
AI-Supported Digital Knowledge Management and the Transition to the Cognitive Economy: A Conceptual and Applied Framework

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Abstract:

The rapid advancement of generative artificial intelligence and large language models is fundamentally transforming how organizations manage and extract value from knowledge. This paper examines the paradigmatic shift from the knowledge economy, centered on information ownership, to an emerging cognitive economy where competitive advantage derives from intelligent, real-time human-AI knowledge processing. Using a descriptive-analytical approach, the study develops a theoretical framework tracing the evolution of knowledge management and analyzes how the transition from the VUCA to the BANI environment compels organizations to adopt adaptive, intelligence-driven models. Drawing on case studies from global organizations including Commonwealth Bank of Australia, KPMG, Netflix, and Amazon, the paper illustrates how AI, cloud computing, and retrieval-augmented generation enable a shift from static knowledge ownership toward dynamic value extraction. The study concludes that sustainable competitive advantage in the cognitive era requires an integrated equation of AI capabilities, human creativity, and robust digital infrastructure, alongside ethical governance frameworks for responsible AI deployment.

Keywords: Cognitive economy, Digital knowledge management, Generative artificial intelligence, Organizational transformation, BANI environment

Jel Classification Codes: M15, O33, D83.

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1- Introduction :

The world today is witnessing an unprecedented radical transformation in the nature of knowledge and how it is managed. The mere possession of information is no longer the source of power and differentiation; rather, it is the ability to extract value from vast data assets — shaped by the intelligence that drives them — that has become the decisive factor for institutional success. With the torrential flow of big data and the emergence of generative artificial intelligence and large language models, organizations have transitioned from the challenging VUCA environment to the more complex BANI environment, compelling a fundamental rethinking of traditional knowledge management models.

This transition reflects a qualitative leap from the knowledge economy that prevailed since the 1990s — which focused on accumulating and storing information — to a new model termed the 'Cognitive Economy,' where human cognitive capabilities integrate with AI capabilities to generate actionable insights and make real-time automated decisions. This shift represents not merely a technological evolution but a fundamental restructuring of the nature of institutional work and competitive advantage

1-1 Research Problem

In light of these fundamental transformations, this study poses the following central research question:

How does AI-supported digital knowledge management contribute to reshaping organizational models and enabling the transition from a knowledge economy to a cognitive economy?

The following sub-questions stem from this central problem:

- What are the fundamental differences between the traditional knowledge economy model and the emerging cognitive economy model?
- How do modern digital technologies (generative AI, big data, cloud computing) enable digital knowledge management?
- What are the challenges and opportunities that organizations face in adopting the cognitive economy model?

1-2- Research Hypotheses:

This study proceeds from the following hypotheses:

- **First Hypothesis:** Digital knowledge management represents a qualitative shift from information ownership to cognitive engineering, where knowledge becomes a dynamic process of instant value extraction rather than a static stored asset.
- **Second Hypothesis:** The transition from the VUCA to the BANI environment compels organizations to adopt new knowledge management models based on continuous learning and adaptive response, not merely on storing and retrieving information.

- **Third Hypothesis:** Modern digital technologies (generative AI, large language models, big data) enable organizations to convert tacit knowledge into explicit, applicable, and investable knowledge more effectively than traditional models.

1-3- Research Objectives:

This study aims to achieve the following objectives:

- Develop a comprehensive theoretical framework to understand the transition from the knowledge economy to the cognitive economy, and analyze its conceptual dimensions and distinguishing characteristics.
- Analyze the role of modern digital technologies — such as generative AI, big data, and cloud computing — in enabling digital knowledge management and transforming it from a static to a dynamic model.
- Extract lessons learned from the practical experiences of leading global organizations in implementing digital knowledge management, and identify success factors and challenges.
- Provide practical recommendations to organizations on how to adapt to cognitive economy requirements, redesign their organizational structures, and develop human resource capabilities.
- Highlight the importance of developing ethical and legal frameworks to govern the use of AI in knowledge management and ensure responsible use of these technologies.

1-4- Research Methodology:

To achieve the objectives of this study and answer its research problem, the authors adopted the descriptive-analytical method, which allows reviewing and analyzing theoretical literature and prior studies related to knowledge management, artificial intelligence, and the cognitive economy, alongside analyzing practical applications and real-world cases of leading global organizations.

2- The Conceptual Framework of the Transition from Knowledge Economy to Cognitive Economy

The transition from the knowledge economy to the cognitive economy represents a radical transformation that goes beyond mere information possession to how it is processed, comprehended in its deep contexts, and leveraged to create added value. To deconstruct this framework, this section addresses the historical roots of the knowledge economy, the emergence of the cognitive economy concept and its characteristics, and a comparison with the knowledge economy.

2-1- Historical Evolution of the Knowledge Economy

The concept of the knowledge economy is rooted in numerous economic and social theories, focusing on theories ranging from information theory to post-industrial theories, in addition to ideas and concepts put forward by Peter Drucker through his formulation of the 'knowledge society.' Despite the abundance of literature

in this field, there is no single comprehensive and complete definition of the knowledge economy (Jadranka & Marina, 2015). Among the most prominent definitions is that offered by the OECD, which characterizes it as an economy that is directly based on the production, distribution, and use of knowledge and information. (OCDE, s.d., P7.)

The concept of the knowledge economy gained significant attention and momentum in the early 1990s, due to the role played by knowledge and innovation in the rapid economic growth of East Asian countries. What further raised the prominence of the knowledge economy as a distinct field was the increase in resources allocated to knowledge production (education, training, research and development) and the spread of information technology — all of which elevated the importance of intangible assets as a strategic resource for organizations. (Nawal, 2024, P17)

The most important stages of the knowledge economy's development are as follows:

- **First Stage (1995–2005):** During this stage, the knowledge economy focused on collecting and storing information in databases and retrieving it when needed.
- **Second Stage (2005–2015):** This stage saw the emergence of Knowledge Management 2.0, characterized by deep-dive search and social network analysis to help organizations identify various patterns related to tacit knowledge.
- **Third Stage (2015-2020):** This stage witnessed the advent of Knowledge Management 3.0, which used emerging technologies such as machine learning and deep learning applications to enhance individual and group capabilities (stangarfield, s.d.).
- **Fourth Stage (2020–Present):** This stage represents a turning point in the knowledge economy with the emergence of Large Language Models (LLMs), which helped shift the focus from owning information and knowledge to extracting value from them amid the massive flow of big data — a shift that gave rise to what is now termed the Cognitive Economy.

• **Table N°1: Key Large Language Models (LLMs)**

Company	Series	Key Models	Usage Type	Key Features
OpenAI	ChatGPT	GPT-4o, o1-preview, o1-mini	Commercial	Leading in conversational interface; o1 models rely on Chain-of-Thought (CoT) reasoning
Anthropic	Claude	Claude 3.5 Sonnet, Opus	Commercial	Focuses on safety via Constitutional AI principles and wide-context solutions
Google	Gemini	Gemini 1.5 Pro, Flash	Commercial	Provides a large processing context window reaching millions of tokens with multimodal support
Meta	Llama	Llama 3, Llama 3.1 (405B)	Open-Source	The reference model for open models; focuses on efficiency and customization for local research and development
Microsoft	Copilot	GPT-based (OpenAI)	Commercial	Integrates OpenAI capabilities into the work environment (Office 365) as a productivity and efficiency tool
xAI	Grok	Grok-1.5, Grok-2	Commercial	Distinguished by access to real-time information via platform X; designed for deep research and experimental responses
Nvidia	Nemotron	Nemotron-4 340B	Open-Access	Optimized models for running on GPU units; supports synthetic data generation for AI model training
Perplexity	Perplexity	Integration with Sonnet/GPT	Commercial	Specialized in generating answers reinforced by retrieval (RAG); focuses on providing verified web sources

Source : Choi, W. C., et al. (2025, April). A review of large language models (LLMs) development: A cross-country comparison of the US, China, Europe, UK, India, Japan, South Korea, and Canada [Preprint, not peer-reviewed], p. 3.

2-2- The Cognitive Economy: Concept and Characteristics

The cognitive economy is defined as a systemic-level economic framework that positions 'cognition' as the fundamental pillar of coordination, and the vital material from which value, stability, and institutional order emerge in societies based on human-AI interaction. This concept emerges as a response to a structural shift driven by contemporary challenges; where the mechanisms of economic coordination can no longer rely primarily on traditional frameworks centered on labor, capital, or information flows — but are rather driven by intertwined cognitive processes that bring together the human element, AI systems, and institutions. As cognition becomes a scalable, automatable, and network-distributable resource, it assumes a central role that surpasses the capacity of classical economic primitives to meet the demands of the current era. (Laralink, 2024)

The cognitive economy can also be defined as a dynamic economic system in which value is generated primarily through the ability to process information, synthesize it, and apply it in intelligent, adaptive, and contextual ways — enhanced by the integration of human and artificial cognitive capabilities. Unlike the knowledge economy, which primarily focuses on owning and distributing information, the cognitive economy possesses the capacity for continuous inference, learning, and generating future actionable insights.

In short, in the recent past, information was treated as a static asset or stored capital akin to financial capital, and success and power depended on owning information (Knowledge is Power). The primary role of information was to support decision-making. However, with the torrential flow of big data, the challenge is no longer about 'owning information' but about 'extracting value from it.' Today, the machine — aided by algorithms — is often the one making automated decisions, and algorithms have become the cognitive engine driving operations.

The emergence of the Cognitive Economy as a result of the changes experienced in the technological environment — particularly those related to artificial intelligence — has contributed to reshaping the concept of information management or knowledge management into a new concept more aligned with these changes: Intelligence Management. This is because organizations today are no longer searching for an "information system" so much as they are searching for a "cognitive system" capable of: (Rajagopala, 2025)

- **Precise Prediction:** Transitioning from knowing what happened to anticipating what will happen in the future.
- **Hyper-Personalization:** Understanding the behavior and needs of each individual client with extreme precision.

This has led to a shift in the equation for measuring organizational strength, which is no longer measured by the amount of information stored in databases, but rather by the intelligence and speed of the algorithms that process this data. Artificial intelligence has become the primary driver of the organization, while humans are freed to focus on creativity, ethical leadership, and strategy.

The most notable characteristics of the cognitive economy include:

- **Real-time Processing:** The ability to analyze massive data flows and generate contextual responses almost instantly.
- **Contextual Synthesis:** The ability to integrate information from multiple sources and generate a comprehensive understanding that adapts to the specific context.
- **Continuous Learning:** The ability to continuously improve and adapt based on new experiences and data.
- **Collaborative Intelligence:** The integration of human and AI capabilities creating superior cognitive capabilities.

- **Adaptive Flexibility:** The ability to respond rapidly and effectively to unexpected environmental changes.

2-3- Key Differences Between the Knowledge Economy and the Cognitive Economy

Table N°2: Comparison between the Knowledge Economy and the Cognitive Economy

Dimension	Knowledge Economy	Cognitive Economy
Strategic Objective	Acquiring proprietary information or documented technical expertise.	The capacity for cognitive processing and adaptive responsiveness.
Business Model	Encoding → Storage → Retrieval	Real-time Capture → Automatic Synthesis → Contextual Application → Learning
Nature of Capital	Human capital (individual expertise).	Hybrid capital (human-AI).
Continuity	Static; requires ongoing manual updates.	Dynamic; self-updating in real time.
Scalability	Limited by human absorption and processing capacity.	Scales proportionally with AI capabilities.

Source : Compiled by the authors based on prior references.

2-4- Strategic Dimensions of the Cognitive Economy

A successful transition from the knowledge economy to the cognitive economy requires comprehensive transformation across three key dimensions: technological infrastructure, human capital development, and ethical governance — each demanding strategic investments and deep structural change.

A. Cognitive Technological Infrastructure

The technological infrastructure forms the foundation upon which the cognitive economy is built. Its core components include: (Chester & Allenby, Allenby Infrastructure and the cognitive ecosystem: an irrevocable, 2023)

- **Generative AI Platforms:** Advanced large language models capable of processing text, images, and multimedia data.
- **Retrieval-Augmented Generation (RAG):** Systems that combine institutional knowledge bases with generative capabilities.
- **Cloud and Edge Computing:** Infrastructure providing the necessary computing power for real-time processing.
- **Data Security and Privacy:** Robust mechanisms for protecting sensitive data while ensuring regulatory compliance.

B. Developing Human Cognitive Capital

Success in the cognitive economy requires developing new human skills and competencies that complement and augment AI. Key areas include: (Blaique & El-Farr, 2025)

- **AI Literacy:** A foundational understanding of how AI systems work, their capabilities, and their limitations.
- **Prompt Engineering:** The skills to formulate effective instructions to obtain optimal results from generative models.
- **Critical and Analytical Thinking:** The ability to evaluate and verify the accuracy of AI outputs.
- **Human-AI Collaboration:** The skills to work effectively with intelligent systems as a cognitive partner.
- **Agility and Continuous Learning:** The ability to continually adapt to evolving technologies and tools.

C. Ethical and Responsible AI Governance

As AI's role in shaping organizational decisions grows, ethical governance becomes essential to ensure responsible and fair use. Key principles include: (Blaique & El-Farr, 2025)

- **Transparency:** The ability to understand and explain how AI systems reach their decisions.
- **Fairness and Equity:** Ensuring the absence of unfair bias in AI-supported decisions.
- **Accountability:** Clear mechanisms of responsibility for decisions and outcomes.
- **Privacy and Data Protection:** Respecting individual rights to personal data.
- **Safety and Security:** Ensuring systems are safe, reliable, and protected from harmful use.

3- Implications of the New Environment's Characteristics for Digital Knowledge Management

Organizations face mounting challenges in enhancing their productivity and efficiency amid the rapidly accelerating digital transformation environment. In response to this dynamic change, organizations are adopting advanced digital technologies — including a range of digital tools that enable the collection, processing, and storage of vast amounts of data within integrated and coherent systems. Through the effective use of digital knowledge management practices, organizations can transform knowledge assets into actionable insights that drive innovation, boost productivity, reduce costs, and ultimately improve overall organizational performance.

3-1- Analysis of the New Environment's Characteristics: From VUCA to BANI

The management environment has undergone a fundamental shift from the **VUCA** model that dominated past decades to the more complex and challenging **BANI** model. The VUCA concept emerged in the 1990s, describing four key characteristics of the business environment. However, with rapid technological

advancement and the rise of AI, the VUCA framework was no longer sufficient to describe contemporary challenges — leading to the emergence of the BANI concept to reflect a more complex reality.

Table N°3: Characteristics of the VUCA and BANI Environments

VUCA Environment	BANI Environment
Volatility: Rapid, frequent, unexpected, or sudden changes	Brittle: Systems appear strong but are susceptible to sudden collapse at any moment
Uncertainty: Difficulty in predicting the future	Anxious: A constant sense of pressure and anxiety that inhibits planning
Complexity: Increasing problems, chaos, and intertwining of factors and variables	Non-linear: Inability to guarantee business continuity since small events can produce massive outcomes, requiring high organizational vigilance
Ambiguity: Lack of clarity in the strategic environment	Incomprehensible: A state of apprehension and difficulty absorbing reasons due to the speed of change and the deluge of big data

Source : Baskoro, G. (2023). From VUCA to BANI: A challenge of strategic environment for higher education in Indonesia. In Proceedings of the 3rd International Conference on Business and Engineering Management, pp. 230–232..

To illustrate the gravity of the shift from VUCA to BANI, it is worth reviewing some business-world cases that show how fragility, anxiety, non-linearity, and incomprehensibility are no longer mere concepts but tangible realities facing even the largest organizations — driving some to spectacular success and others to utter collapse:

3-2- Case Studies: The BANI Environment in Practice

A. Fragility — Facebook Service Outage:(2021)

In October 2021, Facebook, Instagram, and WhatsApp applications went down for approximately six hours. The cause traced back to an error in updating the BGP routing protocol for the data routing system, which isolated Facebook's servers from the world. The system was so 'fragile' that engineers couldn't even enter the building to physically fix the problem, as the electronic access cards were connected to the same downed network. (Facebook, 2021)

B. Fragility — Collapse of Silicon Valley Bank:(2023)

Silicon Valley Bank (SVB) was considered the backbone of the technology startup ecosystem in the United States, with assets worth billions of dollars. Yet the system lacked immediate liquidity; a single 'tweet' was enough to trigger depositor panic and a massive bank run. The bank could not withstand more than 48 hours before total collapse. (Board of Governors of the Federal Reserve System, 2023)

C. Anxiety — Apple Project Titan:(2024)

In 2014, Apple launched work on electric vehicles under Project Titan. But after 10 years and billions of dollars in investment, the project was cancelled due to technical challenges in autonomous driving and lack of competitiveness against Tesla — a prime example of organizational anxiety in the face of technological uncertainty. (bloomberg, 2024)

D. Anxiety — Amazon Alexa:(2024)

Amazon launched the Alexa project as a smart voice assistant operating via cloud-based services. Despite hardware success, Amazon failed to convert the project into a profitable revenue source, with hardware division losses attributed to this project reaching billions of dollars annually. (businessinsider, 2022)

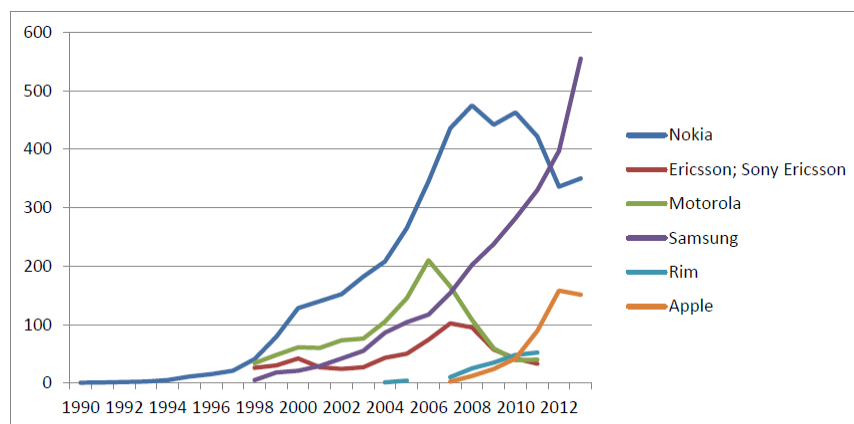
E. Non-linearity — Netflix:(2016)

In 2016, Netflix introduced the 'auto-play next episode' feature during episodes of shows. This seemingly minor change led to an unexpected leap in viewing time, contributing to subscriber growth of 25% in the following year and pushing the company's market capitalization to over \$100 billion. (Netflix, 2016)

F. Non-linearity — Nokia:(2013)

Before 2007, Nokia controlled 80% of the mobile phone market share. Overlooking the importance of the 'operating system' and focusing solely on hardware quality led to an accelerating collapse; Nokia's market share plummeted to just 3% by 2013.

Fig. N°1: Statistics of the Digital Revolution and Big Data



Source : Bouwman, H., Carlsson, C., Molina-Castillo, F. J., & Walden, P. (2014). How Nokia failed to nail the smartphone market. In 25th European Regional Conference of the International Telecommunications Society (ITS), Brussels, Belgium, 22–25 June 2014.

G. Incomprehensibility — The Digital Data Explosion:

In the technology world, delayed understanding of the strategic direction can lead to near-total collapse. Non-linearity means that effects are not proportional to their causes.

The following table highlights an unprecedented information explosion, whereby 90% of the world's data was generated in the last two years alone, reflecting the extraordinary speed at which the digital space is growing. This is in addition to the massive flow of data driven by search engines, video platforms, and the Internet of Things — all of which fall under the umbrella of Big Data — representing nothing less than a consolidation of digital dominance over every aspect of our daily lives.

Table N°4: Statistics of the Digital Revolution and Big Data

Indicator	Value	Details
☐ Data Generation Speed	90%	Of global data was created in the last two years alone
Total Volume 2025	175 Zettabytes	One zettabyte = one trillion gigabytes
Google Search	+6,300,000	Searches per minute only
YouTube Video Content	500+ hours	Uploaded every minute
☒ Electronic Mail	240,000,000	Messages sent per minute
IoT (Internet of Things)	+15 billion devices	Devices generating data automatically without human intervention
Data Composition	80% to 90%	Unstructured data (images, video, audio)
Annual Growth Rate	23%	Compound annual growth rate of global data volume

Source : Compiled by the authors based on multiple data sources :

<https://www.seagate.com/files/>

www.content/our-story/trends/files/dataage-idc-report-final.pdf

<https://www.domo.com/learn/infographic/data-never-sleeps-7>

<https://www.gminsights.com/pressrelease/iot-utilities-market>

<https://www.forcepoint.com/blog/insights/gartner-2024-world-class-security-unstructured-data-report#featured-resource-card-87066>

3-3- Digital Knowledge Management

Knowledge management processes are responsible for generating new knowledge within organizations, as these processes convert tacit knowledge into explicit knowledge at the individual, group, organizational, and inter-organizational levels. Here, everything becomes possible for organizations, from the individual level upward to the level of inter-institutional interaction.

The concept of digital knowledge management refers to the complete digitization of knowledge management processes, focusing on the deep application of digital technologies in key stages such as knowledge acquisition, sharing, and application — fundamentally restructuring the knowledge management process to support the sustainable development of organizations. This transformation is not limited to merely updating tools but represents a fundamental shift from passive retrieval to intelligent recommendations and data-driven insights, significantly improving information quality and reducing its waste. In the knowledge sharing stage, the shift deepens from manual transfer to real-time platform-based collaboration that transcends temporal, spatial, and organizational boundaries. In the knowledge application stage, the transition completes from experience-based practice to context-aware intelligent assistance, integrating knowledge deeply into business processes to enable decision execution. (Shuli, Jianbin, & Pengfei, 2025)

Digital knowledge management has emerged as an essential process for organizations to store, distribute, and use their knowledge assets via digital technology (ABDUL KARIM, WARIS ALI KHAN, & ADELEKE, 2024). It encompasses a range of activities, including creating digital knowledge, sharing it, and organizational learning — all supported by digital technology. The primary objective is to enhance organizational performance, stimulate innovation, facilitate organizational learning, increase employee productivity, and improve employee satisfaction.

Digital knowledge management consists of three main components: creating digital knowledge, sharing digital knowledge, and organizational learning: (ABDUL KARIM, WARIS ALI KHAN, & ADELEKE, 2024)

- **Creating Digital Knowledge:** The organization's ability to collect and analyze information successfully, ultimately leading to the development of new knowledge. Knowledge management processes are responsible for generating new knowledge within organizations, converting tacit knowledge into explicit knowledge at the individual, group, organizational, and inter-organizational levels.
- **Sharing Digital Knowledge:** The process of transferring knowledge using various digital technologies through digital tools — an activity in which knowledge is exchanged as a resource across different employees in various fields, as well as with external stakeholders — using diverse digital platforms such as intranets, electronic forums, social media, internal portals, and knowledge repositories.
- **Organizational Learning:** There is a well-established relationship between organizational learning and organizations achieving their goals. The impact of organizational learning extends beyond direct organizational performance, with a confirmed causal relationship between learning occurring within the organization and the quality of its financial performance. Additionally, digital knowledge-sharing

platforms, by fostering employee collaboration and innovation, accelerate decision-making processes and improve operational efficiency, which is positively reflected on financial gains.

3-4 The Transition from a Knowledge Ownership Model to a Value Extraction Model

The resource-based view posits that knowledge is a strategic resource and the primary driver of achieving sustainable competitive advantage. According to this view, organizations are concerned with deploying and applying specialized knowledge distributed among individuals according to two mechanisms: first, managing heterogeneous, diverse, and unequally distributed knowledge; and second, creating effective coordination mechanisms, such as organizational routines and communication platforms, to leverage and benefit from this distributed knowledge. (Xinping & Qianwen, 2025)

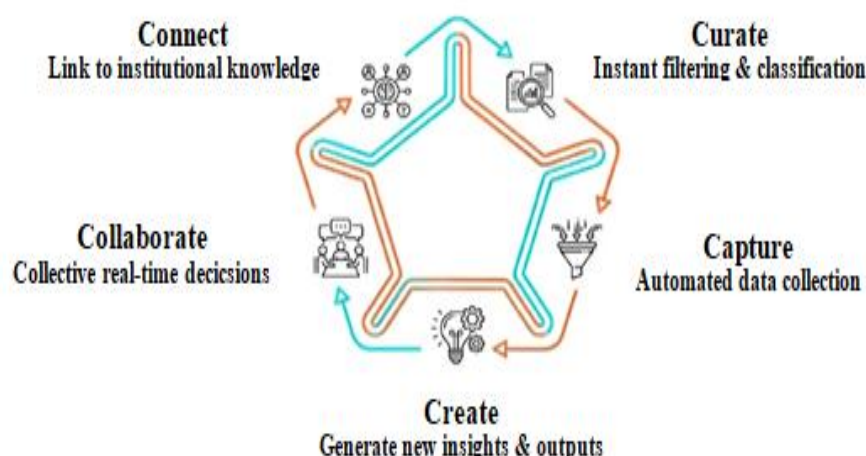
By relying on a traditional model like the knowledge ownership model, organizations focused on: collecting as much information as possible; classifying knowledge into predefined but rigid categories; retaining information for long periods without constant updating; and ensuring rapid access to the right information at the right time.

This model proved limited, especially in the modern business environment characterized by speed, complexity, and constant change. The shift toward AI brought a model focused on real-time value extraction in digital knowledge management — directly enriching decision-making, often based on the 'Capture, Curate, Connect, Collaborate, Create (5Cs Framework)'.

This model relies on AI, the Internet of Things, and real-time data analysis to convert raw information into instantly actionable insights. The core components of knowledge management models focused on immediate value include:

- **Real-time AI and Data Integration:** Using AI algorithms and IoT, systems process data instantly to obtain real-time feedback for improving marketing, product, or operational decisions.
- **The 5Cs Framework (Focus on Immediate Value):** Comprising — Capture (automated, rapid data collection); Curate (immediate data filtering and organization by relevance); Connect (linking information to existing knowledge structures such as wikis or databases); Collaborate (using shared platforms for immediate collective action); and Create (generating new insights or applications instantly) (Garfield, 2022)
- **Operationally-Focused Knowledge Management:** Unlike long-term strategic models, immediate value models focus on the operational level, where knowledge is reviewed and used in daily operations.
- **Knowledge Value Chain:** This chain involves converting data into information and knowledge, and how to create immediate organizational value.

Fig. N° 2: The 5Cs Framework



Source : Garfield, S. (2022). The five Cs of knowledge management. Lucidea Press. <https://stangarfield.medium.com/the-five-cs-of-km-712a1d465f3>

3-5- Applied Cases: Transitioning from the Knowledge Ownership Model to the Value Extraction Model

The transition from the knowledge ownership model to the value extraction model represents one of the most prominent manifestations of the digital revolution in knowledge management. Organizations have shifted from a logic of passive accumulation and storage to a logic of immediate value extraction from real-time data streams. Artificial intelligence, the Internet of Things, and real-time data analytics have enabled the construction of new models that transform raw information into instantly actionable insights. The following are applied examples of organizations that have adopted value extraction models:

A.Case of Commonwealth Bank of Australia (CommBank):

Commonwealth Bank of Australia launched a comprehensive training initiative that included the deployment of Microsoft 365 Copilot and GitHub Copilot, aimed at equipping employees with the knowledge and tools needed to apply artificial intelligence effectively across the organization — thereby enhancing operational efficiency and supporting intelligent decision-making. The initiative covered 10,000 users. Results revealed that 84% of users reported they would not return to working without Copilot, while the code suggestion acceptance rate in GitHub Copilot reached approximately 30%. This experience embodied the 5Cs framework in its full applied form: automatic data capture from multiple sources, organization and filtering by relevance, linkage to institutional knowledge bases, enabling real-time team collaboration, and generating new insights and innovations in real time. (microsoft, 2025)

B- Case of KPMG Australia:

KPMG Australia developed the KymChat system — an interactive AI-powered intelligent assistant — using Azure OpenAI, Azure AI Search, and Microsoft 365 Copilot, to perform advanced text analysis on thousands of client documents. The system enabled the identification of compliance levels far more quickly than manual assessments, and also featured an AI agent for onboarding new users that reduced follow-up calls by 20%. Azure Cosmos DB for MongoDB vCore was added to the solution to improve query response quality and speed from 50% to 91% in under one second. This case represents a model of the shift from expertise-based practice to context-aware intelligent assistance. (microsoft, 2025)

C- Case of Amazon:

Amazon launched the Amazon Q service in April 2024 as a generative AI assistant tailored for organizations and developers. It combines internal source search, multi-step analysis, and real-time operational insight generation. Similarly, the Google Vertex AI platform enables automatic selection of optimal infrastructure and generates analytical reports from extended context windows. Both cases embody the real-time value extraction model, grounded in the integration of AI, IoT, and data analytics to transform raw information into immediately actionable insights (medium, 2025).

5. Conclusion and Key Findings:

In conclusion, the transition from the knowledge economy to the cognitive economy is not merely a technological evolution but a radical transformation in the nature of institutional work and competitive advantage. Organizations that will succeed in the future are those that can build advanced cognitive capabilities through intelligent human-machine integration, investment in digital infrastructure, and fostering an organizational culture that encourages continuous learning and innovation. The cognitive economy represents the future of organizations, and the question is no longer 'Will we transform?' but 'When and how will we transform?' — for delay in this transformation may mean permanent loss of competitive advantage in a world where innovation is accelerating at an unprecedented pace.

The key findings of this study are as follows:

- The study confirms that the transition from the knowledge economy to the cognitive economy represents a qualitative leap from information ownership as a static asset to cognitive engineering as a dynamic process of instant value extraction. The question is no longer 'Who owns knowledge?' but 'Who can extract value from it faster and more intelligently'?
- The study shows that the knowledge economy passed through four fundamental stages: the first (1995–2005) focused on collection and storage; the second (2005–2015) was characterized by Knowledge

Management 2.0 and deep-dive search; the third (2005–2020) witnessed Knowledge Management 3.0 with machine learning; and the fourth (2020–present) represents the turning point with LLMs and the emergence of the cognitive economy.

- The study reveals that rapid digital transformations led organizations to transition from the VUCA environment (volatile, uncertain, complex, ambiguous) to the BANI environment (brittle, anxious, non-linear, incomprehensible) — requiring new knowledge management models based on continuous learning and instant adaptation.
- The study concludes that generative AI and large language models (such as GPT, Claude, and Gemini) form the backbone of the cognitive economy, enabling organizations to convert tacit knowledge into explicit, applicable knowledge and to make automated decisions rather than merely supporting decision-making.
- The study confirms that big data are not merely a large volume of data but strategic resources that enable pattern and trend discovery, need prediction, and the generation of new insights by linking information from multiple sources.
- The study reveals that the success of digital knowledge management depends on integrating a range of technologies: cloud computing (flexible infrastructure), IoT (real-time data collection), blockchain technologies (ensuring knowledge trustworthiness), and augmented/virtual reality (providing new ways to interact with knowledge).
- The New Success Equation: The study concludes that organizational success in the cognitive era depends on a complementary equation: Artificial Intelligence + Human Creativity + Digital Infrastructure = Sustainable Competitive Advantage. No single element of these can achieve distinction on its own.
- Case studies of Meta (failed Metaverse project), Apple (cancelled electric vehicle project), and Amazon (failed Alexa) demonstrate that investing in technology alone is insufficient — it must be supported by a clear strategy for extracting value from knowledge. Conversely, Netflix succeeded by relying on big data analytics and personalized recommendations.
- The study reveals the need to redesign organizational structures to become more flexible and capable of rapid adaptation, focusing on building an organizational culture that encourages continuous learning, innovation, and experimentation.
- The study confirms the necessity of developing ethical and legal frameworks to govern the use of AI in knowledge management, particularly regarding privacy protection, avoiding algorithmic bias, and ensuring transparency in automated decisions.
- The study reveals a significant skills gap between available competencies and those required to operate in the cognitive economy environment, requiring substantial investment in developing employee capabilities and training them to work with AI systems.

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