Developing and Implementing a Strategic Intelligence Framework: A Knowledge Governance Architecture

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Abstract: Organisations operating in volatile, uncertain, complex and ambiguous (VUCA) environments are increasingly required to transform expanding volumes of structured and unstructured data into coherent strategic intelligence. While emerging technologies, including artificial intelligence (AI) and large language models (LLMs), expand analytical capability - technological adoption alone does not ensure reliable knowledge transformation or strategic clarity. This paper draws from the qualitative interview component of a broader PhD study to advance a Strategic Intelligence Framework (SIF) conceptualised as a Knowledge Governance Architecture for complex organisations. The broader PhD study adopted a pragmatist research design. For the purposes of this paper, reporting on the qualitative interviews from the broader PhD study are done, because it most directly informed the development of the framework. Semi-structured online interviews were conducted with five South African executives and executive Information and Knowledge Management consultants to examine how strategic decision-makers currently use strategic tools, how they experience complexity, and what they require from a framework capable of governing intelligence in practice. The interview data were thematically analysed in ATLAS.ti through open coding, pattern identification and theme development. The findings indicate that strategic decision-making is generally experienced as complex rather than clear, that strategic tools are used widely but in a fragmented manner, and that there is no consistent standard process for transforming data into actionable strategic intelligence. Participants reported using tools such as Scrum, the Balanced Scorecard, PESTLE analysis, SWOT analysis and Porter's five forces, yet they emphasised the need for stronger validation, better data quality, ethical boundaries, and preservation of human sense-making. All participants supported the inclusion of LLM capability in a Strategic Intelligence Framework, but only within clear governance boundaries. In response, the SIF comprises four interrelated structural domains: the as-is VUCA environment, the Technologies environment, the NRT methodology, and the to-be VUCA environment. When these domains operate coherently, they converge on the bottom-line of the framework: Strategic Vision, Strategic Understanding, Strategic Clarity and Strategic Agility. The paper contributes to Knowledge Management by reframing strategic intelligence as a governance problem and by linking qualitative evidence from doctoral research to the current proof-of-concept implementation of the framework.

Keywords: Strategic intelligence framework, Knowledge governance, Complex organisations, VUCA, Knowledge validation, Strategic agility

1. Introduction

Knowledge Management (KM) has long recognised that organisational performance depends not only on access to information, but on the capability to create, share, interpret and apply knowledge effectively. In technology-rich environments, however, a persistent problem remains, and that is - organisations often possess increasing quantities of data, but insufficient governance mechanisms to transform those inputs into valid, credible and decision-relevant intelligence (Azzam and Beckmann, 2024). This gap becomes more critical under conditions of rapid change, environmental turbulence and digital acceleration, where the challenge is not merely analysis, but disciplined interpretation and action (Alavi and Leidner, 2001; Foss, 2007; Gandomi and Haider, 2015).

The broader doctoral study from which this paper is derived was originally situated in the context of the Fourth Industrial Revolution (4IR). This conference paper deliberately reframes the contribution more broadly for complex organisations because the Strategic Intelligence Framework was not developed for one technological wave only. Rather, it was developed as a structured architecture capable of supporting strategic decision-making across changing technological conditions. This positioning aligns with a growing body of literature arguing that complexity, knowledge governance and human sense-making must remain central even as AI-enabled tools become more capable (Azzam and Beckmann, 2024; Jarrahi, 2018; Dwivedi et al., 2023).

This paper addresses the following question: how can a Strategic Intelligence Framework govern the transformation from data to information to intelligence in a manner that is structurally coherent, future-resilient and useful to executives and strategic decision-makers? To answer this question, the paper reports the qualitative interview component of the doctoral study and uses those findings to explain the development and current implementation of the SIF.

2. Literature Review

Knowledge Management (KM) literature has traditionally focused on knowledge creation, transfer, storage and use. Foundational work has demonstrated that knowledge is a strategic organisational resource and that organisations require systems and processes capable of converting dispersed experience and information into usable knowledge (Nonaka, 1994; Alavi and Leidner, 2001). Yet this literature also points to a broader issue: knowledge does not organise itself. It is shaped by organisational arrangements, incentives, procedures and informative techniques. That is the point at which knowledge governance becomes central (Foss, 2007; Foss, Husted and Michailova, 2010). Knowledge governance builds on the traditional KM focus of knowledge creation, transfer, storage and use by examining how organisational structures shape knowledge processes (Foss, 2007; Foss, Husted and Michailova, 2010). This perspective is important for Strategic Intelligence because data and information do not become decision-relevant merely through collection or technological processing. They require contextual interpretation, quality assurance and organisational judgement.

Strategic Intelligence (SI) is defined in this study as a systematic and continuous process of producing intelligence of strategic value in an actionable form to facilitate long-term decision-making (De Koker, 2025). SI's purpose is not limited to reporting historical conditions, SI connects environmental scanning, information processing, organisational knowledge and executive judgement to decisions with long-term consequences. Decision Intelligence similarly emphasises the fit between intelligence requirements and an organisation's capacity to process intelligence (Moser, Rengarajan and Narayanamurthy, 2021). The SIF extends this discussion by concentrating on how the full transformation process can be governed under complex conditions.

Figure 1 below establishes the knowledge transformation logic underpinning the paper. It shows how data from the operational environment is processed into information and analysed into intelligence (Abu et al., 2020), which supports the SIF's knowledge governance purpose.

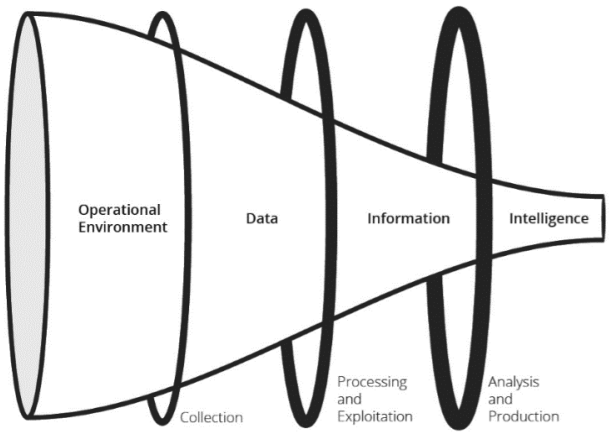

Figure 1: Relationship of data, information and intelligence (Abu et al., 2020)

Knowledge is not treated as an excluded or separate linear stage in Figure 1. Knowledge operates across the transformation by enabling people and organisations to interpret, contextualise, validate and apply know-how to data, information and intelligence in the production of actionable SI. In the SIF, knowledge is therefore an overarching governance capability rather than another item in a straightforward sequence. This interpretation is consistent with KM research that views knowledge as socially and organisationally embedded, rather than as data that has merely been processed (Nonaka, 1994; Alavi and Leidner, 2001; Abubakar et al., 2019; Shrivastav, Bag and Bhattacharya, 2025).

For this paper, SI is treated not merely as an output, but as a governed process. It includes the disciplined movement from data, to information, to intelligence, and ultimately to strategic judgement. This requires more than analytical capability. It requires standards of inclusion, validation mechanisms, data quality controls and institutionalised interpretive practices. Without these, intelligence becomes fragmented, reactive and vulnerable to error.

This problem is intensified in VUCA environments. Sense-making literature shows that under ambiguous conditions, organisations must interpret weak signals, plurality of meaning and incomplete evidence in order to act coherently (Weick, Sutcliffe and Obstfeld, 2005). Strategic agility literature likewise shows that

organisations require more than plans; they require the capacity to adjust direction while retaining coherence of purpose (Doz and Kosonen, 2010). This makes a strong case for a governance architecture that can support both disciplined analysis and context-sensitive interpretation.

The rise of AI and LLMs sharpens this need rather than reducing it. These tools can augment pattern recognition, synthesis and analytics; but their outputs remain dependent on data quality, prompt design, contextual fit and human judgement. Current peer-reviewed literature consistently argues for complementarity rather than substitution. AI can strengthen decision processes, but humans remain crucial for sense-making, ethics, contextual interpretation and relational judgement (Jarrahi, 2018; Korzyński et al., 2023; Dwivedi et al., 2023). The relationship between humans and AI is important and must be managed and governed as a close partnership where humans and AI work together to solve complex problems. At the same time, research on large language models (LLMs) cautions that without careful governance, organisations face risks linked to unreliable outputs, data bias and misplaced trust (Bender et al., 2021; Wang and Strong, 1996).

The literature establishes the importance of knowledge creation and governance, sense-making, strategic agility, data quality and human-AI synergy. However, these bodies of work are generally discussed separately. Limited research integrates them into one architecture that governs the transformation from data to information to intelligence, and finally strategic intelligence, while remaining responsive to organisational complexity and technological change. The SIF addresses this gap by combining contextual complexity, technological enablement, structured validation and a future-oriented strategic state within one knowledge governance architecture.

3. Research Design and Method

The paper reports one empirical strand of a broader doctoral study that adopted a pragmatist design. Pragmatism was appropriate because the research sought not only to understand a problem, but also to develop a practically usable framework for complex organisational contexts (Feilzer, 2010; Kelly and Cordeiro, 2020).

Although the broader doctoral study incorporated concurrent qualitative and quantitative components, this paper focuses on the qualitative interviews because they most directly informed the conceptual development of the SIF and its movement towards implementation. Purposive sampling identified South African executives and executive Information and Knowledge Management consultants with direct experience of strategic decision-making under complex conditions. Six individuals were approached and five participated. Three participated in Microsoft Teams interviews, while two submitted completed interview schedules by email because of scheduling constraints. The small sample is appropriate to the exploratory purpose of this paper: obtaining information-rich executive perspectives for framework development rather than statistical generalisation.

Data collection took place between March and April 2024. The interview schedule examined organisational complexity, Strategic Intelligence tools, decision-making, AI-enabled technologies and requirements for a new SIF. The data were organised and analysed in ATLAS.ti. Analysis followed repeated reading and memoing, open coding, frequency and word-correlation checks, grouping related codes into higher-order themes, and interpretation of those themes in relation to framework development. Trustworthiness was strengthened through a documented analytical trail, use of the same interview schedule across participants, repeated engagement with the transcripts, comparison across participant accounts and alignment of interpretations with the broader doctoral evidence. These procedures are consistent with thematic analysis as a transparent and iterative process (Braun and Clarke, 2006).

4. Findings from the Qualitative Interviews

The first clear finding is that participants overwhelmingly experienced their decision environments as complex, sometimes oscillating between complex and complicated, and only occasionally clear. Strategic decision-making was therefore not described as stable or procedural in any simple sense. Rather, it was portrayed as contingent, context-dependent and often shaped by uncertainty. This supports the central thesis insight that executives and strategic decision-makers are operating in an as-is VUCA environment that requires more than ad hoc analysis.

The second finding is that participants used existing strategic tools, but in a fragmented manner. The tools mentioned most often were Scrum, the Balanced Scorecard, PESTLE analysis, SWOT analysis, Porter's five forces and the OKR framework. Scrum was especially valued as a practical mechanism for making complex

work manageable, while other tools were used more selectively. Importantly, participants did not reject tools as such. What they highlighted was the absence of an overarching architecture that could integrate those tools into a coherent intelligence process. In other words, the problem was not tool scarcity, but governance fragmentation.

A third finding concerns the absence of a standard process for incorporating strategic intelligence into decision-making. Some participants described evidence-based practices within parts of their organisations, but these were uneven, inconsistent and often "in pockets" rather than institutionalised across the business. Others stated directly that no formalised process existed. This inconsistency signals a governance gap. It suggests that organisations may possess pockets of intelligence capability without possessing a reliable mechanism for converting distributed data and analysis into shared strategic understanding.

A fourth finding is the strong, but qualified, support for incorporating LLM capability into a Strategic Intelligence Framework. All participants supported such inclusion. However, their support was conditional. They emphasised boundaries, ethics, data quality, validity and the continued role of humans in interpretation. Participants saw LLMs as useful for data generation, pattern detection and synthesis, but not as a substitute for human sense-making. Concerns about poor data quality, duplication and unreliable internal datasets were especially prominent. These findings align strongly with peer-reviewed literature on AI augmentation, prompt engineering and the risks of uncritical reliance on generative systems (Jarrahi, 2018; Korzyński et al., 2023; Bender et al., 2021).

A fifth and highly significant finding is that participants repeatedly Highlighted the social nature of knowledge. They emphasised divergent views, contributions from the operational edge, narrative intelligence, naturalistic decision-making, human sensor networks and sense-making beyond formal authority structures. This matters because it shows that intelligence cannot be reduced to analytics alone. Strategic intelligence must be socially embedded if it is to inform action credibly. The interview data therefore pointed not only to a need for technological and analytical capability, but to a need for interpretive legitimacy, participation and disciplined judgement. This is consistent with sense-making theory, which treats organising as a process through which people turn ambiguous conditions into actionable situations (Weick, Sutcliffe and Obstfeld, 2005).

Figure 2 below provides further evidence of the qualitative interview foundation of the paper. It shows the dominant language emerging from the combined executive interviews and supports the empirical claim that participants focused on complexity, Strategic Intelligence, decision-making and the need for a SIF.

Figure 2: Word cloud from the combined interview transcripts (De Koker, 2025)

Table 1 makes the relationship between the qualitative findings and the SIF explicit. The domains were not inferred from one interview statement in isolation; they represent an integrated response to recurring empirical requirements, interpreted together with the theoretical foundation of the doctoral study.

Table 1: Relationship between the interview findings and the SIF

Interview finding	SIF structural domain	Framework implication
Decision environments were experienced as complex and context-dependent.	As-is VUCA environment	Establishes complexity as the starting condition for Strategic Intelligence.
Strategic and analytical tools were used widely but in a fragmented manner.	Technologies environment	Positions technologies and tools as enabling capabilities that require integration and governance.
No consistent standard process existed for transforming data into actionable Strategic Intelligence.	NRT methodology	Provides standards of inclusion, data cleansing, ranking and quality validation.
LLMs were supported only with data-quality controls, ethics and human oversight.	Technologies environment and NRT methodology	Combines technological capability with structured validation and human judgement.
Participants emphasised sense-making, divergent perspectives and actionable strategic outcomes.	To-be VUCA environment	Directs validated intelligence towards Strategic Vision, Strategic Understanding, Strategic Clarity and Strategic Agility.

5. Discussion

The interview findings support a clear interpretation: what organisations require is not another isolated strategic tool, but a governance architecture capable of ordering complexity. The Strategic Intelligence Framework (SIF) responds to this requirement through four structural domains.

Figure 3 below presents the SIF as an integrated ecosystem moving from the as-is VUCA environment through the Technologies environment, the to-be VUCA environment and the NRT methodology, culminating in Strategic Vision, Strategic Understanding, Strategic Clarity, and Strategic Agility ($^{S}V^{S}U^{S}C^{S}A$)© as the bottom-line.

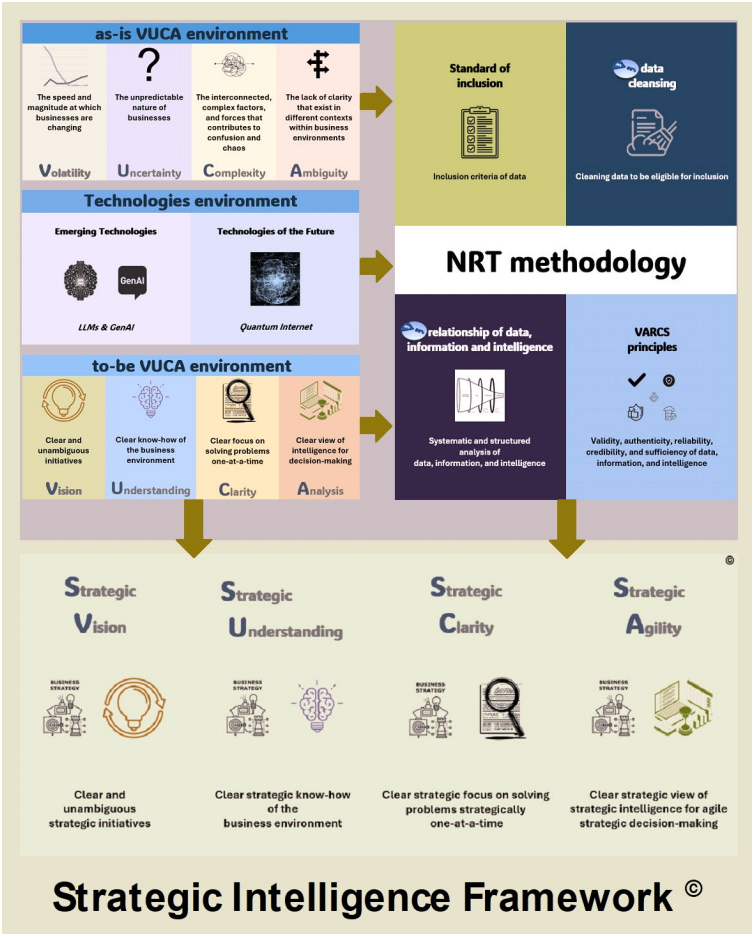

Figure 3: Strategic Intelligence Framework© (De Koker, 2025)

The first domain is the **as-is VUCA environment**, which represents the conditions in which most organisations currently operate. This domain recognises volatility, uncertainty, complexity and ambiguity as the prevailing context of strategic decision-making. These conditions are not treated as background factors, but as the starting point of the framework. Organisations operating in this environment are often confronted with fragmented information, uncertain consequences, competing interpretations and limited strategic clarity. The domain therefore establishes the organisational conditions from which the need for Strategic Intelligence arises.

The second domain is the **Technologies environment**. This domain comprises emerging technologies and technologies of the future that are required in the intelligent age. These include AI, LLMs and other technologies capable of processing large volumes of structured and unstructured data, identifying patterns and supporting intelligence production. The domain recognises that technological capability is necessary for organisations seeking to move beyond the limitations of the as-is VUCA environment. However, technology is an enabler rather than an autonomous source of valid intelligence. Its outputs remain dependent on data quality, governance, validation and human interpretation (Azzam and Beckmann, 2024; Jarrahi, 2018).

The third domain is the **to-be VUCA environment**. This domain represents the strategic condition in which some organisations are already operating because they have developed Vision, Understanding, Clarity and Analysis. It reflects a more structured and intelligence-oriented organisational state in which decision-makers are better able to interpret their environment, understand strategic conditions and analyse available evidence. The to-be VUCA environment is therefore not an idealised or final state. It represents the strategic orientation towards which organisations seek to move from the as-is VUCA environment through the effective use of appropriate technologies and disciplined intelligence processes.

The fourth domain is the **NRT methodology**. The Nominal Ranking Technique (NRT) methodology is a structured content analysis methodology developed to move large volumes of qualitative content from complexity towards prioritised, decision-relevant intelligence (De Koker and Du Plessis, 2024). It begins with a clearly defined Standard of Inclusion, followed by data cleansing, categorisation, keyword identification, ranking, interpretation and the selection of content that meets the purpose of the analysis. The methodology maintains the relationship between data, information and intelligence while applying the VARCS principles of validity, authenticity, reliability, credibility and sufficiency. In the doctoral study, NRT was used to interrogate complex datasets systematically. Within the SIF, it serves as the framework's validation and structuring mechanism by making decisions concerning inclusion, exclusion, cleansing, categorisation and prioritisation visible and traceable (De Koker and Du Plessis, 2024; Foss, 2007; Wang and Strong, 1996).

The four domains must therefore be understood as an integrated progression. Organisations begin in the as-is VUCA environment, draw on capabilities available in the Technologies environment and seek to move towards the to-be VUCA environment. However, this progression does not automatically produce valid Strategic Intelligence. The NRT methodology must be applied properly to govern, structure and validate the transformation from data to information to intelligence.

Only through the proper application of the NRT methodology can the bottom-line of the SIF be achieved: **Strategic Vision, Strategic Understanding, Strategic Clarity, and Strategic Agility ($^{S}V^{S}U^{S}C^{S}A$)©**. These are not additional domains. They are the intended end-product of the framework. Strategic Vision provides direction; Strategic Understanding provides contextual and systemic comprehension; Strategic Clarity provides interpretive focus; and Strategic Agility enables timely, evidence-informed adjustment.

The contribution to KM is therefore twofold: first, it strengthens the governance perspective in KM by emphasising validation and interpretive control; second, it links this governance perspective directly to Strategic Intelligence under complex conditions.

The current proof-of-concept (PoC) implementation extends this contribution from framework development towards practical application. The PoC operationalises selected SIF components, including the NRT validation workflow, the structured transformation from data to information to intelligence, technology-enabled processing and documentation of the decision lineage between source inputs, validated intelligence and strategic interpretation. Its purpose is to assess practical feasibility, identify implementation requirements and support iterative refinement of the architecture in organisational settings. The PoC does not yet establish causal effectiveness or full framework validation; formal evaluation remains ongoing. It does, however, demonstrate that the architecture can be translated into an operational process rather than remaining only a conceptual representation.

6. Conclusion

This paper has reported the qualitative interview component of a broader doctoral study and used those findings to explain the development and current implementation of a Strategic Intelligence Framework for complex organisations. The findings show that executives and strategic decision-makers operate under persistent complexity, use strategic tools in fragmented ways, and require stronger governance mechanisms for the transformation of data into intelligence. They also show that LLM capability is welcomed when bounded by validation, ethics and human sense-making.

The paper's principal contribution is to position Strategic Intelligence as a Knowledge Governance problem. The SIF integrates four structural domains: the as-is VUCA environment, the Technologies environment, the NRT methodology and the to-be VUCA environment. Knowledge operates across these domains as the organisational capability through which information is interpreted, validated and applied. The resulting architecture links the interview findings to a structured pathway that culminates in Strategic Vision, Strategic Understanding, Strategic Clarity and Strategic Agility. The ongoing PoC further indicates that the architecture is implementable, while its effectiveness remains subject to formal evaluation.

The paper is limited by its qualitative scope and by the fact that proof-of-concept evaluation is still underway. Even so, the evidence presented here is sufficient to show that the SIF has conceptual coherence, empirical grounding and practical relevance for KM scholarship and for complex organisations seeking governed pathways from data to Strategic Intelligence.

Ethics Declaration: Ethical clearance for the broader PhD research from which this paper is derived was obtained from the School of Consumer Intelligence and Information Systems Research Ethics structures at the University of Johannesburg. The ethics clearance reference is 2020SCiiS58. This conference paper reports findings drawn from that approved research.

AI Declaration: Generative AI tools were used in the preparation of this paper for drafting support, structural refinement and language editing. The underlying research design, empirical data collection, analysis, interpretation, verification of references and final scholarly judgement remained the responsibility of the author.

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