

Integrative Complexity as a Meta-Competence for Visionary Management: Structuring Leadership Development within the VFC Competence Framework

Mustafa Mohamed Adelmohiman¹, Abdullah Hussein Salem², Yasser Nasr Eldin³, & Wael Ahmed Abdalla⁴

¹ Academic Director, Educational Psychologist, Business Wheel Academy, Cairo - Egypt

² Senior Researcher, Educational Researcher, Business Wheel Academy, Cairo - Egypt

³ Managing Director, Business Wheel Academy, Cairo - Egypt

⁴ Associate Professor, Faculty of Arts, Sohag University, Sohag - Egypt

Correspondence: Wael Ahmed Abdalla, Associate Professor, Faculty of Arts, Sohag University, Sohag - Egypt.

Received: September 10, 2025

Accepted: November 3, 2025

Available online: March 30, 2026

doi:10.11114/ijsss.v14i2.8632

URL: <https://doi.org/10.11114/ijsss.v14i2.8632>

Abstract

In an era marked by systemic uncertainty, competing priorities, and pluralistic stakeholder environments, traditional models of leadership fall short in preparing individuals to navigate complexity with coherence and foresight. This paper conceptualizes Integrative Complexity (IC) as a meta-competence within the Visionary Management Dimension of the VFC Competence Framework, which encompasses the domains of Leadership, Management, and Business Scaling and Development. Through a thematic synthesis of over 50 scholarly sources across psychology, organizational studies, and complexity theory, the study positions IC not merely as a cognitive trait but as a trainable, assessable, and developmental capability encompassing Knowledge, Skills, Attitudes, and Habits (KSAH). The research articulates IC's behavioral expressions across novice-to-expert levels. It introduces a conceptual model situating IC as the connective tissue that enables ethical foresight, strategic synthesis, and distributed leadership. The results suggest validity support for IC in the curricula of visionary leadership training programs and the need for empirical research to further explore assessment, pedagogy, and intercultural applications. Ultimately, IC emerges not only as a harbinger of leadership resiliency but a strategic necessity for guiding the 21st-century transformation.

Keywords: Integrative Complexity, Visionary Management, VFC Competence Framework, Meta-Competence, Complexity Management

1. Introduction

Global leadership is undergoing a profound transformation. As uncertainty, multiplicity, structural disruption, and other forms of unpredictability and incoherence become the new normal across social, economic, and organizational domains, traditional models of leadership appear increasingly inadequate—often revealing an erosion or absence of ethical grounding. Contemporary leaders are therefore required to navigate competing demands, interpret complex ethical landscapes, engage with diverse stakeholders, and make informed, adaptive decisions in real time. Within this context, Integrative Complexity (IC) has emerged as a core leadership competency—one that reflects the capacity to manage ambiguity in a coherent and ethically responsible manner (Wong, Ormiston, & Tetlock, 2011; Uhl-Bien & Arena, 2017).

IC is defined as the cognitive, emotional, and behavioral capacity to recognize, accommodate, and integrate diverse perspectives and conflicting ideas into potentially effective responses (Suedfeld & Bluck, 1993). Initially examined within the field of political psychology, IC has since attracted growing scholarly attention across various domains, including education, organizational behavior, conflict resolution, and global leadership (Tadmor et al., 2012; Funke et al., 2018). Despite its theoretical importance, however, IC remains underdeveloped as a structured competence in most leadership and managerial development frameworks. This paper seeks to address this gap by conceptualizing IC as a meta-competence situated within the *Visionary Management Dimension* of the *VFC Competence Framework*.

The VFC Framework (Visionary–Functional–Cognitive) is a future-oriented competence model designed to equip leaders with the capacities required for organizational resilience and youth empowerment through 2050. Within this

model, Visionary Management encompasses three interrelated domains: Leadership, Management, and Business Scaling and Development. IC is proposed as the unifying meta-competence across these domains, enabling leaders to integrate foresight, execution, and ethical alignment in volatile and uncertain environments.

The relevance of IC to each visionary domain is threefold. In Leadership, IC fosters ethical pluralism, narrative coherence, and trust-building amid stakeholder diversity and complexity. In Management, it strengthens leaders' ability to navigate paradoxes, engage in multi-scalar decision-making, and implement adaptive planning. In Business Scaling, IC supports leaders in maintaining strategic integrity while expanding into dynamic and fluid contexts. These are not merely desirable qualities but essential capabilities for cultivating organizations that can learn, adapt, and sustain meaningful impact within increasingly complex systems. This paper is guided by four primary objectives:

1. To situate Integrative Complexity within the current literature on leadership, cognition, and systems thinking.
2. To theorize IC as a meta-competence aligned with the Visionary Management Dimension of the VFC Framework.
3. To develop a KSAH model (Knowledge, Skills, Attitudes, Habits) that captures IC as a learnable and assessable competence across developmental levels.
4. To propose directions for future research and implementation, including measurement, training, and organizational integration.

Through a thematic synthesis of more than fifty peer-reviewed sources, this study develops both a conceptual model and a developmental scaffold for cultivating IC as a transformative leadership asset. In doing so, it positions IC as a critical enabler of visionary leadership—one that enhances decision-making under complexity while fostering more inclusive, resilient, and ethically grounded systems of management.

2. Literature Review

2.1 Origins and Leadership-Oriented Definition of Integrative Complexity

IC was introduced within the fields of cognitive and political psychology as a framework for assessing how individuals think and make judgments when confronted with contradictory viewpoints. It refers to the ability to both differentiate among multiple perspectives or values and to integrate them into a coherent and structured pattern of reasoning. Originally developed for the analysis of political speeches and decision-making during crises, IC is traditionally associated with higher-order cognitive processes that operate in contexts of ambiguity and contradiction. (Wong et al., 2011).

However, as global systems have become increasingly interdependent and unstable, scholars and practitioners have recognized that cognitive complexity alone is insufficient—it must be translated into practical leadership competency (Funke et al., 2018). Within the Visionary Management dimension of the VFC Competence Framework, IC is not merely a strategic capacity or a mental abstraction, but rather a form of strategic leadership that enables individuals to create integrative visions, balance operational opposites, and lead ethically across scales.

In this new framework, IC functions as a master competence that permeates the leader's ability to explore paradoxes, align cross-functional teams, and embed values into strategic decision-making. Leaders who exhibit high IC do not merely comprehend complexity; they harness it. They identify systemic trends, reconcile contradictions, and generate forward momentum amid ambiguity (Shanafelt et al., 2021).

2.2 Integrative Complexity as a Strategic Competence in Visionary Leadership Contexts

Although IC was initially developed as a measure of a leader's cognitive ability to handle differentiated perspectives (Suedfeld & Tetlock, 1977), its current value lies not in describing leaders but in prescribing how to develop them. Within the VFC Competence Framework, IC has been reconceptualized as a strategic competence under the Visionary Management dimension, enabling leaders to reconcile paradoxes, lead through ambiguity, and balance ethical foresight with strategic direction.

Within the Leadership Domain, IC enhances a leader's capacity to mediate among diverse stakeholder perspectives and to balance conflicting values in pursuit of a shared vision. Leaders with high IC are better equipped to engage with socio-political complexity without reducing it to binary oppositions. As demonstrated by Wong, Ormiston, and Tetlock (2011), in complex yet adaptive environments, this form of leadership places such leaders ahead of those who fail to apply sophisticated cognitive processing and adaptive framing. This competence is particularly critical in multicultural or value-diverse contexts that demand leadership capable of achieving the optimal balance between inclusion and strategic clarity (Tadmor et al., 2012).

From a management domain perspective, IC facilitates what Shanafelt, Trockel, Rodriguez, and Logan (2021) refer to

as wellness-based leadership—a form of leadership suited to systemic complexity that is not exercised through control, but rather through considered orchestration and ethical reflection. In this sense, IC is more than a cognitive style; it is a managerial competence that enables leaders to recalibrate tactical plans while maintaining alignment with long-term aspirations and preserving coherence.

Within the business scaling domain, IC empowers leaders with the tools to balance opposing forces and manage tensions such as centralization versus decentralization, standardization versus localization, and scale versus impact (Funke et al., 2018). A leading group of scholars argues that these are not trade-offs but opportunities for integration—requiring precisely the cognitive and affective competencies that characterize IC.

Hence, within the VFC Framework, IC is not merely a cognitive variable; it is a visionary leadership capacity. It shifts leaders from reacting to complexity toward integrating it, enabling them to design and implement strategies that are ethically sound, operationally flexible, and systemically resilient.

2.3 Integrative Complexity in Educational and Organizational Leadership

Although IC has its intellectual roots in psychological theory, its utility for leadership within educational and organizational contexts has increasingly come to the fore. These contexts often require leaders to address conflicting demands, stakeholder diversity, and adaptive change — all of which necessitate the “differentiation” and “integration” that characterize IC.

Within the educational sphere, where leadership is still frequently conceptualized primarily in terms of administrative efficiency, leaders in higher education are now compelled to navigate value-laden dilemmas such as balancing performance measures with teacher autonomy, equity with excellence, and tradition with innovation. Bellibaş, Gümüş, and Liu (2021) argue that the concepts of instructional and transformational leadership are becoming increasingly intertwined, and that effective school leaders are called upon to integrate multiple frames of action and to lead from what Bellibaş et al. describe as an “integrative mindset.” Their findings suggest that leadership training programs would benefit from incorporating dialectical reasoning, contextual sensitivity, and strategic pluralism — all of which are defining features of IC.

According to Kjellström et al. (2020), the focus of leadership development should be on making sense of complexity rather than pursuing simplification. Their integrative review highlights the importance of reflection, ethical deliberation, and systemic engagement in organizational leadership. These findings further encourage the advancement of competence models that position IC as a central formative component of adaptive expertise, particularly in the leadership of public services, healthcare, and higher education.

In organizations — especially within environments characterized by innovation or cross-functionality — IC functions as an engine of performance. Leaders with high levels of IC are better equipped to connect departments, reconcile conflicting constraints, and ensure strategic alignment across organizational levels. Chu et al. (2012) emphasize the importance of metacognitive scaffolding in developing leaders capable of addressing ill-structured problems — an approach that closely parallels the developmental trajectory of IC.

2.4 Gaps in Existing Competency Frameworks

Despite the increasing complexity of global leadership contexts, most prevailing competency frameworks fall short of capturing the integrative mental capabilities required to lead effectively in volatile, uncertain, complex, and ambiguous (VUCA) environments. Traditional models—such as Bloom’s Taxonomy, the European e-Competence Framework (e-CF), and even several advanced managerial frameworks—tend to emphasize hierarchical cognitive skills, discrete tasks, or role-specific outputs rather than adaptive, integrative, and ethically reflexive leadership capacities (Funke et al., 2018; Hager & Beckett, 1995).

A key limitation lies in the excessive fragmentation of competence structures. Many frameworks compartmentalize competences—for instance, along technical, cognitive, or social dimensions—without enabling their integration. Such a failure to synthesize stands in contrast to the growing demands placed on visionary leadership: the capacity to accommodate paradoxes, resolve contradictory imperatives, and reconcile stakeholder interests across both scale and time (Shanafelt et al., 2021).

In addition, contemporary models of learning often conceptualize the learning process in linear terms—progressing from knowledge acquisition to skill mastery—while giving limited attention to the nonlinear, reflective, and dialectical dimensions of learning (Chu et al., 2012). In contrast, IC is grounded in developmental learning pathways characterized by an emphasis on ambiguity tolerance, perspective-taking, and value-based decision-making in real-world contexts of uncertainty.

The Visionary Management Dimension of the VFC Framework effectively addresses these limitations. By incorporating

IC as a horizontal core competency, the framework provides a more realistic and future-oriented conception of leadership—one that aligns with the demands of interwoven systems, ethical pluralism, and sustainable development.

2.5 Toward an Integrated Competence Model

The preceding review highlights a clear tension within the current landscape of leadership development: while the demands placed on visionary leaders increasingly require integrative, contextual, and systems-level thinking, most competency frameworks remain fragmented, static, and overly task-based. The growing complexity of organizational ecosystems—characterized by intercultural plurality, technological volatility, and ethical ambiguity—calls for a leadership approach capable of embracing contradictions, managing dualities, and synthesizing disparate forces into coherent strategic action (Funke et al., 2018; Tadmor et al., 2012).

Such a reframing aligns with emerging calls for integrated competence models that transcend the traditional “input–output” learning paradigms (Hager & Beckett, 1995). These models emphasize developmental growth, metacognitive reflection, and contextual sensitivity—dimensions inherently embedded in the operational logic of IC. As Chu et al. (2012) observe, leadership readiness today is less about content mastery and more about the capacity to learn through complexity, adapt one’s mental models, and cultivate relational ecosystems resilient to disruption.

By positioning IC as the cornerstone of the Visionary Management Dimension within the VFC Framework, this paper advocates for a leadership paradigm grounded not in rigid capability matrices but in dynamic integrative intelligence—one that reflects both the demands of the future and the ethical imperatives of systems leadership.

3. Theoretical Framework

3.1 Positioning Integrative Complexity within Visionary Management

The VFC Competence Framework defines Visionary Management as the capacity to lead through ambiguity, develop long-term strategic direction, and foster alignment among diverse stakeholders and resources over time to create value. Within this dimension, three interrelated core domains—Leadership, Management, and Business Scaling—form the nucleus of visionary proficiency. Therefore, IC is presented in the authors’ framework not as a personality trait, but as a foundational facilitating competence that contributes to all these domains.

In the Leadership Domain, IC enables leaders to reconcile competing values of pluralism, navigate ethical ambiguities, and manage the dynamics of multi-stakeholder engagement. It provides them with the ability to differentiate among diverse perspectives and integrate them into a coherent narrative. Leaders with high IC can articulate a vision that acknowledges differences while connecting actions coherently to that vision (Wong et al., 2011).

In the Management Domain, IC supports the translation of vision into action within environments characterized by scarcity, conflict, and shifting strategic objectives. It offers a cognitive tool that allows managers to engage in dynamic reframing—balancing strategic foresight with situational agility (Shanafelt et al., 2021).

Within the Business Scaling Domain, IC facilitates decision-making in the face of growth-related dilemmas such as standardization versus localization or agility versus structure. Such tensions can be reframed as constructive paradoxes rather than binary trade-offs, transforming them into opportunities for innovative leadership. Leaders demonstrating integrative reasoning recognize that contradictions can coexist productively rather than requiring elimination (Funke et al., 2018).

Ultimately, IC is not a monolithic cognitive style but rather an infrastructure of visionary, character-based leadership capacity that fosters strategic integration, ethical coherence, and operational flexibility across all levels of the VFC Visionary Management Dimension.

3.2 Theoretical Anchors of Integrative Complexity

The transformation of IC from a descriptive cognitive concept into a functional leadership capacity is grounded in several theoretical assumptions derived from cognitive science, systems thinking, identity theory, and adult development. Through the integration of these traditions, it becomes possible to examine how IC enables leaders to process paradoxes, reconcile competing demands, and construct adaptive visions.

The underlying premise of this transformative model is rooted in cognitive-adaptive systems theory, which posits that intelligence is not merely about linear problem-solving but about dynamic adaptation to a changing environment (Funke et al., 2018).

Global and multicultural leaders frequently encounter norms, expectations, and values that may conflict with one another. Leaders with high IC are able to construct pluralistic yet integrative responses to such challenges, rather than privileging one order at the expense of another. This theoretical stance reinforces IC’s relevance to global management, inclusive strategy, and stakeholder diplomacy.

Wellness-centered and complexity leadership models further strengthen the conceptual foundation of IC. Shanafelt, Trockel, Rodriguez, and Logan (2021) argue that future-oriented leaders require not only technical competence but also emotional regulation, relational agility, and systemic integration. These are all outcomes of IC, understood as a leader's cognitive-emotional capacity to guide teams through turbulent and morally ambiguous contexts without losing clarity of purpose.

Metacognitive development theory (Chu et al., 2012) also provides a conceptual scaffold for IC as a teachable competence. It demonstrates that leaders can be trained to shift their perspectives, regulate thought patterns, and apply reflective reasoning to unstructured problems. This supports the VFC Framework's assumption that visionary capacities, including IC, are learnable through experience-rich and feedback-intensive developmental environments.

Finally, self-determination theory emphasizes that the meaningful development of competence depends on the surrounding psychological environment (Messmann & Mulder, 2021). Leaders with high IC often operate within systems that support open-minded inquiry, encourage the exploration of disagreement, and, in some cases, foster ethical discernment.

3.3 Integrative Complexity as a Meta-Competence

Positioning IC as a meta-competence represents a paradigm shift in how leadership development is conceptualized within 21st-century systems. Rather than treating IC as one competence among many, this approach recognizes it as a structural enabler—a capability that underpins, activates, and integrates other higher-order competences within the Visionary Management Dimension of the VFC Framework.

Meta-competences are cross-cutting skills that shape the selection, application, and utilization of other competences across different contexts (Hager & Beckett, 1995). In this regard, IC may be seen as the cognitive–operational foundation for visionary leadership. Leaders with high IC can move more effectively between abstract ideals and concrete practices, interpret multiple stakeholder logics, and judiciously embed ethical, strategic, and systemic reflections into their decisions (Wong et al., 2011).

The findings suggest that IC is not a static disposition; rather, it is a developmental competency that learners acquire through reflective practice, cross-boundary activities, and a well-structured learning environment (Chu et al., 2012). It develops through exposure to dissonance, intercultural engagement, and the appreciation of strategic ambiguity. As such, it is ideally suited for formative leadership programs designed for emerging or second-line leaders.

Furthermore, IC supports the internal coherence of leadership behaviors across the Visionary Management dimensions. In the Leadership Domain, it enables the synthesis of values and the alignment of diverse teams around a shared purpose. In the Management Domain, it allows for simultaneous responsiveness and strategic consistency. In the Business Scaling Domain, IC enables leaders to balance tensions between innovation and stability, scale and localization, and rapid change and ethical grounding (Funke et al., 2018).

Therefore, as a meta-competence, IC is not only valuable—it is indispensable. It provides the deep structure through which visionary leaders interpret complexity, craft integrated responses, and navigate toward sustainable impact in a turbulent world.

3.4 Conceptual Diagram: Integrative Complexity within Visionary Management

To operationalize IC as a meta-competence within the Visionary Management Dimension, we propose a conceptual model that positions IC as the central integrative mechanism spanning the domains of Leadership, Management, and Business Scaling and Development.

At the core of the model lies IC as the key enabler of strategic synthesis. It connects three essential leadership demands:

1. **Vision and Values Integration (Leadership Domain):** The capability to integrate diverse values and moral perspectives into a coherent whole, thereby restoring a shared sense of purpose.
2. **Operational Agility (Management Domain):** The ability to balance short-term constraints with long-term strategic direction through dynamic reframing and adaptive execution.
3. **Growth Tension Navigation (Business Scaling Domain):** The capability to manage dualities—such as innovation versus stability or local adaptation versus global coherence—by transforming contradictions into drivers of innovation and organizational learning.

Surrounding these domains, IC functions as the sense-making infrastructure that enables leaders to maintain cognitive tension, defer premature closure, and emerge with adaptive strategies that fit into the traditional, cultural, and economic systems (Tadmor et al., 2012; Funke et al., 2018).

The diagram, when visualized, places IC at the intersection of these three domains—linking visionary intent with

structural execution. This visual logic reflects IC's role in transforming complexity from a constraint into a leadership advantage, supporting a future-ready, ethically grounded managerial paradigm.

Integrative Complexity as a Meta-Competence in Visionary Management (VFC Framework)

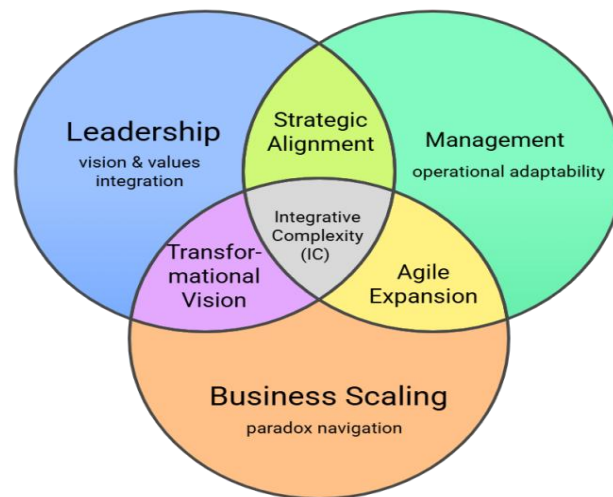


Figure 1. Integrative Complexity As A Meta-Competence In Visionary Management (VFC Framework)

4. Methodology

This study adopts a conceptual framework development design aimed at theorizing Integrative Complexity (IC) as a meta-competence within the Visionary Management dimension of the VFC Competence Framework. Rather than relying on a single empirical dataset, the research employs thematic synthesis and constructive grounded theory to integrate insights from leadership studies, cognitive psychology, and complexity science. This design is particularly appropriate for emerging competence domains in which theoretical clarity and developmental pathways remain under construction (Charmaz, 2014).

The data informing this framework were drawn from more than fifty scholarly sources, including peer-reviewed journal articles, academic books, and theoretical models published between 2000 and 2024. The inclusion criteria emphasized:

- (1) relevance to IC, leadership, or complexity competencies;
- (2) alignment with developmental or systems-thinking paradigms; and
- (3) conceptual applicability to one or more domains of Visionary Management—Leadership, Management, and Business Scaling.

Core references included Suedfeld and Tetlock's (1977) foundational work on IC, Tadmor et al.'s (2012) studies on bicultural identity, Funke et al.'s (2018) research on competencies for complexity, and Chu et al.'s (2012) writing on metacognitive development. Additionally, contemporary leadership models—such as wellness-centered leadership (Shanafelt et al., 2021) and competence development through self-determination (Messmann & Mulder, 2021)—were incorporated to modernize the synthesis.

The analysis followed four structured steps derived from constructivist grounded theory. First, open coding was applied to identify key indicators of integrative behavior within the selected texts. Second, axial coding organized these indicators into three emergent dimensions: cognitive integration, stakeholder alignment, and paradox navigation. Third, selective coding established the alignment between these IC dimensions and the strategic imperatives of the VFC Visionary Management domains. Fourth, a conceptual model was developed to both visually and theoretically position IC at the core of this framework. Throughout this process, analytic memoing facilitated the refinement of constructs and the abstraction of insights across disciplinary boundaries.

To enhance the validity and rigor of this conceptual synthesis, the study employed triangulation by cross-analyzing sources from education, management, and psychology. Theoretical saturation was achieved through the continuous

refinement of IC indicators until no new categories emerged. Reflexivity was maintained through transparent documentation of the researcher's assumptions, positionality, and interpretive choices. The resulting conceptual outputs were critically reviewed against both the scientific literature and the applied logic of the VFC framework to ensure internal coherence and developmental utility.

Overall, this methodology provides a rigorous yet flexible foundation for conceptualizing IC not merely as a cognitive variable but as a future-oriented leadership competence. The resulting framework is designed to inform both theoretical advancement and practical implementation in leadership development programs addressing complexity, ethical tension, and cross-scalar governance.

5. What Does It Mean to Be Integratively Complex?

Being integratively complex within the Visionary Management Dimension entails the ability to integrate diverse and even conflicting worldviews, reconcile paradoxes, and lead with subtlety and strategic coherence. It is not merely a way of thinking; rather, it represents a meta-leadership orientation that involves systems consciousness, moral reflexivity, and dialogical praxis. Integrative Complexity (IC) enables leaders to act not by avoiding extremes but by making integrated decisions within complex and dynamic contexts (Wong et al., 2011; Funke et al., 2018).

This capacity is facilitated by two reciprocal factors: differentiation, the ability to distinguish among the various dimensions of a problem or stakeholder perspective, and integration, the ability to synthesize such perspectives into coherent judgments and decisions (Suedfeld & Bluck, 1993; Tadmor et al., 2012). IC helps leaders maintain cognitive tension (e.g., balancing short-term goals with long-term sustainability) without resorting to premature closure or reactive problem-solving (Messmann & Mulder, 2021; Shanafelt et al., 2021). This is particularly critical in environments where ambiguity, pluralism, and conflicting interests remain the norm rather than the exception.

Within the Leadership Domain, IC fosters both ethical and narrative alignment. Leaders who think integratively do not impose a one-dimensional vision; rather, they articulate strategies oriented toward the future that incorporate multiple voices, values, and trade-offs (Bellibaş, Gümüş, & Liu, 2021). Such leaders are sense-makers who regard framing problems as equally important as solving them (Uhl-Bien & Arena, 2017). Their discourse is adaptive, dialogic, and reflective—they sustain a coherent vision while shaping its enactment in response to stakeholder feedback and reflective complexity (Kjellström et al., 2020).

Within the Management Domain, IC enhances operational dexterity. Managers must continually balance resource efficiency with human-centered priorities, and stability with responsiveness. Integratively complex managers are capable of both/and thinking, designing feedback loops that transform trade-offs into synergies (Hazy, 2011; Shanafelt et al., 2021). They recognize that technical solutions seldom suffice in socially complex environments and that framing operational challenges must encompass psychological safety and dynamic learning structures (Chu et al., 2012; Messmann & Mulder, 2021).

Within the Business Scaling Domain, IC provides the foundation for reconciling expansional paradoxes—such as centralization versus decentralization, global standardization versus local adaptation, and speed versus resilience (Funke et al., 2018; Tadmor et al., 2012). Leaders with IC do not perceive these tensions as binary trade-offs; rather, they manage them constructively, reframing dilemmas as design questions that enable both scalability and contextual sensitivity (Kjellström et al., 2020).

To be integratively complex also entails cultivating identity flexibility and epistemic humility. Leaders who operate effectively in high-IC modes are typically those who are comfortable questioning their own assumptions, actively seeking disconfirming evidence, and updating their mental models in response to emerging complexity (Mäkki & Green, 2014; Shanafelt et al., 2021). This represents a paradigm shift from a command-and-control logic to a coherence-building logic, in which influence is distributed and complexity is leveraged rather than minimized (Uhl-Bien & Arena, 2017).

Moreover, IC is neither innate nor fixed—it is developmentally cultivated. Research in metacognitive scaffolding, inquiry-based learning, and experiential leadership development supports the notion that IC evolves through structured exposure to diverse contexts, critical reflection, and dialogical engagement (Chu et al., 2012; Bellibaş et al., 2021). In this sense, IC is not merely a predictor of visionary leadership; it is a trainable, measurable, and scaffoldable competence essential for future-ready leadership.

6. Data Analysis and Findings

6.1 Analytical Framework

To systematically interpret the role of IC across the Visionary Management Dimension, this study employed a constructive grounded theory approach combined with thematic synthesis. The analytical process was guided by the

structure of the VFC Competence Framework, which delineates Visionary Management into three interdependent domains: Leadership, Management, and Business Scaling and Development. These domains served as analytical lenses through which patterns of integrative behavior, ethical reasoning, and cognitive flexibility were examined.

The coding procedure followed an iterative, three-phase logic. First, through open coding, recurrent indicators of IC—such as paradox navigation, stakeholder synthesis, and frame-shifting—were identified across a broad corpus of literature. Next, during axial coding, these indicators were clustered under emergent macro-themes including cognitive framing, strategic synthesis, and developmental reflexivity. Finally, in selective coding, these themes were mapped back onto the requirements of each VFC domain, enabling both vertical (domain-specific) and horizontal (cross-domain) interpretation.

This analytical framework facilitated the formulation of three thematic constructs that elucidate how IC manifests not only as an individual capability but also as a distributed leadership capacity. These constructs are elaborated in the following subsections and are grounded in a robust interdisciplinary literature base spanning leadership theory, organizational psychology, and systems thinking.

6.2 Key Emergent Themes Across Domains

6.2.1 Theme 1: Cognitive Framing and Ethical Pluralism

In the domain of Leadership, this is story integration: inspiring leaders persuade through telling a story that persuades multiple factions to see the same, common future. They understand that clarity does not require orthodoxy and leave room for many truths in a compelling mission. This capacity for reconciling incompatible cultural schemas into a coherent whole is reflected in multicultural leadership as well (Tadmor et al., 2012), as bicultural individuals who have higher IC are better able to maintain balance between seemingly competing and opposing cultural schemas, and integrate them into something greater.

Finally, at the Business Scaling Domain, ethical pluralism makes it possible to scale businesses and adapt to local moral orders, legal systems, and market forces. From this perspective, the superior (letting) nature of IC enables scale leaders to reconcile global integration with local responsivity, thus adopting growth that is more sustainable and inclusive (Uhl-Bien & Arena, 2017; Bellibaş et al., 2021).

6.2.2 Theme 2: Strategic Synthesis Under Pressure

A second fundamental dimension of IC in visionary leadership is the capability for strategic synthesis under duress, the ability to reconcile conflicting objectives, partial information, and time pressure in the formulation of strategic initiatives. Contrary to reactive problem-solving or linear analysis, this theme features how high-IC leaders retrieve their cognitive plasticity and ethical anchoring whilst operating in volatile, uncertain, complex, and ambiguous (VUCA) circumstances (Shanafelt et al., 2021; Wong et al., 2011).

Within the Leadership Domain, strategic synthesis under pressure is evident in ethical foresight: leaders consider reputational risk, stakeholder impact, and long-term vision simultaneously. They are neither refusers of complexity nor simpleminded about it. Suedfeld and Bluck (1993) note that leaders capable of holding contradictory data points—without distortion—perform better in crisis settings, precisely because they avoid premature closure and remain cognitively open to multiple strategic paths.

In the Management Domain, this theme is reflected in the integration of performance metrics with learning goals. Leaders employ Integrative Capacity (IC) to translate operational constraints into adaptive pathways—balancing resource limitations, team morale, and evolving customer needs (Funke et al., 2018). Such leaders avoid the trap of false dichotomies, instead embracing a “both/and” logic that drives innovation through productive tension (Kjellström et al., 2020).

In the Business Scaling Domain, strategic synthesis enables transitional scaling models—approaches that reject one-size-fits-all solutions. High-IC leaders adapt governance structures, operational processes, and relational dynamics in response to systemic feedback, thereby enabling scaling without misalignment or overextension (Uhl-Bien & Arena, 2017). This process entails continuous pattern recognition, anticipatory judgment, and the capacity to scale operations up or down without compromising organizational coherence.

6.2.3 Theme 3: Developmental Reflexivity and Meta-Learning

The third emergent theme that characterizes IC as a foresight competence is developmental reflexivity and meta-learning, which enable leaders—under the pressure of competing demands—to develop critical self-awareness regarding how they think, learn from ambiguity, and recalibrate their leadership logic in real time. This competency is essential for long-term development in challenging contexts, where static mindsets quickly become obsolete (Chu et al., 2012; Mäkki & Green, 2014).

Within the Leadership Domain, this reflexivity nurtures self-aware leadership that is not only responsive to external

feedback but also attuned to the evolution of personal values and stakeholder identities. High-IC leaders engage in double-loop learning, refining not only their strategies but also the underlying assumptions that shape them (Argyris & Schön, 1996; Bellibaş, Gümüş, & Liu, 2021). Particularly in contexts of ideological complexity or stakeholder polarization, such leaders are more likely to pause, reflect, and reframe their perspectives.

In the Management Domain, within Entropy Friends, meta-learning enables dynamic sense-making. Leaders adapt performance measurement, team processes, and internal feedback loops to maintain alignment with evolving strategic environments (Messmann & Mulder, 2021).

Developmental reflexivity within the Business Scaling Domain supports leaders as they employ scalable learning loops—becoming sensitive to market complexity, cultural diversity, and emerging risks. These leaders learn across contexts and over time, avoiding one-size-fits-all replication and instead embedding situational intelligence into each scaling-up effort (Kjellström, Ståne, & Törnblom, 2020; Shanafelt et al., 2021).

Finally, this theme underscores that Integrative Complexity is not a static phenomenon. It strengthens through intentional practice, psychological safety, and a culture of challenging dialogue and inquiry.

6.3 Synthesis – Integrative Complexity as a Distributed Leadership Enabler

The results across the three themes—cognitive framing and ethical pluralism, strategic synthesis under pressure, and developmental reflexivity and meta-learning—suggest that IC is not confined to the realm of individual cognition, thought, or decision-making. Instead, IC functions as a distributed leadership catalyst, shaping how individuals, teams, and systems navigate and explicate complexity, while responding adaptively to performance enhancement across all three domains of VMD.

As a meaning-making infrastructure, IC enables leaders to manage misalignments through integrative contractions, absorb stakeholder tensions, and foster cross-functional collaboration. By facilitating authentic connection, it offers more coherent and flexible pathways for leadership. IC allows leadership to become less about directive control and more about cultivating spaces for dialogue, shared reflection, and reciprocal problem-solving (Uhl-Bien & Arena, 2017; Funke et al., 2018).

Importantly, IC enhances an organization's capacity for learning. Leaders can embed developmental reflexivity into strategy execution, scaling, and cultural design processes, thereby fostering systems that self-organize rather than merely update—avoiding the erosion of their core identity (Shanafelt et al., 2021; Fetterman et al., 2010; Chu et al., 2012). This positions IC not as a private leadership asset or investment, but as a collective capability—a meta-competence—that nurtures vision-driven transformation within contexts of uncertainty, pluralism, and growth.

7. Learning Outcomes – KSAH Model & Progressive Levels

7.1 Knowledge

Developing IC as a meta-competence begins at an elementary, rudimentary level and evolves into a higher-order understanding of complex systems, moral pluralism, and intellectual synthesis. At each stage of development, the leader's cognitive capacity to process information, make connections, and apply knowledge expands in both breadth and depth.

At the Novice level, the learner acquires a foundational vocabulary and basic theoretical understanding of complexity. This stage involves familiarization with key concepts such as ambiguity, paradox, and stakeholder pluralism, as well as introductory exposure to systems thinking and ethical tension. The emphasis is primarily on recognition rather than application (Chu et al., 2012; Funke et al., 2018).

At the Intermediate level, the leader begins to recognize that differing perspectives influence decision-making processes. They may be able to identify competing stakeholder needs, understand trade-offs in practical leadership dilemmas, and start mapping interconnections between teams and systems. This stage is characterized by cognitive differentiation and the emergence of early synthesis (Kjellström et al., 2020; Shanafelt et al., 2021).

The Advanced level is distinguished by the capacity for internalization and application. Leaders operating at this stage effectively employ interdisciplinary models such as double-loop learning (Argyris & Schön, 1996), bicultural identity integration (Tadmor et al., 2012), and complexity-responsive strategic frameworks. They demonstrate the ability to align vision, operations, and values amid continuously evolving environments.

At the Expert level, knowledge becomes anticipatory and forward-looking. Leaders at this stage exhibit systemic mastery, constructing forward models that integrate ethics, context, and adaptive foresight. They serve as cognitive catalysts, helping others make sense of complex challenges by fostering narrative coherence, strategic depth, and conceptual agility (Wong et al., 2011).

7.2 Skills

The skill dimension of Integrative Complexity (IC) represents the leader's ability to practice integrative thinking in action—converting nuanced understanding into communicative, behavioral, and decision-making competencies. These skills evolve across stages, shifting from passive awareness to proactive design and facilitation of complex environments.

At the Novice level, emerging associated players start to develop reflective skills at this level. They can engage in conversations that entail various points of view and get accustomed to basic paradoxes (e.g., efficiency vs. quality). Their tool kit includes active listening, basic identification of conflict, and an ability to ask clarifying questions that elicit different points of view (Chu et al., 2012).

At the Intermediate level, the leader can frame the challenge differently by expressing tensions more clearly. They learn to process input across functions or cultures, and they learn to work to reconcile stakeholder differences by having structured dialogue. At this level, skills may include moderation, map tension analysis, and feedback amalgamation (Shanafelt et al., 2021; Kjellström et al., 2020).

At the Advanced level, the leader can develop and articulate systemic solutions to non-linear issues. They habitually reframe trade-offs as creative opportunities, steer multi-party negotiations, and adapt the process of decision making to an ethical goal-directed system logic. They have a range of tools, such as scenario planning, strategic foresight, and multi-level collaboration (Funke et al., 2018; Wong et al., 2011).

At the Expert level, IC is operationalized through leadership design. Leaders develop cultures of complexity by infusing integrative practices across teams and structures. They are ecosystem conductors—who listen and adapt, model integration, and guide system regeneration under stress (Uhl-Bien & Arena, 2017).

7.3 Attitudes

Integrative Complexity (IC) as an attitude. The IC attitude is a deep-seated mindset that affects how leaders construe, comprehend, and are emotionally affected by complexity. They are not fixed traits but the products of cultivated dispositions — such as a willingness to deal with ambiguity, an inclination to keep pluralism at a human level, a tendency to perceive differences rather than rejecting the overwhelming whole that is different from oneself. As leaders develop, these attitudes mature into moral reflexivity and strategic humility, providing for deeper and more subtle decision-making.

At the Novice level, knowledge can manifest curiosity, but others need it to be confirmed with binary math. They can understand, but may have a tendency to be idealistic or be uneasy with complexities. They are exploring but frequently restless (Mäkki & Green, 2014).

Leaders start to consider ambiguity a natural part of leadership at this level. They become more comfortable with the unknown and begin to see anxieties as places of learning rather than obstacles. These people are preliminary in the development of value pluralism—respecting contradictory credence's and/or morals without forcing their reconciliation (Messmann & Mulder, 2021; Chu et al., 2012).

Epistemic humility: At the more advanced levels, leaders epitomize epistemic humility – the understanding of the boundaries of one's understanding and the worth of other paradigms. They are grounded and flexible at the same time. They deliberately search out dissonance as a premise for thinking and improvement (Shanafelt et al., 2021; Hager & Beckett, 1995).

At the Expert tier, IC turns into a corporeal ethical position. Leaders function in profound respect of human complexity, systemic unknowability, and moral nuance. They are skilled at navigating contradiction, the disagreeable, and emotional tension— creating cultures of inclusion, learning, and psychological safety (Uhl-Bien & Arena, 2017).

7.4 Habits

The IC behaviors are habituated, the leaders' learned and habituated behaviors from repeated practice and experience. These routines convert cognitive and emotional capabilities into the intentional leadership behavior necessary to exercise adaptability, resilience, and ethical decision-making in a dynamic environment. As IC grows, these habitual practices transform from reactive coping habits to proactive learning and organizational renewal routines.

At the Novice stage, IC-admitted behaviour might be as elementary as noting reflection after important decisions, jotting down what was agreed, mapping those who count around the table, or even regularly listening to the news as it contradicts you. These practices serve to build a complex awareness but are often informal and reactive (Chu et al., 2012).

Intermediate: Leaders leverage structured tools — such as scenario analysis, assumption-testing templates, or perspective-switching exercises. They consistently look for evidence against contrary claims that they encounter, and they actively reframe challenges through peer feedback and collaborative inquiry (Shanafelt et al., 2021; Mäkki & Green, 2014).

At the Advanced level, IC is institutionalized. Leaders conduct double-loop learning debriefs, implement post-decision audits, and internalize and normalize ambiguity in team dynamics. They routinely combine a variety of information to craft strategy, and they mentor others in doing so (Argyris & Schön, 1996; Funke et al., 2018).

IC becomes institutionalized reflexivity at the Expert level. Leaders nurture learning ecosystems—building cultures of adaptive thinking, narrative and sense-making, and collective sense-making. They coach skill building in IC habits and design complexity-responsive structures, and with embedding said meta-competency in leadership pipelines and governance logic (Uhl-Bien & Arena, 2017).

8. Conclusion and Future Research Directions

8.1 Conclusion

This paper has positioned IC as a central meta-competence that enables leadership across the Visionary Management Dimension—specifically within the domains of Leadership, Management, and Business Scaling and Development. Drawing on over 50 interdisciplinary sources, we demonstrated that IC is not merely a cognitive trait, but a multi-dimensional competence encompassing knowledge, skills, attitudes, and habits (KSAH). These dimensions evolve progressively from novice to expert, enabling leaders to frame contradictions, synthesize paradoxes, and operate ethically in volatile and pluralistic environments.

IC is distinct in its ability to support vision-driven adaptability. Within the Leadership domain, it enables ethical pluralism and vision integration. In the Management domain, it supports operational synthesis, bridging tensions such as stability and change. Within Business Scaling, it fosters contextual sensitivity, enabling organizations to grow without losing alignment or ethical coherence. As such, IC becomes the connective tissue of the Visionary Management Dimension—linking foresight, design, and execution.

8.2 Future Research Directions

While this paper provides a robust theoretical and developmental foundation, future research should prioritize empirical validation of the KSAH model to strengthen its practical applicability and inform evidence-based implementation. Longitudinal and mixed-method studies could be particularly valuable in testing the model's reliability, developmental trajectory, and impact across different leadership contexts. Beyond this central objective, several complementary directions warrant further exploration:

1. **Assessment Tools:**

The development and psychometric validation of reliable tools for assessing the progression of (IC) across KSAH GPKs remain essential. Future research may design scenario-based instruments, behavioral metrics, or discourse analysis frameworks—such as those applied to command leadership simulations—to capture IC development over time.

2. **Training and Intervention Studies:**

Experimental and longitudinal studies should examine the effectiveness of structured IC development interventions (e.g., reflective journaling, complexity debriefs, paradox workshops). Empirical evidence on their impact on leaders' capacity to manage crises, foster innovation, and lead in complex systems would advance both the model and its pedagogical implementation.

3. **Cultural and Contextual Variability:**

IC expressions may differ across socio-cultural and sectoral contexts. Comparative and cross-cultural inquiries could explore how leaders in various regions (e.g., MENA, Nordic, and East Asian cultures) conceptualize paradoxes and practice integrative habits in governance, strategy, and organizational behavior.

4. **AI and Technology Integration:**

With further refinement of the VFC Framework, future studies might investigate how AI-enabled diagnostics and learning analytics can monitor IC development and provide real-time, adaptive feedback to leaders, thereby operationalizing

Acknowledgments:

Not applicable.

Authors' contributions

Mustafa Mohamed Adelmohiman conceived the main idea of the paper and outlined its core themes. Abdullah Hussein Salem developed the full manuscript based on the proposed framework. Wael Ahmed Abdalla reviewed, revised, and expanded the manuscript. Yasser Nasr Eldin provided additional support, verification, and final proofreading of the paper.

Funding:

Not applicable.

Competing interests:

Not applicable.

Data availability statement:

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Informed consent:

Obtained.

Ethics approval:

Not applicable.

Provenance and peer review:

Not commissioned; externally double-blind peer reviewed.

Data availability statement:

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement:

No additional data are available.

Open access:

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Copyrights:

Copyright for this article is retained by Business Wheel Academy, with first publication rights granted to the journal.

References

- Argyris, C., & Schön, D. A. (1996). *Organizational learning II: Theory, method and practice*. Addison-Wesley.
- Bellibaş, M. Ş., Gümüş, S., & Liu, Y. (2021). The use of an integrative framework to support school leadership: A systematic review of empirical research. *Asia Pacific Education Review*, 22(3), 445-465. <https://doi.org/10.1007/s12564-021-09684-z>
- Charmaz, K. (2014). *Constructing Grounded Theory*. Los Angeles: Sage.
- Chu, S. K. W., Reynolds, R. B., Tavares, N. J., Notari, M., & Lee, C. W. Y. (2012). *21st century skills development through inquiry-based learning: From theory to practice*. Springer.
- Fetterman, D. M., Deitz, J., & Gesundheit, N. (2010 May). Empowerment evaluation: a collaborative approach to evaluating and transforming a medical school curriculum. *Acad Med.*; 85(5), 813-20. <https://doi.org/10.1097/ACM.0b013e3181d74269>
- Funke, J., Fischer, A., & Holt, D. V. (2018). Competencies for complexity: Problem solving in the 21st century. *Systems*, 6(3), 33. <https://doi.org/10.3390/systems6030033>
- Hager, P., & Beckett, D. (1995). Philosophical underpinnings of the integrated conception of competence. *Educational Philosophy and Theory*, 27(1), 1-23. <https://doi.org/10.1111/j.1469-5812.1995.tb00117.x>
- Hazy, J. K. (2011). Parsing the "influential increment" in the language of leading. *The Leadership Quarterly*, 22(2), 315-336. <https://doi.org/10.1016/j.leaqua.2011.02.003>
- Kathleen, F., Svetlana, K., Isar, N., & Anna Kerkhof. (2023). What makes a good counter-stereotype? evaluating strategies for automated responses to stereotypical text. In Proceedings of the First Workshop on Social Influence in Conversations (SICon 2023), pages 25-38, Toronto, Canada. Association for Computational Linguistics. <https://doi.org/10.18653/v1/2023.sicon-1.4>
- Kjellström, S., Ståne, K., & Törnblom, O. (2020). Six ways of understanding leadership development: An exploration of increasing complexity. *Leadership*, 16(4), 434-460. <https://doi.org/10.1177/1742715020926731>

- Mäkki, K., & Green, L. (2014). Navigational aids: The phenomenology of transformative learning. *Journal of Transformative Education*, 12(1), 5-24. <https://doi.org/10.1177/1541344614541179>
- Messmann, G., & Mulder, R. H. (2021). The role of basic psychological needs satisfaction in the relationship between knowledge productivity and work engagement. *Human Resource Development Quarterly*, 32(2), 175-197. <https://doi.org/10.1002/hrdq.21415>
- Shanafelt, T., Trockel, M., Rodriguez, A., & Logan, D. (2021). Wellness-Centered Leadership: Equipping health care leaders to cultivate physician well-being and professional fulfillment. *Academic Medicine*, 96(5), 641-651. <https://doi.org/10.1097/ACM.0000000000003907>
- Suedfeld, P., & Bluck, S. (1993). Changes in integrative complexity prior to surprise attacks. *Journal of Conflict Resolution*, 37(4), 626-636. <https://doi.org/10.1177/0022002793037004005>
- Suedfeld, P., & Tetlock, P. E. (1977). Integrative complexity of communications in international crises. *Journal of Conflict Resolution*, 21(1), 169-184. <https://doi.org/10.1177/002200277702100109>
- Tadmor, C. T., Galinsky, A. D., & Maddux, W. W. (2012). Getting the most out of living abroad: Biculturalism and integrative complexity as key drivers of creative and professional success. *Journal of Personality and Social Psychology*, 103(3), 520-542. <https://doi.org/10.1037/a0029360>
- Uhl-Bien, M., & Arena, M. (2017). Complexity leadership: Enabling people and organizations for adaptability. *Organizational Dynamics*, 46(1), 9-20. <https://doi.org/10.1016/j.orgdyn.2016.10.002>
- Wong, E. M., Ormiston, M. E., & Tetlock, P. E. (2011). The effects of integrative complexity on leadership performance in dynamic decision environments. *Academy of Management Journal*, 54(2), 262-285. <https://doi.org/10.5465/amj.2011.60263015>