

Integrated thinking and organisational integration: a systems theory perspective

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Abstract

Purpose – Integrated thinking is widely presented as the foundation of integrated reporting and multi-capital value creation. Despite its prominence, the construct remains conceptually ambiguous and is often inferred from reporting outputs rather than theoretically specified as an organisational phenomenon. This paper aims to address this gap by developing a coherent theoretical explanation of integrated thinking and clarifying its ontological status within organisations.

Design/methodology/approach – The study adopts a conceptual research design grounded in general systems theory. Drawing on the integrated reporting and organisational theory literature, the paper conceptualises organisations as open systems and develops a framework that positions integrated thinking as an organisational capability embedded in transformation processes that connect inputs, organisational mechanisms, outputs and feedback loops.

Findings – The paper reconceptualises integrated thinking as a system capability through which interdependencies among capitals, functions and time horizons are recognised, evaluated and continuously adapted through feedback. The proposed framework specifies organisational mechanisms that enable integration, including strategy formation, risk management, management control, performance measurement and governance. By distinguishing organisational processes from reporting artefacts, the framework explains recurring empirical patterns observed in the integrated reporting literature, such as symbolic adoption, selective integration and the decoupling between disclosure and internal decision-making.

Originality/value – While prior research has recognised integrated thinking as embedded in organisational practices and decision-making processes, this study develops a formal systems-theoretical conceptualisation of integrated thinking as an organisational capability. By specifying the architecture, transformation mechanisms and feedback loops through which multi-capital integration is enacted and sustained, the paper advances theoretical development in integrated reporting and provides a framework for future empirical research.

Keywords Integrated thinking, Integrated reporting, Systems theory, Organisational capability

Paper type Conceptual paper

1. Introduction

Integrated thinking has emerged as a central organising principle in contemporary corporate reporting and sustainability discourse. It underpins the International <IR> Framework's emphasis on connectivity, the orchestration of multiple capitals and the integration of financial and non-financial considerations into strategy and performance management (IIRC, 2021; Adams, 2017; Adams *et al.*, 2020). In both academic and professional debates,



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integrated thinking is presented as the mechanism through which organisations move beyond siloed management practices towards holistic, multi-capital value creation across time horizons (Dumay and Dai, 2017; Busco *et al.*, 2020; Oliver *et al.*, 2016). Empirical research associates higher levels of integrated thinking with more coherent resource orchestration, enhanced sustainability alignment and stronger value-creation narratives, suggesting that organisations begin to mobilise the six capitals as an interconnected system rather than as isolated resource pools (Herath *et al.*, 2021; Reimsbach and Braam, 2023; Di Vaio *et al.*, 2021; Hurghiş *et al.*, 2025).

Despite its prominence, integrated thinking remains theoretically underdeveloped. The construct is variously conceptualised as a managerial mindset, cultural orientation, reporting attribute or inferred organisational outcome, resulting in conceptual ambiguity and inconsistent operationalisation (Oliver *et al.*, 2016; Dumay and Dai, 2017; Lakhani and Herbert, 2022). Review studies confirm that the integrated reporting literature draws on diverse theoretical lenses but lacks a cumulative, formally specified model of integrated thinking as an organisational phenomenon (Songini *et al.*, 2023). As a result, empirical studies rely mainly on indirect proxies, such as disclosure connectivity or report quality, to capture its presence (Di Vaio *et al.*, 2021). Existing evidence also suggests that integrated thinking is interpreted inconsistently across organisations and often develops incrementally through evolving management practices rather than formal structural change (Feng *et al.*, 2017; Hosoda, 2021). Prior research thus illuminates manifestations and outcomes of integrated thinking without fully explaining what it is as an organisational capability or how it operates within the firm.

This theoretical ambiguity has important consequences. Without a clear ontological grounding, integrated thinking risks being reduced to a reporting artefact rather than understood as a property of organisational design and decision processes. Early assessments of integrated reporting identified a gap between the aspiration of integration and the persistence of conventional management systems (Stent and Dowler, 2015). Subsequent research has confirmed patterns of symbolic adoption and decoupling, in which reporting structures change without corresponding transformations in strategy, control systems or governance (Dumay and Dai, 2017; Di Vaio *et al.*, 2021; Songini *et al.*, 2023). A theoretically grounded explanation is therefore required to distinguish integrated thinking from its representational outputs and to enable more robust empirical investigation.

Prior research has examined aspects of integrated reporting and organisational integration through a range of theoretical perspectives, including agency theory, stakeholder theory and institutional theory. These approaches illuminate important dimensions of disclosure incentives, stakeholder accountability and legitimacy pressures (Jensen and Meckling, 1976; Freeman, 1984; DiMaggio and Powell, 1983), yet they provide only partial explanations of how integration becomes embedded within organisational decision processes. As a result, they offer limited insight into the internal mechanisms through which organisations align multiple capitals, strategic priorities and time horizons. To address this limitation, the present study adopts a systems-theory perspective that conceptualises organisations as open and adaptive systems characterised by interdependence, feedback and transformation processes. This perspective enables integrated thinking to be theorised as an organisational capability embedded in organisational processes rather than as a reporting attribute inferred from disclosure practices.

This paper argues that systems theory provides an appropriate and underutilised foundation for such a conceptualisation. The core elements of integrated thinking – interdependence between capitals, cross-functional connectivity, responsiveness to environmental dynamics and value creation as a continuous process – mirror the defining

characteristics of open systems (Checkland, 1981; Senge, 1990; Skyttner, 2005). Emerging contributions have begun to draw on general systems theory to illuminate specific aspects of integrated reporting, such as materiality and boundary-setting (Aprile *et al.*, 2023), yet a comprehensive systems-based model of integrated thinking as an organisational capability remains absent. Although empirical studies already describe system-like dynamics in multi-capital orchestration and strategic alignment (Herath *et al.*, 2021; Reimsbach and Braam, 2023), these insights have not been integrated into a coherent theoretical architecture.

Addressing this gap, the paper conceptualises integrated thinking as an open-system organisational capability and develops a formal process model specifying its inputs, transformation mechanisms and feedback loops. While prior studies have recognised integrated thinking as embedded in organisational practices and decision-making processes, existing research has not provided a coherent systems-theoretical architecture that explains how integration is structurally enacted, sustained, and adapted within organisations. The study contributes by formalising integrated thinking as a dynamic organisational system capability grounded in open-systems theory. It specifies the transformation architecture through which multi-capital integration is enacted within firms. By reframing integrated thinking as a dynamic organisational property rather than a reporting attribute, the study contributes to theory development in three ways: it clarifies the construct's ontological status; identifies the mechanisms through which integration is enacted and sustained; and provides a formal, testable framework to guide cumulative empirical research in a field where such models remain scarce (Songini *et al.*, 2023).

The paper proceeds through a sequential conceptual argument. Section 2 first establishes the problem by examining the conceptual ambiguity surrounding integrated thinking and its consequences for theory and empirical research. Section 3 then evaluates systems theory as the theoretical foundation for addressing this problem, explaining its advantages relative to other theoretical lenses and identifying the open-systems concepts that underpin the proposed conceptualisation. Section 4 explains the research approach and the process through which the framework was developed. Building on these foundations, Section 5 conceptualises integrated thinking as an organisational system capability and identifies the mechanisms and boundary conditions associated with its emergence. Section 6 integrates these elements into an open-systems framework that links environmental conditions and organisational inputs to transformation mechanisms, outputs, and recursive feedback. Sections 7 and 8 consider the resulting theoretical and practical implications, Section 9 develops a future research agenda and Section 10 concludes the paper.

2. The problem: theoretical ambiguity in integrated thinking

2.1 *Integrated thinking in the literature*

The literature on integrated thinking can broadly be grouped into normative, organisational and disclosure-oriented perspectives, each emphasising different dimensions of integration and value creation. However, despite its centrality, the construct remains conceptually unstable. The literature does not converge on a shared definition; rather, integrated thinking is variously framed as a managerial mindset, an organisational process, an outcome reflected in corporate reports or a reporting attribute observable through disclosure practices. Recent review studies describe the integrated reporting field as theoretically plural and conceptually uneven, characterised by diverse theoretical lenses – including legitimacy, stakeholder, institutional, agency and signalling perspectives – without cumulative development of formally specified organisational models (Lakhani and Herbert, 2022; Songini *et al.*, 2023; Busco *et al.*, 2020; Ecim and Maroun, 2023). This plurality contributes directly to a fragmented conceptual landscape.

Normative and professional sources reinforce an aspirational framing of integrated thinking. The International <IR> Framework defines it as the “active consideration” of relationships between operating units and capitals in decision-making (IIRC, 2021). Similarly, Adams (2017) and practitioner guidance from the IFRS Foundation and SAICA conceptualise integrated thinking as a managerial orientation towards connectivity, interdependencies and multi-capital value creation over time (IFRS Foundation, 2026; CGISA, 2021). In these texts, integrated thinking is primarily presented as a principle-led cognitive disposition aimed at breaking down silos and enabling integrated decision-making across short-, medium- and long-term horizons.

Academic research extends this framing in multiple directions. Some studies conceptualise integrated thinking as embedded in strategy formation, risk management and performance measurement systems, emphasising cross-functional coordination and alignment of financial and non-financial information flows (Oliver *et al.*, 2016; Dumay and Dai, 2017). Others treat it as an organisational outcome inferred from integrated report quality, narrative alignment and disclosure connectivity (Busco *et al.*, 2020; Di Vaio *et al.*, 2021). Disclosure-based studies operationalise integrated thinking through textual or structural indicators, implicitly equating the construct with observable reporting artefacts (Arul *et al.*, 2021; Dimes *et al.*, 2023). In such work, integrated thinking is not directly observed but inferred from communicative outputs. Collectively, these streams conceptualise integrated thinking at multiple levels of analysis but do not converge on a unified explanation of how integration operates within organisations.

Importantly, this fragmentation is not merely theoretical. Empirical studies demonstrate that integrated thinking is interpreted and enacted differently across organisations and institutional settings. Case-based research shows that managers hold divergent and evolving understandings of integrated thinking across functional areas and hierarchical levels (Feng *et al.*, 2017). Longitudinal analyses of Japanese adopters indicate that integrated thinking tends to emerge incrementally through adjustments in management control and performance management systems rather than through a clearly articulated organisational transformation (Hosoda, 2021). Public-sector research similarly reports limited consensus regarding the meaning and implementation requirements of integrated thinking, noting that its practical enactment remains under-specified (Tirado-Valencia *et al.*, 2020). Cross-country comparisons between mandatory and voluntary regimes further reveal jurisdictional variation in how integrated thinking is framed and disclosed, particularly in comparisons between South Africa and Japan (Arul *et al.*, 2021). Taken together, the literature suggests that integrated thinking develops unevenly across organisations through context-dependent organisational processes that remain insufficiently theorised.

Collectively, this body of work indicates that integrated thinking operates simultaneously at cognitive, procedural, organisational and communicative levels without a unifying theoretical architecture. Rather than being conceptualised as a distinct organisational phenomenon, it is frequently inferred from presumed manifestations in reporting outputs. Review literature explicitly notes this reliance on broad normative constructs and disclosure-based proxies as a constraint on cumulative theory development (Songini *et al.*, 2023; Ecim and Maroun, 2023).

2.2 Consequences of conceptual ambiguity

The absence of theoretical specification creates at least three interrelated problems in the integrated thinking literature: conceptual ambiguity, measurement and operationalisation challenges and difficulties distinguishing substantive integration from symbolic adoption in practice.

A first consequence relates to the measurement and operationalisation of integrated thinking. Because integrated thinking is rarely defined as an organisational capability with identifiable structures and mechanisms, it is difficult to observe directly. Researchers rely on proxies such as disclosure connectivity, narrative coherence or integrated reporting quality (Di Vaio *et al.*, 2021; Arul *et al.*, 2021; Dimes *et al.*, 2023). While these measures provide valuable insight into reporting artefacts, they capture outputs rather than the internal processes that generate them. Review studies highlight this proxy dependence as a barrier to cumulative knowledge development, as disclosure indicators cannot distinguish between substantive integration and symbolic conformance (Songini *et al.*, 2023).

A second consequence concerns the practical implementation of integrated thinking within organisations. Conceptual ambiguity also contributes to the risk of symbolic adoption. When integrated thinking is primarily associated with reporting outputs, organisations may adopt the language and structure of integration without altering underlying decision-making routines. Empirical research documents this decoupling phenomenon: improvements in the integrated reporting format and disclosure do not necessarily correspond to changes in governance processes, management control systems, or strategic resource allocation (Stubbs and Higgins, 2014; Stent and Dowler, 2015; Dumay and Dai, 2017). Under such conditions, connectivity is constructed narratively rather than embedded structurally.

The persistence of divergent interpretations, incremental emergence and institutional variation reinforces the idea that integrated thinking cannot be reduced to a reporting attribute. Instead, its ambiguous status obscures its potential role as a driver of organisational transformation.

These conceptual, measurement and implementation challenges reinforce the need for a more coherent theoretical specification of integrated thinking as an organisational phenomenon. The fragmentation identified above – confirmed in both synthesis studies and empirical analyses – points to the need for a formal organisational model that specifies the mechanisms through which integrated thinking operates. A theoretically grounded framework is necessary to move beyond disclosure-based inference and to conceptualise integrated thinking as a coherent organisational capability rather than as an aspirational reporting ideal.

3. The theoretical foundation: why systems theory?

3.1 *Why systems theory rather than alternative theoretical lenses?*

Existing theoretical perspectives in the integrated reporting literature explain important but partial dimensions of organisational integration, including disclosure incentives, stakeholder accountability and institutional legitimacy. Systems theory provides a complementary and more integrative foundation by conceptualising organisations as complex, adaptive and relational systems characterised by interdependence, feedback and continuous transformation. The central concern of integrated thinking – connectivity among resources, organisational activities and value-creation outcomes over time – aligns closely with the principles of open-systems theory, which emphasise interdependence, feedback and adaptation. From this perspective, integrated thinking can be understood as an organisational capability embedded in transformation processes rather than as a reporting attribute or managerial aspiration.

Prior integrated reporting research can be broadly grouped into theories explaining disclosure incentives, stakeholder relationships, institutional conformity and organisational adaptation. While these perspectives illuminate important aspects of integrated reporting adoption and communication, they provide less explicit explanation of how integration becomes embedded within organisational processes and decision structures. Agency theory

primarily explains integrated reporting in terms of information asymmetry reduction and disclosure incentives (Jensen and Meckling, 1976; Healy and Palepu, 2001). However, the perspective provides limited insight into how integration becomes embedded across organisational processes and capitals. Similarly, stakeholder theory emphasises the need to balance competing stakeholder interests and recognises organisations' broader accountability beyond shareholders (Freeman, 1984; Donaldson and Preston, 1995). Although this perspective illuminates the relational dimension of value creation, it does not specify the organisational mechanisms through which multiple capitals and strategic priorities are coordinated within decision processes. Institutional theory, in turn, explains the diffusion of integrated reporting practices through pressures for legitimacy and conformity (DiMaggio and Powell, 1983; Suchman, 1995). This lens is particularly useful for understanding the adoption of integrated reporting frameworks, but provides less guidance on how integration becomes embedded in organisational routines once such practices are adopted. Collectively, these theoretical perspectives explain why organisations adopt integrated reporting practices and respond to external accountability pressures, but they offer less explicit explanations of the organisational integration process itself. In particular, they do not fully theorise the recursive interactions, interdependencies and feedback relationships connecting capitals, organisational subsystems and decision-making processes over time.

Dynamic capabilities theory moves closer to addressing organisational adaptation by emphasising how firms reconfigure resources in response to environmental change (Teece *et al.*, 1997; Teece, 2007). However, the dynamic capabilities perspective primarily focuses on strategic renewal and competitive advantage rather than on modelling the recursive interdependencies, multi-capital relationships and feedback structures through which organisational integration is sustained over time. These perspectives illuminate important but partial dimensions of integrated reporting and organisational integration. Agency theory explains disclosure incentives and information asymmetry; stakeholder theory focuses on accountability and stakeholder relationships; institutional theory explains legitimacy and conformity pressures and dynamic capabilities theory addresses organisational adaptation and strategic renewal. However, none of these perspectives fully theorises how integration is structurally enacted and sustained through recursive interactions among capitals, organisational mechanisms and feedback processes over time. Systems theory is therefore particularly appropriate because it conceptualises organisations as interconnected adaptive systems in which alignment, learning and transformation emerge through ongoing interaction across organisational subsystems and environmental boundaries.

Importantly, adopting a systems perspective does not impose an external interpretation on the field of integrated reporting. Empirical research already documents dynamics that reflect system behaviour, albeit without explicitly theorising them as such. Studies show that value creation depends on orchestrating interdependent capitals rather than optimising them in isolation (Herath *et al.*, 2021). Integration becomes operational when strategy, risk management and performance measurement systems are aligned across organisational boundaries, enabling coordination and feedback between subsystems (Camilleri, 2018). Longitudinal evidence further indicates that integration develops through iterative adjustments in control routines and information flows rather than through discrete structural redesign. At the micro level, integration emerges through ongoing sense-making processes in which organisational actors reinterpret relationships among resources, activities and outcomes.

These observations resonate strongly with modern systems thinking. Prigogine and Stengers (1984) described complex systems as evolving far from equilibrium, where order emerges through interaction rather than central design. Wheatley (2011) similarly

conceptualised organisations as living systems sustained through relational feedback and continuous renewal. Viewed through this lens, integration is not a static structural condition but a dynamic process of adaptive alignment. The integrated reporting literature appears to describe system dynamics without explicitly articulating its theoretical basis.

The value of the systems-theory perspective, therefore, lies not merely in offering an alternative interpretive lens, but in providing an integrative explanatory architecture capable of modelling the dynamic interactions through which organisational integration emerges and is sustained. Whereas agency, stakeholder and institutional theories explain important drivers of disclosure, legitimacy and accountability, they do not explicitly theorise the recursive feedback relationships connecting capitals, organisational subsystems, strategic decision-making and adaptive learning processes. Systems theory contributes by explaining integration as a continuous organisational transformation process characterised by interdependence, feedback and dynamic realignment across organisational and temporal boundaries.

3.2 *Organisations as open systems*

Open-systems theory conceptualises organisations as entities that exchange resources, information and legitimacy with their environments (Von Bertalanffy, 1968; Checkland, 1981; Skyttner, 2005). This perspective aligns closely with the multi-capital model underpinning integrated reporting, in which financial, manufactured, intellectual, human, social and natural capitals are acquired, transformed and affected through organisational activities and stakeholder relationships (IIRC, 2021; Adams *et al.*, 2020). Value creation is not a linear process but an ongoing transformation shaped by environmental constraints and opportunities.

Permeable boundaries and reciprocal stakeholder relationships characterise open systems (Katz and Kahn, 1978; Scott and Davis, 2015). Integrated thinking similarly requires organisations to manage interdependencies among capitals and stakeholder groups holistically rather than through isolated functional responses (Busco *et al.*, 2020; Adams, 2017). Organisational survival and legitimacy depend on the quality of these relational exchanges.

The temporal dimension of integrated reporting further reflects a systems logic. Open systems operate through iterative cycles of inputs, transformation and outputs, with feedback shaping future states (Von Bertalanffy, 1968; Senge, 1990). Prigogine and Stengers (1984) emphasised that stability in complex systems is dynamic rather than static – maintained through continuous adaptation. The integrated reporting emphasis on short-, medium- and long-term value creation similarly reflects an understanding of organisational continuity as evolving rather than fixed.

3.3 *Core systems concepts underpinning integrated thinking*

Five core systems concepts help clarify integrated thinking as an organisational capability: interdependence, feedback loops, input–throughput–output processes, system boundaries and dynamic equilibrium. Interdependence implies that organisational outcomes cannot be understood in isolation from the relationships among system elements (Checkland, 1981). This logic is reflected directly in the multi-capital model, where changes in one capital influence the availability and productivity of others (Adams *et al.*, 2020; Busco *et al.*, 2020).

Feedback loops enable learning and adaptation within complex systems (Senge, 1990). In organisational contexts, these loops are embodied in governance structures, management control systems and stakeholder engagement processes. Without effective feedback mechanisms, integration remains symbolic rather than systemic (Dumay and Dai, 2017). The

input–throughput–output model conceptualises value creation as a transformation process rather than a reporting exercise (Katz and Kahn, 1978). From this perspective, integrated thinking shifts analytical attention from the final report to the internal processes that connect strategy, operations and performance.

System boundaries define which elements are considered relevant within the organisational system (Checkland, 1981). In the context of integrated reporting, materiality determination can therefore be interpreted as an ongoing boundary-setting activity that shapes how organisations define and manage the relationships among capitals and stakeholders (Adams *et al.*, 2020). Finally, dynamic equilibrium refers to the capacity of open systems to maintain coherence while adapting to environmental change (Von Bertalanffy, 1968). Consistent with the work of Prigogine and Stengers (1984) and Wheatley (2011), resilience arises not from rigidity but from adaptive reconfiguration.

Importantly, the systems perspective synthesises the fragmented conceptual streams identified earlier in the literature by linking organisational processes, multi-capital interdependencies, adaptive learning and reporting outcomes within a single explanatory framework.

4. Research approach and framework development

The conceptual framework developed in this study emerged through an iterative process of theoretical synthesis drawing on the integrated reporting, organisational integration and systems-theory literature. The preceding discussion identified recurring conceptual challenges within the integrated thinking literature, including definitional ambiguity, reliance on disclosure-based proxies and limited theoretical explanation of how integration becomes embedded within organisational processes. The literature reviewed was selected purposively for its relevance to integrated thinking, organisational integration, multi-capital value creation and systems-based explanations of organisational processes within the integrated reporting field.

To address these limitations, the study analysed and synthesised insights from prior empirical and conceptual research, examining organisational integration, multi-capital value creation, management control, governance, disclosure connectivity and feedback processes. Existing theoretical perspectives commonly used in the integrated reporting literature – including agency, stakeholder, institutional and dynamic capabilities theories – were considered in evaluating the explanatory requirements of an organisational model of integrated thinking.

General systems theory provided the primary theoretical foundation for the framework because of its emphasis on interdependence, transformation processes, feedback loops and adaptive alignment within open systems. Building on these principles, recurring organisational mechanisms identified in prior literature, including strategy formation, risk management, governance, management control and performance measurement systems, were integrated into an open-system process architecture comprising inputs, transformation processes, outputs and feedback mechanisms.

More specifically, the systems concepts discussed in Section 3 directly informed the framework's structure. The open-systems perspective informed the representation of the organisation as embedded within a broader external environment; the input–throughput–output logic informed the process architecture of the model; interdependence informed the treatment of capitals and organisational mechanisms as mutually connected rather than discrete elements; and feedback loops informed the recursive relationships linking outputs, learning and adaptation. The mechanisms incorporated into the framework were derived from recurring themes identified in the integrated reporting literature on strategy formation, governance, management control, performance measurement and risk management.

The resulting framework represents a theoretically integrated model in which system principles are translated into a formal organisational architecture to explain integrated thinking as an organisational capability. Systems theory was ultimately selected because it provides the strongest explanatory basis for modelling integration as a dynamic organisational process sustained through interdependence, feedback and adaptive alignment rather than as a static disclosure or governance phenomenon.

5. Conceptualising integrated thinking as an organisational system capability

This section develops the paper's central construct by conceptualising integrated thinking as an organisational system capability operating through transformation processes. Rather than treating integrated thinking as a mindset or a quality inferred from the integrated report, it is theorised as the organisation's capacity to align resources, relationships, strategy and performance over time. Integration is thus located within organisational processes that enact and sustain connectivity.

5.1 *Defining integrated thinking as a system capability*

In systems terms, a capability refers to patterned processes through which an organisation integrates inputs, transforms them and adapts in response to feedback (Teece *et al.*, 1997; Senge, 1990). Drawing on this logic, integrated thinking is defined as:

The organisational capability to structure decision processes so that interdependencies between capitals, functions and time horizons are continuously recognised, evaluated and adapted through feedback.

This definition positions integrated thinking as a property of the organisational system rather than of the report that represents it. Interdependencies among capitals and time horizons are actively incorporated into strategy and resource allocation, and connectivity is maintained through feedback that enables learning and adjustment. This conceptualisation aligns with the open-systems view of organisations as entities that transform multiple forms of capital while responding to environmental signals (Von Bertalanffy, 1968; Katz and Kahn, 1978; IIRC, 2021). It clarifies that reporting is an output of integration, not its source.

5.2 *Organisational mechanisms enabling integration*

If integrated thinking is a system capability, it must operate through identifiable organisational mechanisms. These mechanisms determine whether interdependencies between capitals and stakeholder claims are embedded in routine decision-making. Strategy formation serves as the primary integrative mechanism, shaping how trade-offs between competing demands are resolved. Where integrated thinking is embedded in strategy, value creation is framed as the coordinated deployment of multiple capitals rather than financial optimisation alone (Reimsbach and Braam, 2023).

Risk management extends this integration by linking environmental uncertainty to internal resource configurations. Alignment among risk oversight, strategic planning and performance monitoring creates feedback loops across organisational subsystems (Camilleri, 2018). Longitudinal evidence shows that such alignment typically develops incrementally through adjustments in control routines rather than through the formal adoption of integrated reporting (Hosoda, 2021).

Management control and performance measurement systems provide the informational infrastructure supporting organisational alignment. When performance metrics expand beyond financial indicators to incorporate social, environmental and relational dimensions,

they create feedback between strategy and operations (Hosoda, 2021). Alignment develops through iterative reconfiguration of information flows rather than discrete structural change.

Cross-functional coordination further sustains integration. The mobilisation of multiple capitals requires relational linkages between organisational domains traditionally managed separately. Case studies demonstrate that integration develops through processes that facilitate interaction and shared evaluation of system-wide consequences (Herath *et al.*, 2021; Feng *et al.*, 2017).

Finally, integration depends on organisational sense-making. Managers interpret relationships among activities, resources and outcomes and translate these interpretations into coordinated action. Integration is both structural and interpretive, enacted through ongoing organisational practice. Together, these mechanisms determine whether integration becomes part of routine decision-making or remains rhetorical. Integrated thinking becomes embedded when interdependencies are structurally incorporated into strategy, control, governance and decision processes.

5.3 Boundary conditions: when integrated thinking fails to become embedded

Conceptualising integrated thinking as a system capability also clarifies why it frequently fails to materialise. In organisations characterised by rigid functional silos and vertically structured decision rights, optimisation occurs at the subsystem level, preventing system-wide alignment. Similarly, management control systems that focus exclusively on short-term financial performance suppress the feedback loops necessary for multi-capital integration.

A second boundary condition arises when integrated reporting is adopted primarily as a disclosure exercise without corresponding changes to internal processes. In such cases, reporting narratives may signal connectivity while underlying decision structures remain unchanged, producing decoupling between disclosure and practice (Dumay and Dai, 2017; Di Vaio *et al.*, 2021).

Institutional context further conditions emergence. The depth of integration varies across mandatory and voluntary regimes and across sectors subject to differing regulatory and stakeholder pressures (Arul *et al.*, 2021; Tirado-Valencia *et al.*, 2020). Organisational integration is thus shaped not only by internal design but also by external governance environments.

By specifying these boundary conditions, the framework explains both how integrated thinking becomes embedded and why it may remain symbolic.

6. An open-systems framework of integrated thinking

This section presents the paper's central conceptual framework. Building on the systems perspective, the model (Figure 1) conceptualises integrated thinking as an organisational capability embedded in interconnected decision processes that transform multiple capitals into value-creating outcomes. The framework depicts the organisation as an open system that adapts over time through ongoing coordination, learning and feedback. Its purpose is not to represent the structure of the integrated report, but to explain the processes through which integrated outcomes emerge.

6.1 External environment and organisational inputs

At the highest level, the model follows an open-systems logic in which the organisational system is embedded in, and continuously interacts with, its external environment (Von Bertalanffy, 1968; Katz and Kahn, 1978). The environment provides both constraints and opportunities in the form of economic conditions, regulatory requirements, social expectations, ecological limits and technological change. It also represents the domain within which stakeholder relationships are constituted and through which the organisation

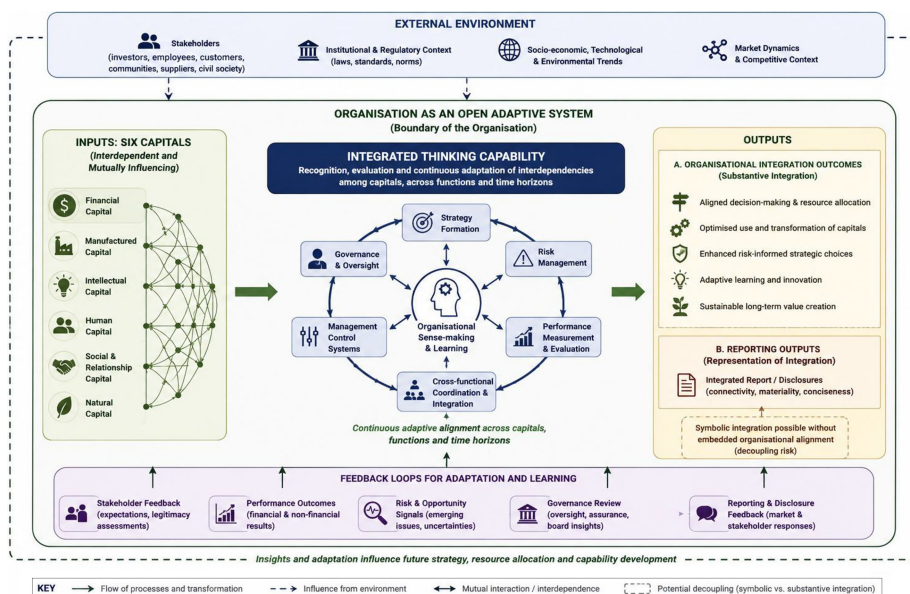


Figure 1. Conceptual framework

Source: Author's own work

gains access to, and affects, multiple capitals. This positioning reflects the integrated reporting view that value creation is contingent on the organisation's ability to maintain relationships with its external context over time (IIRC, 2021; Adams *et al.*, 2020).

The first stage of the framework captures the flow of inputs into the organisational system. These inputs consist of the stocks of multiple capitals available to the organisation, together with stakeholder claims and expectations that shape their availability and use. Financial, manufactured, intellectual, human, social and relationship and natural capitals are not treated as independent resource pools but as interdependent elements whose productivity depends on their combined configuration. This reflects the multi-capital logic of integrated reporting and its emphasis on connectivity in the value-creation process (Busco *et al.*, 2020; IIRC, 2021; Adams *et al.*, 2020). Recent applications of General Systems Theory to integrated reporting similarly stress that value emerges from the interaction among capitals rather than from isolated optimisation (Aprile *et al.*, 2023).

Stakeholder relationships function both as enabling conditions for access to these capitals and as sources of legitimacy, risk and constraint. From a systems perspective, they represent the permeable boundaries through which organisations exchange resources, information and expectations with their environment (Checkland, 1981; Scott and Davis, 2015). The configuration of inputs is therefore neither static nor internally determined; it reflects the organisation's embeddedness within a broader socio-economic and ecological context.

6.2 Transformation through organisational integration mechanisms

The transformation of inputs into organisational outcomes occurs through the set of integration mechanisms that constitute the system's core capability. These mechanisms – strategy formation,

risk management, management control, performance measurement and governance – represent the internal processes through which interdependencies among capitals, organisational units and time horizons are recognised and acted upon (Oliver *et al.*, 2016; Dumay and Dai, 2017; Busco *et al.*, 2020). Importantly, the framework's contribution does not lie in identifying these organisational mechanisms individually, as prior integrated reporting research has already recognised the relevance of strategy, governance, risk management and performance systems in supporting integration (Oliver *et al.*, 2016; Busco *et al.*, 2020; Hosoda, 2021). Rather, the novelty of the framework lies in formalising the dynamic relationships among these mechanisms within a systems-theoretical architecture. The systems perspective reconceptualises integration not as the coexistence of interconnected organisational practices, but as an adaptive process sustained by feedback, interdependence and ongoing realignment across capitals, functions and time horizons. In doing so, the framework shifts analytical attention from isolated organisational practices to the systemic processes through which integration emerges and is maintained over time.

Within the framework, these mechanisms are not sequential but mutually reinforcing. Strategy defines the long-term direction and desired configuration of capitals; risk management evaluates system-wide vulnerabilities and dependencies; management control aligns behaviour and resource allocation with strategic objectives; performance measurement generates information for evaluation and learning and governance provides oversight and accountability across organisational boundaries (Camilleri, 2018; Hosoda, 2021). Empirical research shows that integration typically emerges incrementally through adjustments in management control systems and performance routines rather than through discrete structural redesign (Stubbs and Higgins, 2014).

The bi-directional arrows between these elements signal non-linear interaction rather than linear progression. This reflects the behaviour of complex adaptive systems, in which order and coordination emerge through ongoing interaction and feedback rather than centralised design (Prigogine and Stengers, 1984; Wheatley, 2011). Integrated thinking, in this sense, operates as a relational and processual capability embedded within organisational routines.

6.3 Organisational and reporting outputs

The outputs of the system are observable in the decisions taken, the allocation of resources and the narratives through which the organisation explains its value-creation logic. In a system characterised by integrated thinking, these outputs display coherence between strategic objectives, capital deployment, risk responses and performance outcomes across time horizons (Herath *et al.*, 2021; Reimsbach and Braam, 2023).

Within the framework, the integrated report is conceptualised as an output of organisational alignment rather than the *locus* of integration itself. This distinction responds to concerns that disclosure-based indicators may capture communicative artefacts rather than underlying organisational integration (Di Vaio *et al.*, 2021; Songini *et al.*, 2023). Empirical evidence shows that reporting quality can coexist with partial or symbolic embedding of integration mechanisms, particularly across differing institutional regimes (Arul *et al.*, 2021; Dimes *et al.*, 2023).

6.4 Feedback, learning and adaptive realignment

A defining feature of the framework is the feedback loop that connects outputs to both transformation processes and input configurations. Feedback is generated through performance evaluation, stakeholder engagement, assurance processes and governance review. Through these mechanisms, organisations reassess strategic effectiveness, redefine the boundaries of materiality and adjust capital allocation (Adams *et al.*, 2020; Senge, 1990).

This recursive flow reflects dynamic equilibrium: the organisation maintains coherence and identity while continuously adapting to environmental change (Von Bertalanffy, 1968). In line with complexity theory, stability is not achieved through rigidity but through adaptive reconfiguration. Prigogine and Stengers (1984) described such systems as maintaining order far from equilibrium, while Wheatley (2011) emphasised that organisational resilience emerges from relational feedback and self-organisation. Integrated thinking, accordingly, is not a fixed structural state but an ongoing process of alignment and realignment driven by information flows and learning.

The multi-capital model spans the entire system rather than appearing as a discrete component. Capitals function simultaneously as inputs, as objects of transformation within organisational processes and as outcomes of value-creation activities. Their interdependencies span all stages of the framework, underscoring that the ability to manage trade-offs and synergies among capitals is central to sustainable value creation (Herath *et al.*, 2021; Busco *et al.*, 2020; Adams, 2017). By embedding the multi-capital logic within a dynamic, open-system structure, the framework conceptualises integrated thinking as a capability that emerges from continuous interaction among environmental conditions, resource configurations, organisational mechanisms and feedback processes.

6.5 Theoretical logic of the framework

Representing integrated thinking as a dynamic open-system process makes three theoretical contributions. Firstly, it locates integrated thinking within organisational transformation processes rather than reporting outputs, addressing concerns about disclosure-based operationalisation (Songini *et al.*, 2023). Secondly, it specifies the mechanisms through which connectivity is enacted and sustained, providing a basis for analysing variation in integration across organisations and institutional contexts. Thirdly, it positions feedback as the driver of adaptation, explaining how organisations redefine materiality, reconfigure capital relationships and maintain resilience over time. More broadly, the framework reframes integrated thinking from a relatively static notion of organisational connectivity into a dynamic process of organisational alignment and adaptation.

The framework thus provides a coherent conceptual model that can guide future empirical research by identifying observable organisational processes and outcomes through which integrated thinking may be operationalised. It offers a formal theoretical architecture for phenomena that prior research has described but not fully modelled: the emergence of integration as a system capability arising from continuous interaction among the environment, inputs, organisational mechanisms and feedback.

7. Theoretical implications

7.1 Clarifying the construct

The framework resolves the definitional ambiguity surrounding integrated thinking by locating it at the level of organisational capability rather than cognition, culture or reporting output. Prior research has variously framed integrated thinking as a mindset, a process, a disclosure attribute or an inferred outcome, resulting in conceptual stretching and inconsistent operationalisation (Oliver *et al.*, 2016; Dumay and Dai, 2017; Di Vaio *et al.*, 2021; Songini *et al.*, 2023). By defining it as the organisational capability to structure decision-making processes so that interdependencies among capitals, functions and time horizons are systematically recognised, evaluated and adapted through feedback, the framework establishes a clear ontological position: integration resides in organisational transformation mechanisms.

This clarification also strengthens the conceptual distinction between integrated thinking and integrated reporting by locating integration within organisational transformation processes rather than disclosure outputs (Ecim and Maroun, 2023; Di Vaio *et al.*, 2021). It also integrates prior levels of analysis – cognitive orientation, organisational routines and reporting coherence – by treating them as manifestations of a single underlying system capability. In doing so, the framework aligns the multi-capital model, business model logic and temporal value creation within a coherent explanatory structure (IIRC, 2021; Busco *et al.*, 2020; Adams *et al.*, 2020).

More specifically, the study advances the literature by formalising integrated thinking within a process architecture that specifies the inputs, transformation mechanisms, outputs and feedback loops through which integration is enacted and sustained. In doing so, the framework moves beyond descriptive accounts of organisational integration towards a coherent theoretical model of integrated thinking as an adaptive organisational system capability.

7.2 Explaining empirical observations

Reframing integrated thinking as a system capability enables recurring organisational outcomes in the integrated reporting literature to be explained as consequences of different system configurations and degrees of organisational alignment. Firstly, symbolic adoption can be interpreted as a decoupling between outputs and transformation processes. Organisations may adopt integrated reporting formats and language while internal governance, management control and performance systems remain fragmented (Dumay and Dai, 2017; Stubbs and Higgins, 2014; Stent and Dowler, 2015). From a systems perspective, this reflects adaptation at the representational level without reconfiguration of underlying mechanisms. Cross-country evidence shows that such patterns vary across institutional contexts, particularly between mandatory and voluntary regimes (Arul *et al.*, 2021). Public-sector studies similarly observe that reporting reforms frequently precede substantive changes in internal decision processes (Tirado-Valencia *et al.*, 2020).

Secondly, selective integration – where connectivity is visible in sustainability disclosures or stakeholder engagement but absent in core financial decision-making – can be explained as partial organisational alignment. Alignment may develop incrementally within specific subsystems, particularly management control and performance routines, without achieving organisation-wide coordination (Hosoda, 2021). Exploratory case studies confirm that organisational actors often interpret and enact integrated thinking differently across functional areas, producing fragmented organisational responses (Feng *et al.*, 2017). Without effective coordination between strategic, control and governance mechanisms, localised alignment does not translate into organisation-wide capability.

Thirdly, the prominence of narrative coherence in many integrated reports becomes intelligible. Where integration is weakly embedded in organisational processes, connectivity is most readily constructed at the level of representation. Narrative alignment thus substitutes for structural integration. Evidence from early adopters indicates that organisations often experiment first with articulating value-creation narratives before corresponding changes occur in strategy, governance and control systems (Feng *et al.*, 2017; Hosoda, 2021).

By linking symbolic adoption, selective integration and narrative substitution to specific system configurations, the framework shifts prior findings from descriptive reporting analysis to explanatory organisational theory. It clarifies not only whether connectivity appears in disclosures but under what structural conditions integration becomes embedded.

7.3 Basis for measurement and future research

Locating integrated thinking within organisational processes provides a theoretically grounded basis for empirical operationalisation. Although the capability itself is not directly observable, it generates observable consequences across multiple dimensions.

At the output level, disclosure connectivity and coherence between strategy, risk, performance and resource allocation may serve as manifestations of underlying integration mechanisms (Di Vaio *et al.*, 2021; Dimes *et al.*, 2023). At the process level, alignment between long-term strategic objectives, risk assessments and performance metrics indicates the presence of feedback loops connecting organisational subsystems (Oliver *et al.*, 2016; Hosoda, 2021). At the structural level, governance oversight of multi-capital interdependencies reflects embedding within accountability mechanisms (Camilleri, 2018; Busco *et al.*, 2020).

Importantly, review studies note that the IR field remains characterised by normative constructs and relatively few formally specified, testable organisational models (Lakhani and Herbert, 2022; Songini *et al.*, 2023). By specifying mechanisms and feedback structures, the framework addresses this gap and enables multi-level empirical designs that examine the alignment between organisational processes and reporting outcomes.

The framework thus advances integrated reporting research by providing both conceptual clarity and an analytical bridge to empirical investigation. It enables prior-disclosure-based findings to be reinterpreted as partial observations of an underlying system capability and provides a structured basis for testing the organisational conditions under which integrated thinking contributes to long-term value creation.

7.4 System configurations and organisational outcomes

A central contribution of the framework is that it explains different forms of integrated thinking as outcomes of specific organisational system configurations rather than as binary states of “integration” or “non-integration”. From a systems perspective, variation in integrated thinking arises from differences in the alignment and interaction among organisational mechanisms, feedback structures and capital relationships.

Substantive integration is most likely to emerge where strategy formation, governance, risk management, management control and performance measurement systems are strongly aligned and connected through recursive feedback processes. Under these conditions, information generated through stakeholder engagement, performance evaluation and governance oversight continuously informs strategic adaptation and resource allocation across capitals and time horizons. Integration, therefore, becomes embedded within organisational routines and decision processes rather than remaining confined to disclosure practices.

Selective integration occurs where integration develops unevenly across organisational subsystems. For example, connectivity may become embedded within sustainability management or stakeholder engagement processes while remaining weakly connected to financial planning, capital allocation or executive decision-making. In such cases, feedback processes operate locally within particular subsystems without producing organisation-wide alignment.

Symbolic adoption and reporting-led decoupling arise when reporting structures and disclosure narratives evolve without corresponding transformation of underlying organisational mechanisms. Under these conditions, the integrated report may display narrative coherence and apparent connectivity while governance routines, management control systems and strategic processes remain fragmented. From a systems perspective, this reflects adaptation at the representational level without systemic organisational integration.

By linking these organisational outcomes to specific system configurations, the framework provides a basis for future empirical research examining how differences in organisational alignment, feedback intensity and subsystem integration influence the embedding of integrated thinking over time.

8. Implications for practice and standard setters

Reframing integrated thinking as an organisational system capability has direct implications for practice and standard setting. Most importantly, it clarifies that integrated thinking is not the production of a connected report, but a property of the organisational system that generates it. This distinction aligns with the original intent of the <IR> Framework, which defines integrated thinking as the active consideration of relationships between organisational units and capitals rather than as a reporting technique (IIRC, 2021; Adams, 2017). When integration is embedded in decision processes, resource allocation routines and governance structures, the integrated report becomes an outcome of alignment rather than a mechanism for achieving integration (Oliver *et al.*, 2016).

For practice, this shifts the focus from disclosure preparation to organisational design. Enhancing integrated thinking requires changes to strategy formation, risk assessment, performance measurement and incentive systems, not merely improvements in reporting format (Dumay and Dai, 2017). From a systems perspective, this implies that organisations should not implement integrated thinking as a discrete reporting initiative or isolated governance intervention. Instead, integration should be approached as a continuous organisational alignment process in which strategy, risk management, governance, performance measurement and stakeholder engagement operate as interconnected subsystems linked through ongoing feedback and adaptive learning. The framework suggests that organisations should focus not only on achieving connectivity between functions, but also on establishing mechanisms through which information, performance outcomes and stakeholder responses continuously inform strategic adjustment and capital allocation decisions over time.

Empirical evidence shows that when reforms are reported but not accompanied by adjustments to management control systems and internal processes, connectivity remains largely symbolic (Di Vaio *et al.*, 2021). Conversely, where integration is embedded in cross-functional planning, performance management and board oversight, reporting coherence tends to follow (Busco *et al.*, 2020). The framework also identifies practical indicators of substantive integration. Evidence of substantive integration would include alignment among strategy, risk management and performance measurement systems; explicit consideration of trade-offs and interdependencies among capitals in resource allocation decisions; cross-functional coordination in planning and governance processes; and the use of feedback from stakeholders, performance outcomes and governance reviews to adapt strategic priorities over time. In contrast, where integration is primarily visible in reporting narratives but not in organisational processes and control systems, reporting-led decoupling is more likely. Assessing integrated thinking requires attention not only to disclosure connectivity, but also to the organisational mechanisms and feedback structures through which multi-capital value creation is managed.

For standard setters, the implication is equally significant. Guidance that implicitly equates integrated thinking with reporting practices may encourage compliance-oriented adoption and reinforce decoupling between disclosure and internal systems (Dumay and Dai, 2017; Di Vaio *et al.*, 2021). A more enabling approach would emphasise the organisational mechanisms that sustain connectivity – integrating strategy, risk management and performance measurement across time horizons, governing trade-offs between capitals and

using feedback to redefine materiality and resource allocation (Adams *et al.*, 2020; IIRC, 2021). Such an orientation aligns with broader calls for system-wide alignment to pursue long-term value creation and resilience (Busco *et al.*, 2020; Hurgüç *et al.*, 2025).

Positioning integrated thinking as a system property, therefore, reinforces its role as a driver of organisational transformation and clarifies that improvements in reporting quality depend on internal process alignment rather than on disclosure compliance alone. The framework further implies that successful implementation of integrated thinking depends less on formal structural redesign alone and more on the organisation's capacity to sustain recursive feedback processes across organisational boundaries. From this perspective, integration is achieved not through static coordination of organisational functions, but through continuous adaptive alignment among the capitals, decision processes, stakeholder expectations and strategic objectives.

9. Future research agenda

By conceptualising integrated thinking as an organisational system capability, this paper provides a formal process architecture that can guide empirical investigation. While prior research has generated rich descriptive insights into integrated reporting practices, relatively few formal and testable models of integrated thinking as an organisational phenomenon have been developed. Consequently, empirical studies have largely relied on indirect proxies, such as disclosure connectivity or integrated report quality. The framework developed in this paper addresses this limitation by specifying a set of relationships among organisational inputs, integration mechanisms, outputs and feedback loops that can be operationalised and empirically examined at multiple levels of organisational analysis.

Firstly, the model enables empirical tests of organisational alignment. Future research may examine whether output-level indicators of integration, such as disclosure connectivity and reporting coherence, correspond with the alignment of throughput mechanisms within the framework, including strategy processes, risk management systems, performance measurement routines and governance structures, or whether they merely reflect representational coherence in reporting. Such investigations directly address the decoupling problem highlighted in prior literature, where reporting structures evolve without corresponding organisational transformation (Dumay and Dai, 2017; Busco *et al.*, 2020).

Secondly, the framework lends itself to longitudinal investigation. Because the framework conceptualises integrated thinking as a feedback-driven organisational capability, longitudinal studies can examine how feedback loops connecting performance outcomes, stakeholder engagement, governance review and strategic adaptation contribute to the stabilisation or fragmentation of integration over time. Empirical work may examine how changes in materiality assessments, capital allocation decisions, management control systems or governance structures influence the stabilisation of integration over time. This perspective allows integrated thinking to be analysed as an emergent and adaptive organisational capability rather than a static attribute.

Thirdly, the framework supports multi-level research designs. At the organisational level, studies may analyse the alignment of strategy, control systems and reporting processes. At the process level, researchers may examine how information flows and feedback mechanisms connect the organisational subsystems represented in the framework, including governance, management control, risk management and performance evaluation systems, and support decision-making across capitals and time horizons. At the micro level, qualitative research can investigate how managers interpret trade-offs among capitals, coordinate across functions and reconcile short-term financial objectives with long-term

value creation (Oliver *et al.*, 2016; Adams, 2017). Such work would provide insight into the micro-foundations of the system capability proposed here.

Finally, comparative studies across institutional contexts may examine how regulatory environments, governance arrangements and stakeholder pressures shape the embedding of integration mechanisms within organisations (Busco *et al.*, 2020; Hurghiş *et al.*, 2025). By linking internal organisational processes with observable reporting outcomes, future research can move beyond disclosure-based inference towards analysing the organisational conditions under which integrated thinking becomes embedded and stabilised.

Because the framework specifies identifiable organisational mechanisms, feedback relationships and output conditions, it provides a structured platform for cumulative empirical work examining variation in the depth, stability and organisational embedding of integrated thinking across institutional and organisational contexts.

10. Conclusion

This paper addressed a central gap in the integrated reporting literature: the absence of a coherent theoretical explanation of integrated thinking as an organisational phenomenon. Although prior research emphasises the role of integrated thinking in connectivity, multi-capital value creation and organisational resilience, the construct has remained largely normatively framed and operationalised through indirect proxies, resulting in conceptual fragmentation (Oliver *et al.*, 2016; Dumay and Dai, 2017; Di Vaio *et al.*, 2021). Drawing on systems theory, this study reframes integrated thinking as an organisational capability enacted through organisational processes that transform multiple capitals into value-creating outcomes.

In doing so, the paper contributes to the literature in three ways. Firstly, it clarifies the ontological status of integrated thinking by locating the construct within organisational systems rather than in reporting outputs or managerial cognition. Secondly, the framework specifies the mechanisms through which integration is enacted – strategy formation, risk management, management control, performance measurement and governance – and explains how feedback loops sustain alignment among multiple capitals and organisational activities over time. Thirdly, by distinguishing organisational processes from reporting artefacts, the framework provides a theoretically grounded explanation for recurring empirical patterns in the integrated reporting literature, including symbolic adoption, selective integration and the decoupling between disclosure and practice.

The systems perspective adopted in this paper also complements existing theoretical approaches used in integrated reporting research. While agency, stakeholder and institutional theories illuminate important aspects of disclosure, accountability and organisational legitimacy, they provide less insight into how integration is embedded in organisational decision-making processes. By conceptualising organisations as open and interconnected systems, the framework provides a coherent basis for understanding integrated thinking as an organisational capability sustained through ongoing coordination and learning.

This reconceptualisation has implications for both research and practice. For researchers, the framework provides a clear theoretical foundation and a process model that enables more robust empirical operationalisation and multi-level investigation of integrated thinking within organisational systems. For practitioners and standard setters, the findings reinforce that improvements in reporting quality are contingent on aligning internal organisational processes and governance structures rather than on disclosure reform alone.

More broadly, positioning integrated thinking as an open-system capability aligns the integrated reporting field with a processual understanding of organisations as adaptive entities that create value through the continuous alignment of resources, relationships and

strategic intent in changing environments (Von Bertalanffy, 1968; Senge, 1990; Busco *et al.*, 2020). By shifting analytical attention from the integrated report to the organisational system that produces it, this paper advances the theoretical development of integrated reporting. It provides a foundation for a cumulative research agenda on the organisational mechanisms underpinning sustainable value creation.

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