RCBDA
Research Center for Business and Decision Analytics

Applied Decision Analytics

Journal homepage: www.ada-journal.org
ISSN: 3104-2945

Strategic Decision Architecture: An Integrated Framework for Intelligent Organizational Decision-Making

Mohamed Ibrahim Hassan Farag[1,2] *

[1] Department of Business Administration, Military College of Management Sciences, Capital University, Helwan, Egypt
[2] Department of Political Science Faculty of Economics and Political Science, Cairo University, Giza, Egypt

ARTICLE INFO

Article history:
Received 2 June 2026
Received in revised form 28 July 2026
Accepted 15 September 2026
Available online 21 September 2026

Keywords:
Strategic Decision Architecture; Decision Intelligence; Strategic Decision-Making; Artificial Intelligence; Decision Analytics; Organizational Intelligence; Dynamic Capabilities; Human–AI Collaboration

ABSTRACT

Organizations increasingly operate in environments characterized by uncertainty, digital disruption, and growing strategic complexity, creating significant challenges for effective strategic decision-making. Although substantial advances have been made in decision analytics, artificial intelligence, business intelligence, and strategic management, existing research remains fragmented, with limited attention to the organizational capability required to integrate these complementary perspectives into a coherent decision system. This study addresses this gap by conceptualizing Strategic Decision Architecture (SDA) as a higher-order organizational capability that integrates strategic governance, Decision Intelligence, organizational knowledge, decision processes, human expertise, and adaptive learning to support intelligent strategic decision-making. Adopting a theory-building conceptual methodology, the study synthesizes insights from the Resource-Based View, Dynamic Capabilities Theory, the Knowledge-Based View, Organizational Information Processing Theory, Socio-Technical Systems Theory, and decision analytics literature to develop an integrated conceptual framework. The study defines the proposed construct and its conceptual boundaries, identifies five core dimensions, develops a maturity model for strategic decision capability, and formulates theoretical propositions and potential measurement domains for future empirical research. The study extends decision analytics research by shifting attention from individual decision optimization toward the organizational capability through which intelligent strategic decisions can be systematically designed, governed, and continuously improved. The proposed framework provides a foundation for empirical validation and offers managers a structured basis for assessing and developing strategic decision capability, including effective Human–AI collaboration, organizational adaptability, and resilience.

1. Introduction

Organizations increasingly make strategic decisions in environments characterized by persistent uncertainty, accelerating technological change, and growing interdependence among economic, technological, social, and geopolitical systems. Digital transformation, artificial intelligence (AI), advanced analytics, and real-time data have substantially expanded the information available to decision makers. However, greater information availability does not necessarily result in better

* *Corresponding author.*
E-mail address: mohamed_ibrahim2020@feps.edu.eg

https://doi.org/10.66972/ada202732

strategic decisions. Organizations may still encounter fragmented decision processes, inconsistent governance, cognitive biases, information overload, and weak coordination between managerial expertise and intelligent technologies. These conditions indicate that effective strategic decision-making requires not only advanced analytical tools but also an organizational architecture capable of coordinating how information, knowledge, intelligence, and managerial judgment are generated, evaluated, and translated into action [1–4].

Strategic management research has long recognized decision quality as an important component of organizational effectiveness and competitive advantage. Classical perspectives emphasized rational choice and bounded rationality, while subsequent research highlighted the roles of organizational capabilities, knowledge resources, managerial cognition, and organizational interpretation in strategic decision-making [5–8]. At the same time, advances in AI, analytics, and digital technologies have transformed how organizations collect, process, and interpret information. These developments create new opportunities for evidence-based decision-making but also increase the need for effective organizational structures, governance mechanisms, and human oversight when analytical technologies are incorporated into strategic processes [9, 10].

Contemporary research encompasses several related perspectives, including Decision Support Systems (DSS), Business Intelligence (BI), Business Analytics (BA), Decision Intelligence (DI), and Organizational Intelligence (OI). These perspectives contribute to different aspects of organizational decision-making. DSS emphasizes technological support for managerial decisions, BI focuses on information integration and reporting, BA extends analytical capabilities through predictive and prescriptive techniques, and DI seeks to connect data, analytical methods, and decision processes. Organizational Intelligence, meanwhile, emphasizes the collective ability of organizations to acquire, interpret, and apply knowledge in pursuit of organizational objectives [13–18].

Despite these contributions, the literature remains conceptually fragmented. Existing perspectives often concentrate on particular technologies, analytical capabilities, information processes, or decision activities rather than explaining how these elements can be coordinated within an enterprise-level strategic decision capability. Consequently, organizations may possess sophisticated analytical technologies while maintaining fragmented governance arrangements, dispersed knowledge, disconnected decision processes, or limited organizational learning. The resulting challenge is therefore not simply the availability of analytical capability but the organizational integration of the resources and mechanisms required to transform intelligence into strategically aligned action [7, 15, 19, 20].

1.1 The Changing Nature of Strategic Decision-Making

Strategic decision-making has evolved from a predominantly experience-based managerial activity into a multidimensional organizational process supported by digital technologies, advanced analytics, and artificial intelligence. Organizations increasingly operate amid rapid technological innovation, volatile markets, evolving stakeholder expectations, and systemic uncertainty. These conditions increase the complexity, speed, and interconnectedness of strategic choices and require organizations to combine analytical evidence with managerial judgment, organizational knowledge, and adaptive capabilities.

The increasing availability of AI and analytical technologies has further changed the nature of strategic decision-making. Predictive models, scenario analysis, automated information processing, and intelligent decision-support tools can expand the analytical capacity available to managers. Nevertheless, technological capability does not eliminate the need for human interpretation, governance, contextual understanding, or organizational learning. The strategic value of intelligent technologies depends on how effectively they are embedded within organizational decision structures and connected to broader strategic objectives.

Accordingly, contemporary strategic decision-making should be viewed as a socio-technical and organizational capability rather than solely as an analytical or technological activity. This perspective provides the foundation for examining how organizations can integrate governance, intelligence, knowledge, decision processes, and learning into a coherent architecture for strategic decision-making.

1.2 Problem Statement

Despite substantial investments in digital transformation, business analytics, and AI-enabled decision support, organizations may continue to experience inconsistent strategic decisions, fragmented information flows, limited cross-functional coordination, and weak integration between technological capabilities and managerial judgment. Existing approaches can improve individual analytical or decision-support functions without necessarily addressing the broader organizational arrangements through which strategic decisions are developed, evaluated, implemented, and reviewed.

This creates an organizational integration problem. Strategic decision capability depends on the interaction of multiple elements, including governance, analytical intelligence, organizational knowledge, decision processes, human expertise, and organizational learning. When these elements remain disconnected, investments in individual technologies or analytical capabilities may not translate into a coherent enterprise-level decision capability. The central problem addressed by this study is therefore how organizations can conceptually organize and integrate these complementary elements into an architecture capable of supporting intelligent strategic decision-making under conditions of complexity and uncertainty.

1.3 Research Gap

The existing literature provides substantial theoretical and practical knowledge concerning DSS, BI, BA, DI, OI, strategic decision-making, organizational capabilities, and intelligent technologies. However, three related gaps remain.

First, a fragmentation gap exists. Existing research generally addresses particular components of organizational decision-making, such as information processing, analytics, knowledge management, decision support, or organizational intelligence. Although these perspectives are complementary, they are not always integrated into a common organizational framework.

Second, an organizational-level gap remains. Much of the existing literature emphasizes analytical technologies, information systems, decision techniques, or individual decision processes. Comparatively less attention has been devoted to the enterprise-level capability responsible for coordinating governance, intelligence, knowledge, decision processes, and organizational learning as an integrated strategic decision system.

Third, a development and validation gap exists. Existing perspectives provide limited conceptual guidance concerning how an integrated strategic decision capability can be structured, progressively developed, operationalized, and empirically examined across organizational contexts. This limitation is particularly relevant as organizations increasingly combine AI-enabled analytics with human judgment and organizational governance.

Taken together, these gaps indicate the need for an integrative conceptual perspective that does not replace existing decision and intelligence approaches but explains how their complementary capabilities can be organized within a coherent strategic decision architecture.

To address these gaps, this study proposes Strategic Decision Architecture (SDA) as a higher-order organizational capability. SDA conceptualizes strategic decision-making as an integrated organizational system in which governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning interact to support the generation, evaluation, implementation, and continuous improvement of strategic decisions.

The proposed construct therefore shifts attention from individual decision-support technologies toward the organizational architecture through which intelligent decision capability is coordinated. Human–AI Collaboration is treated as a cross-cutting moderating mechanism within Decision Intelligence Integration, rather than as a separate core dimension of SDA.

1.4 Research Objectives

This study aims to:

i. Define and conceptualize Strategic Decision Architecture as a distinct higher-order organizational capability.
ii. Establish the theoretical foundations of SDA by integrating complementary perspectives from strategic management, decision science, organizational theory, knowledge management, information processing, and socio-technical systems.
iii. Develop an integrated conceptual framework explaining the principal dimensions and interrelationships of Strategic Decision Architecture.
iv. Differentiate SDA from related concepts including Decision Support Systems, Business Intelligence, Business Analytics, Decision Intelligence, Organizational Intelligence, and Enterprise Architecture.
v. Develop theoretically grounded propositions and a research agenda to support the future operationalization and empirical validation of the proposed framework.

1.5 Research Questions

The study addresses the following research questions:

RQ1: What is Strategic Decision Architecture, and how should it be conceptually defined?

RQ2: Which theoretical perspectives provide the strongest foundation for Strategic Decision Architecture?

RQ3: What organizational dimensions constitute Strategic Decision Architecture?

RQ4: How may Strategic Decision Architecture support intelligent strategic decision-making under conditions of complexity and uncertainty?

RQ5: How can the proposed Strategic Decision Architecture framework be operationalized and empirically investigated in future research?

1.6 Contributions of the Study

This study makes five principal contributions.

First, it makes a theoretical contribution by proposing Strategic Decision Architecture as a higher-order organizational capability focused on the integration of strategic decision resources and mechanisms. Rather than presenting another standalone analytical or technological solution, the study shifts the unit of analysis toward the organizational capability through which intelligent strategic decisions can be systematically coordinated.

Second, it makes a conceptual contribution by integrating five core dimensions, Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning, within a unified framework. The framework explains how these dimensions may operate collectively rather than as isolated organizational functions.

Third, it contributes to theory integration by bringing together complementary insights from the Resource-Based View, Dynamic Capabilities Theory, the Knowledge-Based View, Organizational Information Processing Theory, and Socio-Technical Systems Theory.

Fourth, it makes a methodological contribution by demonstrating a theory-building approach through which fragmented theoretical perspectives can be synthesized into an integrative organizational construct. The resulting propositions and maturity model provide a structured basis for subsequent empirical investigation.

Fifth, it provides a managerial contribution by offering a conceptual basis for assessing and developing organizational strategic decision capability. The framework can help managers consider technological intelligence alongside governance, knowledge integration, decision processes, and organizational learning rather than treating AI and analytics as isolated technology investments.

Importantly, these contributions are conceptual rather than empirical. The study does not claim that SDA has been empirically demonstrated to improve organizational performance. Instead, it establishes a theoretically grounded framework and research agenda through which such relationships can subsequently be tested. This distinction is particularly important given the conceptual nature of the study.

1.7 Organization of the Paper

The remainder of the paper is organized as follows. Section 2 critically synthesizes the literature on strategic decision-making, decision analytics, organizational intelligence, and AI-enabled decision support to identify the principal theoretical gap motivating the study. Section 3 describes the conceptual methodology adopted to develop the proposed framework. Section 4 presents the theoretical foundations underpinning Strategic Decision Architecture. Section 5 conceptualizes the proposed construct by defining its characteristics, dimensions, and conceptual boundaries. Section 6 develops the integrated Strategic Decision Architecture framework, while Section 7 introduces the proposed maturity model. Section 8 presents the theoretical propositions, identifies potential measurement domains, and outlines a research agenda for future empirical investigation. Finally, Section 9 discusses the theoretical and managerial implications of the proposed framework, acknowledges its limitations, and concludes by highlighting the contribution of Strategic Decision Architecture to understanding intelligent organizational decision-making.

2. Literature Review

The literature on organizational decision-making has developed across several partially overlapping traditions, including decision theory, decision support systems, business analytics, artificial intelligence, organizational intelligence, strategic management, and information systems. These streams have progressively increased organizations' capacity to collect information, analyze alternatives, and support managerial judgment. Yet the growth of analytical capability has not eliminated persistent problems of fragmented information, weak coordination, uncertain accountability, and inconsistent translation of analytical insights into strategic action.

Recent research on AI-enabled decision-making reinforces this tension: AI can expand analytical capacity and accelerate strategic analysis, but its organizational value depends on how human judgment, decision processes, governance, and learning are configured around the technology. This section therefore reviews the evolution of strategic decision-making and its principal supporting paradigms before examining the organizational and theoretical mechanisms that remain insufficiently integrated. The objective is not to catalogue prior studies, but to establish where existing explanations converge, where they remain incomplete, and why an enterprise-level Strategic Decision Architecture is conceptually warranted.

2.1 Why Strategic Decisions Fail

Strategic decisions differ from routine operational choices because they involve long-term consequences, substantial resource commitments, competing objectives, uncertain information, and feedback that is often delayed or ambiguous. Classical rational-choice models provided an important analytical baseline by assuming that decision makers could define objectives, identify alternatives, evaluate consequences, and select the most appropriate option. Organizational research subsequently demonstrated that these assumptions rarely hold in practice.

Bounded rationality limits the amount of information that managers can process, while organizational routines, conflicting interests, time pressure, and incomplete knowledge shape the alternatives that are actually considered [1, 13, 14]. Strategic decision failure is consequently not reducible to a lack of information or managerial competence; it can emerge from the conditions under which information is selected, interpreted, discussed, and converted into action [34].

This shift from individual rationality toward organizational decision processes is important for understanding the problem addressed by this study. Strategic decisions are embedded in structures of authority, communication, knowledge distribution, and organizational routines. The quality of a decision is consequently affected by the environment in which the decision is produced. The Knowledge-Based View reinforces this argument by treating knowledge as a strategic resource whose value depends on its integration and application rather than its mere possession [6].

Similarly, Organizational Information Processing Theory suggests that organizations facing greater uncertainty require greater capacity to acquire, interpret, and distribute relevant information. The central issue is therefore not simply whether information exists, but whether the organization has mechanisms capable of transforming dispersed information into coordinated judgment.

The problem becomes more pronounced under environmental turbulence. Digital transformation, geopolitical uncertainty, regulatory change, technological disruption, and shifting stakeholder expectations increase both the volume of information and the number of interdependencies that decision makers must consider. Dynamic capabilities research consequently frames adaptation as an ongoing organizational process involving sensing environmental changes, seizing opportunities, and reconfiguring resources [3, 16].

These activities are inherently decision-intensive: organizations must continuously interpret signals, revise assumptions, prioritize alternatives, and allocate resources despite uncertainty. Strategic decision-making is consequently better understood as an organizational capability that evolves through learning rather than as a periodic executive activity.

Recent empirical research provides further evidence that analytical capability and decision quality are related but not synonymous. Research on business analytics has shown that analytics capabilities can influence decision quality through mechanisms such as decision speed and comprehensiveness, suggesting that the organizational process surrounding analytics matters alongside the analytical capability itself [42].

Similarly, empirical research on big-data analytics indicates that its effects on decision-making and organizational performance depend on organizational capabilities that enable firms to convert analytical resources into useful action [43].

These findings are important because they challenge a technology-deterministic interpretation of decision analytics: sophisticated tools can improve the informational basis of decisions, but they do not independently determine how organizations interpret or implement their outputs. Artificial intelligence has intensified this issue. AI systems can process large datasets, identify patterns, generate predictions, and increasingly produce strategic alternatives. Evidence from strategic decision-making research shows that contemporary large language models can generate and evaluate strategic ideas at levels comparable with entrepreneurs and investors in some experimental settings, indicating genuine potential for AI augmentation of strategic analysis [35]. At the same time, the findings do not support the assumption that AI automatically produces superior strategic outcomes. Strategic decisions remain dependent on context, problem framing, organizational objectives, and human interpretation.

The strategic value of AI therefore depends on the organizational arrangements through which its outputs are assessed and translated into action.

The same issue appears in research on dynamic capabilities and AI. Evidence from firms adopting AI indicates that organizational capabilities influence how effectively organizations absorb, adapt to, and exploit AI technologies [36]. The implication is significant for strategic decision research: the presence of an intelligent technology does not constitute an intelligent organizational decision system. Value depends on the interaction between technology and organizational capabilities.

Accordingly, strategic decision failures can be understood as failures of integration as much as failures of analysis. Organizations may possess high-quality data, sophisticated analytical models, experienced managers, and formal governance mechanisms while still producing inconsistent decisions when these resources operate through disconnected structures.

This observation provides the first basis for SDA: decision quality should be examined not only at the level of the individual decision or analytical model but also at the level of the organizational system that connects information, intelligence, authority, knowledge, judgment, and learning.

2.2 The Evolution of Decision Paradigms: From Decision Support to Decision Intelligence

The development of decision technologies can be understood as a progression in the organizational capacity to move from information toward action. Decision Support Systems, Business Intelligence, Business Analytics, and Decision Intelligence each addressed limitations that became increasingly visible as organizations accumulated more data and encountered more complex decision environments.

The progression, however, does not represent a simple replacement of one paradigm by another. Earlier approaches remain embedded in contemporary organizations, while newer approaches extend their capabilities.

Table 1 summarizes this evolution by distinguishing the principal focus, contribution, limitation, and relevance of each paradigm to Strategic Decision Architecture.

The table illustrates a progressive expansion from technological assistance toward broader forms of organizational intelligence. It also identifies the remaining conceptual issue: existing paradigms improve particular aspects of decision-making, whereas SDA is proposed to explain how these capabilities can be coordinated as an enterprise-level system.

The first major development was the emergence of Decision Support Systems. DSS introduced interactive analytical models that allowed managers to examine alternatives in semi-structured and unstructured decision environments [18–20]. Their contribution was substantial because they moved information systems beyond routine transaction processing toward direct support for managerial judgment. Yet their principal unit of analysis remained the individual decision or decision maker.

Organizational governance, knowledge integration, and cross-functional coordination were generally treated as contextual factors rather than architectural components of the decision system.

The growth of digital information subsequently encouraged the development of Business Intelligence. BI integrated data from multiple organizational sources and improved visibility through reporting, dashboards, and performance monitoring [9, 21]. This represented an important organizational advance because decision makers gained access to a more coherent informational picture of organizational performance.

Table 1
Evolution of Organizational Decision Paradigms

Decision Paradigm	Primary Focus	Major Contribution	Principal Limitation	Contribution to SDA
Decision Support Systems (DSS)	Individual managerial decisions	Introduced analytical support for semi-structured decisions	Technology-centered; limited organizational integration	Established analytical decision support
Business Intelligence (BI)	Enterprise information	Integrated organizational data and reporting	Primarily descriptive and retrospective	Improved enterprise visibility
Business Analytics (BA)	Predictive and prescriptive analytics	Enhanced forecasting and evidence-based decisions	Model-centric; limited governance integration	Strengthened analytical capability
Decision Intelligence (DI)	Human–AI decision processes	Combined AI, analytics, and managerial judgment	Focuses mainly on decision processes	Expanded intelligent decision support
Strategic Decision Architecture (SDA)	Enterprise decision capability	Integrates governance, knowledge, AI, learning, and decision processes	Proposed construct	Enterprise-wide strategic decision capability

The limitation was that BI remained primarily retrospective. It could show what had happened and support descriptive diagnosis, but it offered less direct guidance concerning future alternatives, uncertainty, and strategic adaptation.

Business Analytics extended this capability through predictive modelling, optimization, and prescriptive analysis [22–24]. The transition from descriptive to predictive and prescriptive analytics strengthened organizations’ ability to anticipate conditions and evaluate alternatives. However, analytical sophistication created a new problem: predictive accuracy did not necessarily translate into strategic value. Analytical outputs may be ignored, misunderstood, poorly communicated, or disconnected from decision authority.

The empirical relationship between analytics capability and decision quality therefore depends partly on the organizational processes through which analytics is used [42].

Decision Intelligence emerged partly in response to these limitations. Moser *et al.* conceptualize Decision Intelligence around the fit between the intelligence required by a decision and the organization’s capacity to gather and process that intelligence, emphasizing decision context, appropriate decision frameworks, diverse intelligence sources, and implementation [25]. This perspective is important because it moves beyond technology and recognizes that intelligence requirements vary across decision contexts. It also demonstrates that Decision Intelligence already contains an organizational dimension that any new framework must acknowledge rather than overlook.

Recent work reinforces the expanding scope of Decision Intelligence and AI-enabled decision-making. Contemporary research identifies a fragmented landscape in which generative AI can support attention, information processing, solution generation, evaluation, implementation, and feedback, but its role varies substantially across stages of the decision process [37].

Other recent research similarly argues that human–AI collaboration requires an explicit account of how AI and human capabilities are divided and coordinated rather than assuming that augmentation automatically produces better decisions [38]. These developments suggest that the conceptual frontier is moving from whether AI can support decisions toward how AI should be embedded within organizational decision processes.

This distinction is important for positioning SDA. Decision Intelligence provides a strong foundation for understanding intelligent decision processes, but it does not necessarily provide a complete account of the organizational architecture through which decision rights, governance, knowledge, learning, technological capabilities, and strategic coordination are continuously aligned. SDA therefore does not seek to replace Decision Intelligence.

Instead, it addresses a different level of analysis: the enterprise capability within which Decision Intelligence operates.

The evolution from DSS to DI thus reveals both progress and continuity. Analytical capabilities have become more sophisticated, information has become more integrated, and human–AI collaboration has become more prominent.

Yet the central organizational problem remains: how can an organization design and maintain a coherent system in which these capabilities reinforce one another over time?

The evolution of organizational decision paradigms illustrates a gradual expansion in the scope of decision support, from individual analytical assistance toward enterprise-level decision capability.

Figure 1 summarizes this progression and highlights the conceptual space in which Strategic Decision Architecture is positioned. Rather than representing SDA as a replacement for earlier approaches, the figure presents it as an integrative layer that builds upon their cumulative contributions.

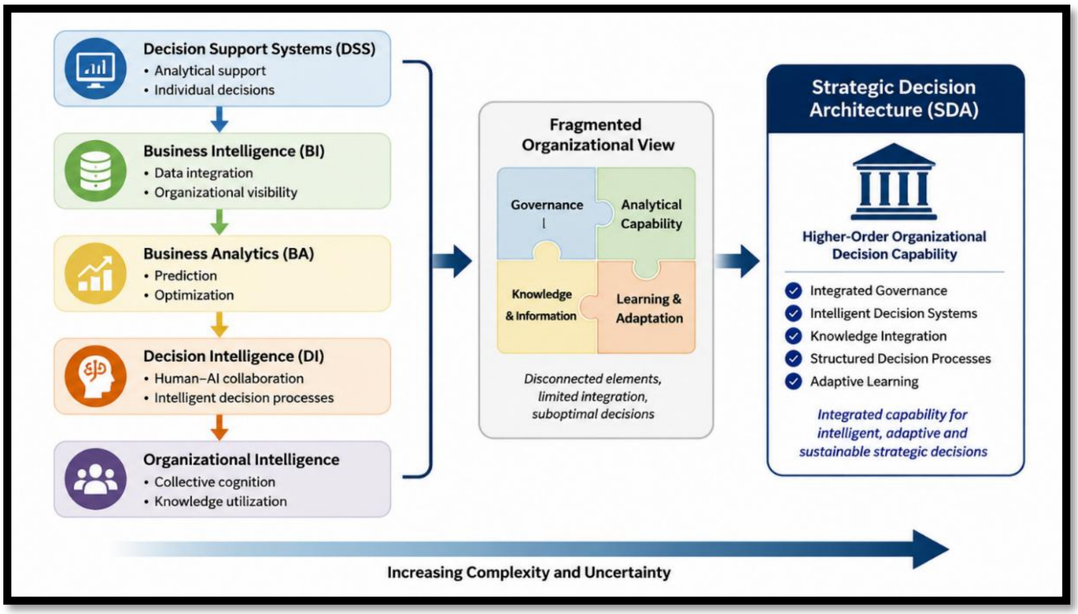

Fig. 1. Evolution of Organizational Decision Thinking Toward Strategic Decision Architecture

Figure 1 highlights a shift in the unit of analysis from supporting individual decisions to organizing the broader capability through which strategic decisions are generated, evaluated, implemented, and learned from. This progression provides an important basis for distinguishing SDA from DSS, BI, Business Analytics, and Decision Intelligence. The distinction is not primarily technological; it concerns the organizational level at which decision capability is conceptualized. This issue is examined further in the critical synthesis that follows.

2.3 Artificial Intelligence, Organizational Intelligence, and Human–AI Collaboration

Artificial intelligence has changed the boundaries of organizational decision-making by increasing the speed, scale, and range of analytical tasks that can be performed. Predictive AI can identify patterns and estimate outcomes, while generative AI can summarize information, generate alternatives, simulate scenarios, and support strategic analysis. Recent systematic research indicates that generative AI is entering multiple stages of organizational decision-making, although its integration into the actual choice stage remains comparatively limited and uneven [37]. The finding is important because it challenges a simple automation narrative: AI may participate in many parts of a decision process without becoming the decision maker.

Organizational Intelligence provides a complementary perspective. It emphasizes the collective capacity of organizations to acquire, interpret, distribute, and apply knowledge [5, 6, 17, 26]. This distinction matters because computational intelligence and organizational intelligence are not interchangeable. AI can process information rapidly, identify statistical patterns, and generate recommendations, whereas organizations must determine what information matters, how competing interpretations should be reconciled, who has authority to act, and how outcomes should be incorporated into future learning.

Human–AI collaboration consequently represents a central issue rather than a peripheral feature of intelligent decision-making. Research on hybrid problem-solving argues that organizational outcomes depend on the way human and AI capabilities are combined, with different forms of interaction producing different types of solutions [39]. Experimental research likewise shows that human–AI collaboration can improve decision processes in some contexts while creating risks of over-reliance and inappropriate delegation in others [40]. These findings indicate that the relationship between AI and decision quality is contingent rather than uniformly positive.

Explainability and control are particularly important in this context. Explainable AI can improve users' ability to interpret algorithmic recommendations, but explanations do not automatically improve decision outcomes. Research has shown that the presence of explanations can sometimes increase cognitive burden, while greater user control can have more positive effects on perceptions and compliance [41]. This finding challenges the assumption that transparency is simply a technical characteristic that can be added to an AI system. In organizational settings, explainability must be connected with decision rights, user competence, accountability, and the broader governance environment.

Recent research on AI-assisted strategic decision-making reaches a similar conclusion. Evidence suggests that AI can improve the speed, scale, and quality of strategic analysis, but its effects depend on the nature of the decision and the competitive context [35]. AI can generate alternatives that expand managerial search, yet it may also reproduce conventional patterns or overlook firm-specific contextual knowledge. The strategic question is consequently not whether humans or machines are superior in general, but how their complementary capabilities should be configured for particular decision contexts.

This literature exposes an important organizational requirement. AI-generated intelligence must enter a system capable of validating information, allocating decision authority, interpreting contextual meaning, documenting reasoning, and learning from outcomes. Without such mechanisms, AI may increase the volume and speed of information without improving the organization's capacity to make coherent strategic choices. Organizational Intelligence and Human–AI collaboration research therefore reinforce, rather than eliminate, the need to examine the architecture connecting intelligence to action.

2.4 Enterprise Architecture, Dynamic Capabilities, and Decision Design

The organizational context of decision-making can be further understood through Enterprise Architecture, Dynamic Capabilities, the Knowledge-Based View, and organizational governance. These perspectives differ in their theoretical purposes, but they converge on an important proposition: organizational performance depends on the coordination of resources, structures, information, and capabilities rather than on isolated technological assets.

The Resource-Based View explains why data, analytical systems, organizational knowledge, leadership expertise, and governance mechanisms can become strategically valuable resources when they are effectively embedded within the organization [7]. Dynamic Capabilities Theory extends this logic by emphasizing the capacity to sense change, seize opportunities, and reconfigure resources [3, 16]. Recent research on AI adoption similarly indicates that dynamic capabilities influence how organizations translate AI investment into organizational value [36]. This suggests that AI-enabled decision-making should be viewed as part of a broader capability system rather than as an independent source of performance.

The Knowledge-Based View adds the problem of integration. Knowledge is distributed across employees, departments, technologies, customers, and external networks [6, 26]. Strategic decisions therefore depend on the organization's capacity to combine different forms of expertise. The issue is especially important when AI becomes another source of organizational knowledge. AI-generated outputs must be interpreted alongside experiential and contextual knowledge rather than simply replacing them.

Enterprise Architecture contributes a different but complementary perspective. EA seeks alignment between business strategy, processes, information, and technology [30, 31]. It is particularly relevant because intelligent decision systems require integration across organizational boundaries. Nevertheless, Enterprise Architecture traditionally concentrates on alignment of organizational and technological structures rather than on strategic decision capability as a distinct organizational construct. Decision processes may be embedded within the architecture, but the architecture itself is not usually conceptualized as a capability for systematically producing high-quality strategic decisions.

Organizational Information Processing Theory provides another link. Increasing environmental uncertainty requires organizations to increase their capacity to process information [32]. Contemporary digital environments, however, create a paradox: organizations may have greater access to information while simultaneously experiencing greater difficulty in identifying what is strategically relevant. The challenge therefore shifts from information scarcity toward information selection, interpretation, coordination, and action.

Governance completes this picture by establishing decision rights, accountability, oversight, and control. OECD principles emphasize human-centred and trustworthy AI, while the NIST AI Risk Management Framework highlights governance, measurement, mapping, and management of AI-related risks [28, 29]. These frameworks demonstrate that responsible AI cannot be separated from organizational structures. Yet governance alone does not explain how analytical intelligence, organizational knowledge, learning, and decision processes should interact.

Taken together, these perspectives reveal a consistent pattern. RBV explains the strategic value of resources; Dynamic Capabilities explain adaptation; KBV explains knowledge integration; Organizational Information Processing Theory explains information-processing requirements; Enterprise Architecture explains structural and technological alignment; and governance explains authority and accountability. None, however, was developed specifically to explain the enterprise-level architecture through which these elements jointly produce strategic decisions.

This distinction is critical. SDA should not be presented as another theory of resources, adaptation, knowledge, technology, or governance. Its proposed contribution lies in integrating these mechanisms around a specific organizational outcome: the sustained capacity to produce and implement intelligent strategic decisions.

2.5 Critical Synthesis: From Decision Intelligence to Strategic Decision Architecture

The literature reviewed above reveals three broad stages in the development of organizational decision research. The first stage concentrated on supporting decisions through models, information systems, and analytical tools. The second expanded toward understanding and improving decision processes, including predictive and prescriptive analytics and Decision Intelligence. The emerging third stage concerns organizing the conditions under which intelligent decisions are repeatedly produced, particularly when decisions involve AI, distributed knowledge, multiple stakeholders, and continuous adaptation.

The distinction between these stages helps clarify the theoretical position of SDA. DSS primarily addresses the provision of analytical assistance [18–20]. BI improves organizational visibility [9, 21]. BA extends the analytical horizon through prediction and prescription [22–24]. Decision Intelligence integrates intelligence requirements, decision context, analytical capabilities, and implementation [25]. Organizational Intelligence explains collective knowledge acquisition and application [5, 17]. Dynamic Capabilities explain adaptive resource orchestration [3, 16]. Enterprise Architecture explains alignment among organizational and technological structures [30, 31].

The problem is therefore not that existing theories are inadequate within their respective domains. On the contrary, each explains an important part of the decision ecosystem. The problem is cross-domain integration. Recent systematic reviews of AI-supported organizational decision-making similarly identify fragmentation and call for more integrated frameworks that clarify the division of roles between humans and AI across the decision process [37, 38].

A second issue concerns the relationship between analytical sophistication and organizational outcomes. Empirical research shows that analytics can improve decision quality through decision speed and comprehensiveness [42], while AI can enhance specific strategic analysis tasks [35]. Yet these findings do not imply that analytical capability alone determines organizational performance. The effects of AI and analytics are conditioned by organizational capabilities, human interaction, governance, and context [36, 39, 40]. The literature consequently points toward an interactional explanation in which decision quality emerges from the configuration of multiple capabilities rather than from one technological input.

A third issue concerns the unit of analysis. Much of the decision analytics literature remains focused on the decision, the decision maker, the analytical model, or the human–AI interaction. SDA shifts attention to the organizational capability surrounding these elements. This does not mean that individual decisions cease to matter. Rather, individual decisions are treated as outputs of a broader system involving governance, knowledge, analytics, decision processes, human expertise, and organizational learning.

This synthesis leads to a more precise theoretical gap. Existing literature explains how decisions can be supported, how analytical intelligence can be generated, how organizations can adapt, and how AI can augment human judgment. What remains less developed is an integrated construct explaining how organizations deliberately configure these elements into a persistent enterprise capability for strategic decision-making.

That gap is particularly consequential in AI-enabled organizations. As AI increasingly participates in intelligence gathering, alternative generation, evaluation, and feedback, the boundary between technological capability and organizational capability becomes less clear. Recent research shows that GenAI can assume multiple roles across decision processes, but the appropriate allocation of authority and responsibility remains unresolved [37]. Human–AI collaboration studies likewise demonstrate that performance depends on the design of interaction rather than on AI availability alone [39, 40]. The emerging research problem is therefore architectural: organizations need mechanisms for coordinating multiple forms of intelligence while maintaining strategic alignment, accountability, learning, and human oversight.

2.6 Research Gap and Conceptual Opportunity

The preceding synthesis identifies a specific conceptual opportunity rather than a general absence of research. The literature is already rich in theories and technologies concerned with organizational decision-making. The unresolved issue lies in their integration at the enterprise level.

First, decision analytics has developed sophisticated methods for descriptive, predictive, and prescriptive analysis, but analytical capability does not by itself specify how decision rights, governance, organizational knowledge, and learning should be configured [22–24, 42].

Second, Decision Intelligence provides a broader view of the fit between intelligence requirements and decision processes [25], yet the literature remains comparatively less explicit about how organizations can institutionalize such intelligence through enduring structures, capabilities, and governance arrangements.

Third, AI research increasingly demonstrates the potential of human–AI collaboration, while also documenting problems of over-reliance, explainability, role ambiguity, and accountability [37, 39–41]. These findings indicate that intelligent technologies require organizational mechanisms that determine how recommendations are evaluated, challenged, authorized, implemented, and learned from.

Fourth, strategic management theories explain resources, knowledge, adaptation, and organizational alignment [3, 6, 7, 16, 30], but these perspectives are rarely combined around strategic decision-making as the central organizational capability.

The resulting gap can therefore be expressed as follows: existing research has substantially improved the components of intelligent decision-making, but it provides less developed theoretical guidance on the organizational architecture that integrates those components into a coherent, adaptive, and strategically aligned capability.

Strategic Decision Architecture is proposed to address this gap. SDA conceptualizes strategic decision-making as an enterprise-level capability emerging from the interaction of strategic governance, Decision Intelligence integration, knowledge architecture, decision-process design, and adaptive learning. It does not replace DSS, BI, BA, Decision Intelligence, Organizational Intelligence, Dynamic Capabilities, or Enterprise Architecture. Instead, it establishes a higher-order integrative perspective through which their complementary contributions can be coordinated.

The conceptual contribution is therefore not the claim that organizations have never integrated information, analytics, governance, knowledge, and human judgment. Rather, it is the proposal of a distinct analytical lens for explaining how these elements can be deliberately structured as an organizational architecture for sustained strategic decision capability. This distinction also creates a clear empirical agenda: the proposed dimensions and relationships must subsequently be operationalized, measured, and tested across organizational contexts.

3. Methodology

This study develops Strategic Decision Architecture (SDA) as a theory-building construct for explaining how organizations can integrate intelligence, governance, knowledge, analytical capabilities, human judgment, and organizational learning into a coherent strategic decision capability. Because the study does not collect primary empirical data or statistically test hypotheses, it adopts a conceptual methodology based on structured literature identification, critical synthesis, theoretical integration, and construct refinement. The methodology is intended to make the reasoning through which SDA was developed sufficiently transparent for subsequent empirical operationalization and validation.

3.1 Research Philosophy

The study adopts a pragmatic research philosophy, reflecting the view that strategic decision-making is a complex socio-technical phenomenon that cannot be adequately understood through a single theoretical lens. Organizational decisions are shaped by the interaction of technological capabilities, organizational structures, governance arrangements, knowledge resources, human judgment, and environmental conditions. A theoretically useful explanation therefore requires attention to the relationships among these elements rather than treating any one of them as sufficient.

Pragmatism is appropriate to the present study because the objective is to develop a theoretically coherent and practically useful construct rather than to privilege one established explanatory tradition. The analysis consequently draws selectively on strategic management, decision science, organizational theory, information systems, knowledge management, and artificial intelligence. These perspectives are treated as complementary sources of explanation, while their conceptual boundaries are retained to avoid conflating distinct theoretical constructs.

The philosophical position also supports the study's emphasis on problem-centred theory development. The starting point is an organizational problem, the fragmentation of capabilities required for intelligent strategic decision-making, rather than the attempt to extend a single existing theory. The resulting framework is consequently evaluated according to its explanatory coherence, conceptual distinctiveness, and potential empirical usefulness.

3.2 Research Design

The study employs a conceptual theory-building design. Conceptual research differs from empirical hypothesis-testing research in that its principal objective is to clarify constructs, establish relationships among concepts, identify theoretical gaps, and develop propositions that can subsequently be examined empirically. The present study therefore does not claim to provide empirical evidence that SDA improves organizational decision quality or performance. Instead, it develops the theoretical architecture necessary for those relationships to be tested.

SDA was developed through the integration of several literature streams rather than through the extension of a single established model. The analysis focused on recurring organizational mechanisms associated with intelligent strategic decision-making, including strategic governance, decision intelligence, knowledge integration, decision-process design, human–AI collaboration, and organizational learning. These mechanisms were examined for their theoretical relevance, complementarity, and conceptual boundaries.

The design followed an iterative logic. Insights derived from the literature were compared across theoretical traditions, incorporated into a preliminary framework, and subsequently reconsidered in light of related constructs. This process was repeated until the proposed dimensions could be distinguished conceptually and their relationships could be expressed as theoretically meaningful propositions.

3.3 Literature Identification and Selection

The conceptual development of SDA was informed by literature spanning decision science, strategic management, organizational theory, information systems, artificial intelligence, business analytics, knowledge management, enterprise architecture, and organizational governance. The literature review combined foundational works that established major theoretical traditions with recent peer-reviewed research addressing AI-enabled decision-making, analytics capabilities, human–AI collaboration, and organizational adaptation.

Literature was selected according to three principal criteria. First, sources were required to provide a substantive theoretical or empirical contribution to strategic decision-making, organizational capability, intelligent systems, or one of the theoretical domains directly informing SDA. Second, sources were retained when they contributed a distinct explanatory mechanism or helped establish the boundaries of an existing construct. Third, recent studies were incorporated where necessary to reflect developments in AI-enabled decision-making and contemporary organizational environments.

The selection process was therefore conceptually purposive rather than bibliometrically exhaustive. The objective was not to estimate publication frequencies or conduct a systematic-review meta-analysis, but to identify theoretical building blocks relevant to construct development. Foundational contributions were retained where they established concepts that remain central to the argument, while more recent research was used to examine how those concepts have evolved under conditions of digitalization, analytics, and AI-enabled decision-making.

The resulting literature base was critically compared rather than treated as a collection of independent summaries. Particular attention was given to areas of theoretical convergence, conceptual overlap, unresolved tensions, and differences in the unit of analysis. This approach enabled the study to distinguish between constructs that address individual decision support, analytical intelligence, organizational intelligence, adaptive capability, technological alignment, and enterprise-level decision architecture.

3.4 Conceptual Development Process

SDA was developed through a four-stage conceptual development process.

Stage 1: Identification of theoretical domains.

The first stage identified the principal theoretical traditions relevant to intelligent strategic decision-making. These included decision theory and decision processes, decision support and analytics, artificial intelligence, organizational intelligence, knowledge-based theory, dynamic capabilities, enterprise architecture, and governance. The purpose was to establish the intellectual foundations from which the proposed construct could be developed.

Stage 2: Critical comparison and boundary analysis.

The second stage examined how these perspectives explain strategic decision-making and where their explanatory boundaries lie. Particular attention was given to the distinction between supporting an individual decision, generating analytical intelligence, coordinating organizational knowledge, enabling adaptation, and governing technological systems. This comparison revealed that existing perspectives address important components of intelligent decision-making but operate at different analytical levels and are not consistently integrated into a single enterprise-level construct.

Stage 3: Integrative synthesis.

The third stage synthesized recurring mechanisms across the literature. Five mechanisms emerged as particularly relevant to the proposed architecture: strategic governance, Decision Intelligence integration, knowledge architecture, decision-process design, and adaptive learning. Human–AI collaboration was incorporated as a cross-cutting mechanism affecting how technological and human intelligence interact within the decision system. These elements were then organized according to their functional relationships rather than simply aggregated as a list of existing concepts.

Stage 4: Construct refinement and differentiation.

The fourth stage refined the proposed construct by examining its conceptual boundaries and comparing it with closely related concepts, particularly Decision Intelligence, Organizational

Intelligence, Business Intelligence, and Enterprise Architecture. Elements were retained when they contributed directly to explaining enterprise-level strategic decision capability and were removed or repositioned when they substantially duplicated established constructs. The resulting construct was then translated into a conceptual framework and a set of theoretical propositions suitable for subsequent empirical operationalization.

This process provides an explicit link between the literature review and the proposed framework. SDA is therefore not presented as a simple relabeling of existing decision technologies or theories. Its proposed distinctiveness derives from the integration of previously dispersed mechanisms around strategic decision capability as the central organizational outcome.

3.5 Conceptual Quality and Theoretical Distinctiveness

The quality of the proposed construct was assessed conceptually through four considerations: theoretical coherence, conceptual distinctiveness, internal consistency, and empirical tractability. Theoretical coherence concerns whether the dimensions of SDA can be explained through complementary theoretical foundations. Conceptual distinctiveness concerns whether SDA can be meaningfully differentiated from established constructs such as Decision Intelligence, Business Intelligence, Organizational Intelligence, and Enterprise Architecture. Internal consistency concerns whether the proposed dimensions collectively describe the same higher-order organizational capability without unnecessary duplication. Empirical tractability concerns whether the dimensions and propositions can ultimately be operationalized and tested using observable organizational indicators.

This final criterion is particularly important because the present study is conceptual. The framework's relationships are proposed theoretically and have not been empirically validated in this study. The methodology therefore establishes a foundation for future empirical research rather than presenting the framework as an already validated organizational model.

The resulting approach provides a transparent pathway from fragmented theoretical literature to an integrated conceptual construct. It also establishes the methodological basis for the subsequent development of the SDA dimensions, framework, maturity model, and theoretical propositions.

4. Theoretical Foundations of Strategic Decision Architecture

The preceding literature review identified a persistent integration problem across research on strategic decision-making, analytics, organizational intelligence, artificial intelligence, and organizational capability. Section 3 explained the conceptual methodology used to address this problem. Building on these foundations, this section establishes the theoretical logic underlying Strategic Decision Architecture (SDA). Rather than deriving SDA from a single grand theory, the framework draws on complementary perspectives that illuminate different aspects of strategic decision capability. The Resource-Based View explains the strategic value of decision-related resources and capabilities; Dynamic Capabilities Theory addresses adaptation and renewal; the Knowledge-Based View explains the integration of distributed knowledge; Organizational Information Processing Theory addresses information-processing requirements under uncertainty; and Socio-Technical Systems Theory explains the interaction between human and technological capabilities. Their integration provides the theoretical basis for conceptualizing SDA as a proposed enterprise-level capability.

4.1 Resource-Based View: Decision Capability as a Strategic Resource

The Resource-Based View (RBV) explains sustained competitive advantage through resources and capabilities that are valuable, rare, difficult to imitate, and effectively organized [7]. Although originally concerned with the strategic significance of firm resources, its logic can also be applied to organizational decision capability. Data, analytical infrastructure, organizational knowledge, managerial expertise, and governance arrangements may contribute to strategic value when they are embedded in organizational processes that competitors cannot easily reproduce.

For SDA, the important implication is that the possession of individual decision resources is insufficient. An organization may have extensive data, advanced analytical tools, and highly experienced managers without possessing an integrated capability for converting these resources into consistent strategic action. SDA consequently shifts attention from resource possession to resource orchestration. The strategic value of decision-related resources depends on how effectively they are connected, governed, interpreted, and applied.

The RBV therefore provides the foundation for viewing strategic decision capability as an organizational asset rather than simply as a technological function. SDA extends this logic conceptually by focusing on the architecture through which multiple decision resources are coordinated.

4.2 Dynamic Capabilities Theory: Decision Capability under Environmental Change

The RBV alone provides limited explanation of how organizations adapt when competitive and environmental conditions change. Dynamic Capabilities Theory addresses this limitation by emphasizing the organizational capacity to sense developments, seize opportunities, and reconfigure resources in response to changing environments [3, 16].

Strategic decision-making is central to each of these activities. Sensing requires organizations to identify and interpret relevant signals; seizing requires evaluation and selection among competing alternatives; and reconfiguration requires decisions concerning resources, structures, processes, and capabilities. Strategic decision capability is therefore not static. Its effectiveness depends partly on the organization's ability to learn from previous decisions and modify decision processes as circumstances evolve.

SDA builds on this perspective by treating decision architecture as part of the organizational infrastructure through which adaptive capabilities are exercised. Governance, intelligence integration, knowledge flows, analytical systems, and learning mechanisms provide the conditions under which adaptive decisions can be made and revised. Dynamic Capabilities Theory consequently explains the adaptive purpose of SDA, while SDA focuses on the organizational configuration through which that adaptive purpose can be supported.

4.3 Knowledge-Based View: Integrating Distributed Knowledge

The Knowledge-Based View (KBV) conceptualizes knowledge as a central strategic resource of the firm [6]. Organizational knowledge is distributed across individuals, functional units, routines, relationships, external stakeholders, information systems, and increasingly AI-enabled technologies. Strategic decisions consequently depend not only on acquiring information but on integrating different forms of knowledge into a coherent basis for action.

This perspective is particularly relevant to SDA because strategic decisions frequently require the combination of explicit information with tacit expertise and contextual interpretation. Quantitative evidence may identify patterns without explaining their organizational significance, while managerial experience may provide contextual understanding that is not captured in formal datasets. AI-generated outputs introduce another form of intelligence that must be evaluated against organizational knowledge and strategic objectives.

SDA therefore treats knowledge integration as a core architectural requirement. The relevant question is not simply whether knowledge exists within an organization, but whether appropriate mechanisms enable knowledge to move across organizational boundaries, be critically evaluated, and contribute to strategic decisions. The KBV consequently provides the theoretical basis for the knowledge architecture dimension of SDA.

4.4 Organizational Information Processing Theory

Organizational Information Processing Theory (OIPT) provides a complementary explanation of how organizations respond to uncertainty. The theory proposes that organizational effectiveness depends partly on matching information-processing requirements with information-processing capacity. As uncertainty and interdependence increase, organizations require greater capacity to acquire, process, interpret, and communicate relevant information [32].

This perspective is particularly important in contemporary decision environments because technological development has altered the nature of the information problem. Organizations increasingly face not only information scarcity but also information abundance. Large datasets, real-time analytics, digital platforms, and AI-generated outputs can increase the volume and speed of available information without necessarily improving its strategic relevance.

SDA extends the information-processing logic by emphasizing the organizational configuration surrounding information processing. Information must be connected to decision rights, analytical capabilities, contextual expertise, and governance mechanisms. The objective is therefore not maximal information processing but fit between information requirements, analytical capacity, organizational interpretation, and strategic decision needs.

OIPT consequently provides the theoretical rationale for integrating information and analytical intelligence within SDA while also explaining why technological capacity alone cannot guarantee effective strategic decisions.

4.5 Socio-Technical Systems Theory: Human–AI Decision Integration

Socio-Technical Systems (STS) Theory emphasizes that organizational performance depends on the interaction and joint optimization of social and technical systems. Technological innovation can fail to generate expected organizational benefits when it is introduced without corresponding attention to work practices, human roles, organizational structures, communication, and governance.

This perspective becomes increasingly important as artificial intelligence enters strategic decision processes. AI can expand analytical capacity through pattern recognition, prediction, information synthesis, and alternative generation. Human decision makers contribute contextual interpretation, experience, ethical reasoning, organizational knowledge, and responsibility for consequential choices. The relevant organizational capability therefore emerges from the relationship between these forms of intelligence rather than from either one in isolation.

SDA incorporates this logic by treating Human–AI Collaboration as a cross-cutting component of intelligent strategic decision-making. The purpose is not to assume that AI should replace managerial judgment, but to conceptualize the conditions under which computational and human capabilities can be coordinated. Explainability, human oversight, appropriate allocation of decision authority, and organizational accountability consequently become architectural concerns rather than merely technical characteristics.

STS Theory therefore provides the theoretical foundation for SDA's treatment of human–AI interaction as part of the organizational decision system.

4.6 Theoretical Integration

The five theoretical perspectives contribute different but complementary explanations of strategic decision capability. RBV establishes why decision-related resources and capabilities can constitute sources of strategic value. Dynamic Capabilities Theory explains why these capabilities must remain adaptive as environments change. KBV explains the integration of distributed knowledge. OIPT establishes the importance of matching information-processing capacity with decision requirements. STS Theory explains why intelligent decision-making depends on the interaction between human and technological systems.

Their relationship can be summarized as follows:

i. RBV → strategic resources and capabilities
ii. Dynamic Capabilities → adaptation and renewal
iii. KBV → knowledge integration
iv. OIPT → information-processing alignment
v. STS → human–technology integration

SDA brings these complementary mechanisms into a common conceptual architecture. Its proposed contribution is not that any of these theories is insufficient within its own domain. Rather, they operate at different levels of explanation and leave room for a construct specifically concerned with the integration of organizational resources, intelligence, knowledge, information processing, governance, human expertise, and learning around strategic decision-making.

This distinction is important for addressing the potential overlap between SDA and existing constructs. SDA is not proposed as a replacement for Dynamic Capabilities, Knowledge-Based Theory, Decision Intelligence, or Enterprise Architecture. Instead, it provides a decision-centred integrative lens through which their relevant mechanisms can be examined together. The construct therefore operates at the intersection between strategic capability and organizational decision architecture. **Table 2** summarizes the theoretical logic and identifies the specific contribution of each perspective to SDA.

Table 2
Theoretical Foundations of Strategic Decision Architecture

Theoretical perspective	Core theoretical insight	Contribution to SDA
Resource-Based View	Strategic value can arise from valuable and difficult-to-replicate resources and capabilities.	Positions decision capability and its supporting resources as potential strategic organizational assets.
Dynamic Capabilities Theory	Organizations must sense, seize, and reconfigure in changing environments.	Provides the basis for adaptive decision capability and continuous strategic adjustment.
Knowledge-Based View	Organizational value depends on integrating and applying distributed knowledge.	Establishes knowledge integration as a core component of SDA.
Organizational Information Processing Theory	Information-processing capacity should correspond to environmental and decision uncertainty.	Explains the need to align information, analytics, interpretation, and decision requirements.
Socio-Technical Systems Theory	Organizational effectiveness depends on the joint configuration of social and technical systems.	Provides the basis for Human–AI collaboration, human oversight, and socio-technical governance.

Table 2 demonstrates that SDA is theoretically assembled from complementary mechanisms rather than derived from a single theoretical tradition. The integration also clarifies the division of explanatory roles: resources provide the foundation, dynamic capabilities provide adaptability, knowledge architecture enables integration, information processing supports intelligence, and socio-technical design connects technological capability with human judgment. These relationships provide the theoretical basis for the dimensions and architecture developed in the following sections.

5. Conceptualizing Strategic Decision Architecture

The preceding sections identified fragmentation across research on strategic decision-making, analytics, organizational intelligence, artificial intelligence, and organizational capability. Section 3 described the conceptual theory-building methodology, while Section 4 established the theoretical foundations of the proposed construct. Building on these foundations, this section defines Strategic Decision Architecture (SDA), identifies its core characteristics, establishes its conceptual boundaries, and distinguishes it from related constructs. The objective is to clarify what SDA represents, what it does not represent, and why it provides a potentially useful higher-order perspective on enterprise-level strategic decision capability.

5.1 Defining Strategic Decision Architecture

Strategic Decision Architecture (SDA) is proposed as a higher-order organizational capability that systematically integrates governance structures, decision processes, organizational knowledge, analytical intelligence, human expertise, and adaptive learning into a coherent system for supporting high-quality strategic decision-making under conditions of uncertainty and complexity.

The definition reflects the complementary theoretical perspectives established in Section 4. The Resource-Based View emphasizes the strategic value of organizational resources and capabilities [7], while Dynamic Capabilities Theory highlights the need to sense environmental change, seize opportunities, and reconfigure organizational resources [3, 16]. The Knowledge-Based View emphasizes the integration and application of distributed organizational knowledge [6]. Organizational Information Processing Theory highlights the importance of matching information-processing capacity with environmental and decision requirements [32], while Socio-Technical Systems Theory emphasizes the interaction between technological and human systems.

Taken together, these perspectives suggest that strategic decision capability cannot be reduced to data availability, analytical technology, managerial expertise, or governance in isolation. Its effectiveness depends on the relationships among these elements.

Accordingly, SDA is not proposed as a new decision-support technology or analytical technique. It represents a conceptual organizational architecture for coordinating the capabilities through which strategic decisions are generated, evaluated, implemented, monitored, and learned from. Artificial intelligence, business analytics, organizational knowledge, governance mechanisms, and managerial expertise are therefore treated as complementary elements whose value depends partly on their integration within an appropriate organizational system.

5.2 Core Characteristics of Strategic Decision Architecture

Five characteristics define the proposed construct and provide the basis for distinguishing it from related concepts.

Integration

SDA integrates governance, organizational knowledge, analytical intelligence, decision processes, human expertise, and organizational learning into a connected capability. The emphasis is therefore on the relationships among decision resources and mechanisms, rather than on any individual technology or managerial practice.

Strategic orientation

SDA focuses on decisions affecting organizational direction, competitive positioning, resource allocation, transformation, adaptation, and long-term organizational development. It therefore differs from approaches primarily designed to support routine or operational decisions.

Enterprise-wide capability

SDA is conceptualized at the organizational rather than individual level. Strategic decisions frequently involve interactions among executives, managers, functional units, analytical systems, digital platforms, and external stakeholders. Consequently, decision capability depends on organizational structures and processes that extend across functional and hierarchical boundaries.

Adaptive capability

Strategic decision environments change continuously. SDA therefore incorporates organizational learning, environmental sensing, feedback, and capability renewal. Its architecture should be capable of adapting to changing technologies, information conditions, stakeholder expectations, and competitive environments while maintaining strategic coherence [3, 16].

Human–AI complementarity

SDA recognizes that AI-enabled decision-making involves interaction between computational and human capabilities. AI can contribute information processing, pattern recognition, prediction, and analytical speed, while human decision makers contribute contextual interpretation, ethical judgment, experience, creativity, and accountability. The objective is therefore not technological substitution but the appropriate coordination of human and computational intelligence [11, 12, 27].

These characteristics collectively define SDA as a proposed enterprise-level decision capability concerned with how organizations organize and continuously improve the conditions under which strategic decisions are made.

5.3 Conceptual Boundaries

Establishing conceptual boundaries is necessary to demonstrate how SDA differs from established constructs while acknowledging the contributions of those constructs.

First, SDA differs from Decision Support Systems (DSS). DSS traditionally focuses on supporting individual or semi-structured managerial decisions through information, analytical models, and decision-support technologies [18–20]. SDA operates at a broader organizational level by addressing how strategic decision processes, governance, knowledge, analytics, and learning are coordinated across the enterprise.

Second, SDA extends beyond Business Intelligence (BI) and Business Analytics (BA). BI and BA provide important capabilities for data integration, reporting, descriptive analysis, prediction, optimization, and prescriptive decision support [9, 21–24]. SDA incorporates these analytical capabilities but places them within a broader organizational system that also includes governance, knowledge integration, decision authority, human expertise, and organizational learning.

Third, SDA is related to but distinct from Decision Intelligence (DI). DI emphasizes the systematic improvement of decisions through the combination of data, analytical methods, artificial intelligence, and human judgment [11, 12]. SDA incorporates Decision Intelligence as an important component but adopts a broader unit of analysis. Its concern is not only how an individual strategic decision can be improved, but how an organization can design and maintain the enterprise conditions that enable intelligent decision-making across multiple strategic decisions and over time.

Fourth, SDA differs from Organizational Intelligence. Organizational Intelligence focuses on an organization's ability to acquire, interpret, and use information and knowledge in pursuing its objectives [17, 26]. SDA incorporates these processes but places greater emphasis on their integration with governance structures, decision processes, analytical capabilities, decision rights, and human–AI interaction.

Finally, SDA differs from Enterprise Architecture. Enterprise Architecture primarily addresses alignment among organizational strategy, business processes, information, applications, and technological infrastructure [30, 31]. SDA draws on this architectural perspective but applies it specifically to strategic decision capability and extends it to include knowledge integration, organizational learning, decision governance, and human–AI collaboration.

These distinctions do not imply that SDA replaces the existing constructs. Rather, the proposed construct integrates selected mechanisms from them around a common organizational focus: the design and development of strategic decision capability.

Table 3
Comparison of Strategic Decision Architecture with Related Constructs

Construct	Primary unit of analysis	Primary objective	Relationship to SDA
Decision Support Systems	Individual or semi-structured decision	Analytical and informational decision support	Decision-support component
Business Intelligence	Organizational information	Data integration, reporting, and insight generation	Information foundation
Business Analytics	Analytical models and processes	Prediction, optimization, and prescription	Analytical capability
Decision Intelligence	Decision process	Improve decision quality through integrated intelligence and judgment	Core intelligence component
Organizational Intelligence	Collective organizational cognition	Knowledge acquisition, interpretation, and application	Knowledge and learning foundation
Enterprise Architecture	Business–information–technology alignment	Organizational and technological integration	Structural and technological foundation
Strategic Decision Architecture	Enterprise strategic decision capability	Integrate governance, intelligence, knowledge, learning, and decision processes	Proposed higher-order construct

Table 3 highlights the principal conceptual distinction. Existing constructs generally focus on a particular technology, analytical capability, decision process, knowledge capability, or organizational architecture. SDA is proposed at the intersection of these domains and focuses specifically on their coordination around strategic decision capability.

The distinction is therefore primarily one of scope and unit of analysis, rather than a claim that the individual components of SDA are entirely new. The conceptual contribution lies in integrating these components into a coherent architecture and specifying how they collectively support strategic decision-making.

5.4 Antecedents and Expected Outcomes

The proposed architecture is expected to depend on several organizational antecedents. These include effective governance, executive commitment to evidence-informed decision-making, data quality, knowledge-management capability, digital maturity, cross-functional collaboration, and a culture supportive of organizational learning. These conditions can provide the organizational infrastructure necessary for integrating decision-related capabilities.

The framework further proposes that stronger SDA capability may contribute to improved strategic decision quality, strategic agility, organizational adaptability, resilience, and innovation capability. However, these relationships represent theoretical expectations rather than empirical findings of the present study. Their strength, direction, and boundary conditions require future empirical investigation.

Importantly, the proposed relationships should not be interpreted as evidence that technology investment automatically produces better strategic outcomes. Rather, the framework suggests that outcomes are more likely to emerge when technological, analytical, knowledge, governance, and human capabilities are effectively coordinated within an organizational decision system.

5.5 Positioning Strategic Decision Architecture within Decision Analytics

The principal conceptual contribution of SDA is to shift the analytical focus from individual decision optimization toward enterprise-level decision capability. Existing approaches have made substantial contributions to analytical intelligence, decision support, prediction, prescription, and human–AI decision-making. SDA builds on these contributions by asking a broader organizational question: how can the conditions required for intelligent strategic decision-making be systematically designed, governed, integrated, and continuously improved across the enterprise?

From this perspective, Decision Intelligence represents an important capability within SDA, while analytics provides analytical inputs, organizational knowledge provides contextual resources, governance establishes decision rights and accountability, and organizational learning enables adaptation. SDA therefore provides an integrative conceptual layer through which these capabilities can be considered as parts of a broader strategic decision system.

This positioning also clarifies the theoretical contribution of the construct. SDA does not claim that its individual dimensions are unprecedented. Rather, its proposed originality lies in the integration of these dimensions around enterprise-level strategic decision capability as the central unit of analysis.

6. An Integrated Framework for Strategic Decision Architecture

Section 5 established Strategic Decision Architecture (SDA) as a proposed higher-order organizational capability that integrates complementary mechanisms supporting strategic decision-making. This section develops the integrated SDA framework by specifying five interrelated dimensions: Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning. These dimensions are not conceptualized as independent capabilities. Rather, they represent mutually reinforcing components of an organizational architecture through which information, knowledge, analytical intelligence, human judgment, and organizational experience can be coordinated around strategic decisions.

6.1 Strategic Governance

Strategic Governance provides the institutional foundation of SDA by defining decision rights, accountability, authority structures, strategic priorities, and oversight mechanisms. Governance determines who participates in strategic decisions, how responsibilities are distributed, and how decisions are aligned with organizational objectives.

Within SDA, governance extends beyond conventional organizational control. It establishes the conditions under which analytical intelligence, organizational knowledge, managerial expertise, and technological systems are incorporated into strategic decisions. Effective governance may therefore support transparency, accountability, strategic alignment, and appropriate allocation of decision authority.

The importance of governance increases as organizations adopt AI-enabled decision support. AI-related decisions may involve questions concerning explainability, human oversight, accountability, data governance, and responsible use [11, 12, 28]. SDA consequently treats governance as an architectural mechanism that connects technological capabilities with organizational responsibility rather than as a separate administrative function.

6.2 Decision Intelligence Integration

Decision Intelligence Integration represents the analytical and interpretive dimension of SDA. It incorporates artificial intelligence, business analytics, predictive and prescriptive methods, and human expertise to support strategic decision-making. The framework does not assume that analytical systems should independently determine strategic choices. Instead, computational intelligence and managerial judgment are treated as complementary sources of decision intelligence.

AI and analytics can expand the organization's ability to process information, identify patterns, evaluate scenarios, and generate decision alternatives [11, 12]. However, analytical outputs require contextual interpretation and evaluation against strategic objectives, organizational constraints, and stakeholder considerations. Decision Intelligence Integration therefore emphasizes the coordination of computational analysis with human interpretation and judgment.

Within SDA, this dimension serves as a bridge between available analytical capabilities and actual strategic decision processes. Its effectiveness is consequently expected to depend not only on analytical sophistication but also on the organization's ability to integrate analytical outputs into appropriate decision contexts.

Human–AI collaboration is therefore treated as an enabling mechanism within Decision Intelligence Integration rather than as a separate dimension of SDA. Its effectiveness depends on appropriate governance, explainability, human oversight, and integration with organizational knowledge and decision processes.

6.3 Knowledge Architecture

Knowledge Architecture refers to the organizational mechanisms through which relevant knowledge is captured, organized, shared, interpreted, and applied to strategic decisions. Knowledge may originate from employees, managers, customers, partners, organizational routines, digital platforms, external stakeholders, and AI-enabled systems.

The Knowledge-Based View emphasizes that organizational value depends not simply on possessing knowledge but on integrating and applying it effectively [6]. SDA therefore conceptualizes knowledge architecture as the mechanism that connects distributed knowledge with strategic decision processes.

An effective knowledge architecture can support cross-functional knowledge integration, organizational memory, knowledge sharing, and contextual interpretation. It may also reduce the risk that strategically relevant knowledge remains isolated within functional or hierarchical boundaries. In SDA, knowledge architecture consequently provides the informational and cognitive foundation through which analytical evidence and managerial experience can be combined.

6.4 Decision Process Design

Decision Process Design specifies how strategic decisions are structured from problem identification through evaluation, implementation, and review. It provides procedural consistency while allowing sufficient flexibility to accommodate uncertainty, emerging information, and changing strategic conditions.

Within SDA, decision processes may include problem definition, information gathering, alternative generation, scenario analysis, stakeholder consideration, decision evaluation, implementation planning, and post-decision review. The purpose is not to impose a rigid sequence on all strategic decisions but to establish an adaptable structure that supports disciplined strategic reasoning.

An important feature of Decision Process Design is the incorporation of feedback. Post-decision outcomes can provide information for subsequent decisions, allowing organizational experience to influence processes, assumptions, and analytical models. Decision processes are therefore conceptualized as evolving organizational routines rather than fixed procedural templates.

6.5 Adaptive Learning

Adaptive Learning represents the developmental dimension of SDA. Strategic decision systems operate in environments where assumptions, technologies, competitive conditions, and stakeholder expectations can change. Organizations therefore require mechanisms for learning from decision outcomes and modifying decision practices accordingly.

Within SDA, learning can occur through post-decision evaluation, performance feedback, scenario comparison, organizational reflection, knowledge updating, and revision of analytical models. These mechanisms allow experience to influence subsequent governance arrangements, knowledge structures, analytical practices, and decision processes.

Adaptive Learning therefore connects current decisions with future decision capability. Consistent with Dynamic Capabilities Theory, the organization can potentially strengthen its ability to sense change, respond to emerging conditions, and reconfigure decision-related resources over time [3, 16].

6.6 Interrelationships Among the Dimensions

The principal theoretical contribution of the SDA framework lies in the interaction among its five dimensions rather than in any individual dimension. Strategic Governance establishes decision authority, accountability, and strategic direction. Decision Intelligence Integration contributes analytical and computational capabilities. Knowledge Architecture connects distributed organizational knowledge with decision processes. Decision Process Design structures how strategic choices are formulated and implemented. Adaptive Learning provides feedback through which the overall architecture can be refined.

These relationships imply that the effectiveness of one dimension may depend partly on the presence of complementary dimensions. For example, advanced analytical capabilities may have limited strategic value when decision authority is unclear or when relevant organizational knowledge cannot be integrated. Similarly, effective governance may have limited impact if decision processes do not provide mechanisms for learning from outcomes.

The framework therefore conceptualizes SDA as a systemic capability characterized by interdependence among its dimensions. This systemic perspective provides an explanation for why comparable investments in analytics or AI may not necessarily produce comparable organizational decision outcomes. Differences may arise from how effectively analytical capabilities are connected with governance, knowledge, decision processes, and learning mechanisms.

Importantly, these relationships represent theoretical propositions rather than empirical findings in the present study. The framework establishes a conceptual explanation of how the dimensions may interact; empirical research is required to determine the strength, direction, and boundary conditions of these relationships.

The integrated framework also provides the foundation for the maturity model developed in Section 7. Whereas the present section identifies the principal dimensions and their relationships, the maturity model considers how organizations may progressively develop these dimensions from fragmented and reactive decision practices toward more integrated and adaptive decision capabilities.

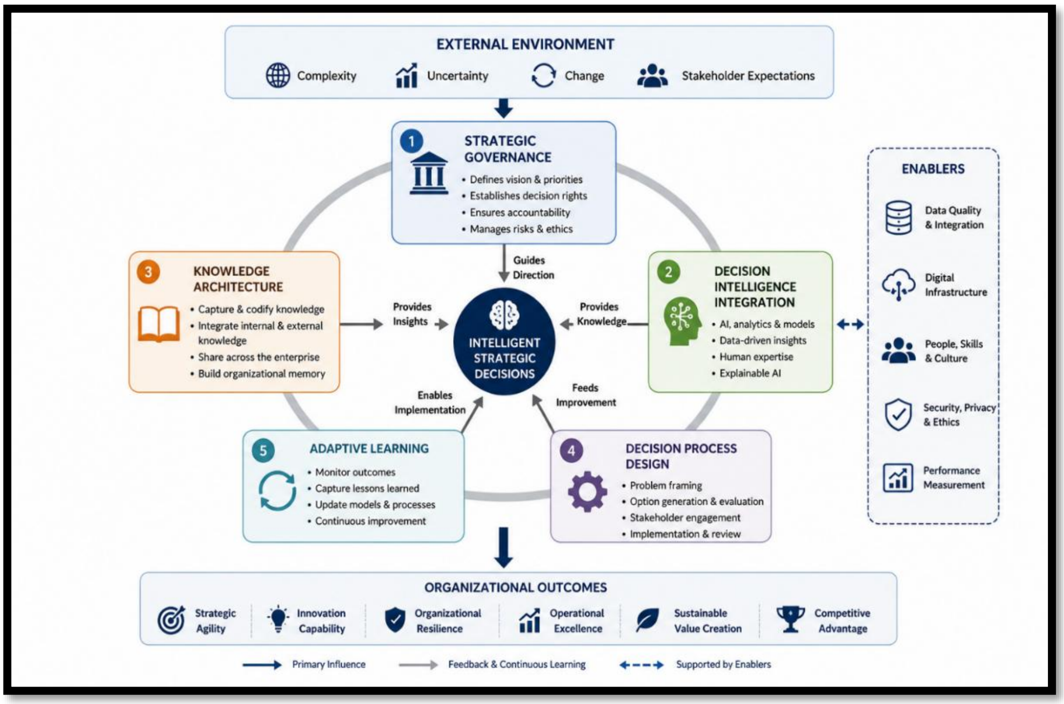

Fig. 2. Integrated Strategic Decision Architecture Framework

Figure 2 presents the proposed relationship among the five SDA dimensions. Rather than representing a linear sequence, the framework depicts SDA as an interconnected organizational system. Strategic Governance provides the institutional foundation, while Decision Intelligence Integration and Knowledge Architecture provide analytical and knowledge resources. Decision Process Design connects these resources to strategic choice and implementation, while Adaptive Learning provides feedback that can influence the development of the entire architecture.

7. Strategic Decision Architecture Maturity Model

The integrated framework presented in Section 6 identifies five dimensions of Strategic Decision Architecture (SDA): Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning. Organizations are unlikely to develop these dimensions simultaneously or at the same level of sophistication. Their development may instead occur progressively as organizations accumulate experience, integrate technologies, strengthen governance, and develop organizational learning capabilities.

Building on this logic, this study proposes a five-level maturity model to describe possible stages in the development of SDA. The model conceptualizes maturity as increasing integration among governance, intelligence, knowledge, decision processes, and learning. It should be emphasized that the levels are conceptual developmental stages rather than empirically validated categories. Their purpose is to provide a theoretical and managerial structure that can subsequently be operationalized and tested across organizational contexts.

7.1 Level 1: Fragmented Decision Environment

At Level 1, strategic decision-making is predominantly dependent on individual managerial experience, intuition, and localized information. Decision authority may be unclear or highly concentrated, governance mechanisms are limited, and analytical resources tend to operate independently across organizational units.

Organizational knowledge remains fragmented, cross-functional information sharing is inconsistent, and decision processes may vary considerably between departments. Digital technologies, where present, are primarily used as isolated operational tools rather than as components of an integrated strategic decision capability.

Learning occurs largely at the individual level, with limited mechanisms for systematically converting decision experience into organizational knowledge. Consequently, strategic decision capability remains highly dependent on individual managerial competence [1, 14, 17].

7.2 Level 2: Structured Decision Processes

Level 2 is characterized by greater procedural consistency and emerging organizational coordination. Formal governance mechanisms begin to clarify decision authority, accountability, and reporting relationships, while standardized procedures provide greater consistency in strategic planning and evaluation.

Business Intelligence systems, organizational reporting, and performance dashboards can improve access to relevant information and increase transparency [9, 21]. However, decision-making remains predominantly descriptive. Knowledge sharing may still be constrained by functional boundaries, organizational learning remains limited, and advanced analytical capabilities are not yet fully integrated into strategic decision processes.

The principal transition at this level is therefore from fragmented decision practice toward structured decision management, rather than toward full organizational intelligence.

7.3 Level 3: Intelligence-Driven Decision Systems

At Level 3, organizations increasingly integrate Business Analytics, predictive modelling, artificial intelligence, and advanced decision-support technologies into strategic management. Analytical evidence becomes more prominent in strategic planning, scenario evaluation, and assessment of uncertainty [22–24].

Decision-making begins to move from information availability toward analytical intelligence. Managers increasingly combine analytical outputs with professional expertise, while explainable AI may support transparency and interpretation of AI-assisted recommendations [11, 12]. Knowledge-management practices may also become more developed, supporting collaboration across organizational units.

Nevertheless, analytical capabilities can remain concentrated within specialized departments. Governance, knowledge, analytical systems, and decision processes may therefore remain only partially integrated. The organization has developed substantial decision intelligence, but has not yet fully institutionalized an enterprise-wide decision architecture.

7.4 Level 4: Integrated Strategic Decision Architecture

Level 4 represents the transition from individual areas of analytical or managerial excellence toward an integrated organizational capability. The five SDA dimensions become increasingly connected: governance establishes decision authority and accountability; Decision Intelligence Integration provides analytical capabilities; Knowledge Architecture facilitates knowledge integration; Decision Process Design structures strategic choices; and Adaptive Learning provides systematic feedback. At this stage, organizations begin to treat decision capability as an organizational and strategic concern rather than solely as a technological or analytical function. AI-enabled systems are integrated with managerial expertise, governance mechanisms, organizational knowledge, and strategic processes.

The defining characteristic of Level 4 is therefore cross-dimensional integration. Rather than simply possessing advanced technologies, the organization develops mechanisms for coordinating them with organizational structures, decision processes, and learning systems [3, 16, 30].

7.5 Level 5: Adaptive Intelligent Organization

Level 5 represents the proposed highest stage of SDA maturity, in which the five dimensions become highly integrated and continuously refined through organizational learning and environmental feedback.

At this stage, decision processes are designed to incorporate changing information, emerging technologies, stakeholder expectations, and environmental conditions. Governance mechanisms are sufficiently adaptive to accommodate innovation while maintaining accountability and strategic alignment. Organizational experience is systematically transformed into knowledge that can inform subsequent decisions, analytical models, governance arrangements, and organizational routines.

The defining feature of this level is therefore continuous adaptation of the decision architecture itself. Organizations at this stage are theoretically expected to possess greater capacity to adjust strategic decision mechanisms as environmental conditions change. However, the present study does not empirically establish that Level 5 organizations necessarily achieve superior resilience, innovation, competitiveness, or sustainability outcomes. Such relationships require empirical testing.

The proposed logic is consistent with Dynamic Capabilities Theory, which emphasizes organizational sensing, adaptation, and resource reconfiguration [3, 16]. It also reflects the broader argument that digital transformation creates organizational value when technological capabilities are integrated with organizational processes, learning, and governance rather than developed in isolation [35, 36].

7.6 Managerial Application of the Maturity Model

The proposed maturity model provides a conceptual diagnostic structure through which managers can assess the development of strategic decision capability. Organizations can examine the extent to which governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning are integrated within their existing decision systems.

The model also highlights that maturity should not be interpreted simply in terms of technological sophistication. An organization may possess advanced AI or analytics while remaining relatively immature in governance, knowledge integration, decision-process design, or organizational learning. Conversely, strong organizational processes may exist before advanced analytical technologies are adopted.

The maturity model therefore encourages balanced capability development. Investments in AI and analytics should be accompanied by appropriate governance, knowledge integration, human expertise, decision-process design, and learning mechanisms. This perspective is consistent with the systemic logic of SDA developed in Section 6.

Importantly, the maturity levels are not presented as an empirically validated scale. Future research should translate each level and each SDA dimension into observable indicators and establish appropriate measurement procedures. Researchers could subsequently examine inter-organizational differences in maturity and test whether higher SDA maturity is associated with outcomes such as decision quality, strategic agility, organizational resilience, innovation, or sustainability performance.

The maturity model therefore serves two purposes: it provides managers with a conceptual roadmap for capability development and provides researchers with a basis for developing and validating an empirical SDA maturity instrument.

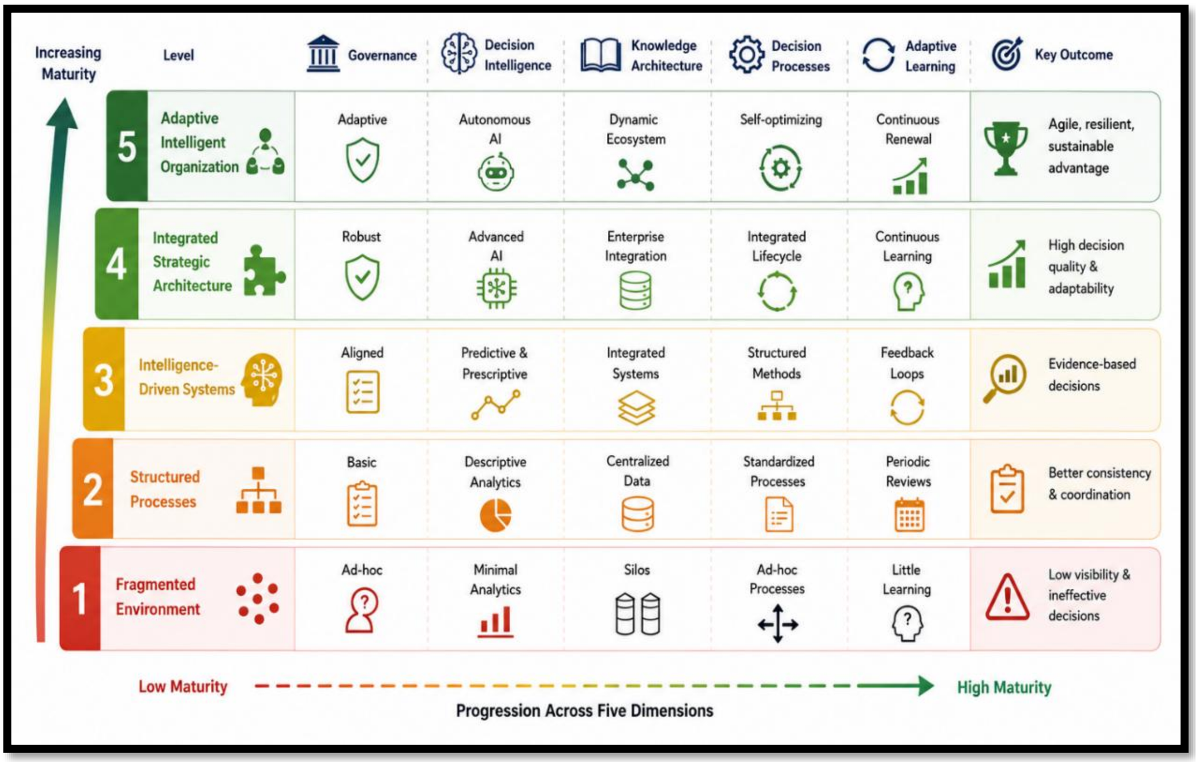

Fig. 3. Strategic Decision Architecture Maturity Model

Figure 3 illustrates the proposed progression from fragmented decision practices toward increasingly integrated and adaptive strategic decision capability. The progression should be interpreted as a conceptual developmental pathway, not as evidence that every organization follows an identical sequence.

8. Theoretical Propositions and Research Agenda

The preceding sections conceptualized Strategic Decision Architecture (SDA) as a higher-order organizational capability composed of Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning. This section translates the relationships identified in the framework into theoretical propositions that can guide future empirical research.

The propositions are derived from the integrated theoretical foundations presented in Section 4 and are intended to be testable in subsequent empirical studies. They do not represent statistically validated hypotheses because the present study is conceptual and does not employ primary empirical data. Accordingly, the proposed relationships should be interpreted as theoretically expected associations that require empirical verification.

8.1 Strategic Governance and Strategic Decision Quality

Strategic governance establishes decision rights, accountability, authority structures, and strategic priorities. These mechanisms can reduce ambiguity concerning who is responsible for strategic choices and how decisions should be aligned with organizational objectives. Governance may also provide mechanisms for reviewing analytical recommendations and ensuring appropriate managerial oversight, particularly when AI-enabled systems contribute to strategic decisions [11, 12, 28].

Within SDA, Strategic Governance is therefore expected to create conditions that support consistent, accountable, and strategically aligned decision-making.

Proposition 1 (P1). Stronger Strategic Governance is positively associated with Strategic Decision Quality.

For empirical testing, Strategic Governance could be operationalized through indicators such as clarity of decision rights, accountability, governance formalization, strategic alignment, and oversight mechanisms. Strategic Decision Quality could be assessed through indicators such as decision consistency, evidence utilization, strategic alignment, timeliness, comprehensiveness, and perceived quality of strategic outcomes. These indicators should be subjected to reliability and validity testing before use in empirical research.

8.2 Decision Intelligence Integration and Strategic Decision Effectiveness

Decision Intelligence Integration connects artificial intelligence, analytics, predictive modelling, and managerial expertise within strategic decision processes. Analytical capabilities can increase the organization's ability to identify patterns, evaluate alternatives, assess scenarios, and process complex information [9, 11, 22]. However, analytical outputs require organizational interpretation and must be connected to strategic objectives and managerial judgment.

SDA therefore proposes that the value of Decision Intelligence depends not simply on the availability of AI or analytical technologies but on their integration into organizational decision processes.

Proposition 2 (P2). Greater Decision Intelligence Integration is positively associated with Strategic Decision Effectiveness.

Decision Intelligence Integration could be measured through the extent to which AI and analytics are embedded in strategic planning, scenario evaluation, alternative assessment, and managerial decision processes. Strategic Decision Effectiveness could be operationalized through measures of decision timeliness, implementation effectiveness, achievement of strategic objectives, and managerial assessment of decision usefulness.

8.3 Knowledge Architecture and Adaptive Learning

Strategic decisions depend on knowledge distributed across individuals, organizational units, technological systems, and external stakeholders. The Knowledge-Based View emphasizes the importance of integrating and applying organizational knowledge rather than merely accumulating it [6, 17, 26].

Within SDA, Knowledge Architecture provides mechanisms for capturing organizational experience, sharing knowledge, maintaining organizational memory, and connecting analytical insights with managerial expertise. These mechanisms are expected to facilitate organizational learning by enabling knowledge generated from previous decisions to inform subsequent decisions.

Proposition 3 (P3). Stronger Knowledge Architecture is positively associated with Adaptive Learning.

Knowledge Architecture could be assessed through indicators such as knowledge accessibility, cross-functional knowledge sharing, organizational memory, knowledge integration, and knowledge application. Adaptive Learning could be measured through the organization's ability to evaluate previous decisions, incorporate feedback, update knowledge, modify routines, and apply lessons to subsequent strategic decisions.

8.4 Adaptive Learning and Strategic Agility

Organizations operating under uncertainty must continuously revise assumptions, incorporate new information, and adjust organizational responses. Dynamic Capabilities Theory emphasizes the importance of sensing, seizing, and reconfiguring organizational resources in changing environments [3, 16].

Within SDA, Adaptive Learning provides the feedback mechanism through which decision outcomes influence future decision processes, analytical models, governance arrangements, and organizational knowledge. This learning process is theoretically expected to enhance the organization's ability to respond to environmental change.

Proposition 4 (P4). Adaptive Learning is positively associated with Strategic Agility.

The earlier formulation of P4 described Adaptive Learning as a mediator between SDA and Strategic Agility. However, that mediation claim requires a more complex empirical model and assumes a direct relationship between SDA and Strategic Agility. Because this study has not yet established that relationship empirically, the revised formulation is more theoretically defensible. Future research can subsequently test whether Adaptive Learning mediates the relationship between overall SDA maturity and Strategic Agility.

Strategic Agility could be operationalized through indicators such as speed of strategic response, flexibility of resource allocation, responsiveness to environmental change, and ability to revise strategic priorities.

8.5 Human–AI Collaboration as a Moderating Mechanism

The integration of AI into strategic decision-making creates opportunities to combine computational and human capabilities. AI can support pattern recognition, prediction, information processing, and scenario analysis, whereas managers contribute contextual interpretation, ethical reasoning, experience, creativity, and accountability [11, 12, 27].

Within SDA, Human–AI Collaboration is conceptualized as a cross-cutting mechanism within Decision Intelligence Integration rather than as a separate SDA dimension. It refers to the quality of interaction between computational intelligence and human decision-makers, including appropriate human oversight, interpretation, and use of AI-generated recommendations. Its effectiveness therefore depends on the extent to which AI capabilities are appropriately integrated with managerial judgment and organizational decision processes.

Proposition 5 (P5). Human–AI Collaboration positively moderates the relationship between Decision Intelligence Integration and Strategic Decision Quality, such that the relationship is stronger when Human–AI Collaboration is more effective.

For future empirical testing, Human–AI Collaboration may be assessed through indicators such as human oversight, interaction quality, complementarity between human and AI capabilities, interpretability of AI recommendations, and the ability of decision-makers to evaluate and challenge AI-generated outputs. This operationalization would allow researchers to examine whether effective Human–AI Collaboration strengthens the contribution of Decision Intelligence Integration to Strategic Decision Quality.

8.6 Strategic Decision Architecture Maturity and Organizational Performance

The preceding propositions address relationships among individual dimensions of SDA. At the higher level of analysis, the framework proposes that organizations with more developed SDA capabilities may be better positioned to coordinate governance, intelligence, knowledge, decision processes, and learning.

However, organizational performance is multidimensional and may be influenced by numerous factors beyond decision capability. SDA should therefore be viewed as a potential organizational contributor rather than as a sole determinant of performance.

Proposition 6 (P6). Higher Strategic Decision Architecture maturity is positively associated with organizational performance.

Future research could examine organizational performance through multiple dimensions, including strategic agility, organizational resilience, innovation capability, sustainable competitive advantage, and achievement of strategic objectives [3, 7, 16, 35, 36]. Researchers should distinguish these outcome variables rather than combining them automatically into a single measure.

This proposition also provides an opportunity to test whether SDA maturity has indirect effects on organizational performance through mechanisms such as Strategic Decision Quality, Strategic Agility, and Adaptive Learning.

8.7 Operationalization and Empirical Testing

The propositions above require systematic operationalization before they can be tested statistically. Table 4 therefore summarizes not only the proposed relationships but also potential measurement domains. These indicators are presented as candidate measurement dimensions, not as validated scales.

Future empirical research should first develop and validate measurement instruments for the five SDA dimensions. Exploratory and confirmatory factor analyses could be used to examine dimensionality, while reliability and construct-validity assessments could establish the quality of the resulting measures. Structural equation modelling could subsequently be used to examine the relationships among SDA dimensions and organizational outcomes.

Importantly, constructs such as Strategic Decision Quality, Strategic Decision Effectiveness, Strategic Agility, Explainability, and Organizational Performance should be measured as distinct variables. This distinction would allow researchers to test the propositions without conflating decision-process characteristics with organizational outcomes.

A longitudinal design would be particularly valuable for examining whether improvements in SDA maturity precede improvements in decision quality and organizational performance. Case studies and mixed-methods research could complement quantitative studies by examining how governance, knowledge, AI systems, and managerial judgment interact in actual strategic decision environments.

8.8 Future Research Directions

Several specific research directions follow from the proposed framework.

First, future research should develop and validate an **SDA measurement scale** covering Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning.

Second, empirical studies should test whether Human–AI Collaboration and explainability influence the effectiveness of AI-enabled strategic decision-making.

Third, longitudinal research should examine whether organizations progressing from lower to higher SDA maturity experience measurable improvements in strategic agility, decision quality, and organizational performance.

Fourth, comparative studies should investigate whether the relationships proposed by SDA differ across industries, organizational sizes, technological environments, and levels of environmental uncertainty.

Finally, future research should examine how SDA interacts with emerging technologies, including generative AI, autonomous decision systems, digital twins, and advanced decision analytics. Such research could determine whether the proposed architecture remains theoretically useful as organizational decision technologies continue to evolve.

The propositions therefore provide a testable research program rather than empirical conclusions. Their ultimate contribution will depend on subsequent empirical research capable of establishing their reliability, validity, causal direction, and boundary conditions.

Table 4
Summary and Operationalization of Theoretical Propositions

Proposition	Proposed relationship	Potential measurement domains	Expected effect
P1	Strategic Governance → Strategic Decision Quality	Decision rights, accountability, alignment, oversight → consistency, evidence use, strategic alignment	Positive
P2	Decision Intelligence Integration → Strategic Decision Effectiveness	AI/analytics integration, predictive capability, analytical use → timeliness, implementation, strategic achievement	Positive
P3	Knowledge Architecture → Adaptive Learning	Knowledge sharing, integration, accessibility, organizational memory → feedback use, knowledge updating, learning routines	Positive
P4	Adaptive Learning → Strategic Agility	Outcome evaluation, feedback, routine adaptation → response speed, flexibility, strategic responsiveness	Positive
P5	Human–AI Collaboration × Decision Intelligence Integration → Strategic Decision Quality	Human oversight, complementarity, explainability, interaction quality → decision quality	Positive moderation
P6	SDA Maturity → Organizational Performance	Integrated SDA dimensions → agility, resilience, innovation, competitive and strategic outcomes	Positive

Table 4 summarizes the proposed relationships and identifies potential measurement domains for future empirical research. The measurement domains are intended to clarify how the propositions could be operationalized and statistically examined; they do not constitute validated measurement scales. Empirical research is required to establish their reliability, validity, and suitability across different organizational contexts.

9. Discussion, Implications, and Conclusion

The development of Strategic Decision Architecture (SDA) responds to a central challenge facing contemporary organizations: how to coordinate technological intelligence, organizational knowledge, governance, decision processes, and human expertise within a coherent strategic decision capability. Existing research has generated substantial knowledge on decision analytics, artificial intelligence, business intelligence, strategic management, organizational learning, and enterprise architecture. However, these streams have largely developed around different analytical, technological, or organizational concerns. The present study integrates these perspectives into a single conceptual construct focused on enterprise-level strategic decision capability.

The contribution of SDA does not depend on claiming that its individual components are entirely new. Rather, the proposed contribution lies in their systematic integration and in establishing strategic decision capability as the central unit of analysis. The framework, maturity model, and propositions developed in the preceding sections provide a conceptual basis for examining how organizations may design, govern, integrate, and continuously improve intelligent strategic decision systems.

Conceptual Findings: Because this study adopts a theory-building conceptual methodology rather than an empirical research design, its findings are theoretical rather than statistical. The principal outputs are the conceptualization of Strategic Decision Architecture as a higher-order organizational capability, the identification of five core dimensions, the integrated framework linking these dimensions, the five-level maturity model, and the theoretically derived propositions presented in Section 8. These outputs provide a structured explanation of how Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning may collectively support intelligent strategic decision-making. The proposed relationships should be interpreted as theoretically derived propositions requiring empirical validation, rather than as empirically demonstrated effects.

This clarification is important because the present study does not claim to have tested the SDA framework through surveys, experiments, case studies, or statistical analysis. Instead, it establishes a theoretically grounded architecture that provides a basis for subsequent empirical testing, measurement-scale development, and comparative organizational research.

9.1 Theoretical Contributions

This study makes several theoretical contributions to decision analytics and strategic management.

First, it proposes Strategic Decision Architecture as a higher-order organizational capability. Existing approaches commonly focus on decision-support technologies, analytical capabilities, individual decision processes, or specific forms of organizational intelligence. SDA shifts attention toward the organizational system that coordinates these capabilities around strategic decision-making. In this respect, SDA extends existing work on Decision Intelligence by emphasizing the broader organizational architecture within which intelligent decision-making is embedded [11, 12].

Second, the study contributes through theoretical integration. The framework combines insights from the Resource-Based View, Dynamic Capabilities Theory, the Knowledge-Based View, Organizational Information Processing Theory, and Socio-Technical Systems Theory. These perspectives explain different aspects of strategic decision capability, including strategic resources, adaptation, knowledge integration, information processing, and human–technology interaction [6, 7, 16, 32, 33]. SDA integrates these complementary insights rather than treating any single theory as sufficient to explain enterprise-level intelligent decision-making.

Third, the study contributes a five-dimensional conceptual architecture comprising Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning. The value of this contribution is primarily integrative: the framework specifies how these dimensions can be considered collectively as components of strategic decision capability.

Fourth, the proposed maturity model provides a developmental perspective on SDA. Rather than assuming that organizations possess strategic decision capability in either a present or absent form, the model conceptualizes capability development as a progression from fragmented decision practices toward increasingly integrated and adaptive arrangements. The maturity levels remain conceptual and require empirical validation.

Finally, the theoretical propositions provide a basis for future empirical testing. They specify relationships among SDA dimensions and potential organizational outcomes while identifying candidate measurement domains. The propositions should therefore be understood as theoretically derived statements rather than empirically confirmed relationships.

9.2 Managerial Implications

The principal managerial implication is that investments in artificial intelligence and advanced analytics should not be considered sufficient, by themselves, to establish intelligent strategic decision capability. Analytical technologies can generate information, predictions, and recommendations, but their strategic value depends on how effectively they are incorporated into organizational governance, knowledge structures, decision processes, and learning mechanisms [11, 12, 36].

The SDA framework encourages executives to evaluate strategic decision capability across multiple dimensions rather than focusing exclusively on technological maturity. Managers can assess whether decision rights are clear, analytical intelligence is appropriately integrated, relevant knowledge is accessible, decision processes are sufficiently structured, and organizational learning mechanisms systematically capture experience.

The maturity model can also provide a diagnostic roadmap for organizational development. Organizations can identify weaknesses across the five dimensions and prioritize capability development accordingly. For example, an organization with advanced analytics but weak governance may need to strengthen accountability and oversight before expanding AI-enabled strategic decision-making. Similarly, organizations with strong governance but fragmented knowledge may need to improve knowledge integration and organizational memory.

This perspective also has implications for digital transformation. Rather than treating AI implementation as primarily a technology acquisition project, organizations can approach transformation as the development of an integrated decision capability. Such an approach may improve alignment between technological investments and broader strategic and organizational requirements [35, 36].

9.3 Limitations and Future Research

Several limitations define the boundaries of the present study.

First, the study is conceptual and has not empirically validated SDA. The proposed construct, relationships, and maturity levels therefore remain theoretical. Future research should develop measurement instruments for the five SDA dimensions and evaluate their reliability, construct validity, and distinctiveness.

Second, the maturity model has not been empirically established. The five proposed levels represent a theoretical developmental pathway rather than validated organizational categories. Longitudinal research and comparative case studies are needed to determine whether organizations actually progress through these stages, whether stages can be reliably distinguished, and whether alternative developmental pathways exist.

Third, the propositions require empirical testing. Future studies should examine the relationships among Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, Adaptive Learning, Human–AI Collaboration, Strategic Decision Quality, Strategic Agility, and organizational performance. Quantitative studies could use structural equation modelling, hierarchical regression, or other appropriate multivariate methods, while qualitative and mixed-methods studies could investigate the mechanisms underlying these relationships.

Fourth, the measurement of key constructs remains an important challenge. In particular, Strategic Decision Quality, Strategic Decision Effectiveness, Explainability, Human–AI Collaboration, and Strategic Agility require clearly defined operational measures. Future research should establish whether these constructs are distinct and determine appropriate indicators for different organizational contexts.

Fifth, the framework may evolve as AI technologies develop. Generative AI, autonomous AI agents, digital twins, and other emerging technologies may change the ways in which organizations generate information, evaluate alternatives, and distribute decision authority. Future research should therefore examine whether the proposed SDA dimensions remain adequate under increasingly autonomous and intelligent decision environments.

Sixth, contextual conditions may influence SDA effectiveness. Organizational size, industry characteristics, environmental uncertainty, regulatory requirements, technological maturity, and organizational culture may affect how SDA develops and how its dimensions interact. Comparative research across industries and institutional environments can help identify these boundary conditions.

Future research should also examine whether SDA contributes to specific outcomes such as strategic agility, organizational resilience, innovation capability, digital transformation effectiveness, sustainability performance, ESG integration, and responsible AI governance. Such studies would provide stronger evidence regarding the practical and theoretical value of the proposed architecture.

9.4 Conclusion

Organizations increasingly operate under conditions of uncertainty, technological disruption, information complexity, and rapid strategic change. In such environments, effective strategic decision-making depends not only on access to data or analytical technologies but also on the organizational capability to coordinate information, knowledge, intelligence, governance, decision processes, and human judgment.

This study proposed Strategic Decision Architecture (SDA) as a higher-order organizational capability for integrating these elements into a coherent enterprise-level decision system. The framework identifies five interrelated dimensions, Strategic Governance, Decision Intelligence Integration, Knowledge Architecture, Decision Process Design, and Adaptive Learning, and explains their proposed relationships within an integrated architecture.

The study further developed a conceptual maturity model and six theoretical propositions to provide a foundation for future empirical research. These contributions should not be interpreted as empirical evidence of SDA's effectiveness. Rather, they establish a theoretically grounded framework through which future research can examine whether and under what conditions integrated strategic decision capability contributes to decision quality, strategic agility, organizational resilience, innovation, and organizational performance.

The central proposition of this study is therefore that intelligent strategic decision-making should be understood not simply as an outcome of better analytics or artificial intelligence, but as an organizational capability requiring coordinated governance, intelligence, knowledge, decision processes, and continuous learning. Empirical validation of this proposition represents the next important stage in the development of Strategic Decision Architecture.

Acknowledgement
This research was not funded by any grant.

Conflicts of Interest
The authors declare no conflicts of interest.

Declaration of Generative AI and AI-Assisted Technologies in the Manuscript Preparation Process
During the preparation of this manuscript, the authors used ChatGPT (OpenAI) as an AI-assisted tool to improve language quality, enhance readability, refine the organization of the manuscript, and support the development of conceptual figures based on the authors' original ideas and specifications. The AI-assisted tool was not used to generate the scientific concepts, research

questions, theoretical framework, analyses, interpretations, conclusions, or scholarly contributions of the study. All generated text and figures were carefully reviewed, verified, substantially edited where necessary, and approved by the authors. The authors take full responsibility for the accuracy, originality, and integrity of the final manuscript.

References

[1] Simon, H. A. (1997). *Administrative behavior: A study of decision-making processes in administrative organizations* (4th ed.). Free Press. Google Books
[2] Kahneman, D. (2011). Thinking, fast and slow. Farrar, Straus and Giroux.
[3] Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319–1350. https://doi.org/10.1002/smj.640
[4] Eisenhardt, K. M., & Sull, D. N. (2001). Strategy as simple rules. *Harvard Business Review, 79*(1), 106–116.
[5] March, J. G. (1991). Exploration and exploitation in organizational learning. Organization Science, 2(1), 71–87. https://doi.org/10.1287/orsc.2.1.71
[6] Grant, R. M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17(S2), 109–122. https://doi.org/10.1002/smj.4250171110
[7] Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108
[8] Daft, R. L., & Weick, K. E. (1984). Toward a model of organizations as interpretation systems. *Academy of Management Review, 9*(2), 284–295. https://doi.org/10.5465/amr.1984.4277657
[9] Davenport, T. H., & Harris, J. G. (2007). Competing on analytics: The new science of winning. Harvard Business School Press.
[10] Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology, 110*(2), 349–399. https://doi.org/10.1086/421787
[11] Farag, M. I. H. (2026). Bridging prediction and prescription: Explainable AI for managerial decision analytics under uncertainty. Applied Decision Analytics, 2(1), 295–319. https://doi.org/10.66972/ada21202626
[12] Farag, M. I. H. (2026). Artificial intelligence and strategic decision-making for sustainable governance. Knowledge and Decision Systems with Applications, 2, 447–468. https://doi.org/10.59543/aspp4925
[13] Mintzberg, H., Raisinghani, D., & Théorêt, A. (1976). The structure of "unstructured" decision processes. Administrative Science Quarterly, 21(2), 246–275. https://doi.org/10.2307/2392045
[14] Cyert, R. M., & March, J. G. (1963). A behavioral theory of the firm. Prentice Hall.
[15] McGrath, R. G. (2013). *The end of competitive advantage: How to keep your strategy moving as fast as your business*. Harvard Business Review Press.
[16] Eisenhardt, K. M., & Martin, J. A. (2017). Dynamic capabilities: what are they? *The SMS Blackwell handbook of organizational capabilities*, 341-363.https://doi.org/10.1002/9781405164054.ch21
[17] Weick, K. E. (1995). *Sensemaking in organizations*. Sage Publications.
[18] Keen, P. G. W., & Scott Morton, M. S. (1978). *Decision support systems: An organizational perspective*. Addison-Wesley Publishing Company.
[19] Alter, S. L. (1980). Decision support systems: Current practice and continuing challenges. Addison-Wesley.
[20] Turban, E., Sharda, R., & Delen, D. (2011). *Decision support and business intelligence systems* (9th ed.). Pearson. Google Books
[21] Vercellis, C. (2009). *Business intelligence: Data mining and optimization for decision making*. John Wiley & Sons. https://doi.org/10.1002/9780470753866
[22] Spetzler, C., Winter, H., & Meyer, J. (2016). *Decision quality: Value creation from better business decisions*. John Wiley & Sons. https://doi.org/10.1002/9781119176657
[23] Provost, F., & Fawcett, T. (2013). Data science for business. O'Reilly Media.
[24] Taylor, J. (2012). Decision management systems: A practical guide to using business rules and predictive analytics. IBM Press.
[25] Moser, R., Rengarajan, S., & Narayanamurthy, G. (2021). Decision intelligence: Creating a fit between intelligence requirements and intelligence processing capacities. IIM Kozhikode Society & Management Review, 10(2), 160–177. https://doi.org/10.1177/22779752211017386
[26] Sveiby, K. E. (1997). The new organizational wealth: Managing and measuring knowledge-based assets. Berrett-Koehler.
[27] Malone, T. W. (2018). *Superminds: The surprising power of people and computers thinking together*. Little, Brown and Company. Google Books

[28] Organisation for Economic Co-operation and Development. (2019). Recommendation of the Council on Artificial Intelligence. OECD Publishing. https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449
[29] Tabassi, E. (2023). *Artificial intelligence risk management framework (AI RMF 1.0).* NIST Trustworthy and Responsible AI, National Institute of Standards and Technology, Gaithersburg, MD. https://doi.org/10.6028/NIST.AI.100-1
[30] Ross, J. W., Weill, P., & Robertson, D. C. (2006). Enterprise architecture as strategy: Creating a foundation for business execution. Harvard Business School Press.
[31] Zachman, J. A. (1987). A framework for information systems architecture. IBM Systems Journal, 26(3), 276–292. https://doi.org/10.1147/sj.263.0276
[32] Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. Management Science, 32(5), 554–571. https://doi.org/10.1287/mnsc.32.5.554
[33] Trist, E. L. (1981). The evolution of socio-technical systems. *Occasional Paper No. 2*. Ontario Quality of Working Life Centre.
[34] Nutt, P. C. (2003). *Why decisions fail: Avoiding the blunders and traps that lead to debacles*. Berrett-Koehler.
[35] Csaszar, F. A., Ketkar, H., & Kim, H. (2024). Artificial intelligence and strategic decision-making: Evidence from entrepreneurs and investors. Strategy Science, 9(4), 322-345. https://doi.org/10.1287/stsc.2024.0190
[36] Li, Y., Zhong, H., & Tong, Q. (2024). Artificial intelligence, dynamic capabilities, and corporate financial asset allocation. International Review of Financial Analysis, 96, 103773. https://doi.org/10.1016/j.irfa.2024.103773
[37] Schulte, N., & Kanbach, D. K. (2026). Rethinking organizational decision-making: The emerging roles and tasks of generative artificial intelligence. Management Review Quarterly. https://doi.org/10.1007/s11301-026-00611-2
[38] Li, H., & Tian, F. (2026). Advancing decision-making through AI-human collaboration: A systematic review and conceptual framework. Group Decision and Negotiation, 35(2), Article 26. https://doi.org/10.1007/s10726-026-09980-1
[39] Raisch, S., & Fomina, K. (2024). Combining human and artificial intelligence: Hybrid problem-solving in organizations. Academy of Management Review, 50(2), 441-464. https://doi.org/10.5465/amr.2021.0421
[40] Hao, X., Demir, E., & Eyers, D. (2024). Exploring collaborative decision-making: A quasi-experimental study of human and generative AI interaction. Technology in Society, 78, 102662. https://doi.org/10.1016/j.techsoc.2024.102662
[41] Westphal, M., Vössing, M., Satzger, G., Yom-Tov, G. B., & Rafaeli, A. (2023). Decision control and explanations in human-AI collaboration: Improving user perceptions and compliance. Computers in Human Behavior, 144, 107714. https://doi.org/10.1016/j.chb.2023.107714
[42] Abdellatif, M. A. M., Abubakar, A. M., Elayan, M. B. H., & Hayajneh, J. A. M. (2024). Business analytics capabilities and decision quality: the mediating roles of decision speed and comprehensiveness. *Information Systems Management*, *41*(1), 91-108. https://doi.org/10.1080/10580530.2023.2179704
[43] Chatterjee, S., Chaudhuri, R., Gupta, S., Sivarajah, U., & Bag, S. (2023). Assessing the impact of big data analytics on decision-making processes, forecasting, and performance of a firm. *Technological forecasting and social change*, *196*, 122824. https://doi.org/10.1016/j.techfore.2023.122824