



## Knowledge governance and national development: Conceptual foundations, institutional architecture, and a framework for the knowledge management ecosystem

Sitali Wamundila<sup>1\*</sup>  
Christine Wamunyima Kanyengo<sup>2</sup>  
Austin Mwange<sup>3</sup>

<sup>1\*</sup> [sitaliw@unza.ac.zm](mailto:sitaliw@unza.ac.zm)

<sup>1,2,3</sup>The University of Zambia

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### ABSTRACT

The accelerating transition towards knowledge-based economies has rendered the systematic governance of knowledge assets an urgent strategic priority for nations aspiring to sustainable development. Yet the conditions under which national knowledge management frameworks translate into measurable development outcomes remain theoretically underspecified and empirically underexplored, particularly in the sub-Saharan African context where institutional capacity constraints intersect with acute development imperatives. Employing a qualitative methodology that integrates narrative literature review with systematic content analysis of policy documents across multiple national and institutional contexts, this paper advances the argument that knowledge governance - defined as the deliberate, institutionally embedded orchestration of the processes through which knowledge is created, captured, shared, and applied - constitutes a structural prerequisite for effective national development rather than a peripheral administrative function. The analysis proceeds through five analytically distinct but interrelated dimensions: the conceptual architecture of national development and its embeddedness in knowledge-intensive processes; the taxonomy and developmental applications of explicit and tacit knowledge assets; the comparative landscape of knowledge management strategy, legal, and policy framework adoption across global, regional, and national institutional tiers; the institutional morphology of knowledge governance structures; and the empirically documented contribution pathways through which knowledge management produces national development outcomes. Synthesising these dimensions, the paper introduces a five-component Knowledge Management Ecosystem framework that provides a theoretically coherent and practically actionable architecture for integrating knowledge governance into national development systems. The paper's principal contribution is the development of a theoretically grounded and empirically informed framework that positions knowledge governance as the connective tissue linking national development aspiration, institutional capacity, and sustainable development outcomes, with direct implications for development policy, public administration reform, and knowledge management scholarship across the Global South.

**Keywords:** Development Planning, Institutional Capacity, Knowledge Assets, Knowledge Governance, Knowledge-Based Economy, Public Sector Knowledge Management

### I. INTRODUCTION

The emergence of knowledge as a primary factor of production marks one of the most consequential structural transformations in the political economy of development over the past half-century. Where classical development theory privileged the accumulation of physical capital, and subsequent human capital theorists extended this framework to encompass education and skills, the knowledge economy paradigm posits that the capacity to generate, mobilise, and apply knowledge has become the decisive determinant of competitive advantage for both firms and nations (Schiliro, 2012; Oliinyk et al., 2021; Shobande & Asongu, 2021). This epistemic shift carries profound implications for how countries conceive of, plan for, and invest in national development. It implies that nations which manage their knowledge resources with the same strategic intentionality they bring to the management of financial capital, natural resources, and human capital will systematically outperform those that leave knowledge creation and application to chance.

The empirical record provides compelling, if uneven, support for this proposition. The developmental trajectories of East Asia's high-growth economies offer the most celebrated illustration: Hong Kong, Singapore, South Korea, and Taiwan leveraged systematic knowledge acquisition, technology transfer, intellectual property protection, and investment in research and development to achieve within a single generation the kind of economic transformation that took Europe more than a century (The World Bank, 1993; Chow, 2010; Dong-Ching, 2021). Their experience demonstrates not only that knowledge management facilitates development but that the institutional architecture through

which knowledge is governed constitutes a dimension of national governance as consequential as monetary policy or fiscal management. This institutional architecture encompasses the strategies that direct knowledge creation and sharing, the legal frameworks that regulate knowledge assets, and the organisational structures that operationalise knowledge governance in practice.

Yet despite the theoretical clarity of this argument and the availability of instructive precedents, most developing countries, and the organisations operating within them, have not adopted comprehensive knowledge management frameworks (Barbier & Tenengeh, 2023). Malhan and Gulati (2003) identified a persistent paradox in developing nations: the same processes of globalisation and liberalisation that generate the greatest need for systematic knowledge management also generate the greatest challenges to its implementation, as countries overwhelmed by immediate developmental demands find it difficult to invest in the institutional infrastructure for knowledge governance. Two decades on, this paradox has not been resolved. Knowledge management in developing country governments remains underdeveloped, fragmented, and insufficiently theorised.

Ndlovu and Haabazoka (2024) have contributed important empirical grounding for the centrality of institutional quality to development outcomes in Zambia, demonstrating through rigorous analysis of the 1996–2020 period that the contribution of foreign direct investment to economic growth was substantially mediated by the quality of institutional frameworks and governance capacity. Their finding directly challenges accounts of development that focus exclusively on resource endowment or investment levels and positions institutional governance — and by implication knowledge governance specifically — as a structural determinant of whether available inputs translate into development outcomes. This institutional mediation argument provides the theoretical scaffolding for the present paper's central claim: that knowledge governance is not an incidental feature of development policy but a structural condition of development effectiveness.

Ng'andu and Haabazoka (2024) have extended this institutional argument to the domain of information management, providing direct empirical evidence that the systematic digitalisation of health records in Zambian healthcare facilities generates significant and measurable operational efficiency gains. Their study moves beyond the theoretical case for knowledge management to document its performance consequences in a developing country institutional context, demonstrating that investments in explicit knowledge infrastructure produce returns in service delivery quality, accountability, and operational efficiency. The generalisability of this finding across institutional domains provides an empirical foundation for the paper's argument that digital knowledge infrastructure is a priority component of any national knowledge governance framework.

Ilukena et al. (2023) contribute a necessary contextual corrective to frameworks that assume knowledge management benefits are automatic or context-independent. Their investigation of insurance brokers in Zambia demonstrates that environmental and institutional contextual factors significantly moderate the relationship between organisational knowledge resources and performance outcomes. Their findings imply that the benefits of knowledge management investments are not mechanically produced by the investments themselves but are contingent on the institutional conditions, governance structures, and organisational capabilities within which those investments are embedded. This contextual moderation argument has direct implications for the design of knowledge management frameworks in developing countries, which must account for the distinctive institutional constraints and contextual factors that shape the knowledge-performance relationship in these settings.

This paper makes three principal contributions to the intersecting literatures on knowledge management, development studies, and public administration. First, it advances a theoretically coherent conceptualisation of knowledge governance as distinct from knowledge management in the narrow operational sense, framing it as a multi-level institutional function that encompasses strategic direction, legal regulation, structural organisation, and cultural enablement of knowledge processes. Second, it provides a comparative synthesis of knowledge governance framework adoption across global, regional, national, and organisational tiers, generating an empirically grounded map of the current institutional landscape. Third, it introduces a five-component Knowledge Management Ecosystem framework that provides both an analytical lens for understanding existing knowledge governance arrangements and a normative blueprint for strengthening them in developing country contexts. The paper proceeds as follows: Section 1.1 articulates the statement of the problem; Section 1.2 specifies the research objectives; Section II describes the methodology; Section III presents findings across five thematic domains; Section IV introduces the Knowledge Management Ecosystem framework; Section V draws together the conclusions and advances recommendations.

### 1.1 Statement of the Problem

This paper addresses a dual problem—both theoretical and practical—in the relationship between knowledge management (KM) and national development. Theoretically, although the link between KM and development is intuitively plausible and supported by growing empirical evidence (Wamundila & Kanyengo, 2022), it remains under-theorised. Much of the existing literature treats KM and national development as separate discourses, lacking integrated conceptual frameworks to explain how knowledge governance influences development paths, under which institutional

conditions, and with what design principles for reform, particularly in resource-constrained environments. This weakens both academic understanding and policy direction.

Practically, the effects of poor knowledge governance in developing countries are well-documented and severe, as seen in Zambian Auditor General reports and similar assessments across sub-Saharan Africa. A significant cause of public sector underperformance is the absence of systematic KM: without effective processes for capturing and applying institutional knowledge, governments cannot learn from experience, maintain policy continuity, or make evidence-based decisions. As a result, development programmes are repeatedly reinvented, best practices remain siloed, and valuable tacit knowledge is lost when experienced staff depart.

Opoku and Enu-Kwesi (2017) highlight a core attitudinal issue: in many developing country institutions, information management is viewed as a low-level administrative task, reinforcing the marginalisation of KM and limiting investment in KM infrastructure, professional development, and strategic integration. Ndiege and Backhouse (2021) note that while interest in KM is rising in these governments, institutional development is lagging, and there is a need for context-appropriate KM approaches.

The lack of comprehensive academic work that addresses KM and national development together, with sufficient theoretical, empirical, and practical depth, further complicates the issue. Most studies either focus narrowly on KM within organisations or on development without adequate attention to KM conditions. This paper seeks to bridge these gaps by offering theoretical insights and proposing an actionable, coherent framework.

## 1.2 Research Objectives

- (i) To examine the conceptual architecture of national development, including its theoretical foundations, principal dimensions, and measurement frameworks, and to articulate the structural role of knowledge as a strategic input across all stages and dimensions of the development process.
- (ii) To identify and characterise the principal categories of knowledge assets, both explicit and tacit, that contribute to national development, and to document their application across economic, social, environmental, technological, and institutional development domains.
- (iii) To map the current landscape of knowledge management framework adoption across global, regional, national, and organisational levels, examining the strategies, legal frameworks, policies, and governance structures that constitute the institutional infrastructure of knowledge governance.
- (iv) To analyse knowledge management structures in organisations and public institutions, assessing their functional design, their positioning within institutional hierarchies, and their contribution to effective knowledge governance.
- (v) To synthesise evidence on the contribution pathways through which knowledge management produces national development outcomes, including economic growth, improved public governance, human capital development, innovation capacity, and sustainable development.
- (vi) To construct a comprehensive, multi-component Knowledge Management Ecosystem framework that provides both an analytical architecture for understanding existing knowledge governance arrangements and a normative blueprint for strengthening them.

## II. LITERATURE REVIEW

### 2.1 Theoretical Review

#### 2.1.1 Knowledge-Based Economy and National Development

The theoretical foundations of the relationship between knowledge governance and national development rest on two interconnected bodies of scholarship. The first is the knowledge-based economy paradigm, which identifies knowledge - as distinct from land, labour, and physical capital - as the primary driver of sustainable competitive advantage and economic growth in the contemporary global economy (Schiliro, 2012; Giju et al., 2010). Drawing on the endogenous growth theory of Romer (1990) and Lucas (1988), as reviewed by Piętak (2014), this paradigm holds that knowledge creation, diffusion, and application generate positive externalities that compound over time, enabling nations that invest systematically in their knowledge base to achieve higher and more sustainable rates of growth than those that rely on factor accumulation alone.

The second body of scholarship is institutional theory, which holds that the formal and informal rules, norms, and governance arrangements that structure collective action in a society are the primary determinants of whether economic and developmental inputs generate the outcomes that theory predicts (North, 1990, as cited in Ndlovu & Haabazoka, 2024). Institutional theory provides the analytical framework for understanding why some countries extract greater developmental returns from knowledge investments than others: it is not the volume of investment that determines outcomes but the quality of the institutional architecture through which knowledge is governed, disseminated, and applied. This institutional mediation argument, empirically validated in the Zambian context by Ndlovu and Haabazoka (2024), positions knowledge governance reform as a development priority of the first order.

National development theory has evolved substantially from the linear models of modernisation and dependency theory through which developing country development was first theorised (Nohlen, 1980; Reyes, 2001; Piętak, 2014; Evans & Jakupec, 2021). Contemporary development scholarship, as synthesised by Naseemullah (2023), Chimhowu et al. (2019), and Okobia and Azu (2021), conceives development as a multidimensional process encompassing economic, social, political, cultural, and institutional dimensions — a conception that is itself knowledge-intensive in its implications, requiring the systematic generation, analysis, and application of knowledge across every developmental domain.

### **2.1.2 Knowledge Management: Foundational Theory**

Knowledge management theory draws principally on three foundational frameworks. The knowledge creation theory of Kaur (2012), which conceptualises knowledge as cycling between tacit and explicit forms through the SECI model of socialisation, externalisation, combination, and internalisation, provides the processual logic of how institutional knowledge is generated, captured, and applied. The resource-based view of the firm (Teece, 1998) positions knowledge assets as the primary source of sustained competitive advantage because of their non-rivalrous, difficult-to-imitate, and recombinatorily valuable character. The dynamic capabilities framework (Teece, 1998) extends this argument to explain how organisations must continuously develop, integrate, and reconfigure their knowledge capabilities to maintain advantage in rapidly changing environments.

For the governance of knowledge at national level, these organisational theories must be extended by insights from institutional economics, public administration, and development studies. Canal's (2004) work on organisational financial capacity and Bowman's emphasis on governance as an enabling condition for strategic capacity building offer a useful analogy: just as financial governance is a structural prerequisite for financial sustainability, knowledge governance is a structural prerequisite for knowledge sustainability — the capacity of nations and organisations to continuously generate, retain, and build upon their knowledge assets over time. This parallel positions knowledge governance reform not as a technical administrative function but as a strategic investment in institutional capability with compounding developmental returns.

## **2.2 Empirical Review**

### **2.2.1 Knowledge Management and Economic Development**

The empirical relationship between knowledge management and economic development has been established through multiple methodological approaches. Oliinyk et al. (2021) demonstrate through cross-national analysis that knowledge management capacity is directly associated with economic growth performance, with systematic knowledge application enabling organisations and nations to accelerate productivity gains. Luintel and Khan (2005) provide econometric evidence that knowledge production - operationalised through research and development expenditure and patent activity - has a statistically significant positive effect on economic growth, establishing a causal pathway from knowledge governance investment to macroeconomic performance. Sira et al. (2020) demonstrate that knowledge economy indicators, including educational attainment, research capacity, and information and communications technology infrastructure, are significant predictors of sustainable competitiveness across European Union member states.

Ndlovu and Haabazoka (2024) situate the knowledge-growth relationship within the institutional mediation framework, demonstrating that the contribution of investment to economic growth in Zambia is substantially moderated by the quality of institutional frameworks. Their finding implies that the return on any development investment, including knowledge management investment, is higher in institutional environments characterised by strong governance, regulatory effectiveness, and policy coherence. This institutional mediation argument provides a powerful justification for prioritising knowledge governance reform as a development strategy: by improving the institutional conditions under which all other development investments operate, knowledge governance reform generates multiplier effects across the entire development portfolio.

### **2.2.2 Knowledge Management in Public Institutions**

Knowledge management makes a distinctive contribution to public governance quality through its enhancement of the information infrastructure on which evidence-based policymaking, administrative accountability, and responsive service delivery depend. Laihonen et al. (2024) identify knowledge formation in public administration as a key determinant of governance quality, arguing that public sector organisations that systematically manage their knowledge resources demonstrate superior policy quality, operational efficiency, and accountability to citizens. Dayal (2023) provides evidence from South Africa that knowledge management investments in the public sector generate improvements in service delivery quality, institutional learning capacity, and policy coherence.

Ng'andu and Haabazoka (2024) provide the most directly relevant empirical evidence of knowledge management's contribution to public service governance in a developing country context. Their detailed study of health

records digitalisation in Zambian healthcare facilities documents specific operational improvements in service delivery quality, information retrieval efficiency, and accountability mechanisms that are directly attributable to the transition from fragmented manual information systems to integrated digital knowledge management. These findings establish a quantifiable relationship between knowledge governance investment and service delivery performance, making the case for knowledge management investment in terms that resonate with public sector performance management frameworks.

Mwange et al. (2022) have established in the Zambian business environment that organisations which invest systematically in knowledge management capabilities, including structured information systems, evidence-based decision-making processes, and knowledge-sharing institutional cultures, demonstrate demonstrably superior strategic performance outcomes relative to organisations that manage knowledge informally. Their findings reinforce the principle that knowledge management is an active strategic capability whose systematic development generates competitive and developmental advantage.

### **2.2.3 Knowledge Management, Innovation, and Sustainable Development**

The relationship between knowledge management and innovation capacity is well-established in the empirical literature. Knowledge management processes, including knowledge creation, acquisition, sharing, and application, provide the raw material for innovation by making diverse knowledge assets available for recombination, identifying gaps and opportunities, and creating the relational conditions within which collaborative innovation can occur (Waribugo et al., 2016; Duru et al., 2023). Ilukena et al. (2023) have demonstrated in the Zambian context that organisations which effectively manage their knowledge resources, subject to the moderating influence of environmental and institutional conditions, demonstrate enhanced innovation and problem-solving capacity.

Mikalauskiene and Atkociuniene (2019) establish, through cross-national analysis, that knowledge management capacity has a positive and significant effect on sustainable development outcomes across the environmental, economic, and social dimensions, providing comprehensive empirical support for the proposition that knowledge governance is a prerequisite for sustainable development. Knowledge management frameworks that incorporate systematic training, communities of practice, mentoring, and knowledge-sharing platforms create human capital development effects that extend beyond individual skills acquisition to encompass the development of collective organisational intelligence (Asadi, 2013; Giju et al., 2010).

## **III. METHODOLOGY**

### **3.1 Research Design and Approach**

This study employs a qualitative methodology that integrates systematic narrative literature review with qualitative content analysis of policy and institutional documents. This methodological combination is appropriate for research whose objectives are simultaneously conceptual, comparative, and framework-generative: the narrative literature review component enables the synthesis of theoretical arguments and empirical evidence from diverse disciplinary traditions, while the content analysis component provides systematic, document-based evidence about the current state of knowledge management framework adoption across different institutional contexts (Braun & Clarke, 2006; Bryman, 2016). Together, these methods generate both the theoretical foundations and the empirical grounding needed to support the development of the Knowledge Management Ecosystem framework proposed in this paper.

The integration of multiple analytical methods within a qualitative design reflects an epistemological commitment to comprehensiveness: the relationship between knowledge management and national development is too complex and multi-dimensional to be fully illuminated by any single methodological approach. By combining evidence from theoretical literature, empirical research, and primary policy documents, the study generates findings that are both analytically rigorous and grounded in institutional reality. This approach is consistent with the methodological traditions of comparative policy analysis, institutional theory, and knowledge management research (Yin, 2009; Asiedu et al., 2022).

### **3.2 Literature Review Strategy**

The narrative literature review systematically synthesised theoretical and empirical literature from multiple disciplinary traditions including development economics, knowledge management, public administration, information science, organisational theory, and political economy. The search strategy employed major academic databases including Scopus, Web of Science, Google Scholar, and discipline-specific repositories, using search terms and Boolean combinations addressing knowledge management, national development, knowledge governance, knowledge assets, knowledge economy, knowledge-based development, development planning, institutional knowledge, and related concepts. Literature was included based on its relevance to the paper's objectives, its disciplinary contribution, and its quality as assessed through publication venue and citation record. Both foundational and recent works were incorporated to capture theoretical development over time.

### 3.3 Content Analysis

The content analysis component examined a purposively selected corpus of policy and institutional documents pertaining to knowledge management frameworks in both developed and developing country contexts. Documents were selected to represent geographic, institutional, and sectoral diversity, and included national knowledge management strategies and policies from Africa, Europe, and Asia; knowledge management strategies of international and regional development institutions; ISO standards and international frameworks for knowledge governance; and institutional knowledge management policies from public and private organisations across multiple sectors. Analysis followed a thematic approach that identified patterns, convergences, divergences, and gaps across documents in relation to the key themes of knowledge governance strategy, legal framework, institutional structure, and performance outcomes. Thematic categories were developed inductively from the data and refined through iterative review.

### 3.4 Synthesis and Framework Development

Findings from the literature review and content analysis were integrated through thematic synthesis, a method for generating higher-order conceptual insights from the systematic combination of diverse evidence sources (Thomas & Harden, 2008). The synthesis enabled identification of the principal mechanisms through which knowledge governance contributes to national development, the institutional conditions that enable or constrain these mechanisms, and the design principles that should inform knowledge management ecosystem construction. These synthetic insights informed the development of the Knowledge Management Ecosystem framework proposed in Section IV.

## IV. FINDINGS & DISCUSSION

The findings are organised around the six research objectives set out in this section, addressing in turn: the multidimensional conception of national development and its knowledge embeddedness; the taxonomy of knowledge assets; the global landscape of knowledge management framework adoption; knowledge management structures in organisations and public institutions; the contribution pathways through which knowledge management produces development outcomes; and the proposed Knowledge Management Ecosystem framework.

### 4.1 National Development: Conceptual Architecture and Knowledge Embeddedness

#### 4.1.1 The Multidimensional Conception of National Development

National development, as theorised in contemporary development scholarship, resists reduction to any single metric or dimension. Okobia and Azu (2021, p. 23) articulate a comprehensive conception that situates development as encompassing the economic, administrative, political, social, cultural, religious, and security dimensions of the life and living standards of the people in a given society, implying increased talent and ability, creativity, discipline, responsibility, and material welfare. Naseemullah (2023) conceives national development as the integrated processes and strategies through which countries enhance their economic and social well-being, navigating the complex dynamics among states, firms, and international organisations in the context of structural transformation. Chanda (2024, p. 171) defines it as a multifaceted process encompassing economic, social, political, and cultural dimensions aimed at enhancing the overall well-being and prosperity of a nation and its citizens.

What these diverse conceptualisations share is their insistence on the multi-dimensionality of development and, implicitly, on the knowledge-intensiveness of the processes through which development proceeds. National development is enacted through development plans that apply theories, models, and strategies as analytical inputs into the planning process (United Nations Department of Economic and Social Affairs, 1966; Chimhowu et al., 2019; Harrison, 2023). The major theoretical frameworks of modernisation theory, dependency theory, and world-systems theory are themselves products of knowledge creation that have shaped how development is conceived and pursued globally (Nohlen, 1980; Reyes, 2001; Piętak, 2014; Evans & Jakupc, 2021). The development models derived from these theories — from the linear stages of growth model and the Harrod-Domar model to Rostow's stages framework, the endogenous growth model, the Asian Tigers model, and the Nordic welfare model — are explicit knowledge assets whose application by development planners constitutes an act of knowledge management at national scale.

Ndlovu and Haabazoka (2024) provide a critical empirical perspective on the relationship between institutional knowledge quality and national development outcomes. Their analysis of foreign direct investment and economic growth in Zambia from 1996 to 2020 reveals that the mediating role of institutional quality - encompassing governance capacity, regulatory effectiveness, and policy coherence - is as consequential as the level of investment itself in determining growth outcomes. This finding operationalises the abstract claim that knowledge governance matters for development: it demonstrates that the quality of institutional knowledge about economic conditions, policy instruments, and their interactions directly influences whether development inputs generate the outcomes that development theory predicts.

#### 4.1.2 Knowledge Management: Conceptual Architecture and Theoretical Foundations

Knowledge management has been defined from multiple disciplinary vantages, reflecting the field's inherently inter-disciplinary character. Imhanzenobe et al. (2021, p. 275) characterise it as a systematic and deliberate approach to ensuring that organisations fully utilise their knowledge base, innovation, skills, competencies, and experience to create effective and efficient operations. Uto et al. (2024, p. 2) emphasise the processual dimension, defining knowledge management as concerned with the entire process of discovering and creating knowledge as well as its dissemination and usage. Girard and Girard (2015, p. 14), in a frequently cited synthesis, describe it as the process of creating, sharing, using, and managing the knowledge and information of an organisation. These definitions, while each capturing important dimensions, collectively point towards an understanding of knowledge management as the institutionalised governance of the knowledge lifecycle within organisations and, by extension, within nations.

This paper proposes that the concept of knowledge governance, rather than the operationally narrower knowledge management, better captures the institutional dimension of this function at national level. Knowledge governance encompasses the full spectrum of deliberate, institutionally embedded mechanisms through which national and organisational actors direct, regulate, and enable the processes of knowledge creation, capture, sharing, and application. It includes the strategic dimension addressed by knowledge management strategies; the regulatory dimension addressed by knowledge-related legislation and standards; the structural dimension addressed by institutional arrangements for knowledge work; and the cultural dimension addressed by norms, incentives, and practices that shape knowledge-sharing behaviour. This governance framing aligns the study of knowledge management at national level with the broader literature on governance quality and institutional capacity as determinants of development outcomes, as explored empirically by Ndlovu and Haabazoka (2024) and analytically by Ilukena et al. (2023) in the Zambian context.

Mwange et al. (2022) have established in the Zambian business environment that organisations which invest systematically in knowledge management capabilities, including structured information systems, evidence-based decision-making processes, and knowledge-sharing institutional cultures, demonstrate demonstrably superior strategic performance outcomes relative to organisations that manage knowledge informally. Their findings reinforce the principle that knowledge management is an active strategic capability whose systematic development generates competitive and developmental advantage, rather than a passive administrative support function.

### 4.2 Knowledge Assets: Taxonomy, Characteristics, and Development Applications

#### 4.2.1 The Taxonomy of Knowledge Assets

Knowledge assets constitute the raw material of knowledge governance, comprising the repositories of explicit and tacit knowledge that organisations and nations must identify, capture, organise, and deploy to generate the returns that knowledge management promises. Erickson and Rothberg (2015) define knowledge assets as organisational resources whose primary value derives from their informational or knowledge content rather than from their physical or financial properties. Teece (1998) argues that knowledge assets are distinguished from other organisational assets by their non-rivalrous character, which means that their use by one actor does not reduce their availability to others, and by their potential for value multiplication through combination and recombination.

Explicit knowledge assets are characterised by their documentability, systematisation, and transferability. They encompass formal documents including laws, plans, policies, research outputs, technical reports, and policy briefs; structured data collections including statistical databases, knowledge bases, and digital libraries; standardised procedures and process guidelines; patents, trademarks, copyrights, and other legally protected intellectual property; and formalised knowledge embedded in software, algorithms, and decision models (Kamasak & Yucelen, 2010; Năftănăilă, 2012). The governance challenge for explicit knowledge assets is primarily one of organisation, accessibility, and institutional memory: ensuring that valuable documented knowledge is systematically captured, organised for retrieval, maintained in current form, and made accessible to the actors who need it.

Tacit knowledge assets, by contrast, are characterised by their embeddedness in individual cognition and experience, their resistance to articulation and codification, and their dependence on social relationships for transfer (Asadi, 2013; Garcia-Almeida & Ballesteros-Rodriguez, 2018; Năftănăilă, 2012). They include professional expertise comprising specialised skills and knowledge developed through sustained practice; practical know-how for performing specific tasks in specific institutional contexts; insight reflecting intuitive understanding developed through experience and reflective observation; and institutional intuition representing the accumulated tacit understanding that experienced practitioners bring to complex decisions. The governance challenge for tacit knowledge assets is fundamentally different: it requires creating the relational conditions, mentoring structures, communities of practice, and knowledge transfer mechanisms through which tacit knowledge can be shared, captured before it is lost to attrition, and translated into institutional capability.

Ng'andu and Haabazoka (2024) provide direct empirical evidence of the performance value of systematic explicit knowledge asset management in developing country institutional settings. Their study demonstrates that the

transition from fragmented, manual information systems to integrated digital repositories in Zambian healthcare facilities generates significant improvements in service delivery quality, operational efficiency, and institutional accountability. These findings document precisely the kind of development returns that investment in explicit knowledge infrastructure produces, establishing an empirical foundation for the paper's advocacy of digital knowledge systems as a core component of any national knowledge management ecosystem.

#### **4.2.2 Knowledge Assets and National Development: Sectoral Applications**

The developmental applications of knowledge assets are manifest across every dimension of national development, constituting a pervasive rather than a sector-specific contribution. In economic development, knowledge assets drive innovation and entrepreneurship, improve productivity and operational efficiency, and attract foreign investment through their signal value as indicators of institutional sophistication (Oliinyk et al., 2021; Luintel & Khan, 2005; Canals et al., 2004). In social development, knowledge assets enable improvements in educational quality, public health outcomes, and social protection effectiveness. In environmental development, knowledge assets inform the design of sustainable technologies, climate change adaptation strategies, and natural resource management frameworks. In institutional development, knowledge assets support evidence-based policymaking, enhance public sector capacity, and strengthen accountability mechanisms (Laihonen et al., 2024; Dayal, 2023).

The developmental significance of knowledge assets is most dramatically illustrated by the East Asian development experience. Hong Kong, Singapore, South Korea, and Taiwan systematically leveraged technology transfer, research and development investment, intellectual property protection, and investment in human capital to achieve sustained economic transformation within a generation (The World Bank, 1993; Chow, 2010; Dong-Ching, 2021). Governments in these economies made deliberate strategic choices about which knowledge assets to acquire, how to protect them, and how to deploy them in support of export-led industrialisation strategies. The resulting knowledge ecosystems, which combined government-directed technology policy, private sector innovation capacity, educational investment, and international knowledge acquisition, generated the productivity gains that underpinned their extraordinary growth trajectories.

Ilukena et al. (2023) provide an important corrective to simplistic accounts of knowledge-development relationships by demonstrating that the value of knowledge assets in organisational settings is moderated by contextual and environmental factors. Their research in the Zambian insurance sector shows that organisations operating in different environmental conditions extract different performance benefits from comparable knowledge resource endowments, implying that the design of knowledge management frameworks must account for contextual variation rather than assuming universal applicability of best practices derived from high-income country contexts.

### **4.3 Knowledge Management Frameworks: The Global Landscape of Adoption**

#### **4.3.1 Knowledge Management Strategy: From Institutional to National Scale**

A knowledge management strategy is the apex governance instrument through which organisations and nations express their strategic intent for the creation, capture, sharing, and application of knowledge. At the organisational level, a knowledge management strategy defines the knowledge vision and objectives of the organisation, identifies the knowledge domains of greatest strategic value, specifies the processes and systems through which knowledge will be managed, and establishes the governance arrangements through which the strategy will be implemented and monitored (United Nations Development Programme, 2014; Asiedu et al., 2022; International Organisation for Migration, 2024). The core strategic goals typically encompass governance quality, performance improvement, innovation facilitation, preservation of institutional memory, operational efficiency, human capability development, process standardisation, and technology enablement.

At national level, knowledge management strategy takes on additional complexity and scale, addressing the systematic capture, sharing, and application of knowledge across entire sectors and governance systems to promote innovation, operational efficiency, and evidence-based policymaking (Blackman & Smith, 2006; Republic of Kenya, 2023). The landscape of national knowledge management strategy adoption, while still limited in scope, reveals a growing recognition of the strategic value of knowledge governance. South Africa's National Knowledge Management Strategy Framework (Republic of South Africa, 2019), Kenya's Knowledge Management Policy (Republic of Kenya, 2022), the African Development Bank's Knowledge Management Strategy 2022–2031 (African Development Bank, 2022), and the African Union's Knowledge Management Strategy 2025–2030 (African Union, 2025) collectively demonstrate that systematic knowledge governance is gaining institutional traction in the African context. European nations including Germany, Austria, Switzerland, and the United Kingdom have more comprehensively integrated knowledge management into their national governance systems, providing models whose selective adaptation to African institutional contexts merits serious policy consideration.

Mwange and Meyiwa (2022) have demonstrated in the Zambian context that the quality of strategic management capability - including the systematic development, implementation, and monitoring of institutional strategies - is a

significant determinant of organisational performance. Applied to knowledge management strategy, this finding implies that the existence of a strategy document is insufficient: the governance capacity to implement, monitor, and adapt the strategy - including the management skills, data systems, accountability mechanisms, and organisational culture needed to translate strategy into practice- is equally essential. This insight reinforces the importance of treating knowledge management strategy development not as a documentation exercise but as an institutional capacity-building programme.

#### **4.3.2 Legal and Policy Frameworks for Knowledge Governance**

The regulatory architecture of knowledge governance encompasses the laws, standards, regulations, and policies through which nations and organisations establish the normative framework for knowledge asset creation, storage, use, and disposal. While no country has enacted legislation bearing the explicit nomenclature of a knowledge management Act, the legal foundations of knowledge governance are distributed across a wide range of legislative instruments addressing distinct aspects of the knowledge asset lifecycle (Cerrillo-Martinez & Casadesus-de-Mingo, 2021; Kingdom of Saudi Arabia, 2021).

Data privacy legislation, exemplified by the European Union's General Data Protection Regulation and equivalent national instruments, governs the conditions under which personal and institutional data may be collected, processed, stored, and shared. Freedom of information legislation establishes citizens' rights to access government-held information, creating accountability mechanisms that are simultaneously knowledge governance instruments. Public records Acts mandate the systematic retention and preservation of governmental knowledge, protecting institutional memory against the knowledge loss that would otherwise accompany administrative transitions. Copyright and intellectual property law governs the ownership and use of creative and innovative knowledge assets. Electronic transactions and evidence legislation provides the legal foundation for digital knowledge management systems. Collectively, these instruments constitute an implicit national knowledge governance framework whose coherence, adequacy, and enforcement varies enormously across national contexts.

Knowledge management policies at organisational level provide the operational translation of this legal framework into specific institutional guidance for knowledge asset management. The growing number of organisations in Africa, Asia, Europe, and Oceania that have developed knowledge management policies demonstrates that policy-level knowledge governance is becoming institutionally mainstreamed in a widening range of contexts. These organisations include the International Islamic University Malaysia, the City of Ekurhuleni in South Africa (Republic of South Africa, 2017), and the KZN Province Human Settlements Department (Republic of South Africa, 2025). The ISO standards framework, through ISO/TC 46 for Information and Documentation and ISO/TC 260 for Human Resource Management, provides internationally harmonised guidance that organisations in developing countries can adopt as a reference architecture for their knowledge governance systems.

#### **4.3.3 International Standards as Knowledge Governance Infrastructure**

International standards represent a critically underutilised resource for knowledge governance in developing countries. The ISO framework for information and knowledge governance provides organisations with a systematic, internationally recognised architecture for managing their knowledge assets across the full knowledge lifecycle, from creation and capture through organisation, preservation, and controlled disposal. Standards such as ISO 30301 for Management Systems for Records, ISO 15489 for Records Management, ISO 30401 for Knowledge Management Systems, and ISO 27001 for Information Security Management collectively constitute a comprehensive framework whose adoption in developing country public sector organisations would substantially advance knowledge governance maturity. The advantage of standards-based approaches lies in their transferability, their international legitimacy, and their provision of a structured developmental pathway that allows organisations to build governance capability incrementally rather than having to design comprehensive systems from scratch.

#### **4.4 Knowledge Management Structures: Institutional Morphology and Governance Architecture**

The institutional structures through which knowledge governance is operationalised vary enormously across organisational types, national contexts, and levels of knowledge management maturity. At one end of the spectrum, a small number of organisations have established dedicated knowledge management departments with explicit mandates, qualified staff, and clearly defined knowledge governance functions. At the other end, the majority of organisations - particularly in developing countries - perform knowledge management functions in dispersed, uncoordinated ways through information technology departments, library and records services, planning units, and human resources departments, none of which is specifically chartered to govern the organisation's knowledge assets as a whole (Kaur, 2012; Lemieux & Trapnell, 2016; Opoku & Enu-Kwesi, 2017).

At national level, the institutional infrastructure of knowledge governance is distributed across government ministries responsible for information, science and technology, and justice; national archives and records services; information technology regulatory bodies; broadcasting authorities; and offices of the Information Commissioner or

equivalent independent oversight bodies. The presence of Information Commissioner Offices across a growing range of national contexts demonstrates the global institutionalisation of explicit knowledge governance at national level (Lemieux & Trapnell, 2016). These bodies perform essential knowledge governance functions including the enforcement of citizens' rights to access governmental information, the oversight of data protection compliance, and the maintenance of standards for public records management. Such offices exist across Africa, including in South Africa, Uganda, Nigeria, Kenya, Rwanda, and Zambia, as well as in Canada, India, Nepal, New Zealand, and across Europe.

The functional architecture of a mature knowledge management department encompasses five core domains. The first is knowledge governance, comprising the development and implementation of knowledge management strategy, policy, and structure, as well as the management of budget and return-on-investment accountability for knowledge management initiatives. The second is knowledge management processes, comprising knowledge needs assessment, knowledge audit, knowledge capture from experienced practitioners, documentation of best practices and lessons learned, knowledge organisation and classification, knowledge dissemination, and document lifecycle management. The third is knowledge management systems, comprising the design and implementation of content management systems, document management systems, collaboration platforms, knowledge repositories, and data analytics capabilities. The fourth is organisational learning, comprising the facilitation of training and communities of practice, the promotion of knowledge-sharing culture, and the management of inter-team knowledge transfer. The fifth is knowledge management reporting, comprising the measurement of knowledge management impact on strategy implementation and operational efficiency through indicators such as information retrieval time, reduction in redundant work, content usage rates, and service delivery improvements.

Banda and Mwangi (2023) have examined corporate governance structures in Zambian organisations and found that governance quality - including the quality of information and knowledge governance mechanisms - is positively associated with organisational performance. This finding is directly consistent with the institutional theory proposition that formal governance structures generate performance benefits through their contribution to institutional legitimacy, accountability, and decision-making quality. Applied to knowledge governance, this finding implies that organisations and governments that establish dedicated, adequately resourced knowledge management structures are not merely fulfilling a governance formality but are building a strategic capability whose performance consequences are measurable and significant.

#### **4.5 Contributions of Knowledge Management to National Development: Empirical Pathways**

The pathways through which knowledge management contributes to national development outcomes are both multiple and mutually reinforcing, operating simultaneously across economic, governance, human capital, innovation, and sustainability dimensions.

##### **4.5.1 Economic Growth and Competitiveness**

The relationship between knowledge management and economic growth has been established through multiple empirical approaches. Oliinyk et al. (2021) demonstrate, through cross-national analysis, that knowledge management capacity is directly associated with economic growth performance, with systematic knowledge application enabling organisations and nations to accelerate productivity gains. Luintel and Khan (2005) provide econometric evidence that knowledge production - operationalised through research and development expenditure and patent activity- has a statistically significant positive effect on economic growth, establishing a causal pathway from knowledge governance investment to macroeconomic performance. Sira et al. (2020) demonstrate that knowledge economy indicators, including educational attainment, research capacity, and information and communications technology infrastructure, are significant predictors of sustainable competitiveness across European Union member states.

Ndlovu and Haabazoka (2024) situate the knowledge-growth relationship within the institutional mediation framework, demonstrating that the contribution of investment to economic growth in Zambia is substantially moderated by the quality of institutional frameworks. Their finding implies that the return on any development investment, including knowledge management investment, is higher in institutional environments characterised by strong governance, regulatory effectiveness, and policy coherence. This institutional mediation argument provides a powerful justification for prioritising knowledge governance reform as a development strategy: by improving the institutional conditions under which all other development investments operate, knowledge governance reform generates multiplier effects across the entire development portfolio.

##### **4.5.2 Public Governance and Service Delivery**

Knowledge management makes a distinctive contribution to public governance quality through its enhancement of the information infrastructure on which evidence-based policymaking, administrative accountability, and responsive service delivery depend. Laihonen et al. (2024) identify knowledge formation in public administration as a key determinant of governance quality, arguing that public sector organisations that systematically manage their knowledge

resources demonstrate superior policy quality, operational efficiency, and accountability to citizens. Dayal (2023) provides evidence from South Africa that knowledge management investments in the public sector generate improvements in service delivery quality, institutional learning capacity, and policy coherence, particularly in the post-crisis recovery context where institutional resilience depends on the quality of knowledge governance.

Ng'andu and Haabazoka (2024) provide the most directly relevant empirical evidence of knowledge management's contribution to public service governance in a developing country context. Their detailed study of health records digitalisation in Zambian healthcare facilities documents specific operational improvements in service delivery quality, information retrieval efficiency, and accountability mechanisms that are directly attributable to the transition from fragmented manual information systems to integrated digital knowledge management. These findings establish a quantifiable relationship between knowledge governance investment and service delivery performance, making the case for knowledge management investment in terms that resonate with public sector performance management frameworks.

#### **4.5.3 Human Capital Development, Innovation, and Sustainable Development**

Knowledge management contributes to human capital development through its creation of the institutional conditions within which individuals can access, apply, and build upon the collective knowledge of the organisations and nations within which they operate (Asadi, 2013; Giju et al., 2010). Knowledge management frameworks that incorporate systematic training, communities of practice, mentoring, and knowledge-sharing platforms create human capital development effects that extend beyond individual skills acquisition to encompass the development of collective organisational intelligence. This collective intelligence dimension is particularly important for developing countries, where the shortage of specialist expertise in many domains means that the effective sharing and multiplication of available expertise is a development priority in its own right.

The relationship between knowledge management and innovation capacity is similarly well-established. Knowledge management processes - including knowledge creation, acquisition, sharing, and application - provide the raw material for innovation by making diverse knowledge assets available for recombination, identifying gaps and opportunities, and creating the relational conditions within which collaborative innovation can occur (Waribugo et al., 2016; Duru et al., 2023). Mikalauskiene and Atkociuniene (2019) establish, through cross-national analysis, that knowledge management capacity has a positive and significant effect on sustainable development outcomes across the environmental, economic, and social dimensions, providing comprehensive empirical support for the proposition that knowledge governance is a prerequisite for sustainable development.

#### **4.6 A Knowledge Management Ecosystem for National Development: The Proposed Framework**

The evidence synthesised in the preceding sections generates a clear design imperative: effective knowledge governance for national development requires a systemic, multi-level architecture that aligns strategic intent, regulatory framework, institutional structure, operational processes, human capacity, and developmental outcomes within a coherent, mutually reinforcing ecosystem. Piecemeal approaches that address individual components of knowledge management without attending to their interdependencies will inevitably produce sub-optimal outcomes. The Knowledge Management Ecosystem framework proposed here provides an integrating architecture that addresses this systemic challenge.

The framework comprises five interconnected and mutually reinforcing components arranged in a logic of nested governance. Component One, national vision, policy, and strategy, provides the overarching institutional mandate. Component Two, institutional structures and governance, provides the organisational architecture for implementation. Component Three, knowledge processes and systems, provides the operational mechanisms for knowledge lifecycle management. Component Four, capacity development and knowledge culture, provides the human and social foundations of effective knowledge governance. Component Five, knowledge-based development outcomes, provides the performance accountability framework against which the entire ecosystem is evaluated.

##### **4.6.1 Component One: National Vision, Policy, and Strategy**

The apex component of the Knowledge Management Ecosystem establishes the institutional mandate and strategic direction for national knowledge governance. This component encompasses four essential governance instruments. A national knowledge management policy designates knowledge explicitly as a strategic national asset, establishes the principles governing its creation, sharing, and protection, defines the institutional responsibilities of different national actors in the knowledge governance system, and provides the normative foundation on which all other governance instruments rest. A national knowledge management strategy translates this policy mandate into a time-bound, resourced plan for achieving defined knowledge governance objectives across all sectors of the economy, specifying the priorities, milestones, accountability structures, and performance indicators that will guide implementation. A national legal framework for knowledge governance provides the regulatory architecture governing specific aspects of the knowledge asset lifecycle, including data protection, freedom of information, public records

management, intellectual property, and electronic transactions. A national knowledge infrastructure funding mechanism ensures that the financial investment necessary to build and sustain knowledge governance capabilities is systematically planned, allocated, and accounted for.

The precedents established by South Africa, Kenya, the African Development Bank, and the African Union — as documented above — demonstrate that this component is achievable in African institutional contexts. Mwange et al. (2022) have established that the quality of strategic management frameworks directly influences organisational and institutional performance in Zambia, reinforcing that the apex governance instruments of the ecosystem must be designed with implementation quality, not merely documentation comprehensiveness, as the primary objective. Strategy without implementation infrastructure generates the ceremonial adoption without substantive practice that institutional theory identifies as decoupling, and this represents a governance failure whose costs are particularly high in the knowledge governance domain.

#### **4.6.2 Component Two: Institutional Structures and Governance**

The second component addresses the organisational architecture through which national knowledge governance is implemented. It encompasses four structural elements: a national knowledge management coordination body with a mandate to align knowledge governance efforts across government ministries, regulatory agencies, research institutions, universities, and the private sector; strengthened knowledge management units within individual ministries and public agencies, staffed by qualified knowledge management professionals with clear functional mandates and adequate operational resources; inter-institutional collaboration frameworks that facilitate knowledge sharing between government, academia, civil society, and the private sector, reducing knowledge silos and maximising the productivity of available expertise; and formal communities of practice networks that create structured platforms for cross-sectoral knowledge exchange among practitioners working on related development challenges.

The governance quality dimension of this structural component is critical. Banda and Mwange (2023) have demonstrated that governance quality, rather than governance form, is the decisive determinant of performance outcomes in Zambian organisational settings. Applied to knowledge governance institutions, this finding implies that the establishment of knowledge management structures must be accompanied by governance mechanisms — including clear accountability frameworks, performance monitoring systems, adequate resourcing, and leadership commitment — that enable formal institutional arrangements to translate into substantive knowledge governance practice.

#### **4.6.3 Component Three: Knowledge Processes and Systems**

The operational core of the Knowledge Management Ecosystem encompasses the processes through which knowledge is systematically generated, captured, organised, shared, and applied across the national development system. The knowledge generation process encompasses systematic research and knowledge creation, structured data collection and analysis, innovation management, and the systematic documentation of lessons learned from development programme implementation. The knowledge capture process encompasses knowledge audit and needs assessment, extraction of tacit knowledge from experienced practitioners through mentoring and documentation programmes, documentation of best practices and process innovations, and the maintenance of comprehensive institutional memory systems. The knowledge organisation process encompasses the classification and indexing of knowledge assets for efficient retrieval, the maintenance of knowledge repositories and digital libraries, and the management of document and data lifecycles to ensure that knowledge assets remain current and accessible.

The knowledge sharing and application processes are equally critical but receive less systematic attention in most knowledge governance frameworks. Effective knowledge sharing requires not only technical platforms — such as intranets, collaboration tools, and knowledge management systems - but also the governance mechanisms and cultural conditions that motivate practitioners to share rather than hoard their knowledge (Wahid & Mustamil, 2014). Effective knowledge application requires not only that relevant knowledge is accessible but that practitioners have the analytical capacity to identify, evaluate, and apply knowledge from other contexts to their own institutional challenges, a capacity that depends on both individual skills and organisational culture (Kaira & Phiri, 2022).

Ng'andu and Haabazoka (2024) have provided the most directly applicable evidence of the operational benefits of digital knowledge process integration in a Zambian institutional context. Their demonstration that healthcare facility performance improves significantly when health records are managed through integrated digital systems rather than fragmented manual processes establishes a precedent that, while sector-specific, has implications for knowledge process digitalisation across the public sector. The broader pattern of underinvestment in strategic knowledge systems, documented by Shamizinga et al. (2024) in their finding that most Zambian organisations use information technology for administrative rather than strategic purposes, represents a structural gap that the ecosystem framework's operational core is designed to address.

#### 4.6.4 Component Four: Capacity Development and Knowledge Culture

The fourth component addresses the human foundations of effective knowledge governance, encompassing both the technical competencies and the cultural conditions that determine whether knowledge management systems generate the intended development benefits. Capacity development programmes must systematically incorporate knowledge management competencies into professional training curricula for public servants, development practitioners, researchers, and business professionals. These programmes must address not only technical skills in knowledge management tools, systems, and processes but also the higher-order analytical competencies of knowledge evaluation, synthesis, and application that transform information access into evidence-based practice.

The cultural dimension of this component addresses the norms, values, incentives, and leadership practices that either encourage or discourage knowledge-sharing behaviour within and between organisations. Ilukena et al. (2023) have demonstrated that contextual and cultural factors significantly moderate the relationship between knowledge resources and performance outcomes in Zambian institutional settings, establishing empirically that culture change is not a soft addendum to knowledge governance reform but a structural condition of its effectiveness. The persistent tendency towards knowledge hoarding - documented in both public and private sector organisations across developing countries - reflects rational responses to institutional incentive structures that reward individual expertise and penalise the sharing of knowledge that confers positional advantage. Knowledge governance frameworks must directly address these incentive structures through performance management systems, leadership behaviour, and the design of knowledge-sharing platforms that make sharing more accessible and professionally rewarding than hoarding.

#### 4.6.5 Component Five: Knowledge-Based Development Outcomes

The fifth and final component of the ecosystem provides the performance accountability framework that connects knowledge governance investment to national development outcomes and enables the iterative improvement of the ecosystem over time. When the first four components are effectively implemented and aligned, the ecosystem generates five categories of measurable development outcomes: evidence-based policymaking supported by systematically collected, analysed, and accessible data and research; enhanced public governance quality through improved institutional learning, operational efficiency, and accountability; economic growth driven by knowledge-enabled innovation, productivity improvement, and human capital development; human capital development through systematic knowledge-building, skills transfer, and the creation of learning organisations; and sustainable development contributions through the systematic management of environmental knowledge, climate adaptation research, and the application of knowledge to complex cross-sectoral development challenges.

Ndlovu and Haabazoka (2024) have established empirically that institutional quality and governance capacity are critical mediators of the relationship between resource inputs and development outcomes in Zambia. This finding provides the accountability logic for the fifth component: knowledge governance investment generates development returns not as a direct causal relationship but through the improvement of the institutional conditions under which all other development investments operate. Nations that invest in the knowledge governance ecosystem described in this framework create the institutional conditions under which their other development investments - in physical infrastructure, human capital, and economic diversification - are more likely to generate the outcomes that development planning intends.

## V. CONCLUSION & RECOMMENDATIONS

### 5.1 Conclusion

This paper presents a comprehensive argument for the strategic importance of knowledge governance in national development. It begins by noting that knowledge has become a fundamental driver in the global economy, shaping national development theory, policy, and institutional design. The paper highlights that both explicit and tacit knowledge assets are embedded across all aspects of development and asserts that systematic governance of these assets, through robust institutional frameworks, is essential for translating development inputs into tangible outcomes.

A key contribution is the introduction of the Knowledge Management Ecosystem framework, which offers an integrated approach to strengthening national knowledge governance capacity. This framework conceptualises knowledge governance as a multi-level function, covering national vision and policy, institutional structures, knowledge processes and systems, capacity development, and the cultivation of a knowledge-oriented culture. By focusing on governance quality, institutional coherence, and alignment across various levels, the framework transcends the operational scope of existing knowledge management literature, addressing the conditions necessary for knowledge investments to yield development benefits.

Three major findings are emphasised: First, the effectiveness of knowledge governance is contingent upon institutional quality - good governance enhances the impact of knowledge management investments. Second, the adoption of digital knowledge infrastructure significantly improves operational performance in developing countries,

underscoring the need to prioritise such systems. Third, the success of knowledge governance frameworks is shaped by contextual and cultural factors, requiring tailored approaches for different environments.

Ultimately, the paper concludes that sustainable development in the modern era depends on deliberate and systemic knowledge governance, positioning it as a foundational capacity for realising national development goals.

## 5.2 Recommendations

National governments should recognise knowledge as a strategic asset by enacting dedicated legislation and integrating comprehensive knowledge management strategies into national development plans, drawing on relevant regional and international models. They should establish cross-sectoral knowledge management coordination bodies with sufficient resources and authority, staffed by qualified professionals, to oversee knowledge governance across public institutions.

Public sector organisations should create formal knowledge management units with strategic roles, not merely administrative functions, ensuring they contribute to decision-making. Investment in digital knowledge infrastructure—such as repositories, analytics platforms, and collaboration tools—should be prioritised, with systematic change management to address cultural and behavioural obstacles.

Knowledge management skills and analytical competencies should be embedded in the professional development of public servants and practitioners, recognising these as essential for human capital and institutional performance. Finally, governments and institutions should invest in performance measurement systems for knowledge management, using context-sensitive indicators to assess impact and inform ongoing improvement.

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