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Introducing the Anticipatory–Predictive Leadership Capability Model (APLCM): A Conceptual Contribution for Modern Strategic Leadership

Author Details:

Jarmaine Anthony Lawrence-Manho

HR Business Partner for Canon South Africa

Masters of Commerce from the Management College of Southern Africa Business School (MANCOSA)

HR Professional Designation from the South African Board of People Practices (SABPP).

Structured Abstract

Purpose: This conceptual paper introduces the Anticipatory–Predictive Leadership Capability Model (APLCM), a leadership capability framework that integrates anticipatory thinking and predictive thinking to explain how leaders navigate uncertainty, complexity, and future-oriented decision environments. The purpose is to define the constructs, clarify their interaction, and propose research propositions for future empirical testing.

Design/methodology/approach: A conceptual approach is adopted. Relevant literature on strategic foresight, anticipatory cognition, prediction science, and leadership decision-making is synthesised to establish the theoretical grounding for APLCM. No empirical data is collected; instead, the model is developed deductively from existing theory.

Findings: The paper proposes that anticipatory thinking and predictive thinking are two distinct but interdependent cognitive capabilities that jointly shape leaders' future-response capacity. Anticipatory thinking enables proactive recognition of emerging signals, while predictive thinking enables structured, evidence-driven estimation of probable outcomes. Integrating these capabilities strengthens leaders' ability to make future-fit decisions.

Practical implications: The Anticipatory–Predictive Leadership Capability Model (APLCM) offers practitioners a systematic and intellectually informed framework to assess and enhance leadership preparedness in contexts marked by continuous disruption and swift change. The methodology differentiates between anticipatory and predictive thinking, allowing organizations to assess the efficacy with which their leaders analyse weak signals, manage new risks, and respond to developing strategic constraints. Leadership development programs can utilize the model as a structural foundation for curriculum design, ensuring that educational interventions extend beyond behavioural competencies to encompass cognitive talents such as foresight, systems reasoning, and probabilistic judgment. Succession management processes are enhanced by the model through the identification of high-potential persons possessing superior future-oriented cognitive abilities, rather than depending exclusively on historical performance or operational proficiency. Organizations aiming to improve resilience, adaptive capacity, and strategic agility might implement the APLCM for capability assessments, thus incorporating forward-thinking cognition into talent frameworks, executive evaluation instruments, and strategic leadership pipelines.

Value: This article introduces an original conceptual model that advances theoretical understanding of future-focused leadership. It creates a foundation for empirical testing within doctoral research and future scholarly work.

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1. Introduction

Modern leaders operate in environments defined by volatility, uncertainty, complexity, and ambiguity. While leadership research emphasises adaptability, sense-making, and strategic orientation, less attention is given to the cognitive processes leaders use to recognise and prepare for future developments. This paper introduces the Anticipatory–Predictive Leadership Capability Model (APLCM) as a theoretical contribution addressing this gap.

The model proposes that effective future-oriented leadership depends on two primary cognitive capacities: anticipatory thinking and predictive thinking. By defining and integrating these constructs, the model aims to advance the understanding of how leaders engage with emerging change and future risk.

2. South African Context

The significance of the APLCM is further emphasized when used in the context of South African organizations. National issues, including ongoing loadshedding, significant infrastructure stress, escalating operating expenses, and diminishing economic development, necessitate leaders capable of identifying early indicators, forecasting long-term repercussions, and preparing for non-linear shocks. Load shedding is not solely an energy concern; it impacts supply chain stability, workforce productivity, consumer behaviour, and national competitiveness. Leaders that focus solely on short-term responses are unable to alleviate cascade consequences, whereas those use anticipatory and predictive cognition are more adept at modelling various energy scenarios, forecasting operational weaknesses, and formulating resilient plans.

Moreover, South Africa's dynamic labour market, elevated unemployment rates, rapid technical advancement, and the forces of globalization generate a context in which leaders must manage uncertainty while enhancing organizational performance. Economic volatility, characterized by variable exchange rates, political instability, and changing investor confidence, necessitates that leaders employ both exploratory thinking (anticipation) and evidence-based assessment (prediction). The APLCM establishes a cognitive basis for leadership preparedness in a nation that must consistently reconcile change, development, and competitiveness.

The National Development Plan (NDP) 2030 seeks to establish a globally competitive and socially inclusive economy within the national framework. Realizing these objectives requires leaders capable of envisioning long-term trajectories, anticipating socio-economic inflection points, and forecasting the consequences of governmental decisions, technological adoption, and demographic changes. The APLCM directly supports the leadership South Africa requires to achieve its developmental milestones by aligning leadership capabilities with the future-oriented priorities of the NDP, including economic sustainability, infrastructure resilience, human capability development, and institutional strengthening.

3. Purpose of the Study

This conceptual paper aims to formulate and elucidate the Anticipatory–Predictive Leadership Capability Model as a theoretical addition to the fields of leadership and foresight studies. The study seeks to officially provide the model, providing a cohesive cognitive-based rationale for leaders' interactions with future-oriented information. The paper primarily aims to delineate anticipatory and predictive thinking as distinct but complimentary leadership competencies; one being exploratory and divergent, while the other being analytical and evidence based. By differentiating these categories, the report elucidates existing conceptual difficulties in leadership research, where "future thinking" is frequently regarded as a singular talent.

The paper aims to elucidate the theoretical connections between anticipatory and predictive cognitive processes and their interplay in creating a comprehensive capacity for future-oriented leadership. A conceptual framework is provided to elucidate these connections, showcasing how leaders transition from investigating options to assessing probability and making educated strategic decisions. The essay establishes the intellectual groundwork for forthcoming doctorate research by formulating propositions that facilitate empirical testing, measurement construction, and model validation. This work advances leadership science both theoretically and practically, especially in high-uncertainty environments like South Africa's fast evolving socio-economic landscape.

4. Literature Review

4.1. Anticipatory Thinking

Anticipatory thinking is the cognitive talent that allows leaders to discern emerging trends, detect subtle signs, envision alternate futures, and comprehend early indicators of systemic change (OECD, 2024; Tsitsopoulos, 2021; Reibke, 2023). Grounded in the field of strategic foresight and futures studies, anticipatory thinking is inherently exploratory, divergent, and productive (Geden, Smith, Campbell, Amos-Binks, Mott, Feng, and Lester, 2018 and as cited by Mróz, and Ocetkiewicz, 2024). It entails a cognitive process wherein leaders expand their temporal experience, seeing possibilities that transcend the immediate present (Geden et al, 2024). Scholars of strategic foresight contend that anticipatory cognition is crucial for manoeuvring through highly uncertain contexts (Ratcliffe & Ratcliffe, 2015; Voros, 2017). It encompasses environmental scanning, horizon scanning, signal analysis, scenario planning, and the capacity to conceptualize second- and third-order repercussions of coming developments. In contrast to prediction, which aims for likely outcomes, anticipation broadens the spectrum of imaginable possibilities (Bazzani, 2023). It challenges leaders to transcend deterministic reasoning, equipping them to anticipate discontinuities, unforeseen events, or strategic inflection moments. Moreover, anticipatory thinking correlates with creativity, abductive reasoning, systems thinking, and sensemaking (Larsen and Rasmussen, 2018).

Research on anticipatory governance and future readiness underscores that the capacity for early disruption detection is a distinguishing characteristic between organizations that react promptly and those that fail to do so (OECD, 2024). In this setting, anticipatory thinking constitutes the cognitive basis of proactive leadership in unstable environments.

4.2. Predictive Thinking

Predictive thinking is a systematic cognitive process whereby leaders assess the probability, timing, and probable consequences of future events utilizing logic, evidence, and analytical reasoning. While anticipatory thinking expands the spectrum of options, predictive thinking constricts it through the utilization of pattern detection, probability assessment, trend analysis, and forecasting reasoning (Al-Barakat et al., 2025).

Predictive thinking is informed by established fields such as forecasting theory (Armstrong, 2001), behavioural decision-making (Kahneman & Tversky, 1979), and analytical modelling (Breiman, 2001; Shmueli, 2010). It is the capacity to distinguish noise from signal, assess past trends, employ probabilistic reasoning, and formulate evidence-based predictions regarding future occurrences.

Researchers including Gigerenzer, Makridakis, Silver, and Tetlock assert that predictive cognition is a quantifiable skill with considerable consequences for the quality of decision-making. Predictive thinking is crucial for transforming anticipatory insights into implementable strategic decisions (Bubic, von Cramon, and Schubotz. 2010).

4.3. Distinguishing the Constructs

While both anticipatory and predictive thinking pertain to the future, they diverge in intent, methodology, and cognitive focus. Research outlines that anticipatory thinking is inventive, creative, expansive, and diverse, concentrating on the exploration of potential outcomes, whereas predictive thinking is analytical, convergent, systematic, and grounded in evidence—concentrated on forecasting probable outcomes.

Geden et al. (2019) emphasize that anticipatory reasoning encompasses mental modelling, hypothesis formulation, and scenario development, while predictive reasoning necessitates pattern detection, logical deduction, and statistical or probabilistic assessment. The two conceptions are thus theoretically distinct yet extremely complementary. One broadens the realm of possibilities; the other assesses the realm of probabilities.

This distinction is essential, as leadership studies frequently regard "future thinking" as a singular concept, neglecting to differentiate between its exploratory and analytical elements. The APLCM elucidates this differentiation, facilitating novel theoretical insights and empirical assessment.

4.4. Leadership and Future-Orientation

The literature on future-oriented, strategic, and adaptive leadership increasingly emphasizes competencies like as sensemaking, resilience, agility, and strategic foresight. Nevertheless, these frameworks rarely elucidate how leaders inwardly assimilate future-oriented information. Geden et al (2019) and Day & Schoemaker (2016) observed that leaders are anticipated to foresee disruptions; nevertheless, the cognitive processes necessary for recognizing and interpreting emergent signals are predominantly unexamined.

Current leadership models offer behavioural descriptions but lack cognitive elucidations. The APLCM directly tackles this deficiency by recognizing anticipatory and predictive thinking as essential cognitive processes that support advanced leadership behaviour.

5. The Anticipatory–Predictive Leadership Capability Model (APLCM)

5.1. Model Overview

The Anticipatory–Predictive Leadership Capability Model (APLCM) proposes that a leader's readiness for uncertain or rapidly shifting environments is shaped by the dynamic interaction of two core cognitive capabilities:

- a) Anticipatory Capability
 - The ability to detect, interpret, and imagine future-relevant signals and scenarios.
 - This represents a leader's foresight capacity—the skill of scanning the horizon, noticing weak signals, and envisioning multiple possible futures.
- b) Predictive Capability
 - The ability to analyse, estimate, and reason about the probability of potential outcomes.
 - This represents a leader's ability to narrow down what could happen into what is most likely to happen using logic, pattern recognition, and analytical reasoning.

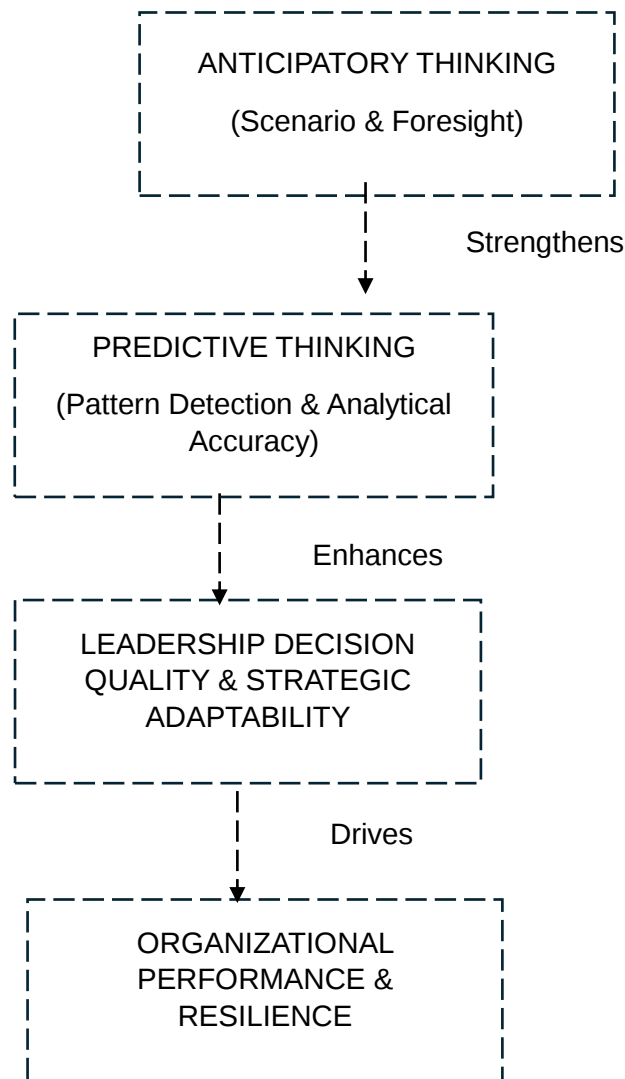
When these two capabilities interact sequentially and iteratively, they enhance:

- Leadership decision quality
- Strategic adaptability
- Organisational resilience
- Long-term performance

The APLCM contends that the interaction between broad anticipatory awareness and concentrated predictive evaluation directly improves the quality of leadership decisions. Leaders proficient in both competencies are more adept at recognizing early changes, interpreting ambiguous data, and acting proactively instead of reactively. This enhanced decision quality subsequently fortifies strategic flexibility, which is described as the organization's capacity to modify, reposition, or restructure its strategy in response to evolving environmental changes.

As strategic adaptability enhances, organizational resilience and performance also improve. The anticipatory–predictive capability sequence facilitates earlier identification of emerging threats and opportunities, enabling organizations to respond with enhanced speed, coherence, and alignment. Thus, the APLCM offers a theoretically sound and practically pertinent explanation of how individual leadership cognitive capacities result in system-level results concerning flexibility, resilience, and sustained success.

5.2. Text-Based Visual Diagram



5.3. Model Logic

5.3.1. Anticipatory thinking constitutes the initial phase of the APLCM and is tasked with enhancing a leader's foresight regarding potential future events. This phase enables leaders to utilize anticipatory thinking to identify weak signals, subtle patterns, or early indicators of change that are frequently neglected in routine operations. By recognizing these signals promptly, leaders acquire foresight into changes well in advance of their visibility to competitors or stakeholders. Anticipatory cognition allows leaders to envision alternate futures, transcending linear assumptions and embracing diverse potential outcomes. As leaders utilize this talent, they identify early trends in environmental changes, challenge longstanding beliefs that may be obsolete, and expand their strategic perspective to encompass a wider array of prospective pathways. This phase is purposefully broad, since it actively expands the leader's cognitive framework, allowing them to perceive many more possibilities than the current moment may indicate.

5.3.2. The predictive thinking constitutes the second stage of the paradigm, serving as a cognitive filter that imposes analytical rigor on the larger insights derived via anticipatory thinking. After a leader has recognized numerous potential futures, predictive thinking hones these possibilities by eliminating distractions and concentrating on evidence-based signals. This capacity enables leaders to discern the most believable paths, assess their probabilities, and correlate observed patterns with verified trends or facts. Predictive cognition refines a wide array of possibilities

into specific, actionable forecasts that inform organizational decisions. Anticipatory thinking is divergent and exploratory, whereas predictive thinking is convergent and evaluative. Collectively, they provide a dual-processing system that converts ambiguity into informed strategic decision-making. Leaders who depend solely on anticipation may produce ideas without clarity, whereas those who rely exclusively on prediction may overlook emerging challenges. The efficacy of the APLCM resides in the amalgamation of its dual powers.

- 5.3.3. When leaders engage anticipatory thinking initially and subsequently enhance insights through predictive thinking, the calibre of their strategic decisions significantly improves. This procedure mitigates blind spots as leaders have already evaluated a broad spectrum of possibilities prior to refining their emphasis. Consequently, they assess developing circumstances more rapidly and with enhanced precision. Their decisions are more closely aligned with external changes, ensuring that strategy advances concurrently with the environment rather than trailing behind. This dual skill enhances proactive risk management: via early threat identification and likelihood assessment, leaders can respond prior to the risk escalating into a crisis. Ultimately, leaders possessing both anticipatory and predictive thinking capabilities may act proactively rather than merely react swiftly, as they have discerned signals in advance and converted them into actionable insights.
- 5.3.4. As the quality of decision-making enhances with the use of anticipatory and predictive reasoning, leaders cultivate more strategic agility. Strategic agility is the behavioural manifestation of the cognitive processes inherent in the APLCM. A leader's capacity to alter strategy direction while maintaining coherence and purpose is evident. Agility enables leaders to modify tactics pre-emptively, allowing the organization to stay proactive instead of reactive in the face of disasters. An agile leader can identify when outdated assumptions hinder the organization and can swiftly and effectively mobilize their teams to change direction. This responsiveness guarantees that organizational efforts stay aligned with present circumstances and expected advancements. In this context, strategic agility serves as the external expression of the internal cognitive competencies cultivated by the APLCM.
- 5.3.5. The last component of the model elucidates how cognitive capacities for anticipatory and predictive thinking ultimately result in superior organizational performance. Organizations that prosper in unpredictable environments do so by identifying changes promptly, interpreting signals effectively, and proactively adjusting their plans. These organizations sustain momentum and stability even when external conditions destabilize others. The APLCM functions as both a cognitive model and a capability-based performance model. It elucidates why certain organizations maintain resilience, adaptability, and competitiveness: they are directed by leaders who integrate creative vision with analytical rigor. In this framework, cognition transforms into capability, and capacity evolves into performance. By incorporating anticipatory and predictive thinking, leaders develop the strategic agility necessary for enduring success in volatile circumstances.

6. Alignment to the Cognitive Leadership Framework

6.1. Anticipatory Thinking → “Expanding the Horizons”

- Leaders observe early signals, scan the environment, and imagine possibilities.

6.2. Sense-Making → “Making Meaning”

- They connect dots, interpret ambiguous information, and filter out noise.

(The model includes sense-making implicitly within the transition from anticipatory to predictive capability.)

6.3. Predictive Thinking → “Sharpening the Focus”

- Leaders estimate probabilities, judge what is becoming more likely, and prepare.

6.4. Leadership Decision Capability → “Acting with Clarity Under Uncertainty”

- This culminates in high-quality decisions that are timely, informed, and adaptive.

- The APLCM mirrors this cognitive flow exactly:
 - Anticipate → Sense → Predict → Decide → Adapt

This sequential logic matches both cognitive psychology and real-world strategic behaviour.

7. Propositions for Future Research

P1: Leaders with higher anticipatory capability will more effectively identify early signals of environmental change.

P2: Leaders with higher predictive capability will produce more accurate estimates of future organisational outcomes.

P3: The interaction between anticipatory and predictive capability positively influences leadership decision quality.

P4: Predictive capability mediates the relationship between anticipatory capability and leadership future-response capability.

8. Contributions of the Study

8.1. Theoretical Contribution

This work offers a substantial theoretical advance by presenting a novel leadership capability model that emphasizes cognitive processes above behavioural traits. The Anticipatory–Predictive Leadership Capability Model addresses a significant deficiency in leadership research, which frequently delineates future-oriented behaviors yet never elucidates the cognitive mechanisms underneath them. The paradigm enhances conceptual clarity in the field by distinctly distinguishing anticipatory cognition (exploratory, divergent, possibility-oriented) from predictive cognition (analytical, convergent, probability-oriented). This differentiation enhances the theoretical framework for future-oriented leadership and establishes a foundation for incorporating insights from strategic foresight, cognitive psychology, and decision sciences into leadership theory. The approach offers novel insights for researchers aiming to comprehend how leaders identify, analyse, and react to developing changes in unstable environments.

8.2. Practical Contribution

The APLCM provides organizations with a flexible instrument for augmenting leadership capabilities in unpredictable and swiftly changing contexts. Leadership development programs can utilize the model to enhance cognitive abilities essential for managing disruptive environments, evolving markets, and ongoing technology advancements. The framework establishes a basis for leadership evaluation, enabling HR professionals to analyse and delineate leaders' anticipatory and predictive skills as well as opportunities for development. The approach in succession planning facilitates the identification of individuals demonstrating sophisticated future-oriented thinking, hence ensuring preparedness for intricate leadership positions. The APLCM can be integrated into organizational strategy and risk processes, providing executives with systematic cognitive tools to foresee difficulties, assess situations, and direct strategic decision-making.

9. Implications for Research and Practice

9.1. Research Implications

The approach presents significant prospects for future research, encompassing empirical validation in DBA or PhD studies. Researchers can assess the validity, reliability, and dimensional framework of anticipatory and predictive thinking as quantifiable phenomena. The framework facilitates the creation of psychometric tools to evaluate leaders' cognitive preparedness for future difficulties. Longitudinal studies may investigate the evolution of cognitive capacities over time, their interaction with behavioural competences, or their impact on organizational outcomes such as creativity, resilience, and strategic adaptation. The concept consequently establishes new avenues for academic exploration about future-oriented leadership.

9.2. Practice Implications

The APLCM enables leaders to evaluate their cognitive strengths and weaknesses, facilitating the deliberate enhancement of foresight and predicting abilities. HR professionals can include the approach into executive development, talent assessments, and leadership coaching, thereby enhancing the alignment between leadership competencies and strategic organizational requirements. Integrating the APLCM into strategic planning, risk management, and scenario development processes enables organizations to improve their capacity to manage complexity and uncertainty. In the South African setting, characterized by unpredictability, the model provides leaders with the cognitive tools essential for resilience, opportunity identification, and sustainable value generation.

10. Limitations and Future Directions

As a conceptual model, APLCM is limited by not having empirical evidence at this stage. Future research should operationalise constructs, test model relationships, and validate measurement instruments.

11. Conclusion

This paper presents the Anticipatory–Predictive Leadership Capability Model, offering a theoretically grounded framework for understanding how leaders prepare for and respond to future uncertainties. Leaders must first expand their view (anticipate), then interpret signals (sense-make), and finally narrow into the most probable future (predict) to take proactive, high-quality decisions that enhance organisational adaptability and resilience. By distinguishing and integrating anticipatory and predictive thinking, the model contributes to both leadership theory and practice.

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