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Thinking as a Strategic HR Competence for Leadership and Workforce Development

English Vincent ^{1,2*} , Kenny Brian ¹

¹ Department of Business, Longford International College, N39 P249 Longford, Ireland

² Department of Economics, The Universita Telematica Internazionale Uninettuno, 00185 Roma, Italy

ABSTRACT

In an era marked by volatility, digital disruption, demographic change, and continuous organisational transformation, the ability of firms to compete increasingly depends on the quality of their human capability. While leadership scholarship has long recognised the importance of higher-order cognition, human resource management has given comparatively less explicit attention to thinking competence as a strategic capability that can be cultivated through talent systems, learning architectures, performance processes, and organisational culture. This paper argues that expert, critical, strategic, and systems thinking should be understood not merely as desirable individual traits, but as strategic human resource capabilities that enable organisations to attract, develop, deploy, and renew talent in ways that support sustained adaptability and performance. Drawing on the resource-based view, dynamic capabilities theory, organisational learning, and leadership research, the paper develops a framework for embedding thinking capability within HR strategy and practice. The paper shows how higher-order thinking can be advanced through recruitment and selection, leadership development, succession planning, performance management, employee voice, diversity and inclusion, and HR (Human Resource) information systems. In doing so, it repositions HR not as an administrative support function, but as a central architect of organisational adaptability, change readiness, and long-term capability development. The paper contributes to strategic HRM (Human Resource Management) by conceptualising thinking competence as a developable and institutionalisable dimension of

*CORRESPONDING AUTHOR:

English Vincent, Department of Business, Longford International College, N39 P249 Longford, Ireland; Department of Economics, The Universita Telematica Internazionale Uninettuno, 00185 Roma, Italy; Email: vincent.english@longfordcollege.com

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workforce and leadership capability, with implications for talent management, organisational resilience, and competitive advantage.

Keywords: Strategic Human Resource Management; Talent Management; Performance Management; Leadership Development; Critical Thinking; Systems Thinking; Organisational Change

1. Introduction

The contemporary organisational environment is characterised by volatility, uncertainty, complexity, and ambiguity, but also by accelerating technological change, shifting workforce expectations, geopolitical instability, and pressure for continual reinvention. In such a context, organisations no longer compete solely through capital, infrastructure, or market access. They compete through the quality of their people and, more specifically, through the ability of their workforce and leaders to interpret complexity, exercise judgement, learn rapidly, and adapt collectively. This places human resource management at the centre of organisational strategy. HR is increasingly expected not only to recruit and retain employees, but to build the human capability required for innovation, resilience, and strategic renewal.

Accordingly, this paper reframes thinking as a strategic human resource competence rather than solely as an attribute of individual leadership excellence. It identifies four interconnected dimensions of higher-order thinking: expert thinking, critical thinking, strategic thinking, and systems thinking. It then argues that HR strategy and practice play a decisive role in embedding these capabilities through recruitment and selection, learning and development, performance management, succession systems, diversity and inclusion initiatives, employee voice mechanisms, and HR information systems. By advancing this perspective, the paper contributes to the strategic HRM literature in two ways. First, it positions thinking capability as a developable and manageable form of human capital. Second, it shows how HR can act as a central architect of organisational adaptability, leadership depth, and change capacity in the 21st century.

This argument aligns closely with the resource-based view of the firm, which holds that sustained advantage emerges from valuable, rare, inimitable, and organisationally embedded capabilities. It also resonates with the literature on dynamic capabilities, which emphasises the importance of sensing, seizing, and transforming in response

to changing environments. If organisations are to renew themselves successfully, they require people who can think deeply within their domains, question inherited assumptions, interpret the wider strategic environment, and understand interdependence across functions and stakeholders. These are not simply cognitive preferences; they are strategic human capabilities that can be strengthened or weakened by HR architectures, cultures, incentives, and development systems.

The concept of adding value is especially important here. In people management terms, value is not created only when employees meet formal role requirements, but when they bring judgment, reflection, initiative, and integrative thinking to complex organisational problems. A manager who simply executes instructions may maintain operations; a manager who diagnoses patterns, challenges assumptions, anticipates future capability needs, and mobilises others across the system contributes to organisational adaptation. From an HR perspective, the critical question is therefore not merely how organisations appoint effective leaders, but how they design people systems that consistently cultivate these forms of value-adding thought across leadership pipelines and the wider workforce.

Strategic HRM has traditionally focused on how bundles of HR practices contribute to firm performance by shaping skills, motivation, and opportunity. Yet one underdeveloped area within this literature concerns the cultivation of higher-order thinking as an organisational capability. Firms routinely speak about the need for agile leaders, critical thinkers, systems-oriented managers, and strategically aware employees, but these qualities are often treated as informal ideals rather than as capabilities that can be systematically developed through talent management, performance management, leadership development, succession planning, and organisational learning. This paper argues that such thinking capabilities should be treated as a core concern of HR strategy and practice because they influence how individuals make decisions, solve problems, collaborate across boundaries, and respond to change.

Crucially, this paper differentiates itself from existing leadership and HR competence models by conceptualising thinking not merely as an individual psychological trait or a static selection criterion, but as a dynamic, organisationally embedded capability. While traditional models (e.g., trait theories or role-based HR competencies) often treat cognitive skills as exogenous variables or implicit requirements, the novel theoretical insight offered here is that specific modes of higher-order thinking can be systematically cultivated, managed, and institutionalised through targeted HR architectures. This framework advances the literature by explicitly linking cognitive development pathways to the sensing-seizing-transforming mechanisms of dynamic capabilities, thereby positioning HR as the central architect of cognitive resilience.

2. Conceptual Methodology

This study adopts a conceptual approach to theory building, integrating insights from multiple literature streams to develop a novel framework for strategic HRM. The literature selection process involved a structured review of foundational and contemporary research across four domains: strategic management, organisational learning, cognitive psychology, and human resource management. Inclusion criteria focused on peer-reviewed journal articles and seminal books that explicitly addressed cognitive capabilities, dynamic capabilities, or strategic HR architectures. Selection boundaries were drawn to exclude purely clinical psychological studies of cognition, focusing instead on applied organisational and leadership contexts.

3. Literature Review: The Foundations of Cognitive Leadership

3.1. The Resource-Based View and Core Competencies

The resource-based view (RBV) of the firm emerged as a major paradigm in strategic management in the 1980s and 1990s. It shifted the focus of strategy from the external environment^[1] to the internal resources and capabilities of the firm. The central tenet of the RBV is that a firm's competitive advantage is derived from its unique bundle of resources that are valuable, rare, inimitable, and non-

substitutable (VRIN)^[2]. Barney's seminal work established that firms with resources that possess these characteristics can sustain competitive advantages over time, as competitors find it difficult to replicate these resources.

Prahalad and Hamel^[3] extended this view with the concept of core competencies, which they defined as "the collective learning in the organisation, especially how to coordinate diverse production skills and integrate multiple streams of technologies." Core competencies are not just about assets, but about the organisation's ability to deploy those assets in a way that creates unique value for customers. For example, Sony's core competence is not just in manufacturing electronics, but in miniaturisation—the ability to pack complex technology into small, portable devices. This competence has enabled Sony to succeed across multiple product categories, from Walkmans to PlayStation.

This paper extends this concept to the individual leader, arguing that a leader's thinking is a core competence that underpins their ability to orchestrate the firm's resources and capabilities. Just as Sony's miniaturisation competence is the result of years of accumulated knowledge and experience, a leader's thinking competence is developed through deliberate practice, learning, and reflection.

3.2. Dynamic Capabilities and Organisational Learning

In rapidly changing environments, the RBV is necessary but not sufficient. A firm may possess valuable resources, but if it cannot adapt to a changing environment, it will lose its competitive advantage. This is where the concept of dynamic capabilities comes in. Heaton, Teece, and Agronin^[4] defined dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." Dynamic capabilities are the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die.

Baishya et al.^[5] further clarified that dynamic capabilities are not ad hoc problem-solving, but rather "learned and stable patterns of collective activity through which the organisation systematically generates and modifies its operating routines in pursuit of improved effectiveness." This distinction is important because it suggests that dynamic capabilities can be developed and improved over time through

learning and practice.

Cavusgil and Deligonul^[6] forged a crucial link between dynamic capabilities and organisational learning, arguing that these capabilities are themselves the outcome of learning processes. They distinguish between “ad hoc problem solving” and the more systematic “learning mechanisms” that lead to the evolution of dynamic capabilities. This highlights the importance of creating a learning organisation where knowledge is created, shared, and embedded in organisational routines. Senge’s^[7] concept of the “learning organisation” is particularly relevant here, as it emphasises the importance of systems thinking, personal mastery, mental models, shared vision, and team learning.

However, the dynamic capabilities literature is not without its inconsistencies and debates. A significant gap remains in understanding the precise micro-foundations—specifically the cognitive mechanisms—that enable these capabilities. While macro-level routines are well-documented, the literature often black-boxes the individual and collective thinking processes required to enact them. Furthermore, there is an ongoing debate regarding whether dynamic capabilities are inherently beneficial or if their value is contingent upon environmental velocity. By explicitly linking specific thinking modes to the sensing and seizing processes, this paper addresses this gap and argues that cognitive agility is the critical mediating variable that makes dynamic capabilities effective across varying environmental contexts.

3.3. Organisational Ambidexterity

The challenge of managing for today while preparing for tomorrow is captured in the concept of organisational ambidexterity. Alerasoul et al.^[8] first articulated the tension between “exploration” (the pursuit of new knowledge, technologies, and markets) and “exploitation” (the refinement and extension of existing competencies, technologies, and paradigms). This is a fundamental tension in organisational strategy: resources devoted to exploration are not available for exploitation, and vice versa. Yet organisations that can do both—that are ambidextrous—tend to outperform those that focus on one at the expense of the other.

Chakma, Paul, and Dhir^[9] found that ambidextrous organisations—those that can simultaneously explore and exploit—are more successful than those that focus on one at the expense of the other. They identified several mechanisms by which organisations can achieve ambidexterity,

including structural separation (creating separate units for exploration and exploitation), leadership that can bridge the two, and a culture that values both innovation and efficiency. Achieving ambidexterity is a key leadership challenge, and this paper will argue that it requires the ability to switch between different modes of thinking.

3.4. Cognitive Psychology and Leadership

Leadership is fundamentally a cognitive activity. Leaders are constantly required to make sense of complex situations, make decisions under uncertainty, and persuade others to follow a particular course of action. The cognitive-resource theory of leadership^[10] suggests that a leader’s cognitive resources, such as intelligence and experience, are key determinants of their effectiveness. More recent research has focused on the specific cognitive skills that leaders need, such as metacognition, sensemaking, and cognitive flexibility^[11].

Metacognition, or “thinking about thinking,” is particularly important, as it allows leaders to monitor and regulate their own cognitive processes, and to adapt their thinking to the demands of the situation^[12]. It is the antidote to the cognitive biases—such as confirmation bias, anchoring, and groupthink—that can plague strategic decision-making. Midtgård and Selart’s^[13] work on “thinking, fast and slow” has highlighted how our brains use two different systems of thinking: System 1, which is fast, automatic, and intuitive, and System 2, which is slow, deliberate, and analytical. Effective leaders need to be able to use both systems appropriately, and to be aware of the biases that each system can introduce.

3.5. Complexity Leadership Theory

Traditional leadership theories often assume a stable and predictable environment. Complexity leadership theory (CLT) offers a different perspective, viewing organisations as complex adaptive systems (CAS) that are constantly evolving and adapting to their environment^[14, 15]. CLT proposes that leadership is not the sole purview of those in formal positions of authority but is a dynamic process that emerges from the interactions of individuals throughout the organisation. This perspective highlights the importance of fostering a culture of learning and adaptation, and of empowering individuals

at all levels to contribute to the leadership process.

Harvey et al.^[14] argue that in complex environments, organisations need to foster what they call “adaptive leadership,” which involves creating the conditions for emergence and adaptation. This requires a different set of thinking skills than traditional command-and-control leadership. Leaders need to be able to see patterns in complex systems, to understand feedback loops and unintended consequences, and to foster experimentation and learning.

4. The Four Pillars of Advanced Thinking for Leaders

4.1. Expert Thinking: The Power of Deliberate Practice

Expert thinking is the foundation of effective leadership. It is the ability to draw upon a deep well of knowledge and experience to make rapid, accurate, and seemingly intuitive judgments. The work of Edmondson, Bohmer, and Pisano^[16] on deliberate practice has shown that expertise is not a matter of innate talent, but of sustained, focused effort over many years. Ericsson’s research on musicians, chess players, and athletes has consistently shown that it takes approximately 10,000 h of deliberate practice to achieve expert-level performance.

A classic example of expert thinking is the “Miracle on the Hudson,” when Captain Chesley “Sully” Sullenberger safely landed US Airways Flight 1549 on the Hudson River after a bird strike caused both engines to fail. His ability to make a series of life-saving decisions in a matter of seconds was the product of decades of deliberate practice and deep expertise in aviation. He had trained extensively for emergency situations, and his years of experience allowed him to quickly assess the situation and take the appropriate action.

In the business world, expert thinking is what allows a seasoned CEO to walk into a factory and immediately spot inefficiencies, or a veteran venture capitalist to assess the potential of a startup after a single meeting. This is the kind of “gut feeling” that is often attributed to intuition, but is in fact the product of thousands of hours of experience and pattern recognition^[17].

However, expert thinking has limitations. Experts can become rigid in their thinking, relying on patterns that

worked in the past but may not apply in new situations. This is where critical thinking becomes essential.

4.2. Critical Thinking: The Art of Questioning Assumptions

While expert thinking is invaluable, it can also lead to cognitive rigidity and a failure to adapt to new situations. This is where critical thinking comes in. Critical thinking is the ability to step back, question assumptions, and evaluate evidence from multiple perspectives. It is the antidote to the “curse of knowledge” that can afflict experts, and the cognitive biases that can cloud our judgment^[13].

The failure of Kodak to adapt to the digital revolution is a cautionary tale of what can happen when critical thinking is absent. Despite inventing the first digital camera in 1975, Kodak’s leadership was so wedded to the film-based business model that it failed to see the disruptive potential of the new technology^[17, 18]. The company’s executives believed that digital photography would never replace film for professional photographers, and they were reluctant to cannibalise their highly profitable film business. This lack of critical thinking—the failure to question the assumption that film would always dominate photography—led to the company’s eventual decline and bankruptcy.

Another example is the 2008 financial crisis, where a lack of critical thinking led many financial institutions to take on excessive risk. Bankers and investors failed to question the assumption that housing prices would always rise, and they failed to critically evaluate the risks inherent in complex financial instruments like mortgage-backed securities. This lack of critical thinking had catastrophic consequences for the global economy^[18].

Critical thinking is not just about identifying problems; it is also about generating alternative solutions and evaluating their merits. It requires intellectual humility—the recognition that one’s own knowledge and understanding are limited, and that there may be better ways of doing things.

4.3. Strategic Thinking: Envisioning and Shaping the Future

Strategic thinking is the ability to see the big picture, to understand the competitive landscape, and to formulate a long-term vision for the organisation. It is about asking

not just “what are we doing?” but “why are we doing it?” and “where are we going?” Strategic thinking requires an understanding of industry dynamics, competitive positioning, customer needs, and technological trends.

The transformation of Netflix from a DVD-by-mail service to a global streaming giant is a powerful example of strategic thinking. When Netflix was founded in 1997, the dominant way to watch movies was to rent them from video rental stores like Blockbuster. Reed Hastings and his team recognised that this business model was inefficient and that technology would eventually enable a better way to deliver movies to consumers. They invested heavily in streaming technology, even as their DVD-by-mail business was still highly profitable. This required strategic thinking—the ability to see beyond the current business model and to anticipate how the industry would evolve^[19].

When Netflix made the decision to invest in original content, this was another example of strategic thinking. The company recognised that streaming was becoming commoditised, and that to maintain its competitive advantage, it needed to create content that was exclusive to its platform. This decision was controversial at the time, but it has proven to be a masterstroke, enabling Netflix to build a loyal customer base and to become one of the most valuable media companies in the world.

Another example is the turnaround of IBM (International Business Machines) under Lou Gerstner in the 1990s. When Gerstner took over as CEO, IBM was on the brink of collapse. The company had been losing market share to competitors like Microsoft and Intel, and its mainframe business was in decline. Gerstner made the strategic decision to shift the company’s focus from hardware to services, a move that saved the company and laid the foundation for its future success^[20]. This required strategic thinking—the ability to see that the industry was shifting from hardware to services, and to position IBM accordingly.

4.4. Systems Thinking: Understanding Interconnectedness and Complexity

Systems thinking is the ability to see the organisation as a complex, interconnected system. It is about understanding how the different parts of the organisation interact with each other and with the external environment. It is about recognising feedback loops, unintended consequences, and

emergent properties of complex systems.

The Toyota Production System is a classic example of systems thinking in action. By viewing the entire production process as a single system, Toyota was able to eliminate waste, improve quality, and create a culture of continuous improvement^[7]. The company recognised that optimising individual parts of the system (e.g., maximising production volume) could actually harm the overall system (e.g., by creating excessive inventory). Instead, Toyota optimised the system as a whole, using concepts like “just-in-time” manufacturing and “kaizen” (continuous improvement).

More recently, the rise of the platform business model, as exemplified by companies like Uber and Airbnb, is a testament to the power of systems thinking. These companies have created value not by owning assets, but by orchestrating complex ecosystems of producers and consumers. Uber connects drivers with passengers, creating a two-sided marketplace. Airbnb connects hosts with travellers, creating another two-sided marketplace. Both companies recognised that the key to success was not owning the assets (cars, properties), but creating the platform and the ecosystem that connects supply and demand.

Systems thinking also involves understanding the broader context in which an organisation operates. For example, a company might recognise that its success depends not just on its own capabilities, but on the health of its supply chain, the state of the regulatory environment, and the broader economic conditions. This broader perspective can help leaders anticipate challenges and opportunities that others might miss.

5. The Leadership Thinking Competence Framework

This paper proposes a new framework, the “Leadership Thinking Competence Framework,” that connects the four modes of thinking to the development of dynamic capabilities. The framework is based on the idea that leaders can progress from lower-order to higher-order thinking skills, and that this progression is essential for building the dynamic capabilities that are needed to compete in today’s fast-changing world.

The framework has several key components:

Foundational Level (Core Competencies): At this level,

the focus is on developing expert and critical thinking skills. Expert thinking allows leaders to master the core activities of the business, while critical thinking helps them to identify and solve problems in a systematic and rigorous way. Together, these two modes of thinking provide the foundation for operational excellence and the “exploitation” side of organisational ambidexterity. This is the level at which leaders develop deep knowledge of their industry, their company, and their customers.

Advanced Level (Dynamic Capabilities): At this level, the focus is on developing strategic and systems thinking skills. Strategic thinking allows leaders to sense new opportunities and to formulate new strategies, while systems thinking helps them to seize those opportunities by reconfiguring the organisation’s resources and capabilities. Together, these two modes of thinking provide the engine for strategic renewal, long-term growth, and the “exploration” side of organisational ambidexterity. This is the level at which leaders develop the ability to navigate complex, uncertain environments and to create new value for customers.

Developmental Pathway: The framework includes a developmental pathway that shows how leaders can progress

from the foundational to the advanced level. The pathway is based on the idea of a “virtuous circle” of learning and development. As leaders develop their expert and critical thinking skills, they become more effective at their current roles. This, in turn, gives them the confidence and the credibility to take on more strategic challenges. As they grapple with these challenges, they begin to develop their strategic and systems thinking skills. This, in turn, allows them to contribute to the development of the organisation’s dynamic capabilities.

The Leadership Thinking Competence Framework is therefore presented as an integrated model of leadership development, showing how different modes of thinking build upon one another to strengthen both individual capability and organisational adaptability. It illustrates that leadership competence is not static, but develops progressively from operational mastery grounded in expert and critical thinking towards higher-order strategic and systems thinking, which enables innovation, renewal, and long-term competitiveness. In this way, the framework captures the relationship between cognitive development and the formation of dynamic capabilities, as shown in **Figure 1**.

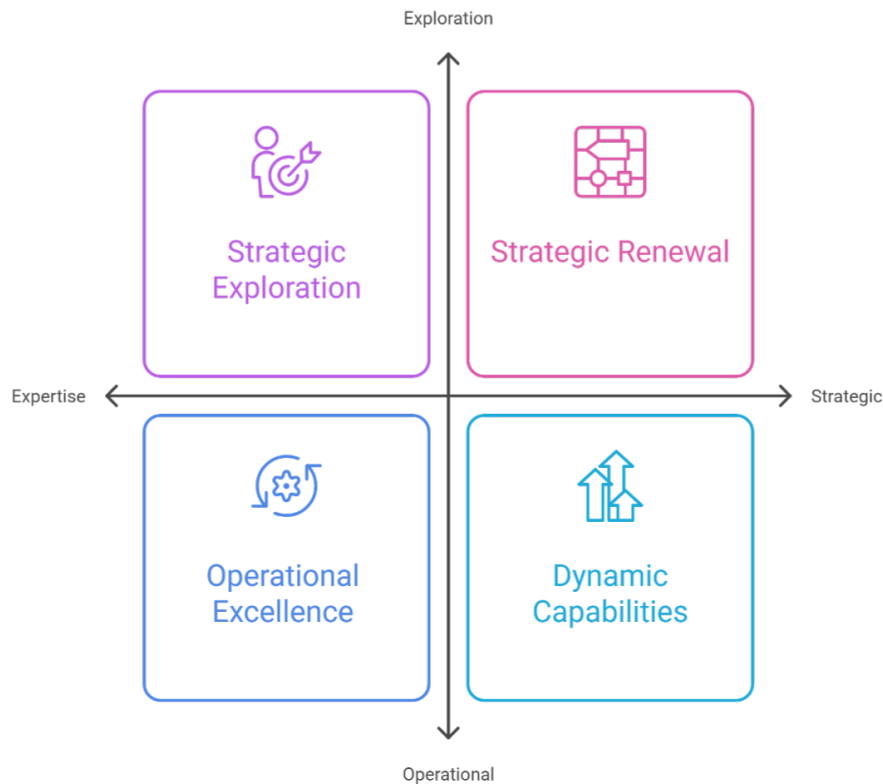


Figure 1. Leadership Thinking Competence Framework.

6. Managerial and Organisational Implications

6.1. Redesigning Leadership Development

Organisations need to design leadership development programmes that are explicitly focused on cultivating higher-order thinking skills. This means going beyond traditional classroom-based training and providing leaders with opportunities to engage in experiential learning, such as action learning projects, business simulations, and coaching. It also means creating a culture of psychological safety where leaders feel comfortable challenging the status quo and experimenting with new ideas^[21].

Rešetar and Seljan's^[21] research on psychological safety has shown that teams and organisations that foster psychological safety are more likely to engage in learning behaviours, such as asking questions, admitting mistakes, and seeking feedback. This is essential for the development of critical thinking skills, as critical thinking requires the willingness to question assumptions and to consider alternative perspectives.

Leadership development programmes should also include opportunities for reflection and metacognition. Leaders should be encouraged to reflect on their own thinking processes, to identify their biases and assumptions, and to consider how they might think differently about problems. This can be facilitated through coaching, peer learning groups, and structured reflection exercises.

6.2. Fostering a “Thinking” Culture

Leadership development is not just about individual leaders; it is also about creating an organisational culture that values and promotes higher-order thinking. The transformation of Microsoft under Satya Nadella is a case in point. Nadella has championed a shift from a “know-it-all” to a “learn-it-all” culture, where curiosity, experimentation, and a willingness to challenge the status quo are actively encouraged^[22].

Specifically, Nadella has emphasised the importance of a “growth mindset,” a concept developed by Carol Dweck^[23]. A growth mindset is the belief that abilities and intelligence can be developed through effort and learning, as opposed to a “fixed mindset,” which is the belief that abilities are

fixed and cannot be changed. By fostering a growth mindset, Microsoft has created a culture where employees are encouraged to take on challenges, to learn from failures, and to continuously improve their skills.

6.3. Creating Structures for Ambidexterity

To achieve organisational ambidexterity, organisations need to create structures and processes that enable both exploitation and exploration. This might involve creating separate units for exploration and exploitation, with different performance metrics and incentive systems. It might also involve creating cross-functional teams that bring together people from different parts of the organisation to work on strategic challenges.

Leadership plays a crucial role in managing the tensions between exploration and exploitation. Leaders need to be able to switch between different modes of thinking, and to foster a culture where both are valued. They also need to be able to allocate resources between exploration and exploitation in a way that balances short-term performance with long-term growth^[24].

6.4. Organisational Ambidexterity in a VUCA World

The concept of organisational ambidexterity has become even more critical in the contemporary business environment, often described by the acronym VUCA (Volatility, Uncertainty, Complexity, and Ambiguity). In a VUCA world, the ability to simultaneously exploit existing competencies and explore new opportunities is not just a competitive advantage but a necessity for survival. The stable, predictable environments of the past have been replaced by a landscape of constant disruption, where established business models can be rendered obsolete overnight by new technologies, shifting customer preferences, or unforeseen global events. This new reality demands a more dynamic and adaptive approach to leadership and organisational design, one that embraces the inherent tensions between stability and change, efficiency and innovation.

Recent scholarship has further developed the concept of ambidexterity, moving beyond the initial exploration-exploitation dichotomy to a more nuanced understanding of how organisations can achieve this dual capability. For

instance, some scholars have proposed a model of contextual ambidexterity, which suggests that individuals can be trained to make choices between exploration and exploitation in their daily work, based on the specific context of the task at hand^[9]. This approach contrasts with structural ambidexterity, which involves creating separate organisational units for exploration and exploitation. While structural ambidexterity can be effective, it can also lead to silos and a lack of integration between the two activities. Contextual ambidexterity, on the other hand, seeks to embed the capacity for both exploration and exploitation throughout the organisation, empowering employees at all levels to contribute to both innovation and efficiency^[25].

Leadership is paramount in fostering an ambidextrous organisation. Leaders must not only create the strategic context that encourages both exploration and exploitation but also cultivate a culture that supports this duality. This requires a delicate balancing act. On one hand, leaders must ensure that the organisation is executing its current strategy flawlessly, delivering value to customers and shareholders^[26]. On the other hand, they must also create space for experimentation, risk-taking, and learning from failure. This means celebrating not just successes but also intelligent failures—those that provide valuable learning opportunities and pave the way for future breakthroughs. As recent research highlights, leaders in ambidextrous organisations need to be able to switch between different leadership styles, from a more transactional style that focuses on efficiency and execution to a more transformational style that inspires and empowers employees to innovate^[27].

Furthermore, the rise of AI and other digital technologies is creating new possibilities for achieving organisational ambidexterity. AI-powered tools can help organisations to more effectively exploit their existing resources by automating routine tasks, optimising processes, and providing data-driven insights^[27, 28]. At the same time, AI can also be used to explore new opportunities by identifying emerging trends, simulating different strategic scenarios, and even generating novel ideas^[29]. For example, a company could use AI to analyse vast amounts of market data to identify unmet customer needs, and then use generative AI to brainstorm new product concepts to meet those needs. By leveraging technology in this way, organisations can enhance their ability to both explore and exploit, and can create a more sustainable

competitive advantage in the VUCA world^[30].

6.5. Digital Leadership in the Age of AI

The rapid advancements in artificial intelligence and other digital technologies are not only transforming the business landscape but also redefining the very nature of leadership. Digital leadership is no longer about simply using technology; it is about leading in a digital world, where data is the new currency, and agility is the key to survival. This requires a new set of competencies, including digital literacy, data-driven decision-making, and the ability to lead and inspire teams in a virtual or hybrid environment. HR has a critical role to play in developing these digital leadership competencies, ensuring that leaders are equipped to navigate the challenges and opportunities of the digital age^[30, 31].

One of the key challenges for digital leaders is the sheer volume and velocity of information. In a world of big data, leaders can easily become overwhelmed by the constant stream of information, leading to decision paralysis or a focus on short-term metrics at the expense of long-term strategy. To be effective, digital leaders must be able to filter out the noise and focus on the signals that matter. This requires strong critical thinking skills, as well as the ability to use data analytics tools to extract meaningful insights from complex datasets. HR can support the development of these skills by providing leaders with training on data literacy, data visualisation, and statistical analysis. Furthermore, HR can help to create a data-driven culture, where decisions are based on evidence rather than intuition or anecdote^[32].

Another key challenge for digital leaders is the need to foster innovation and agility in a rapidly changing environment. Digital technologies are constantly evolving, and organisations must be able to adapt quickly to new threats and opportunities. This requires a culture of experimentation, where leaders are willing to take calculated risks and to learn from failure. HR can help to create this culture by designing performance management systems that reward innovation and risk-taking, and by providing leaders with the tools and resources they need to experiment with new ideas. For example, HR could create an internal innovation lab, where teams can work on new projects in a sandboxed environment, without the pressure of delivering short-term results^[33].

Finally, digital leadership requires a new approach to communication and collaboration. In a virtual or hybrid

work environment, leaders can no longer rely on face-to-face interactions to build relationships and to inspire their teams. They must be able to use a variety of digital tools to communicate effectively, to foster a sense of community, and to keep their teams engaged and motivated^[34]. This requires strong emotional intelligence, as well as the ability to adapt one's communication style to different audiences and different channels. HR can support the development of these skills by providing leaders with training on virtual communication, remote team management, and the use of collaborative technologies. By investing in the development of digital leadership competencies, organisations can ensure that they have the leadership they need to thrive in the digital age^[35].

This paper makes a distinct theoretical contribution by advancing beyond the integration of existing perspectives to challenge the traditional boundaries of strategic HRM. While prior models (e.g., Ulrich's HR competencies) prescribe what HR professionals must do, the proposed framework extends this by delineating how HR architectures fundamentally shape the cognitive capacity of the entire organisation. It challenges the prevailing assumption that higher-order thinking is primarily a selection problem (hiring "smart" people) and instead theorises it as a developmental and structural imperative. By providing a clear conceptual model (**Figure 1**) that maps the progression from operational expertise to strategic exploration, this study offers a new theoretical lens through which to view human capital: not merely as a repository of skills, but as a dynamic cognitive engine driving organisational ambidexterity^[36, 37].

7. Conclusions

In conclusion, thinking is a core competence that is essential for leadership in the 21st century. The four modes of thinking explored in this paper—expert, critical, strategic, and systems thinking—provide a powerful toolkit for leaders who are seeking to navigate the complexities of the modern business world. The proposed "Leadership Thinking Competence Framework" offers a roadmap for developing these thinking skills and for connecting them to the development of dynamic capabilities. The framework suggests that leadership development should be a progression from foundational competencies (based on expert and critical thinking)

to advanced dynamic capabilities (based on strategic and systems thinking). This progression is not automatic; it requires deliberate effort, learning, and reflection.

The framework also highlights the importance of organisational ambidexterity—the ability to simultaneously explore new opportunities and exploit existing capabilities. This requires leaders who can think both critically and strategically, who can balance short-term performance with long-term growth, and who can foster a culture of learning and adaptation. The implications for leadership development are significant. Organisations need to move beyond traditional classroom-based training and create learning environments that foster higher-order thinking, psychological safety, and the structures and processes that enable both exploitation and exploration.

By investing in the development of higher-order thinking skills, organisations can build a sustainable competitive advantage and ensure their long-term success. The leaders of tomorrow will not be those who know the most, but those who can think the best. We call on organisations to assess the thinking competencies of their leaders, develop individualised development plans, provide diverse learning activities, create a culture of thinking, build diverse and inclusive teams, and invest in continuous learning. The time to invest in developing these thinking competencies is now. The organisations that do so will be the leaders of tomorrow.

7.1. The Role of Technology in Cultivating Thinking Competencies

Technology, particularly artificial intelligence (AI) and data analytics, is rapidly reshaping the landscape of human resource management. These tools offer powerful new ways to identify, develop, and deploy thinking competencies across the workforce. HR leaders can leverage technology to create more sophisticated and personalised approaches to talent management, moving beyond traditional methods to foster a culture of continuous learning and cognitive growth. By integrating advanced technological solutions, organisations can build a more agile, adaptive, and strategically-minded workforce, capable of navigating the complexities of the modern business environment.

One of the most significant applications of technology is in the area of talent acquisition. AI-powered recruitment platforms can analyse candidate data from a wide range of

sources, including resumes, online profiles, and assessment results, to identify individuals with the cognitive skills and potential for higher-order thinking. These platforms can be programmed to look for specific keywords, experiences, and educational backgrounds that are associated with critical thinking, problem-solving, and strategic acumen. For example, AI algorithms can screen for candidates who have experience in complex project management, who have demonstrated the ability to lead cross-functional teams, or who have a track record of driving innovation. This allows HR managers to build a more diverse and capable talent pipeline, and to make more informed and data-driven hiring decisions. Furthermore, virtual reality (VR) and augmented reality (AR) can be used to create immersive and realistic job simulations, providing candidates with an opportunity to demonstrate their thinking skills in a practical context. These simulations can assess a candidate's ability to make decisions under pressure, to solve complex problems, and to think strategically, providing a much richer and more accurate picture of their capabilities than traditional interview methods.

Technology also offers new opportunities for leadership development. Personalised learning platforms can use AI to create customised development plans for individual leaders, based on their specific strengths, weaknesses, and career goals. These platforms can recommend relevant articles, courses, and other learning resources, and can track a leader's progress over time. For example, a leader who needs to develop their strategic thinking skills might be presented with a curated list of HBR articles on strategy, a series of online courses on competitive analysis, and a business simulation that challenges them to develop and execute a long-term strategy for a fictional company. This personalised approach to learning is far more effective than the one-size-fits-all approach of traditional leadership development programmes. Moreover, AI-powered coaching tools can provide leaders with real-time feedback and support, helping them to develop their thinking skills in the context of their day-to-day work. These tools can analyse a leader's communication patterns, decision-making processes, and other behaviours, and can provide them with personalised recommendations for improvement.

Finally, data analytics can be used to measure and track the impact of HR initiatives on the development of thinking competencies. By analysing data from a variety of sources,

including performance reviews, employee engagement surveys, and talent assessments, HR managers can gain a deeper understanding of the cognitive strengths and weaknesses of their workforce. This data can be used to identify areas where additional training and development are needed, and to measure the effectiveness of different HR interventions. For example, an organisation might use data analytics to determine whether a new leadership development programme is actually improving the strategic thinking skills of its participants. This data-driven approach to HR allows organisations to make more strategic and evidence-based decisions about how to invest in the development of their human capital.

7.2. Future Research Directions

This paper has argued for the importance of thinking as a strategic HR competence, and has proposed a framework for developing higher-order thinking skills in leaders. However, this is a complex, multifaceted area with many opportunities for future research. A deeper understanding of how thinking competencies are developed and deployed in different organisational contexts will be essential for advancing both theory and practice in this field.

One promising area for future research is the relationship between organisational culture and thinking competencies. While this paper has touched on the importance of creating a "thinking" culture, more research is needed to understand the specific cultural factors that promote or inhibit the development of higher-order thinking. For example, what is the role of psychological safety in fostering critical thinking? How can organisations create a culture that values both exploration and exploitation? What are the most effective ways to measure and assess an organisation's thinking culture? Cross-cultural research would also be valuable, exploring how different national and regional cultures influence the development and expression of thinking competencies.

Another important area for future research is the role of diversity and inclusion in fostering thinking competencies. A growing body of research suggests that diverse teams are more innovative and effective at problem-solving than homogeneous teams. This is because diversity brings a wider range of perspectives, experiences, and cognitive styles to the table, which can help to challenge assumptions, stimulate creativity, and prevent groupthink. Future research could explore the specific mechanisms through which diver-

sity and inclusion contribute to the development of thinking competencies, and could identify best practices for creating inclusive environments where all voices are heard and valued.

Longitudinal studies are also needed to track the development of thinking competencies over time. Most of the existing research in this area is cross-sectional, providing a snapshot of thinking skills at a single point in time. Longitudinal studies would allow researchers to track the development of thinking skills from early career to senior leadership, and to identify the key experiences and interventions that contribute to this development. This would provide a much richer and more nuanced understanding of how thinking competencies are acquired and honed over the course of a career.

Finally, more research is needed on the measurement and assessment of thinking competencies. While there are a number of existing tools and methods for assessing cognitive skills, many of them are designed for use in educational settings and may not be appropriate for the workplace. There is a need for more valid and reliable measures of expert, critical, strategic, and systems thinking for use in selection, development, and succession planning. The development of such measures would be a major contribution to the field and would enable organisations to make more informed and data-driven decisions about how to manage their human capital.

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During the preparation of this work, the authors used Manus AI, a large language model, in order to improve the clarity, structure, and readability of the manuscript. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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