Maroun et al. (2023) and applied to UK organisations. Maroun et al. (2023) in conjunction with subsequent literature (Dimes et al., 2023, Malafronte and Pereira, 2020) have developed an integrated thinking schematic comprising of ten principles using principles introduced by prior literature, guidance from sustainability-related frameworks and codes of corporate governance. This score provided an overview of the operationalisation of integrated thinking principles. Although this is a holistic score, it can provide insights into underlying integrated performance evaluation structures.

The data collected are measured on the ordinal and continuous scale (see Appendix C), in which the assumption of a normal distribution is not present[11]. The strength of associations between the Index, CDP, ESG and ITS scores are given by Spearman rho correlation coefficients. The test is robust to non-normal data which are measured on continuous or ordinal scales. Results are confirmed using Kendal's Tau B which is robust to the effect of smaller sample sizes[12] .

Appendix C provides additional sensitivity tests of the Index and integrated thinking benchmarks.

4: Results

Table 3 includes the general statistics of the performance evaluation metrics analysed over the periods 2014, 2018 and 2022.

Table 3: General Statistics

	2014	2018	2022
Total number of metrics analysed	543	544	555
Number of companies with no metrics disclosed	0	0	0
Minimum Index score for a company as a whole	1.67	2.79	2.93
Maximum Index score for a company as a whole	6.68	6.17	6.77
Mean Index score across all 40 sampled entities	4.33	4.68	5.19
Median Index score across all 40 sampled entities	4.40	4.75	5.23
Maximum number of pages of a primary report	488	428	526

[11] Statistical Package for Social Sciences (SPSS) will be used to generate a kurtosis to determine the distribution of the data.

[12] These tests are considered appropriate as the aim of the paper is not to delve into the variances in the Index to establish causal relationships (see Malola & Maroun, 2019). Multiple regression models will not be developed for the purposes of this research.

There was an improvement of 18.86% in the mean Index scores from 2014 ($\bar{X}$ = 4.40) to 2022 ($\bar{X}$ = 5.23) and the change is statistically significant (H = 92,366, p < 1%*).* The gradual growth in the Index may be attributed to organisations having difficulty in operationalising integrated thinking principles, specifically in the context of performance evaluation metric implementation. While some progress has been made, many organisations have not yet adopted the fourteen indicators of integrated thinking in performance evaluation metrics. Instead, a predominant focus remains on financial capital with insufficient integration of multiple capitals or alignment with the SDGs into performance evaluation.

Some organisations do, however, have a higher Index score (maximum = 6.77) indicating that they are incorporating proactivity in aligning performance evaluation with integrated thinking principles over time. However, given that there are 14 principles, this shows that even the top performing UK companies are not incorporating all of the different principles of integrated thinking as per the indicators of the Index. It is important to note that this is not true for all companies, who have a low Index score (minimum = 2.93), illustrating that these companies have not fully adopted integrated thinking into their operations and more specifically in performance evaluation metric setting. Performance evaluation metrics are, however, being disclosed with increasing prominence in annual reports. This may be because of several factors such as increased stakeholder pressure, external institutional influences as well as company-specific requirement (Alrazi et al., 2015). As organisations have more time to mature and understand integrated and other sustainability frameworks, including the need to adopt these, progress can be made in integrating this mindset into performance evaluation metrics.

It is also possible that external crises could act as a type of trigger to push an organisation toward a more integrated performance evaluation structure (Laughlin, 1991). The COVID-19 pandemic acted as a stress test for the performance evaluation systems of certain organisations, exposing the limitations of traditional, financially driven metrics and, in some cases, accelerating the adoption of integrated performance evaluation structures (Ecim, 2024). Pre-pandemic, many organisations may have relied on siloed systems and overlooked non-financial dimensions such as employee well-being, resilience and stakeholder relationships. The crisis underscored the materiality of these factors, prompting a shift toward more holistic, stakeholder-centric and long-term performance assessments. Post-COVID, companies increasingly recognised the strategic value of integrating environmental, social and governance considerations into performance evaluations, supported by a surge in digital transformation and evolving regulatory frameworks. As a result, integrated performance structures have evolved to reflect not only financial outcomes but also adaptability, sustainability and organisational resilience (Myeza et al., 2023).

4.1: Specific indicator trends

Table 4 details the statistics per indicator of the Index over the periods 2014, 2018 and 2022.

Table 4: Indicator analysis

	2014	2018	2022	H-test 2014-2022	JT-test 2014-2022
Indicator 1: Percentage of metrics assured					
• Combined assurance	35%	43%	28%	43,878***	4,774***
• Formal approval	39%	36%	49%	24,146***	0,620
• Monitor performance	26%	20%	23%	8,399**	-0,524
Indicator 2: Timeframe analysis					
• Short-term metrics	73%	48%	47%	13,360***	-2,887**
• Medium-term metrics	9%	33%	25%	27,023***	3,798***
• Long-term metrics	18%	19%	28%	9,052**	2,667**
Indicator 3: Average number of SDGs explicitly linked to metric	0.54	0.52	0.77	18,061***	3,162**
Indicator 4: Percentage coverage of multi-capitals					
• Financial	37%	35%	34%	0,267	-0,252
• Natural	12%	11%	17%	15,624***	3,388***
• Human	12%	13%	13%	1,233	1,087
• Social and relationship	15%	14%	13%	0,075	-0,244
• Intellectual	1%	1%	1%	0,254	0,206
• Manufactured	23%	24%	22%	0,781	0,241
Indicator 5: Level of application of metric					
• Staff	13%	14%	14%	2,248	1,217
• Executives	25%	27%	28%	7,498**	2,702*
• Company as a whole	62%	58%	58%	1,799	1,340
Indicator 6: Stakeholder engagement					
• On remuneration policy	88%	85%	77%	56,405***	5,161***
• On issues addressed by metric	12%	15%	23%	54,386***	7,188***
Indicator 7: Percentage of companies considering materiality	0%	0%	2%	185,432***	11,973***
Indicator 8: Factors influencing the achievement of metric					
• External influences	27%	24%	24%	0,660	-0,708
• Internal influences	73%	76%	76%	3,835	1,152
Indicator 9: Percentage of companies using a post-implementation review	1%	1%	1%	2,798	0,574
Indicator 10: Percentage of companies including comparative information	7%	7%	6%	1,143	0,973
*****Correlation is significant at the ***1%, **5% and *10% level**					

Table 4: Indicator analysis

	2014	2018	2022	H-test 2014-2022	JT-test 2014-2022
Indicator 11: Strategic performance					
• Improvement in performance	10%	14%	15%	8,385**	2,772*
• Linked to remuneration	17%	16%	20%	16,318***	3,945***
• Adjustments made for time and space	3%	4%	3%	7,138**	1,350
• Explicit target set	16%	16%	14%	3,318	0,166
• Collaboration with cross-functional groups	14%	13%	12%	0,876	-0,207
• Group level or subsidiary only	40%	37%	37%	5,788*	2,170**
Indicator 12: Rationale of metrics					
• Reason is explicated	91%	92%	91%	25,454***	1,138
• Linked to laws and regulations	9%	8%	9%	1,137	0,152
Indicator 13: Tools used to analyse metrics					
• Artificial intelligence	0%	0%	1%	11,787**	2,984**
• Sensitivity/ scenario analysis	9%	9%	16%	53,586***	7,024***
• Risk assessment procedures	31%	23%	29%	65,134***	7,714***
• Management control and information system	57%	56%	36%	42,922***	6,384***
• Dashboard	3%	13%	18%	76,449***	8,621***
Indicator 14: Business model and value creation					
• Linked to business model	53%	19%	20%	32,371***	4,322***
• Linked to value creation statement	22%	15%	11%	27,741***	5,160***
• Metric is specific, measurable, attainable and relevant	26%	66%	68%	8,333**	-2,779*
***Correlation is significant at the ***1%, **5% and *10% level					

From 2014 to 2018, combined assurance increased from 35% to 43% as efforts likely focused on strengthening oversight and aligning metrics with strategic goals. However, the decrease from 43% in 2018 to 28% in 2022 may reflect shifting focus to other areas of an integrated thinking logic. Although formal approvals for assurance increased steadily from 2014 to 2022 ($H = 24{,}146$, $p < 1\%$), the monitoring of metrics saw an initial decline from 26% in 2014 to 20% in 2018, only partially recovering by 2022 to 23%. The observed trends in combined assurance and monitoring of performance metrics suggest a shift in organisational priorities and resource allocation over time. This pattern suggests challenges in sustaining effective monitoring practices, possibly because of limitations in capacity or evolving organisational structures.

In 2014, majority of performance evaluation metrics were short-term focused (73%) with medium-term (9%) and long-term (18%) metrics being marginalised. This coincides with the financial-centric focus dominating at that time. By 2018, a shift away from a short-term focused metrics is noted (48%) with significant steps being evidenced to develop a multi-timeframe horizon (medium + long-term = 52%%; $H = 13.360$, $p < 1\%$; $JT = -2{,}887$, $p < 5\%$). In 2022, short-term metrics made up 47% of the total with a more even distribution between medium-term (25%; $H = 27.023$, $p < 1\%$; $JT = 3.798$, $p < 1\%$) and long-term (28%; $H = 9.052$, $p < 5\%$; $JT = 2.667$, $p < 5\%$) metrics indicating that performance evaluation considers a multi-timeframe horizon and promotes long-term value creation.

Because of unpredictable future events, organisations might exercise caution by avoiding the establishment of long-term performance evaluation metrics, fearing that the metrics could become unattainable as the target date approaches. However, the introduction of new technological tools for monitoring performance and achieving goals could foster a long-term perspective, enabling companies to gather data, track progress, and adjust metrics as needed.

The number of SDGs explicitly linked to performance evaluation metrics has increased over time ($H = 18.061$, $p < 1\%$; $JT = 3.162$, $p < 5\%$). Although many SDGs are implicitly linked in environmental, social and governance (ESG)-related metrics, many companies are not explicitly linking performance evaluation to the SDGs. This may be caused by a difficulty in aligning the SDG objectives aimed at national initiatives to a company level. The use of SDGs provides a useful framework for aligning business strategies with global priorities, enabling organisations to contribute to positive social, economic, and environmental impacts.

There has been a shift in focusing solely on financial metrics from 2014 to 2022 with a decline in the number of metrics linked only to financial outcomes although this decline is not significant ($H = 0.267$, $p > 10\%$; $JT = -0.252$, $p > 10\%$). This indicates that although financial

capital focused metrics have declined, UK organisations still prioritise this in performance structures.

The inclusion of natural capital in performance evaluation metrics has increased significantly, rising from 12% in 2014 to 17% in 2022 ($H = 15.624$, $p < 1\%$). This progress may be partly driven by sustainability-related frameworks and guidelines, such as the GRI, the Taskforce on Nature-related Financial Disclosures (TNFD), and the Carbon Disclosure Project (CDP), which have likely helped companies integrate environmental and biodiversity considerations into their performance assessments. As organisations received more structured guidance on measuring and reporting their environmental performance, they became more inclined to do so. With the growing global concern over climate change and environmental sustainability, businesses have become more aware of their ecological impact, leading them to report these factors as part of both company-wide and employee-specific metrics.

Human, intellectual, manufactured and social and relationship capital considerations have remained relatively stable from 2014 to 2022, with intellectual capital consistently representing the smallest portion of performance evaluation metrics from a capital standpoint. This could suggest that innovation incentives are not emphasised as performance evaluation metrics. It appears that companies may be prioritising more immediate concerns aligned with short-term objectives. Maintaining manufactured capital as a part of performance evaluation strategies is not seen as a critical focus. It appears that the UK has generally been successful in balancing all forms of capital since 2014, as only natural capital showed improvement in 2022.

Despite increasing stakeholder and institutional pressures (Stubbs et al., 2014), financial capital continues to dominate as the central focus for profit-oriented organisations, indicating that a truly integrated balance among various forms of capital is yet to be achieved. While this focus on financial capital is not inherently negative, it highlights opportunities for further institutionalisation of integrated thinking practices. A more deliberate incorporation of all capitals can potentially enhance long-term value creation and align organisational strategies with broader sustainability and stakeholder expectations.

Results show a significant improvement over time regarding the use of integrated tools in performance evaluation metrics. The use of artificial intelligence and dashboards by organisations to set, track and evaluate performance evaluation metrics was mostly evident in 2022. The artificial intelligence technology only being evident in 2022 since the technology has only emerged in recent years, and more specifically – the implementation of this technology into performance evaluation metrics. Increased use of scenario/ sensitivity

analysis could be due to the increased requirements relating to climate-related disclosures per the SDR mandated by the UK.

From 2014 to 2022, the inclusion of materiality disclosures has grown, yet it remains low, comprising only 2% of total disclosed metrics ($H = 185.432$, $p < 1\%$; $JT = 11.973$, $p < 1\%$). Materiality is essential to integrated thinking, as it helps organisations focus on what truly influences value creation. However, this low percentage indicates that there is still considerable room for improvement. A committed effort from management to establish and monitor clear, material performance evaluation metrics will strengthen alignment with integrated thinking philosophy, enabling a sharper focus on long-term value drivers and meaningful progress measurement.

There has been a decrease in the consideration of the value creation statement and business model within performance evaluation metrics. This gradual decrease suggests that organisations are becoming less aligned in their performance evaluation criteria with their strategic objectives. As a result, they may be weakening the connection between metrics and the broader goals of value creation. However, there was a significant increase in making the performance evaluation metrics specific, measurable, attainable and relevant ($H = 8.333$, $p < 5\%$). This shows that organisations are trying to ensure that the metrics that they set are realistic, relevant and capable of being met – showing that there is specific meaning and thought behind the metrics that the organisation chooses.

For firms rooted in traditional, resource-intensive sectors, there may be limits to how much ESG goals can align with their strategic focus. Disclosures often highlight sustainability commitments, but these may not reflect genuine shifts in business practices or philosophy. Instead, the emphasis on extra-financial reporting may create a goal to be achieved, even when practical challenges prevent full alignment with strategic objectives.

Strategic analysis tools in performance evaluation metrics have remained relatively consistent but there is a trend of gradual improvement in metrics over time. Performance metrics increase by 10% in 2014 and 15% in 2022 ($H = 8.385$, $p < 5\%$; $JT = 2.772$, $p < 10\%$), reflecting ongoing efforts of organisations to refine evaluation processes. The integration of these performance metrics with remuneration packages has also experienced significant growth. In 2018, 16% of the metrics were linked to remuneration, rising to 20% by 2022 ($H = 16.318$, $p < 1\%$; $JT = 3.945$, $p < 1\%$). This increase underscores the organisation's focus on aligning individual performance with organisational objectives, fostering continuous improvement and strategic alignment. Financial incentives based on these metrics encourages all employees to prioritise

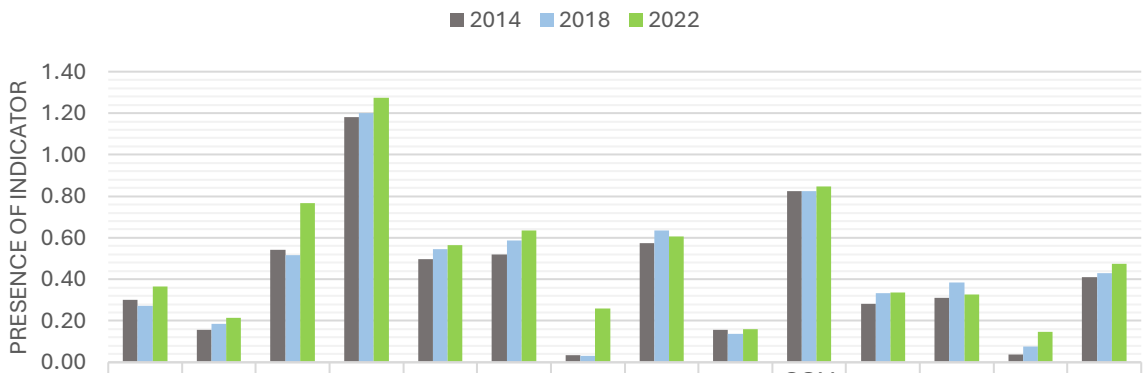
measured areas, embedding strategic thinking into performance management and supporting long-term goals.

The organisations have consistently demonstrated their ability to communicate effectively the rationale behind its performance evaluation metrics to stakeholders from 2014 to 2022 ($H = 25.454$, $p < 1\%$), providing clear links to relevant laws and regulations. This transparency indicates that the organisation has successfully cultivated a culture that values open lines of communication, a key component of integrated thinking. By keeping stakeholders informed about the principles behind its metrics, organisations foster collaboration and long-term success.

Finally, indicators 8 (factors), 9 (post-implementation review) and 10 (comparative information), have performed consistently well across all 3 years, showing that companies have understood these principles well, likely as a result of UK companies historically being at the forefront of corporate governance and sustainability reporting. The evidence of post-implementation review of performance evaluation metrics is low at only 1%, organisations should use this as an area of improvement to implement into their metrics as it provides critical feedback to the organisation on whether a performance evaluation metric achieved its intended objective/target.

Figure 3 presents a summary of the results for each indicator on the Index over time. As accounting and management systems become more sophisticated and management's understanding of capital interdependencies deepens, integrated thinking practices show improvement. The observed increase in the Index scores supports the effectiveness of the Index, demonstrating how performance evaluation metrics aligned with integrated thinking principles are increasingly incorporated into organisations' performance evaluation frameworks and reports. This underscores the Index's capability to assess the degree of integrated thinking within performance evaluation metrics.

Figure 3



	AS	T	CSDG	CCAP	APP	SE	MAT	FAC	REV	COMP	STRAT	RAT	TOOL	VAL
2014	0.30	0.16	0.54	1.18	0.50	0.52	0.03	0.57	0.16	0.83	0.28	0.31	0.04	0.41
2018	0.27	0.18	0.52	1.20	0.54	0.59	0.03	0.64	0.14	0.83	0.33	0.38	0.08	0.43
2022	0.36	0.21	0.77	1.28	0.56	0.64	0.26	0.61	0.16	0.85	0.33	0.33	0.15	0.47

Additional supplementary results are presented in Appendix B, including an analysis of the SDGs while appendix C provides additional sensitivity test analysis of the Index and integrated thinking benchmarks. Appendix D provides the best- and worst-case disclosure practices identified among the companies in the sample. These findings offer a more detailed examination of key insights drawn from the data.

4.2.1: Calibration tests

To support the functionality of the Index and the ability of the Index to capture integrated thinking, the scores generated using the Index aggregated across the three time periods are compared to established integrated thinking proxies per the prior academic literature. This includes the Integrated Thinking Score (ITS) (Maroun et al., 2023a), Carbon Disclosure Project (CDP) and “social, environmental and governance pillars” score (ESG score) (Venter et al., 2017).

The ESG score evaluate a company’s resilience to and management of long-term, industry-specific material ESG risks, aligning with the principles of integrated thinking (Malafronte and Pereira, 2021). These ratings encompass the internal management and monitoring of the integration of economic, environmental, and social dimensions (MSCI, 2022). As an external database, they offer a means to assess whether ESG factors are embedded in an organisation’s strategies, operations, and actions. Consequently, the ESG score serve as a reasonable proxy for integrated thinking, as used in previous studies (Maroun et al., 2023).

CDP score is an assessment of a company’s environmental impact. The CDP assigns scores to businesses based on their social and environmental effects, focusing on their influence on

climate change, forests, and water security (CDP, 2020). CDP provides an indication of integrated thinking because it assesses how effectively an organisation considers and manages the interconnections between environmental impact, resource use and long-term strategic goals.

ITS is an independently obtained measure of overall alignment with an integrated thinking logic and not just focused on performance evaluation but also other aspects of the business. This provides an additional check to confirm that the logic of the Index is sound and is producing results consistent with other measures of integrated thinking.

Kendal's Tau B and Spearman rho correlations were run to confirm the robustness of the Index in gauging the extent of integrated thinking explicated by performance evaluation metric disclosures by comparing the results of the Index to the ESG score, CDP and ITS scores of the companies in the sample in total across the three years. Refer to Table 5.

Kendal's Tau B and Spearman rho correlations[13] were run to confirm the robustness of the Index in gauging the extent of integrated thinking explicated by performance evaluation metric disclosures by comparing the results of the Index scores to the CDP, ESG and Integrated Thinking Scores (ITS) of the companies in the sample. Refer to Table 5.

Table 5: Correlation between the Index, CDP, ESG and ITS scores over time

	Index	**CDP**	**ESG**	**ITS**
Index	1.000	0.098***	0.043***	0.158***
CDP	0.140***	1.000	0.240***	0.386***
ESG	0.058**	0.363***	1.000	0.044***
ITS	0.226***	0.517***	0.073***	1.000
***Correlation is significant at the ***1%, **5% and *10% level**				

Table 5[14] shows that the Index scores are correlated to the ITS (T_b = 0.158; r_s = 0.266, p < 1%), CDP (T_b = 0.098; r_s = 0.140, p < 1%) and ESG scores (T_b = 0.043; r_s = 0.058, p < 1%), indicating that the Index is calibrated with established integrated thinking principles. This supports the assertion that the index can be used by management and other stakeholders as a tool to both implement and evaluate integrated performance evaluation metrics.

[13] Spearman's rho coefficients are reported below the diagonal. Kendal's Tau B results are reported above the diagonal.

[14] The results are shown on a total basis over 2014, 2018 and 2022.

This is further corroborated by Figure 6 in Appendix C which shows trend of the movement in the Index, CDP, ITS and ESG scores for each company.

5: Conclusion

This paper develops a tool for evaluating the extent to which performance evaluation metrics incorporate integrated thinking indicators. Fourteen indicators are identified which forms the basis of the Index. The Index is then applied to a sample of LSE-listed entities to illustrate its functionality and the extent to which "performance evaluation metrics align with integrated thinking principles" are being included in extra-financial reports of organisations for the periods 2014, 2018 and 2022. The results of the Index are calibrated against established proxies of integrated thinking to support the robustness of the tool.

The Index developed serves as a tool to assess the extent of integrated thinking reflected in performance evaluation metrics. From 2014 to 2022, there has been a noticeable increase in the level of integrated thinking, as evidenced by disclosures in performance evaluation metrics. This progress is largely fuelled by organisations adopting assurance processes for metrics, embedding materiality into evaluation frameworks, and leveraging integrated tools to monitor performance. Additionally, the inclusion of the Sustainable Development Goals (SDGs) into these metrics and the adoption of a multi-capital perspective for setting metrics has played crucial roles.

The acknowledgment of the interconnections between various forms of capital has provoked the development of an integrated thinking logic. This approach can be further strengthened through investments in integrated technological solutions and by deepening stakeholder involvement. The findings suggest a lesser focus on financial metrics, indicating a transition towards a multi-capital approach. While natural and human capital are becoming more significant, there is still an opportunity to expand the inclusion of broader capital objectives within performance metrics.

While organisations have made some progress in aligning performance evaluation metrics with the Sustainable Development Goals (SDGs), overall integration remains limited. Many organisations still lack explicit connections between their metrics and the SDGs, which impacts the potential for comprehensive alignment with sustainability principles. However, the observed improvement indicates growing recognition of the SDGs as a valuable framework for setting meaningful metrics. By more effectively incorporating the SDGs, organisations can better align their metrics with sustainable development principles, driving both organisational

success and broader societal impact. This represents a critical opportunity for organisations to advance their contribution to sustainable development.

The Index has been validated against recognised integrated thinking benchmarks, such as the ITS and ESG scores, which confirms its reliability. The alignment of the Index and integrated thinking benchmarks highlights a strong connection between the metrics captured by the Index and those related to corporate social responsibility and governance, pointing to a comprehensive approach to assessing organisational performance. This correlation reinforces the importance of integrated thinking principles in developing robust performance evaluation metrics that include not only financial indicators but also broader aspects of sustainability and ethical business practices.

The researchers recognise that although the Index has been validated using established proxies for integrated thinking, there is still opportunity for additional research. Extending the application of the Index to diverse environments, such as the private sector and government organisations across different jurisdictions, could yield deeper insights into the maturity and development of integrated thinking within performance evaluation metric disclosures. This is particularly significant in regions where extra-financial reporting has not been widely adopted for publicly-listed companies. The tool could also be applied to a broader sample size, entities of various scales, and cross-jurisdictional analyses were varying material issues and stakeholder priorities influence performance evaluation metric disclosures.

Another area for future exploration involves conducting positivist-inspired research to examine the factors driving integrated thinking in performance evaluation metric disclosures, its significance in terms of value creation, and its broader implications. This could shed light on how companies shift from a narrow focus on financial outcomes to a more comprehensive approach aimed at achieving long-term sustainability.

This study only addresses the performance evaluation metrics disclosed in the context of the extra-financial reports of the Top 40 LSE-listed entities. However, extra-financial reports should provide a summary of underlying ESG, financial and other performance metrics (Zhou et al., 2017). Given that only publicly available information has been used, one limitation to note is the possibility that management might use performance evaluation metrics which are aligned with integrated thinking principles as a means of impression management cannot be precluded, with these metrics lacking genuine impact on the different capitals or ESG outcomes. The disclosures may not be an accurate depiction of the practices of an entity as

entities may withhold specific performance evaluation metrics to safeguard their competitive advantage within the industry.

The potential for manipulation of these metrics to secure financial benefits for directors or employees cannot be entirely ruled out. Therefore, future studies can delve into the assurance of extra-financial information, particularly concerning performance evaluation disclosures.

No extensive interviews were conducted to comprehend the reasoning behind the disclosed performance evaluation metrics. Formal reviews will not be conducted to detect inconsistencies between organisations' operations and disclosed information associated with costs and impracticalities (Maroun et al., 2023a). However, to further expand the study, researchers can conduct interviews with management in various organisations to gain insight into the practical application of integrated thinking in performance evaluation metric disclosures and to gather perspectives from practitioners, executives, and assurance providers. Nonetheless, an index designed to assess the level of integrated thinking reflected in performance evaluation metrics will enable investors and stakeholders with access solely to public information to gain a better understanding of performance evaluation metrics.

Additionally, with the introduction of sustainability standards such as IFRS S1 and S2, future research can explore the degree of integrated thinking in sustainability-related disclosures using the Index and assess how different frameworks are integrated into broader performance evaluation objectives once these standards are implemented. While these principles have already informed the establishment of the Index (see appendix A), their impact on practice warrants further examination.

Despite the noted limitations, this study makes a significant contribution to stakeholders by offering an evaluation of the extent of integrated thinking reflected in performance evaluation disclosures—a concept that remains underexplored and underdeveloped in both academic and practical contexts.

The advantages of integrated thinking underscore the need for companies to embed this approach within their operations, reporting, and communication strategies. Ongoing research will help to refine this concept and enable organisations and stakeholders to scrutinise performance evaluation metrics more thoroughly. This can lead to enhanced levels of integrated thinking within the UK business landscape, fostering better stakeholder communication, improved management of capitals, and progress towards the SDGs,

ultimately driving value creation. The resulting benefits can then be realised by multiple stakeholders through a commitment to integrated thinking.

6: Appendices

6.1: Appendix A: Prior research on indicators of integrated thinking

Table 6 details the research that the indicators of integrated thinking were derived from.

Table 6: Prior research on indicators of integrated thinking

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Professional literature														
IoDSA (2016)	✔		✔	✔										
VRF (2022a)	✔			✔			✔							
IIRC (2021)	✔	✔		✔			✔			✔				
UN (2015a)			✔											
ISSB (2023a)											✔	✔		
ISSB (2023b)													✔	✔
HM Government (2021), (2022)	✔						✔				✔	✔	✔	✔
Academic literature														
Fukuda-Parr (2004)			✔											
Maroun et al. (2023b)	✔	✔							✔					
Alrazi et al. (2015)			✔				✔							
Prinsloo and Maroun (2020)	✔													
Mans-Kemp and Viviers (2018).					✔									
Chistopolova and Kaspina (2022)						✔								
Sukhari and De Villiers (2019)						✔								
Oshika and Saka (2017)						✔				✔				
Pigatto et al. (2023b)								✔						
Ruivo et al. (2014)									✔					
Kaplan (2009)											✔			✔
Athanasakou et al. (2024)												✔		✔
Dumay and Dai (2017)				✔										
Ilhan et al. (2023)													✔	
Supplementary literature[15]														
Zakaria (2015)					✔									
Setiawan and Purba (2020)		✔												
Wijesinghe et al. (2023)				✔				✔						
Swiatek (2019)										✔				
Mio et al. (2020)							✔							

[15] Additional literature is provided to further substantiate the adoption of indicators. Although the literature primarily focuses on various other topics, they are included for completeness purposes.

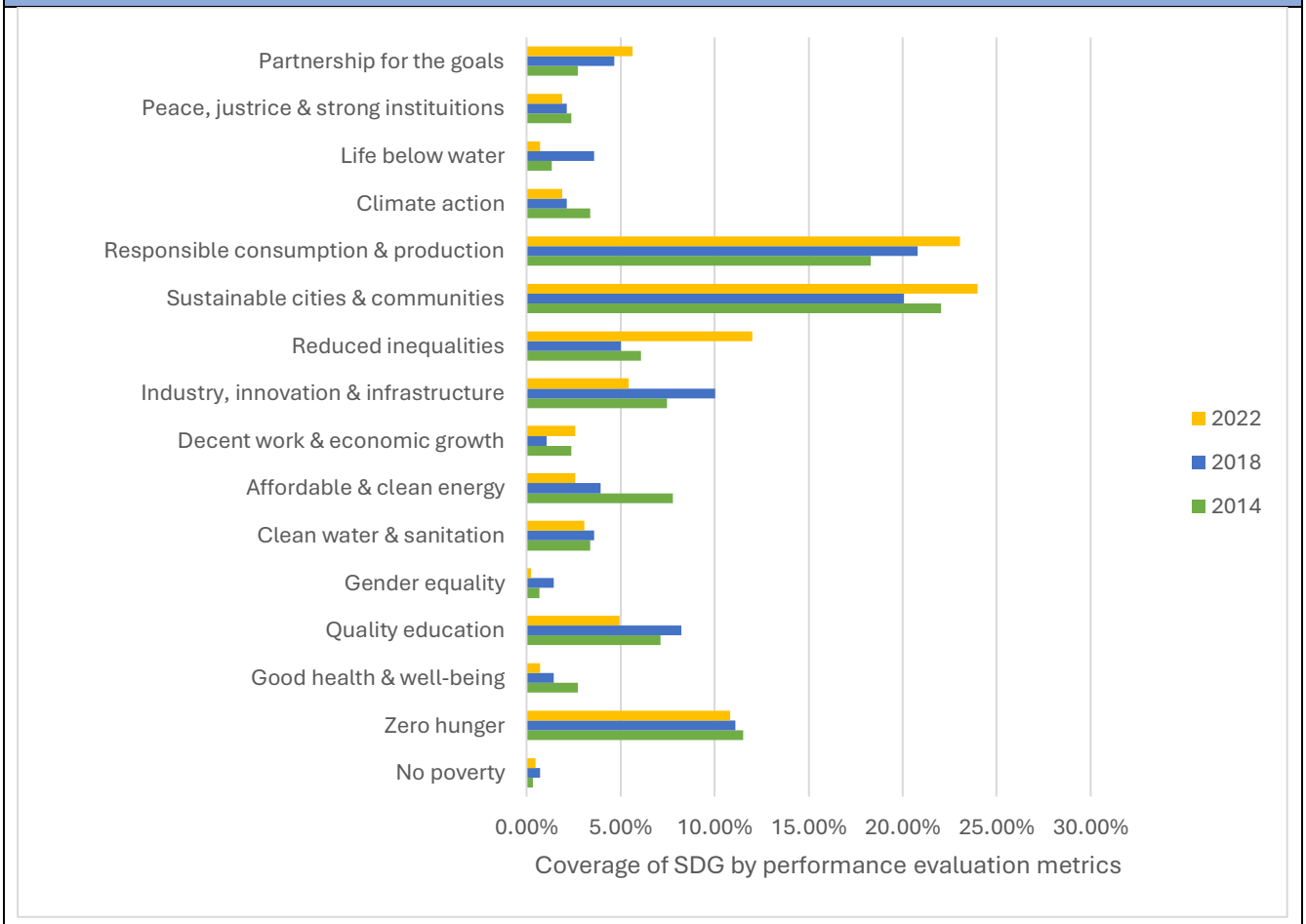
6.2: Appendix B: Supplementary results

The following results have been included as a supplementary analysis of findings on the extent of integrated thinking in performance evaluation metric disclosures.

Coverage of SDGs in performance evaluation metric disclosures

Figure 5 and Table 7 illustrate the percentage of SDGs that are explicitly linked to performance evaluation metric disclosures. The results for 2014 depict the percentage of MDGs that are explicitly linked to metric disclosures, as this set of goals is the predecessor of SDGs (UN, 2015a).

Figure 5: Volume of SDGs explicitly linked to performance evaluation metrics



In 2014, a small percentage of performance evaluation metric disclosures provided a specific link to the MDGs. While the percentage was small, there was still some integration of the MDGs in 2014, which relates back to the fact that in the UK, many organisations implement early adoption of frameworks (Fiechter et al., 2022). The relationship between corporate reporting and sustainable development has undergone changes over time (Maroun et al.,

2023b). In recent years, there has been an increased focus on aligning corporate strategies and reporting with global sustainability goals (Scheyvens et al., 2016), particularly since the introduction of the SDGs in 2015. The SDGs were introduced as a successor to the MDGs. They aim to provide a more comprehensive and inclusive framework, facilitating the integration of these goals into organisations' reporting practices (Adams et al., 2020).

A slight decrease is noted from 2014 to 2018, showing organisations trying to adapt from the MDGs to the SDG framework released in 2015. The organisations have still adopted the SDG framework, highlighting the significance of collaboration and partnerships in achieving sustainable development (UN, 2015a). Businesses have increasingly prioritised partnerships with governments, non-profit organisations (NGOs), and other stakeholders due to the perceived value they bring (Adams et al., 2020). The need of achieving *partnership for the goal* and *industry innovation and infrastructure* is a fundamental societal expectation. Companies recognised their contribution and impact on society, which led to the prominence of these SDGs (Scheyvens et al., 2016).

A further improvement is noted from 2018 to 2022, with *sustainable cities and communities* (*SDG 11)* (12%), *responsible consumption and production (SDG 12)* (24%) and *climate action (SDG 13)* (23.06%) gaining prominence. Companies faced increasing pressure from society and stakeholders to address pressing concerns, mainly focused on sustainable practices and climate change (Izzo et al., 2020). Stakeholders have a growing expectation for companies to showcase their dedication to these objectives. Consequently, companies have addressed these expectations by prioritising the reporting of these particular SDGs.

Table 7: Coverage of SDGs explicitly linked to metric disclosures					
	2014	**2018**	**2022**	**H-test (2014-2022)**	**JT-test (2014-2022)**
No poverty (SDG 1)	0,34%	0,00%	0,00%	2,024	-1,230
Zero hunger (SDG 2)	0,34%	0,72%	0,47%	0,387	0,527
Good health & well-being (SDG 3)	11,53%	11,11%	10,82%	3,241	1,348
Quality education (SDG 4)	2,71%	1,43%	0,71%	2,922	-1,619
Gender equality (SDG 5)	7,12%	8,24%	4,94%	0,160	-0,075
Clean water & sanitation (SDG 6)	0,68%	1,43%	0,24%	4,769*	-0,442
Affordable & clean energy (SDG 7)	3,39%	3,58%	3,06%	0,349	0,583
Decent work & economic growth (SDG 8)	7,80%	3,94%	2,59%	6,802**	-2,274**
Industry, innovation & infrastructure (SDG 9)	2,37%	1,08%	2,59%	4,451	1,039
Reduced inequalities (SDG 10)	7,46%	10,04%	5,41%	0,947	0,065
Sustainable cities & communities (SDG 11)	6,10%	5,02%	12,00%	25,278***	4,367***
Responsible consumption & production (SDG 12)	22,03%	20,07%	24,00%	14,786***	3,096**
Climate action (SDG 13)	18,31%	20,79%	23,06%	16,316***	3,807***
Life below water (SDG 14)	3,39%	2,15%	1,88%	1,031	-0,544
Life on land (SDG 15)	1,36%	3,58%	0,71%	5,218*	-0,342
Peace, justice & strong institutions (SDG 16)	2,37%	2,15%	1,88%	0,250	0,229
Partnership for the goals (SDG 17)	2,71%	4,66%	5,65%	8,740**	2,898**

Appendix C: Additional complementary sensitivity test analysis

A Pearson correlation was conducted to assess the magnitude of associations between the Index scores and grouping variables (see Table 8) such as profitability (ROA) and leverage (Debt/Equity) to examine the impact that entity-specific factors have on the respective Index scores. Refer to Table 5.

Table 8 summarises the additional variables:

Table 8: Summary of variables to be used in sensitivity test statistical analysis

Grouping variable	Type	Assessment[16]	Reason for test
Size	Continuous	Entities will be allocated to a size quartile based on the natural logarithm of total assets.	Entities that are larger in size are expected to have more robust controls and systems resulting in the ability to implement performance evaluation metrics that cover a broader range of financial, social and environmental factors. These entities should score higher in the PEM-ITI.
Financial Performance	Continuous	Entities will be allocated to a quartile based on the "return on assets" metric	Higher profit implies a greater ability to apply suitable performance evaluation metrics, resulting in higher scoring (Alrazi et al., 2015).
Leverage	Continuous	Entities will be allocated to quartiles based on the debt/equity ratio of the entity.	Lower leveraged entities have the financial resources to implement robust performance evaluation systems and processes, resulting in a better score in terms on the index (Alrazi et al., 2015).
Industry	Ordinal	Entities will be allocated scores based on industry impact: mining/industrial [3]; financial [2]; other industries [1].	Companies in more socially sensitive industries would be expected to score higher on the Index (Cho et al., 2014).

Additional analysis:

Table 9: The Index compared to the grouping variables analysis

	Size		**Industry**		**Financial performance**		**Leverage**	
	H-test	**JT-test**	**H-test**	**JT-test**	**H-test**	**JT-test**	**H-test**	**JT-test**
AS	21,374***	-0,675	26,425***	-5,082***	29,262***	-0,777	33,197**	-1,396

[16] [1] is allocated to the lowest quartile (smaller size/weaker financial performance/higher leveraging) and [4] to the highest quartile (higher performing metrics).

T	91,395***	7,543***	111,670	9,841***	18,943***	3,594***	63,279***	-3,419***
SDG	20,235***	2,724*	38,976***	5,561***	5,570	2,168	2,818	0,303
APP	52,129***	-0,282	0,610	0,229	24,979***	2,154	15,370**	1,335
CAP	27,393***	4,760***	44,204***	5,981***	23,004***	2,238	10,832	0,487
SE	15,391**	-1,380	33,064***	-1,174	90,837***	-9,127***	55,882***	1,507
MAT	96,845***	6,175***	64,071***	5,950***	5,754	1,885	28,654***	0,886
FAC	59,185***	4,847***	28,397***	5,006***	67,673***	4,805***	69,037***	-0,838
REV	31,307***	3,243**	16,252***	-3,816***	158,215***	2,066	6,954	-1,382
COMP	27,724***	0,533	24,919***	4,906***	64,045***	-3,283**	55,456***	7,043***
STRAT	0,882	0,844	6,668**	-2,424	2,748	-0,390	22,109***	-1,227
RAT	32,243***	1,521	37,326***	1,312	12,998*	-3,281**	61,867***	4,185***
TOOL	11,158	2,945**	2,698	1,584	6,035	-0,925	5,099	-0,804
VAL	74,577***	5,778***	38,900***	6,115***	36,197***	0,980	44,093***	-1,295
Index	15,796**	-0,048	18,860***	1,943	20,175***	0,373	28,145***	3,536***
*****Correlation is significant at the ***1%, **5% and *10% level**								

Size

Large organisations (r_p = 0.063, p < 5%) demonstrate higher levels of integrated thinking in their performance evaluation metric disclosures with higher Index scores with size having a statistically significant impact on 12 of the 14 indicators. These organisations can allocate more resources to data collection, analysis and reporting, enabling the development of metrics aligned with integrated thinking principles. Supporting this is that lower leveraged organisations tend to have higher Index scores (r_p = -0.108, p < 1%). This aligns with prior literature supporting the fact that larger organisations have the capabilities to implement a stronger integrated thinking ethos which can also be translated to performance evaluation as one of the indicators of an integrated thinking logic (Maroun et al., 2023).

Industry

Organisations in industries that have a larger impact on the environment (r_p = 0.146, p < 1%) (such as organisations with operations in the mining, chemicals and heavy metals industries) have a statistically significant impact on 12 of the 14 indicators of the Index as shown above. Industries that have a substantial environmental footprint are under more scrutiny from stakeholders, requiring these organisations to adopt a holistic approach to performance evaluation metric setting in order to align with stakeholder expectations. Governments and regulatory bodies are increasingly enforcing stricter environmental regulations; investors are now factoring sustainability and environmental stewardship into their investment decisions and organisations are realising that long-term value is created through sustainable operations. All

of which have an impact on organisations in this industry to adopted integrated thinking into their performance evaluation metrics.

Financial performance

Organisations with better financial performance have a statistically significant impact on 11 out of the 14 indicators of the Index. This could be due to the fact that organisations with good financial performance tend to have better strategic alignment within their operations, allowing them to integrate financial and non-financial metrics effectively. Strong financial performance enables better innovation and flexibility into the organisations which fosters better adoption of integrated thinking approaches into performance evaluation metrics. Financially stability allows organisations to focus on more sustainable practices.

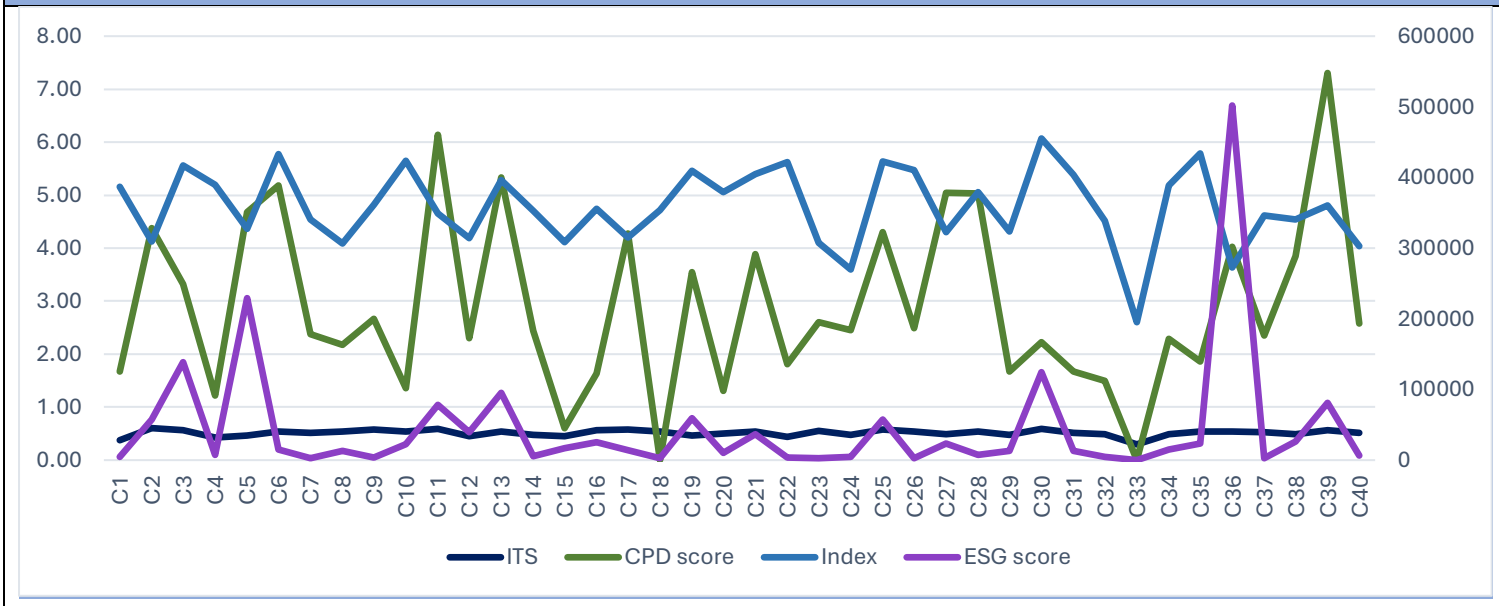
Leverage

Organisations that have low debt/equity ratios, making them less leveraged have a statistically significant impact on 11 out of the 12 indicators of the Index. With reduced exposure to financial risks, such organisations can more easily adopt innovative business models, sustainability initiatives and stakeholder inclusive approaches without the burden of financial obligations. Having fewer financial obligations, allows for greater operational flexibility, enabling alignment with broader performance metrics such value creation, long-term growth and social responsibility.

An organisation that integrates resource allocation, strategy, risk assessment, and performance measurement can enhance liquidity (Barth et al., 2017), improve decision-making capabilities (Barth et al., 2017), reduce equity capital costs, and boost market returns (Zhou et al., 2017). This integrated approach supports financial performance, leverage, and overall viability (Dumay and Dai, 2017). Furthermore, disclosing integrated thinking practices signals effective management of economic, social, and environmental concerns (Malola and Maroun, 2019), which reassures investors about the processes in place (Barth et al., 2017, Maroun, 2018) and may attract greater investment interest by clarifying the entity's financial position and leverage strategies (Barth et al., 2017).

Figure 6 below is a visual representation of the above on a company basis.

Figure 6: Comparison of the Index, CDP, ITS and ESG scores per company



Appendix D: Best and worst performance evaluation metric disclosure practices

By analysing the extra-financial reports of the 40 companies over the 3-year period (120 observations), best and worst practice examples have been illustrated with reference to most indicators of integrated thinking[17].

I1: Assurance

Figure 7 shows the inclusion of types of assurance obtained over each extra-financial KPI disclosed.

[17] All extracts have been redacted for discretionary purposes. All examples of best and worst practices are extracted from the extra-financial reports of companies included in the sample tested (Appendix E).

Figure 7: Best practice of assurance disclosure



Key performance indicators continued

Non-Financial KPIs

Operational carbon emissions reduction[1]
Percentage reduction in absolute Scope 1 and 2 (market-based) emissions from 2019 base year.
43% AL
2022 43%
2021 20%

Financed emissions carbon intensity[2]
Weighted average carbon intensity (tCO_2e / $m revenue) of credit and equities (includes shareholder and policyholder).
120 AR
2022 120
2021 135

Transactional Net Promoter Score® (TNPS®)
Measure of advocacy which quantifies the likelihood of a customer recommending Aviva following a recent transaction or interaction in the Group's businesses in UK, Ireland and Canada.
40.5 AL
2022 40.5
2021 42.5

Number of customers
Total number of policy-holding customers in the Group's businesses in the UK, Ireland and Canada with at least one active product.
18.7 m AL
2022 18.7m
2021 18.5m

People saving or retiring with
Percentage of UK adult population who have a Life Savings Policy or investment policy in the UK.
13.9% AL
2022 13.9%
2021 13.7%

Women in senior leadership roles
The percentage of women in senior leadership roles in UK, Ireland and Canada).
37.3% AR
2022 37.3%
2021 33.7%

Ethnic diversity in senior leadership roles in the UK
The percentage of ethnically diverse employees in senior leadership roles in the UK.
9.4% AR
2022 9.4%
2021 9.1%

Amount invested in UK infrastructure and real estate
Cumulative amount of investment in UK infrastructure and real estate.
£6.9bn AR
2022 £6.9bn
2021 £4.3bn

Employee engagement
We measure this through our 'Voice of annual employee engagement survey.
86% AL
2022 86%
2021 72%

To read more about how these KPIs are used as a base to determine or modify remuneration see Directors' Remuneration Policy.

AR Indicates that this data was subject to independent reasonable assurance by PricewaterhouseCoopers LLP.

AL Indicates that this data was subject to independent limited assurance by PricewaterhouseCoopers LLP.
The PwC report which was prepared under ISAE 3000 (Revised) and - where relevant - ISAE 3410 is available within the Independent assurance section of our Climate-related Financial Disclosure.

1. We have updated our baseline from 2010 to 2019. The 2021 comparative has been updated accordingly.
2. The 2021 comparative for weighted average carbon intensity for credit and equities has been re-presented from 134 tCO_2e/$m, previously published, to 135 tCO_2e/$m, as a result of the inclusion of policyholder data

source: [redacted]

Different types of assurance exhibit varying levels of independence and thoroughness. External assurance is frequently regarded as more impartial and comprehensive compared to internal assurance (Simnett et al., 2009) . By openly disclosing the type of assurance employed, a company demonstrates its commitment to transparency and accountability (Adams and Evans, 2004). This openness helps stakeholders establish accurate expectations regarding the reliability of the reported performance evaluation metrics. Moreover, it fosters trust among stakeholders by allowing them to assess the alignment between the selected assurance type and best practices, as well as the nature of the metrics being evaluated.

Figure 8: Worst practice of assurance disclosure

Independent Assurance:	Deloitte LLP has provided limited assurance over selected environmental metrics in accordance with the International Auditing and Assurance Standards Board's (ISAE3000 (Revised)) international standard.

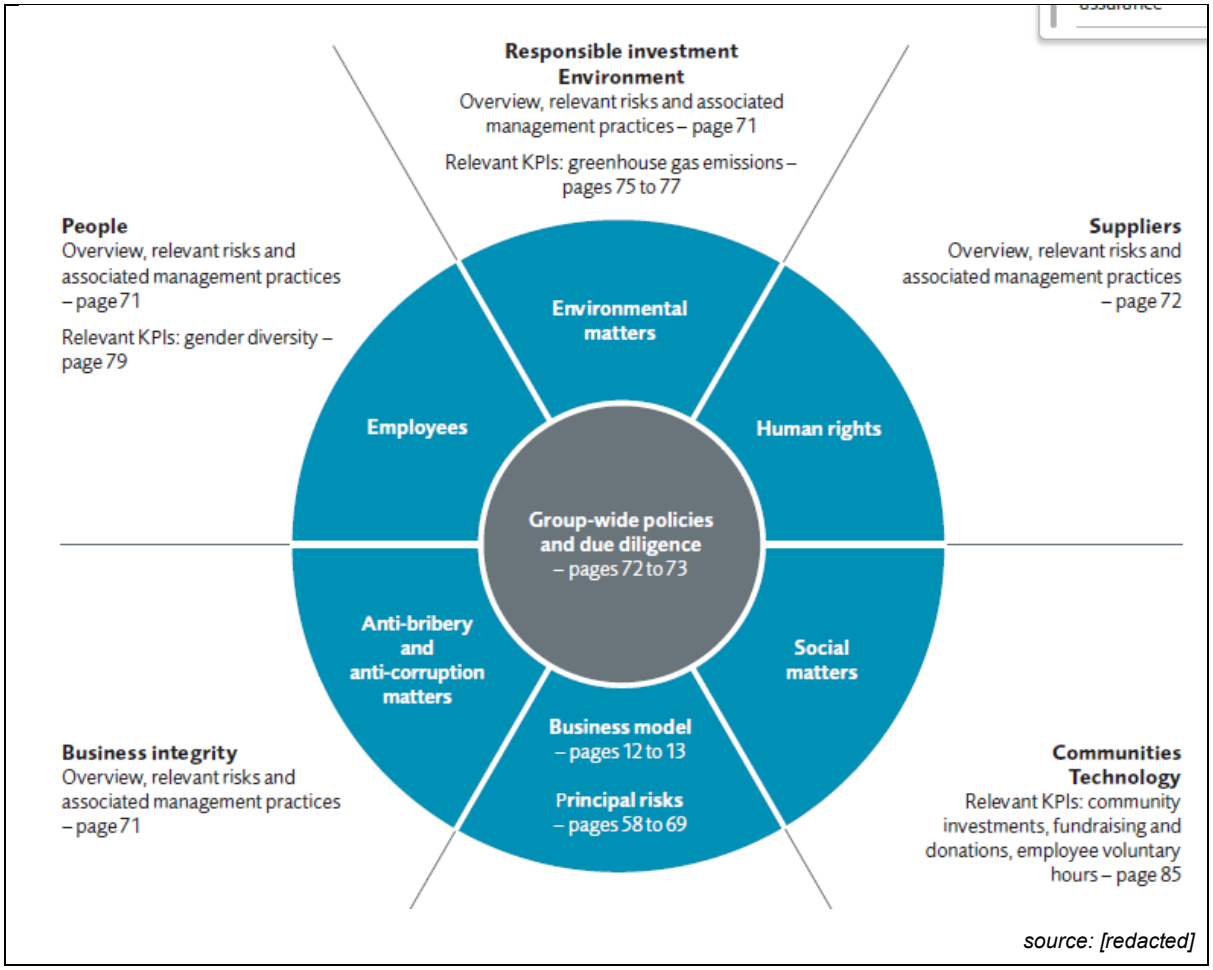


Figure 8 illustrates an example in which the audit firm has provided assurance; however, the company's annual report does not include any additional information or calculations related to these KPIs, which limits the user's ability to determine and understand what is assured and even how these metrics are measured.

I2: Timeframe

Figure 9 is an extract of KPI disclosures, including the timeframe that the KPI is intended to be achieved. The extract was obtained from a 2018 annual report, showing a mixture of short, medium and long-term KPIs reported both for the individual KPIs and a bigger goal focus (which includes multiple KPIs).

Figure 9: Best practice of timeframe disclosure

	TARGET	2018	2017	2016
IMPROVING HEALTH & WELL-BEING BIG GOAL: By 2020 we will help more than a billion people take action to improve their health and well-being. See page 13.				
HEALTH & HYGIENE Target: By 2020 we will help more than a billion people to improve their health and hygiene. This will help reduce the incidence of life-threatening diseases like diarrhoea.	1 billion	653 million	601 million	538 million*
NUTRITION Target: By 2020 we will double (ie up to 60%) the proportion of our portfolio that meets the highest nutritional standards, based on globally recognised dietary guidelines. This will help hundreds of millions of people to achieve a healthier diet.	60%	48%	39%∞	35%
REDUCING ENVIRONMENTAL IMPACT BIG GOAL: By 2030 our goal is to halve the environmental footprint of the making and use of our products as we grow our business. See pages 13 to 14.				
GREENHOUSE GASES Target: Halve the greenhouse gas impact of our products across the lifecycle (from the sourcing of the raw materials to the greenhouse gas emissions linked to people using our products) by 2030 (greenhouse gas impact per consumer use).+	(50%)	6%Θ	9%∞	8%
Target: By 2020 CO_2 emissions from energy from our factories will be at or below 2008 levels despite significantly higher volumes (reduction in CO_2 from energy per tonne of production since 2008).**	≤145.92	70.46†	76.77∞	83.52*
WATER Target: Halve the water associated with the consumer use of our products by 2020 (water impact per consumer use).	(50%)	(2%)‡	(2%)∞	(7%)
Target: By 2020 water abstraction by our global factory network will be at or below 2008 levels despite significantly higher volumes (reduction in water abstraction per tonne of production since 2008).**	≤2.97	1.67†	1.80∞	1.85*
WASTE Target: Halve the waste associated with the disposal of our products by 2020 (waste impact per consumer use).	(50%)	(31%)†Θ	(29%)	(28%)*
Target: By 2020 total waste sent for disposal will be at or below 2008 levels despite significantly higher volumes (reduction in total waste per tonne of production since 2008).**	≤7.91	0.20†	0.18∞	0.35*
SUSTAINABLE SOURCING Target: By 2020 we will source 100% of our agricultural raw materials sustainably (% of tonnes purchased).	100%	56%	56%	51%
ENHANCING LIVELIHOODS BIG GOAL: By 2020 we will enhance the livelihoods of millions of people as we grow our business. See page 14.				
FAIRNESS IN THE WORKPLACE Target: By 2020 we will advance human rights across our operations and extended supply chain, by:				
• Sourcing 100% of procurement spend from suppliers meeting the mandatory requirements of the Responsible Sourcing Policy (% of spend of suppliers meeting the Policy).	100%	61%†‡	55%†∞	–
• Reducing workplace injuries and accidents (Total Recordable Frequency Rate of workplace accidents per million hours worked)**.		0.69†	0.89∞	1.01*
OPPORTUNITIES FOR WOMEN Target: By 2020 we will empower 5 million women, by:				
• Promoting safety for women in communities where we operate. • Enhancing access to training and skills (number of women). • Expanding opportunities in our value chain (number of women).	5 million	1.85 million†*	1.26 million∞	0.92 million
• Building a gender-balanced organisation with a focus on management (% of managers that are women)**.	50%	49%†	47%∞	46%
INCLUSIVE BUSINESS Target: By 2020 we will have a positive impact on the lives of 5.5 million people by:				
• Enabling small-scale retailers to access initiatives aiming to improve their income (number of small-scale retailers).	5 million	1.73 million*	1.60 million	1.53 million
• Enabling smallholder farmers to access initiatives aiming to improve their agricultural practices.	0.5 million	0.75 million *	0.72 million∞	0.65 million

Baseline 2010 unless otherwise stated
** Key Non-Financial Indicators.
† PricewaterhouseCoopers assured in 2018. For details and 2018 basis of preparation see www.unilever.com/investor-relations/annual-report-and-accounts/
∞ PricewaterhouseCoopers assured in 2017. For details and 2017 basis of preparation see www.unilever.com/sustainable-living/our-approach-to-reporting/reports-and-publications-archive
Φ PricewaterhouseCoopers assured in 2016. For details and 2016 basis of preparation see www.unilever.com/sustainable-living/our-approach-to-reporting/reports-and-publications-archive
‡ During 2017 and 2018 we amended how we assessed compliance with the Responsible Sourcing Policy, hence year-on-year data is not comparable.
※ Around 490,000 women have accessed initiatives under both the Inclusive Business and the Opportunities for Women pillars in 2018.
( ) In the table above, brackets around numbers indicate a negative trend which, for environmental metrics, represents a reduction in impact.
+ Target approved by the Science Based Targets Initiative.
Θ The spreads business was sold in mid-2018 and is excluded from the performance measure (including the baseline) to ensure alignment with the existing business structure.

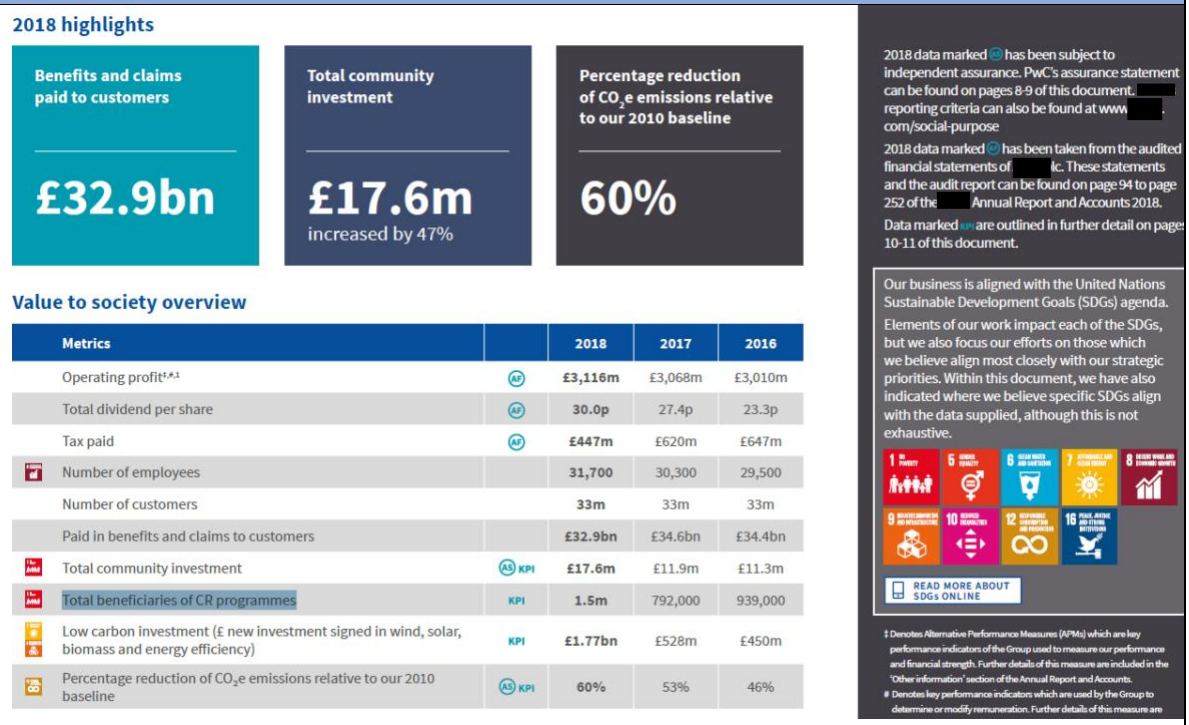
source: [redacted]

Establishing the timeframes for KPIs allows stakeholders to understand how these metrics align with a company's strategic objectives (VRF, 2021). It's essential to clearly link performance metrics to organisational goals and demonstrate the existence of a cohesive strategy. Timeframe disclosures provide the necessary context for assessing KPIs. Short-term KPIs focus on operational efficiency and immediate decision-making, while medium and long-term KPIs emphasise sustainability and the organisation's future direction (Wannes and Ghannouchi, 2019). Transparent disclosures help stakeholders interpret the relevance of performance metrics in relation to the company's time horizon.

I3: Number of SDGs addressed

Figure 10 demonstrates how metric disclosures can be explicitly connected to SDGs. Although SDGs are established at a supranational level, companies have shown their capacity to measure their contributions toward achieving these goals (Adams et al., 2023). This underscores the application of integrated thinking, as performance evaluation frameworks are developed with a complex agenda that extends beyond the internal and immediate external factors affecting the organisation. Companies that integrate SDGs into their KPI disclosures show their acknowledgment of and response to critical global challenges that could influence their finances, operations, and reputation. This strategy helps mitigate risks by actively monitoring and managing sustainability risks (Izzo et al., 2020) .

Figure 10: Best practice of metric linkage to SDGs



2018 highlights

Benefits and claims paid to customers	Total community investment	Percentage reduction of CO_2e emissions relative to our 2010 baseline
£32.9bn	£17.6m increased by 47%	60%

Value to society overview

Metrics		2018	2017	2016
Operating profit‡,#,1	AF	£3,116m	£3,068m	£3,010m
Total dividend per share	AF	30.0p	27.4p	23.3p
Tax paid	AF	£447m	£620m	£647m
Number of employees		31,700	30,300	29,500
Number of customers		33m	33m	33m
Paid in benefits and claims to customers		£32.9bn	£34.6bn	£34.4bn
Total community investment	AS KPI	£17.6m	£11.9m	£11.3m
Total beneficiaries of CR programmes	KPI	1.5m	792,000	939,000
Low carbon investment (£ new investment signed in wind, solar, biomass and energy efficiency)	KPI	£1.77bn	£528m	£450m
Percentage reduction of CO_2e emissions relative to our 2010 baseline	AS KPI	60%	53%	46%

2018 data marked has been subject to independent assurance. PwC's assurance statement can be found on pages 8-9 of this document. [redacted] reporting criteria can also be found at www[redacted].com/social-purpose

2018 data marked has been taken from the audited financial statements of [redacted]lc. These statements and the audit report can be found on page 94 to page 252 of the [redacted] Annual Report and Accounts 2018.

Data marked KPI are outlined in further detail on pages 10-11 of this document.

Our business is aligned with the United Nations Sustainable Development Goals (SDGs) agenda. Elements of our work impact each of the SDGs, but we also focus our efforts on those which we believe align most closely with our strategic priorities. Within this document, we have also indicated where we believe specific SDGs align with the data supplied, although this is not exhaustive.

READ MORE ABOUT SDGs ONLINE

‡ Denotes Alternative Performance Measures (APMs) which are key performance indicators of the Group used to measure our performance and financial strength. Further details of this measure are included in the 'Other information' section of the Annual Report and Accounts.

# Denotes key performance indicators which are used by the Group to determine or modify remuneration. Further details of this measure are

source: [redacted]

I5: Level of application of metric

Figure 11 is the disclosure of the application of the performance evaluation metric – as the company explains, 'certain KPIs are more appropriately measured for each of our two operating businesses, whereas other KPIs are best measured for the group as a whole. Thereby increasing transparency with stakeholders so they can clearly distinguish between the group level and individual level KPIs.

Figure 11: Best practice of level of application

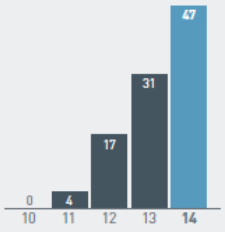
Group:

UNDERLYING EPS (p)

Calculation
Underlying Group profit after taxation divided by the weighted average number of shares in issue (excluding shares held by the Company and the ESOT).

Target
As a cyclical business, underlying EPS varies substantially through the cycle.

2014 performance
Underlying EPS improved significantly to 47p per share in 2013/14.

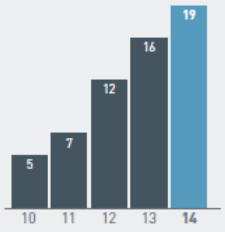


RETURN ON INVESTMENT (%)

Calculation
Underlying operating profit divided by the sum of net tangible and intangible fixed assets, plus net working capital but excluding net debt, deferred tax and fair value remeasurements.

Target
Averaged across the economic cycle we look to deliver RoI well ahead of our cost of capital, as discussed in our strategic review.

2014 performance
Our RoI improved to 19% for the year ended 30 April 2014.

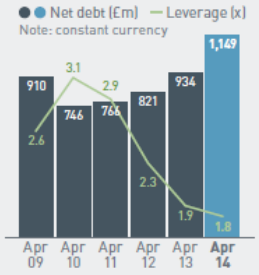


NET DEBT AND LEVERAGE AT CONSTANT EXCHANGE RATES

Calculation
Net debt is total debt less cash balances, as reported, and leverage is net debt divided by underlying EBITDA, calculated at constant exchange rates (balance sheet rate).

Target
We seek to maintain a conservative balance sheet structure with a target for net debt to underlying EBITDA of less than two times.

2014 performance
Net debt at 30 April 2014 was £1,149m and leverage was 1.8 times.



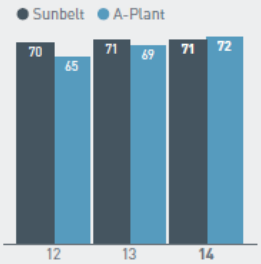
Business units:

PHYSICAL UTILISATION (%)

Calculation
Physical utilisation is measured as the daily average of the amount of itemised fleet at cost on rent as a percentage of the total fleet at cost and for [redacted] is measured only for equipment whose cost is over $7,500 (which comprised 89% of its itemised fleet at 30 April 2014).

Target
It is important to sustain annual average physical utilisation at between 60% and 70% through the cycle. If utilisation falls below 60%, yield will tend to suffer, whilst above 70% we may not have enough fleet in certain stores to meet our customers' needs.

2014 performance
US utilisation at 71% was similar to 2012/13, while in the UK utilisation increased to 72% (2012/13: 69%).

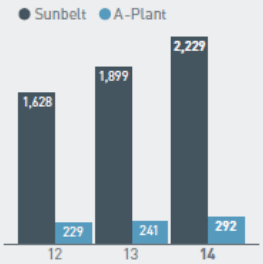


FLEET ON RENT ($m/£m)

Calculation
Fleet on rent is measured as the daily average of the original cost of our itemised equipment on rent.

Target
To achieve growth rates in [redacted] in excess of the growth in our markets and that of our competitors.

2014 performance
In the US, fleet on rent grew 17% in 2013/14, whilst in the UK it grew 21%.



DOLLAR UTILISATION (%)

Calculation
Dollar utilisation is rental revenue divided by average fleet at original (or 'first') cost measured over a 12-month period

Target
Improve dollar utilisation to drive improving returns in the business.

2014 performance
Dollar utilisation improved to 61% in the US and to 56% in the UK with improved pricing and yield more than compensating for the increased cost of new equipment.

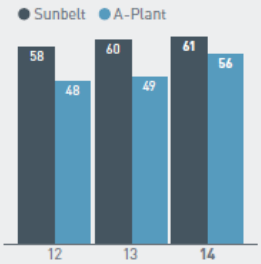
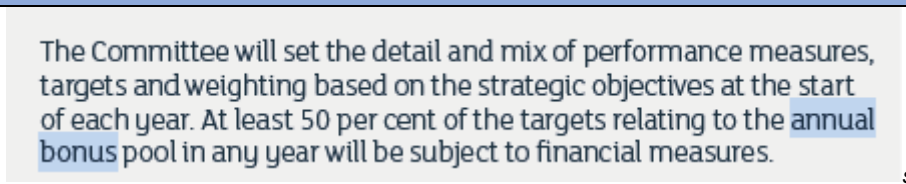


Figure 12: Worst practice of level of application



source: [redacted]

The company in figure 12 has not disclosed any of the performance measures or financial metrics relating to the annual bonus or strategic objectives. This lack of clarity prevents stakeholders from evaluating the suitability of the measures and metrics, undermining the company's ability to engage effectively with stakeholders and address their needs.

I6: Stakeholder engagement

Companies should disclose their efforts endured to maintain and enhance effective stakeholder engagement as illustrated in Figure 13.

Figure 13: Best practice of stakeholder engagement



source: [redacted]

Figure 14: Worst practice of stakeholder engagement



OUR PEOPLE

Definition
- Existing and prospective employees, including apprentices

Why relevant?
Our employees want to work for a company which values them, provides ongoing development, treats them fairly and remunerates them appropriately. Investing in our people ensures we maintain our culture by having the right people and enables us to deliver on our strategic goals.

Nature of engagement
- Employee engagement apps
- Regular 'toolbox talks' and 'town hall' meetings
- Employee surveys
- National conferences, leadership team meetings and other employee events
- Regular communication on safety, with dedicated safety weeks
- Training programmes
- Apprentice programmes
- Employee relief programme

Further details are provided on pages 56 to 63.

Our response to engagement
- Employee reward and benefit structure which recognises the contribution our employees make to the success of the business
- Employee policies which ensure our people are treated fairly
- Ensuring safety remains a cornerstone of our culture
- Continued focus on diversity, equity and inclusion across the Group, with DEI Task Forces in place in North America and the UK

Relevant KPIs
- Employee survey scores
- Safety metrics
- Employee retention metrics

OUR CUSTOMERS

Definition
- National and other managed accounts
- Small and mid-sized enterprises
- Individuals

Why relevant?
Our customers want to have confidence in the 'Availability, Reliability and Ease' of our offering as a reliable alternative to ownership.

Nature of engagement
- Account managers for major customers
- Customer feedback mechanism
- Store level staff with local customer relationships
- Customer centric technology to facilitate customer engagement
- Customer focused websites

Our response to engagement
- Continued investment in fleet, including greener rental options where we are working with customers and suppliers to develop new technologies
- Investment in new market offerings to broaden our rental offering
- Continued investment in customer focused technology solutions, including launch of new customer eCommerce websites and apps

Relevant KPIs
- Customer satisfaction scores
- Level of repeat business
- Customer spend
- Debtor days/days to credit

source: [redacted]

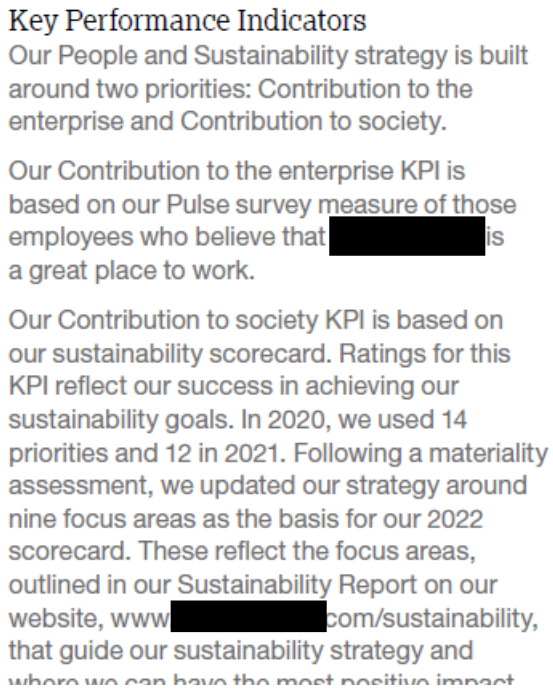
Figure 14's extract lacks a detailed explanation of how stakeholder engagement is carried out and the channels used for this purpose. Consequently, the company risks establishing KPIs that do not align with stakeholder expectations, potentially resulting in dissatisfied stakeholders and diminished legitimacy.

I7: Materiality

By conducting materiality assessments, companies can identify the KPIs most relevant to their industry, strategic goals, and sustainable future. Figure 15 illustrates how a business should disclose its materiality determination process, explicitly connecting these considerations to

performance objectives over the short, medium, and long term. By focusing on concrete KPIs, organisations can more effectively manage their performance and allocate resources. Disclosing material KPIs allows investors and stakeholders to more readily compare a company's performance against peers and industry standards. This facilitates more meaningful benchmarking and competitive analysis of businesses.

Figure 15: Best practice of materiality disclosure



Key Performance Indicators

Our People and Sustainability strategy is built around two priorities: Contribution to the enterprise and Contribution to society.

Our Contribution to the enterprise KPI is based on our Pulse survey measure of those employees who believe that [redacted] is a great place to work.

Our Contribution to society KPI is based on our sustainability scorecard. Ratings for this KPI reflect our success in achieving our sustainability goals. In 2020, we used 14 priorities and 12 in 2021. Following a materiality assessment, we updated our strategy around nine focus areas as the basis for our 2022 scorecard. These reflect the focus areas, outlined in our Sustainability Report on our website, www[redacted]com/sustainability, that guide our sustainability strategy and

source: [redacted]

I9: Post-implementation review

Figure 16 outlines a post-implementation review conducted on the KPIs disclosed by a company for 2014. It provides details on how each KPI performed in the current year and includes a key that explains any changes in the priority of these KPIs and the reasons behind them. Additionally, the figure highlights a connection between the disclosed KPIs, the directors' remuneration, and the results from the previous year. This demonstrates a comprehensive, integrated thinking approach towards the company's KPIs. Post-implementation reviews help organisations ensure that their KPIs are achievable and in line with the overarching strategic goals, which may have evolved throughout the year.

Figure 16: Best practice of post-implementation review

Link between KPIs and Directors' remuneration

KPIs which could have an impact on the performance measures for remuneration plans:

[1] Annual incentive plan (Annual Performance Plan)

[2] Long-term incentive plan (Long Term Incentive Plan)

For more information see Directors' Remuneration Report pages 76 to 91.

Explanation as to how 2015 priorities have evolved from 2014 priorities:

- Same priority as 2014
- Specific progress made in 2014 against 2014 priority, the priority has accordingly been updated for 2015
- New priority for 2015 in line with changes to our business

[redacted]

KPIs	2014 progress	2015 priorities
Global RevPAR growth[1,2] 2014 6.1% 2013 3.8% 2012 5.2% Comparable hotels, at constant currency Revenue per available room: Rooms revenue divided by the number of room nights that are available (can be mathematically derived from occupancy rate multiplied by average daily rate).	In line with our 2014 priorities, in relation to: • strengthening the quality and consistency of the brand experience, delivering guest journeys that are differentiated by brands, we: - clarified each of the brand propositions (see pages 4, 5 and 16); - recorded improvements in guest satisfaction scores in every region for our brands, leading to a global Guest HeartBeat score of 83.83%; and - received external recognition for our brands and hotels through winning over 300 global, regional and hotel level awards – see www.ihgplc.com/ourbrands. • continuing to progress with our standards refresh across the brands, we launched the [redacted] standards manuals online. • supporting the openings of the first [redacted] hotels (see pages 19 and 20). • continuing to invest in building long-term brand preference across our brands in line with segmentation by guest needs and occasions: - for the [redacted] brand, we introduced a new,	◆ Strengthen frontline training and capabilities to consistently deliver great guest experiences that build brand preference. ◆ Continue to strengthen the quality and consistency of the brand experience, delivering guest journeys that are differentiated by brand and building long-term brand preference across our brands. ◆ Embed refreshed brand standards across our brands. ◆ Continue to operate the [redacted] successfully as part of the [redacted] portfolio.
Guest HeartBeat[1] 2014 83.83% 2013 82.91%		

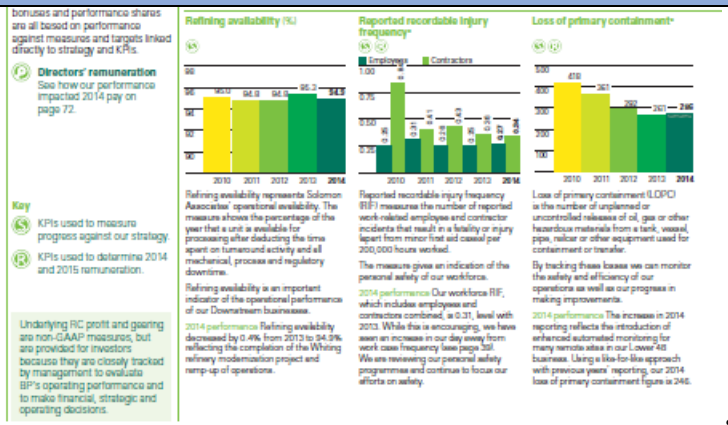
STRATEGIC REPORT | GOVERNANCE

source: [redacted]

I10: Comparative information

To accurately assess performance, comparative data should be supplied for all disclosed KPIs. Figure 17 demonstrates a thorough disclosure of comparative information across each KPI. This comparative data is valuable for determining whether the business is making progress or encountering difficulties.

Figure 17: Best practice of comparative information

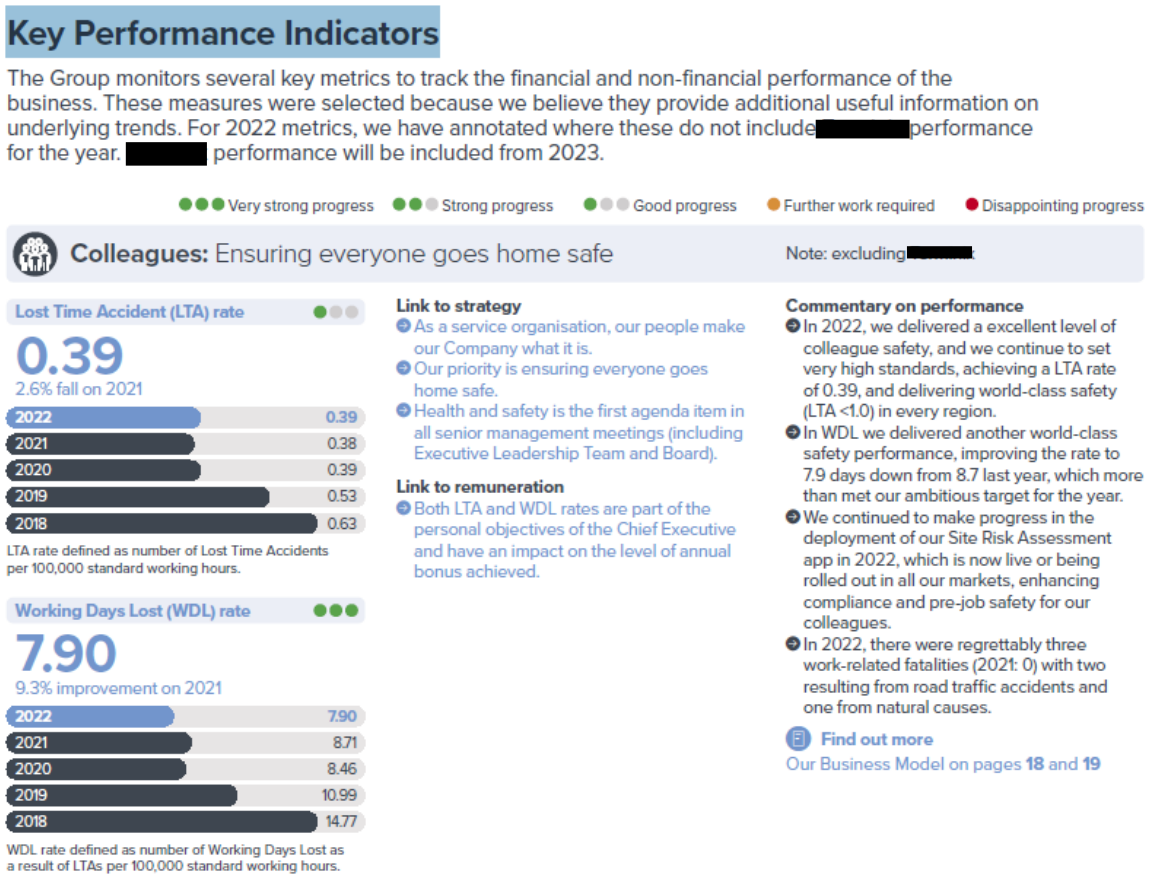


source: [redacted]

I11: Integrated Strategic Analysis

Figure 18 exemplifies how a company utilises various tools to align its KPIs with its overarching strategy. It is essential for performance indicators to align with the company's broader strategic goals, ensuring that specific targets mirror the organisation's overall objectives. This alignment facilitates the tracking of progress against established goals and enables the implementation of corrective measures when necessary. As depicted in Figure 17, a key feature showcases the progress made toward achieving each KPI, with particular attention given to how these metrics relate to the directors' compensation. By integrating KPIs with strategic objectives, companies can foster a cohesive approach to performance management, driving accountability and enhancing decision-making processes.

Figure 18: Best practice of integrated strategic analysis

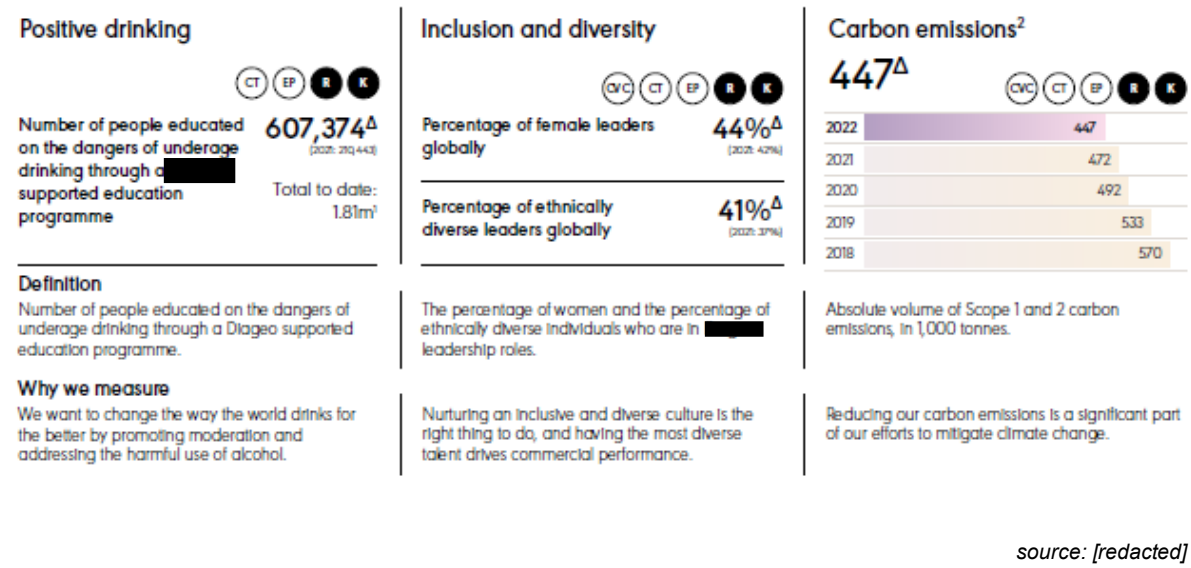


source: [redacted]

I12: Integrated performance evaluation metric rationale

The reasoning behind selecting a particular metric should be communicated to stakeholders, providing them with a clear understanding of its significance. This disclosure helps convey why the metric is critical to the organisation's success, especially if it is driven by specific laws, regulations, or industry standards that necessitate its measurement and reporting. Figure 19 effectively illustrates this concept, showing how transparency in the rationale for each performance evaluation metric can foster trust and engagement among stakeholders. By clearly outlining the importance of these metrics, organisations not only demonstrate compliance but also highlight their commitment to informed and accountable management practices.

Figure 19: Best practice of rationale behind the metric



source: [redacted]

I13: Integrated Tools

Figure 20: Best practice of integrated tools being used: risk assessment and dashboards

Risk assessment

During the course of the year, the Committee undertook a remuneration risk assessment exercise to identify and evaluate the risks inherent in our Directors' Remuneration Policy. Important risk mitigators identified included the broad balance of clear financial and non-financial performance measures, targets which are set in line with [redacted] business plans and an overall approach to pay design which rewards the delivery of strong, yet sustainable, performance. The close coordination with the Audit Committee was also highlighted as a strength. Specific areas of focus for the future in respect of remuneration risk include simplicity, ensuring fair pay outcomes and applying discretion to do so, and the internal alignment of pay design and outcomes.

[redacted] Sustainability Council

The Sustainability Council, held quarterly, is attended by senior leaders from across the business who play a key role in delivering our commitment to a net zero, nature positive, healthier planet, with ambitious goals set for 2030 and 2045 across our entire value chain. Members include leaders from procurement, finance, HR, Compliance, R&D and manufacturing. The Council is co-chaired by the President Global Supply Chain and the VP Sustainability and supported by the global sustainability team who provides specialist expertise and advice to the business.

In 2022 the Council:

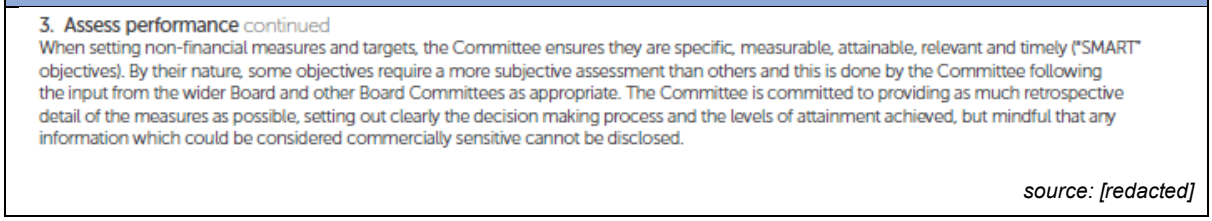
– received monthly performance dashboards covering key performance metrics and escalations of any potential concerns or issues

source: [redacted]

Emerging technologies, such as artificial intelligence and interactive dashboards, should be incorporated across all facets of an organisation, including the collection and analysis of performance evaluation metrics. These advanced tools can significantly enhance an organisation's ability to monitor its performance in real-time, enabling swift and informed decision-making to make any necessary adjustments. Figure 20 provides two illustrative examples: one company employs risk assessment tools to evaluate its performance, while another utilises monthly dashboards provided to its committees. These dashboards allow for the continuous review of key performance indicators, helping to identify potential issues and opportunities for improvement promptly. By leveraging such technologies, organisations can drive greater efficiency, maintain competitiveness, and ensure strategic alignment throughout their operations.

I14: Business model and Value creation (VAL)

Figure 21: Best practice of business model and value creation



3. **Assess performance** continued

When setting non-financial measures and targets, the Committee ensures they are specific, measurable, attainable, relevant and timely ("SMART" objectives). By their nature, some objectives require a more subjective assessment than others and this is done by the Committee following the input from the wider Board and other Board Committees as appropriate. The Committee is committed to providing as much retrospective detail of the measures as possible, setting out clearly the decision making process and the levels of attainment achieved, but mindful that any information which could be considered commercially sensitive cannot be disclosed.

source: [redacted]

To ensure alignment between an organisation's overall business model and strategy, it is essential to develop performance metrics that are SMART—specific, measurable, attainable, relevant, and timely as seen in figure 21. Adopting SMART metrics helps maintain a competitive edge in the market by ensuring that targets are realistic and achievable, fostering a focused approach toward reaching organisational goals. By integrating the business model with a value creation statement, companies can embed a framework of integrated thinking into their performance evaluation process. This approach ensures that every metric is not only aligned with the broader strategic objectives but also contributes to the sustainable growth and success of the company. Incorporating this holistic perspective allows organisations to systematically track progress, make data-driven decisions, and demonstrate a commitment to transparency and accountability, which are crucial for building trust with stakeholders and achieving long-term success.

6.4: Appendix E: List of entities in sample

Table 10: List of entities in the sample

Number	Alpha	Long Name	Industry	Market capitalisation GBP 'Millions – 07/03/2024
1	SHEL	Shell Plc	Mining and Chemicals	160 537
2	AZN	AstraZeneca Plc	Manufacturing	157 191
3	HSBA	HSBC Holdings Plc	Finance, insurance & real estate	116 592
4	ULVR	Unilever Plc	Manufacturing	96 520
5	BP.	BP Plc	Mining and Chemicals	81 228
6	GSK	GSK Plc	Wholesale Trade	68 886
7	REL	Relx Plc	Services	64 248
8	DGE	Diageo Plc	Wholesale Trade	64 219
9	RIO	Rio Tinto Plc	Mining and Chemicals	63 565
10	BATS	British American Tobacco Plc	Manufacturing	51 471
11	LSEG	London Stock Exchange Group Plc	Finance, insurance & real estate	48 165
12	GLEN	Glencore Plc	Mining and Chemicals	47 479
13	NG.	National Grid Plc	Transportation and public utilities	39 299
14	BA.	Bae Systems Plc	Services	38 630
15	CPG	Compass Group Plc	Services	37 303
16	RKT	Reckitt Benckiser Plc	Manufacturing	35 641
17	RR.	Rolls-Royce Holdings Plc	Manufacturing	31 899
18	EXPN	Experian Plc	Services	31 352
19	LLOY	Lloyds Banking Group Plc	Finance, insurance & real estate	30 970
20	FLTR	Flutter Entertainment Plc	Services	30 386
21	BARC	Barclays Plc	Finance, insurance & real estate	25 903
22	III	3I Group Plc	Finance, insurance & real estate	24 548
23	AAL	Anglo American Plc	Mining and Chemicals	23 640
24	AHT	Ashtead Group Plc	Services	22 668
25	PRU	Prudential Plc	Finance, insurance & real estate	20 876
26	TSCO	Tesco Plc	Retail trade	19 737
27	VOD	Vodafone Group Plc	Services	18 853
28	SSE	SSE Plc	Transportation and public utilities	18 236
29	STAN	Standard Chartered Plc	Finance, insurance & real estate	17 970
30	ANTO	Antofagasta Plc	Mining and Chemicals	17 169
31	ABF	Associated British Foods Plc	Retail trade	17 118
32	IMB	Imperial Brands Plc	Retail trade	14 624
33	LGEN	Legal & General Group	Finance, insurance & real estate	14 549
34	IHG	Intercontinental Hotels Group Plc	Services	13 696
35	SGE	Sage Group Plc	Services	12 597
36	AV.	Aviva Plc	Finance, insurance & real estate	12 462
37	SGRO	Segro Plc	Finance, insurance & real estate	11 682
38	SMT	Scottish Mortgage Investment Trust Plc	Finance, insurance & real estate	11 098
39	INF	Informa Plc	Services	10 906
40	RTO	Rentokil Initial Plc	Services	10 809

7: Acknowledgements

Completing this study has been a journey, and I am grateful to everyone who supported me along the way.

To my supervisors, Dusan Ecim and Warren Maroun. Dusan, thank you for your patience and continuous support throughout this process. Your mentorship played an integral role in enhancing my interest and approach to research, encouraging deeper thinking into all aspects of the topic and research in general. Your detailed reviews, thorough feedback, availability and insightful recommendations - I am grateful for all the time and effort you spent guiding me. My appreciation also goes to my second supervisor, Professor Warren Maroun for his expert knowledge, feedback and input throughout the process. Professor Maroun's profound expertise in the field and attention to detail greatly influenced the outcome of this research.

To my family and friends, thank you for your unwavering support and encouragement. A special mention of my fellow academic trainees, who shared in the ups and downs of this journey, always supporting and holding each other accountable throughout the journey.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Faculty of Commerce, Law and Management

Candidate's Declaration

Name of Candidate:	Danit Emdin
Person Number:	2379413
Degree:	Masters of Commerce (Accounting)
Supervisor / Co-Supervisor:	Warren Maroun and Dusan Ecim
School:	School of Accountancy
Title of Thesis/Dissertation/ Research Report:	Evidence of integrated thinking in performance evaluation metrics: A review of listed entities in the United Kingdom

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 _1_____ bound copies.

Candidate's Signature: Danit Emdin **Date:** 21 February 2025

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