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The Intelligent Organization and Knowledge Management Enablement : From Overbooking Barriers to Building Cognitive Capabilities

Authored by:

Zouaoui Hamida

Mohamed Boudiaf University – M'sila (Algeria)

E-mail : hamida.zouaoui@univ-msila.dz

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The Intelligent Organization and Knowledge Management Enablement: From Overbooking Barriers to Building Cognitive Capabilities

Zouaoui Hamida[1]

Abstract

This article aims to analyze the role of the intelligent organization in enabling knowledge management within institutions. It focuses on how to overcome organizational and cognitive obstacles that hinder the effectiveness of knowledge management, and how to shift towards building advanced knowledge capabilities. The study draws on a theoretical framework that integrates the characteristics of the intelligent organization—such as organizational learning, flexible structure, and effective communication—with the stages of knowledge management, based on recent literature and relevant conceptual models. The research also explores institutional factors that weak knowledge management practices, such as resistance to change, weak participatory culture, and insufficient technological infrastructure. It shows how the intelligent organization can overcome these challenges by adopting smart practices that enhance the organization's ability to acquire, generate, and apply knowledge effectively. The study concludes that the features of the intelligent organization serve as a key strategic enabler for knowledge management. Furthermore, adopting organizational intelligence significantly contributes to reducing knowledge gaps and activating intellectual capital, thereby strengthening competitiveness and future readiness in contemporary work environments.

Keywords: *Intelligent organization, knowledge management, organizational barriers, cognitive capabilities.*

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Introduction

In light of the rapid transformations in today's business environments, knowledge has become one of the most critical strategic resources for achieving competitive advantage. Knowledge management is no longer a secondary function, but a core component of organizational processes. This has driven organizations to seek out models that enable them to invest in knowledge effectively to confront increasing challenges.

Among these models, the intelligent organization emerges as an advanced organizational form. It is characterized by self-learning, dynamic interaction, and decision-making based on renewed knowledge. It also relies on a flexible structure, effective communication, and a culture that supports innovation and continuous learning. These characteristics qualify it to support knowledge management and to overcome related challenges.

Nevertheless, many institutions still face difficulties in activating knowledge management due to organizational, cultural, and technical obstacles. This raises questions about the ability of the intelligent organization to overcome such barriers. This study, therefore, seeks to understand and analyze how the intelligent organization can contribute to enabling knowledge management and building institutional cognitive capabilities.

Problem Statement

Based on the above, the central research problem can be framed as follows: To what extent does the intelligent organization contribute to overcoming knowledge management barriers and building cognitive capabilities within institutions?

[1] Mohamed Boudiaf University – M'sila, Algeria. Email : hamida.zouaoui@univ-msila.dz

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Sub-Questions

From this central question, the following sub-questions arise :

- What are the main obstacles that limit the effectiveness of knowledge management in organizations?
- What are the organizational characteristics that define the intelligent organization and support knowledge enablement?
- How does the intelligent organization help to overcome organizational and cultural challenges related to knowledge management?
- What is the relationship between adopting the intelligent organization model and developing cognitive capabilities within institutions?

Hypotheses

To answer the above sub-questions, the following hypotheses are proposed:

- Knowledge management in institutions faces several obstacles, notably weak knowledge infrastructure, resistance to change, and lack of participatory culture.
- The intelligent organization is characterized by flexible structures, continuous learning, and effective communication, which support knowledge management.
- The shift towards an intelligent organization helps overcome organizational and cultural barriers that hinder knowledge management.
- Adopting the intelligent organization model is positively associated with the development of cognitive capabilities within institutions.

Significance of the Study

The significance of this study lies in highlighting the role of the intelligent organization as a strategic tool for enabling knowledge management. It does so by addressing the barriers institutions face in modern work environments. Additionally, the study contributes a conceptual framework that can inform the development of organizational practices aimed at enhancing knowledge performance and institutional innovation.

Objectives of the Study

The main objectives of the study are:

- To identify the key obstacles facing knowledge management in institutions.
- To analyze the characteristics of the intelligent organization that support knowledge enablement.
- To explore how the intelligent organization can overcome organizational and cultural barriers to knowledge management.
- To clarify the relationship between adopting an intelligent organization model and the development of institutional cognitive capabilities.

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Research Methodology

This study adopts a descriptive-analytical approach. It involves the analysis of literature and theoretical models related to the concepts of the intelligent organization and knowledge management. The study also employs conceptual analysis to build a theoretical framework that explains the nature of the relationship between variables. This framework serves as a basis for future empirical research to test the proposed hypotheses in applied contexts.

First: Theoretical Framework of the Intelligent Organization

Concept and Importance of the Intelligent Organization

A. Definition of the Intelligent Organization

Organizations seek to implement necessary changes to adapt to rapid developments while maintaining their goals and direction. They must be able to evolve continuously and generate change proactively. This requires adopting new management concepts to bridge the gap between current performance and desired outcomes.

Several scholars have defined the intelligent organization from different perspectives. Below are some of the key definitions :

- Schwaninger (2009) Views intelligent organizations as a contemporary concept that calls for a shift in how businesses are managed, emphasizing learning, development, training, and organizational growth. Its goal is to maximize organizational intelligence and embrace change, thereby enhancing the ability to respond positively to challenges. According to him, intelligent organizations differ from traditional ones in that they are built on processes, actions, and control mechanisms that directly involve employees and operational procedures.

- Finkelstein & Jackson define them as social units equipped with the knowledge and understanding needed to respond to unexpected events. They describe intelligent organizations as those capable of moving quickly and efficiently, generating knowledge and using it to achieve strategic goals by seizing opportunities and adapting to environmental shifts. Such organizations aim for high performance, flexibility, and workforce competence.

- Matheson & Matheson describe the intelligent organization as one responsible for making well-designed strategic decisions (Khalil & Hassan, 2019, p. 164)

- Williams (1997) defines it as an organization that learns and adapts to its working environment. It places importance on systematic external scanning and highlights that the organization must learn to be intelligent by linking information management and learning processes (Williams, 1997, p. 147)

- Matheson & Matheson (1998) further explain that it is an organization that makes strategic decisions which create the best opportunities for value creation, and whose effective execution of these decisions reflects intelligent action. (Matheson & Matheson, 1998, p. 6)

- Vickers (2000) describes intelligent organizations as successful entities that employ long-term strategies to achieve sustainable outcomes, even if that means sacrificing short-term gains. (Vickers, 2000, p. 135)

- According to Pazireh et al. the intelligent organization is one that possesses knowledge, skills, and highly competent human resources, with the ability to exploit available opportunities and respond to environmental changes. It is also seen as an organization with a smart management style that

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emphasizes the generation and transfer of knowledge and promotes a strategic vision aligned with environmental developments.

Other scholars describe it as an organization that adapts dynamically to modern organizational models and practices. It can seize digital-age opportunities, make smart strategic decisions, and respond quickly to external changes (Nidal, Farouk, Oughban, et al. 2025, p. 28)

- Mohamed (2022) Defines the intelligent organization as one that makes and executes high-quality strategic decisions, creating optimal opportunities for value generation. It maintains high performance, ensures sustainable growth, and holds a competitive position in the market (Mohamed, 2022, p. 2)

- Ghoneim (2025) describes it as an organization that interacts intelligently with its environment, bases decisions on predictive knowledge, and is managed through a participatory approach that integrates technology and human skills (Ghoneim, 2025, p. 1154)

Summary Definition

Based on these definitions, the intelligent organization can be summarized as: "An organizational entity characterized by its ability to engage in continuous learning and dynamic adaptation to environmental changes. It follows a smart management approach that fosters the production and dissemination of knowledge. It supports effective strategic decision-making aimed at achieving high performance and long-term sustainability. This organization integrates technology and human capabilities in a complementary manner, enabling it to seize opportunities, address challenges with agility, and focus on sustainable development and value creation. It does so through strategic planning, active participation, and human capital development."

Comparison with traditional organizations The difference between intelligent and traditional organizations can be clarified through the following table :

Table 01: Comparison between the Intelligent and the Traditional Organization

traditional organization	**Smart Organization**
Centralization of the organizational structure	Decentralization of organizational structure
The training process includes technical skills.	The training process includes employee development.
inaccurate division and allocation of jobs	Accuracy in dividing labor within the organization
Consider and pay attention to the internal environment only.	Looking at the internal and external environment
Top management is responsible for the planning and control process.	Individuals working with senior management participate in the planning and control process.
short-term strategic vision	strategic visionary Andlong-term
The main goal is to make profits	Attention to social, environmental and economic aspects

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Its inability to respond quickly to environmental changes	High speed of response and adaptation to environmental changes
Individuals working within an organization are like a machine.	Senior management respects the individuals working within the organization by giving them their rights.
Inaccurately awarding bonuses to employees	Bonuses are awarded based on the fair contributions of employees.
The working life of the workers is somewhat closed.	The working life of employees is open
Low performance due to unsuitable working environment	Increased employee performance due to a good work environment

Source: Canabal (2008, p. 14)

Characteristics of the Intelligent Organization

Individuals are not considered intelligent simply by how quickly they solve basic problems, such as those found in IQ tests. Rather, intelligence is reflected in how they think and work. Based on this idea, the research team at the IBM Institute for Business Value conducted an in-depth study. In an executive report, the team identified several key traits that define intelligent organizations, as cited by Levall (Al-Zoubi & Al-Nawasrah, 2019, pp. 115–116):

- **Perception:** An intelligent organization is alert and aware of its environment. It collects both structured and unstructured data to understand the context in which it operates.
- **Connectivity:** It links internal and external functions across all levels and geographic areas. These connections are aligned toward achieving strategic outcomes.
- **Accuracy:** The organization relies only on relevant and precise information to support timely decisions. Actions are taken close to the point of impact.
- **Inquiry:** The intelligent organization questions the status quo. It seeks out new opportunities and challenges existing practices.
- **Empowerment:** It enables employees by sharing a clear vision and institutional knowledge. Workers are given access to information and decision-making authority.
- **Anticipation:** Rather than reacting to change, the organization anticipates the future. It prepares for scenarios and weighs trade-offs through strategic planning.
- **Risk-taking:** It encourages responsible risk-taking. Employees are allowed to explore solutions to manage risks through initiative and creativity.
- **Autonomy:** The organization promotes independent action. It encourages individuals to pursue ideas and realize goals that align with the organization's vision.
- **Motivation:** It fosters motivation through both financial and non-financial incentives, supporting engagement and high performance.
- **Division of Work Responsibilities:** are clearly defined. This structure helps to unleash potential employee through specialized roles.
- **Future Vision:** Intelligent organizations develop a forward-looking vision. They analyze external environments and build long-term strategic plans.

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- **Creativity:** They generate new and valuable ideas. These ideas can lead to innovative products and services and are seen as a driving force behind innovation.

Additional Characteristics by Clegg & Clarke According to Clegg and Clarke (2000, p. 50), intelligent organizations have several defining features:

- **Environmental Sensitivity:** They are capable of sensing and adapting to changes in their surroundings.
- **Organizational Cohesion:** With a strong internal identity, they build communities of committed members, both internally and externally. They are also able to develop a distinct organizational personality.
- **Decentralization and Tolerance:** These traits support experimentation and allow the organization to build constructive relationships.
- **Financial Prudence:** Intelligent organizations control their growth and development, which helps them maintain strategic direction.

Additional Traits by Sydanmanlakka also outlined a set of characteristics found in intelligent organizations (Khalil & Hassan, 2019, p. 165):

- A clear strategy and vision ;
- An organizational structure that supports innovation ;
- A culture and value system that promotes continuous learning ;
- Commitment to continuous improvement (total quality) ;
- Recognition of human resources as a valuable asset ;
- Ongoing process reengineering ;
- Wide spread knowledge sharing among staff ;
- The ability to forecast future events in the business environment.

Summary of Key Traits

Based on the above, the intelligent organization stands out for its ability to adapt and learn continuously. It is characterized by environmental awareness, a clear strategic vision, and a flexible structure. It empowers employees, manages precise knowledge, and encourages creativity and renewal. These traits help it to anticipate future change and maintain high and sustainable performance.

B. Importance of the Intelligent Organization

The value of intelligent organizations can be highlighted through the following points (Jumaa, Hassan, et al. 2023, p. 905):

- **Adaptability:** Intelligent organizations can adjust to changing external environments. They maintain internal balance and manage complexity in both internal and external systems.

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- **Capacity for Renewal:** They are capable of transferring and applying new knowledge and technologies. This ability ensures innovation and survival in complex business settings.

- **Openness to New Ideas:** These organizations create a culture of openness, tolerance, and acceptance of new thinking.

- **Action and Reaction:** They are equipped to act and react in rapidly changing environments.

- **Timely Decision-Making:** Intelligent organizations possess strong mechanisms for collecting and analyzing data. This enables them to make precise strategic decisions during critical moments, enhancing their ability to respond effectively to challenges.

Achieving a Sustainable Competitive Advantage

By leveraging knowledge and fostering continuous innovation, the smart organization can out perform its competitors. It can also maintain its market position by offering products and services that create added value and respond to changing customer needs.

Principles and Dimensions of the Smart Organization

A. Principles of the Smart Organization

The model by Matheson & Matheson is among the most recognized frameworks addressing the principles of the smart organization. It includes nine core principles grouped into three main categories: goal achievement, resource mobility, and environmental understanding.

These principles support three vital organizational functions:

- The first enables goal achievement through a valuable creation culture, the generation of alternatives, and continuous learning.

- The second facilitates resource allocation through disciplined decision-making, goal alignment and empowerment, and the ongoing flow of information.

- The third enhances environmental awareness through systems thinking, managing uncertainty, and a strategic Outlook.

These principles apply at all levels of the organization. They influence both thought and behavior among employees. When present, they foster effective practices and support successful decision-making. In their organizational performance is likely to decline absence. The following presents each group of principles in detail:

- Goal Achievement This includes three key elements:

- **Value Creation Culture:** This involves a readiness to change and the ability to move beyond traditional barriers. The core aim becomes the creation and maximization of value for both the organization and its stakeholders. Value creation becomes a foundational part of organizational culture.

- **Generation of Alternatives:** Strategic processes rely on identifying and evaluating a diverse set of options. These alternatives must be actively developed and evaluated regularly to ensure the most effective decisions are made.

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- **Continuous Learning:** The organization must consistently acquire knowledge and seek new opportunities to enhance value. This is especially important in competitive markets shaped by rapid technological and scientific advancement.

- Understanding the Environment This also includes three components:

- **Managing Uncertainty Employees :** in smart organizations must realistically understand future uncertainties. They should be able to manage related risks and incorporate uncertainty into decision-making processes.

- **Outside-In Strategic Perspective:** A smart organization evaluates its current position by closely analyzing the external environment. Based on this analysis, it works internally to achieve its strategic goals.

- **Systems Thinking:** This involves a holistic approach to understanding the interconnections within the organization. It supports strategic actions in competitive settings shaped by technological and operational developments.

-Resource Mobilization: This group includes:

- **Disciplined Decision-Making:** Strategic decisions must be made using clear and organized processes. These involve selecting appropriate options, engaging the right stakeholders, and applying accurate information at the right time.

- **Goal Alignment and Empowerment:** Employees are encouraged to participate in Sound decision-making. They are empowered to help align all systems with the organization's overall goals.

- **Continuous Information Flow:** There must be an open and uninterrupted exchange of information. This flow should reach all managerial levels and directions within the organization.

Finkelstein & Jackson Emphasizing that the smart organization operates based on the principles of social intelligence, strategic teamwork, and organizational agility (Rady & Hussein, 2017, p. 8).

B. Dimensions of the Smart Organization

Schafer's study identifies three main dimensions for implementing smart organizations. Other scholars have also suggested additional dimensions. The following summarizes the most commonly recognized ones (Bariq & Al-Shammari, 2022, p. 37) :

- Strategic Vision: Strategic vision is the foundation of a smart organization. It defines the future direction of the organization aims to reach through carefully designed plans that respond to environmental changes. This vision emerges from strong engagement with the external environment. It is translated into broad strategic goals, achieved through collective creativity, efficient use of resources, and technological tools—especially those that support communication and knowledge sharing. A flat organizational structure and innovation-driven values help reinforce this vision within the corporate culture.

- Culture of Merit: Smart organizations cultivate a culture where individuals can share their ideas and where value is judged by quality, not rank or title. This enhances collective intelligence. The culture fosters an open environment based on trust. It encourages intellectual diversity and productive dialogue. It also supports group learning and rapid adaptation. While the core principles of this culture are straightforward, their success depends on balancing structure with openness and managing resistance to change effectively.

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- Incentives and Rewards: Incentives and Rewards are vital tools for promoting behaviors linked to organizational intelligence. They reinforce the organization's vision and culture by recognizing effective performance, teamwork, and initiative. However, these incentives must align with the organization's core values and goals. Any misalignment can result in adverse outcomes that weak en the organizational structure. Well-designed incentives also foster belonging and participation. They contribute to the stability of the organizational framework, especially during external challenges, when they are clearly tied to desired outcomes and behaviors.

- Understanding the Environment: Organizations often operate in environments characterized by high complexity and uncertainty. To navigate this, they must develop a deep understanding of their surroundings. This includes identifying threats, challenges, obstacles, and changes. Such understanding is achieved through comprehensive environmental scanning. The environment contains various physical, social, and cultural forces that directly influence decision-making, particularly at the leadership level. Effective decision-making depends on continuous environmental monitoring. This process involves collecting, Assessing, and distributing information from both internal and external sources to key personnel. Organizations must rely on this process to avoid surprises, ensure long-term survival, and achieve desired goals and profits. In essence, it reflects the organization's ability to analyze its internal and external environment and understand the complex dynamics that shape decision-making, along with the appropriate strategies to manage them (Jum'ah, Hassan, et al., 2023, pp. 905–906)

- Smart Operations: According to Finkelstein & Jackson, smart operations are of central importance to organizations. These operations involve mastering core skills to ensure efficiency in the supply chain. This includes using advanced technologies to inspect incoming materials with high precision. The goal is to guarantee output quality in terms of both cost and product standards. For this reason, smart operations are considered one of the key pillars of success in intelligent organizations (Al-Ghamdi & Al-Qurashi, 2025, p. 361)

- Collective Intelligence: Collective intelligence refers to working in teams and through collaborative efforts. It plays a significant role in accomplishing tasks, particularly those that involve challenges. Organizations are human systems and adaptive entities. Like intelligent living organisms, they must nurture and develop their organizational mind and collective intelligence to survive in a rapidly changing environment. To grow, compete, and adapt intelligently, organizations must actively manage and enhance their collective intelligence (Al-Ghamdi & Al-Qurashi, 2025, p. 361)

- Shared Destiny: Shared destiny is the collective sense of belonging, enthusiasm, and mutual aspiration for progress. It reflects a common hope to improve the current state of the organization. Organizations are interconnected with various stakeholders, including suppliers and business partners. This sense of shared purpose strengthens organizational cohesion and long-term alignment with key actors.

- Desire for Change: This refers to the organization's willingness to pursue fundamental transformation in line with changes in its external environment. It reflects the organization's ability to adapt its internal structure to fast-paced external developments. This change is driven by cultural adaptation, Encouraging intellectual participation, and cultivating patience in facing challenges and Exploring new experiences.

- Knowledge Development: Knowledge is a powerful strategic asset. It enables organizations to become more agile and adaptive. Knowledge has become the most critical resource for organizational success. Developing knowledge involves building the skills and attitudes of groups that contribute to the design and improvement of operational goals and infrastructures. It also includes enhancing meaningful processes that support long-term growth.

- Dimensions of the Smart Organization: The dimensions of smart organizations have been widely studied, yet researchers have differed in identifying them. These differences are due to the varied interpretations of the concept and the distinct environments in which these studies were conducted. Based on these studies, several dimensions were selected for application in the field study. (Dhahad, 2022, pp. 514–515)

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Building Social Intelligence: Social intelligence is defined as the organization's ability to harness individual intelligence by forming high-performing teams and using shared intelligence to achieve its goals. The organizational mind and collective intelligence are essential features of smart organizations. These organizations connect individuals with diverse abilities, who represent highly complex and nonlinear cognitive systems. Together, they form a unified structure. Collective intelligence involves key processes such as strategic team building, selecting decision-makers, generating new ideas, knowledge management, and workload distribution.

Knowledge Sharing: Knowledge sharing is defined as acquiring and using resources to create an environment where information is accessible. Individuals document, share, and apply this information to enhance their knowledge and performance. They are encouraged and empowered to apply the knowledge they gain for the benefit of the organization.

Knowledge sharing is a set of behaviors that make knowledge accessible and understandable to others in the organization (Menguc et al., 2011). This process takes place at three levels :

- **Individual Level:** This level is critical. The organization must understand individual needs and preferences to support knowledge development and encourage peer learning.

- **Group Level:** At this level, the focus is on knowledge sharing within teams or work groups inside the organization.

- **Organizational Level:** Here, the aim is to share knowledge in a way that supports both current and future strategic goals. This helps build stronger links between individuals, groups, and the wider organization.

Continuous Learning: Researchers have defined continuous learning as a change in an individual's behavior that occurs continuously throughout their presence in the organization. This change enhances their level of experience and skill. The European Commissions (2001) defined continuous learning as the process that increases employees' knowledge and strengthens the organization's competitive position. It is implemented through a set of actions designed by the organization to develop its workforce. These actions improve both employee performance and overall organizational effectiveness.

Experts divide continuous learning into two main types:

- **Formal learning:** This refers to structured training programs offered by the organization. These programs often result in official recognition, such as a certificate of participation.

- **Informal learning:** This occurs unintentionally through work experience or daily life activities. It is often referred to as experiential learning. (Hadaf & Bougari, 2023, p. 47)

3. Requirements and Barriers of the Intelligent Organization

A. Requirements for Intelligent Organizations

Albrecht (2002) identified four core requirements for building and developing intelligent organizations: (Al-Ghamdi & Al-Qurashi, 2025, p. 359)

- **Idea leaders:** These are individuals who form the intellectual core of the organization. Their cognitive skills and abilities are key drivers in developing organizational intelligence.

- **Stakeholder groups:** These groups form organically within the organization and evolve over time. They are often shaped through verbal, electronic, and other forms of communication.

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- **Openness:** This refers to the organization's ability to face complex organizational challenges. It contrasts with bureaucratic models and requires competent leadership to guide it effectively.

- **Knowledge programs:** These play a vital role in supporting the organization's technological infrastructure and in facilitating knowledge dissemination. Through such programs, the organization becomes more adaptable to rapid environmental changes.

The researcher believes there are additional requirements that contribute to the development of an intelligent organization if adopted effectively:

- **Transparency:** This involves clarity in setting policies, creating strategies, and conducting daily operations. It also reflects a commitment to credibility across departments.

- **Acknowledging mistakes:** Encouraging a culture where mistakes are recognized helps protect the organization's reputation. It also supports analysis and evaluation to prevent future errors.

- **Learning from experience:** Promoting a continuous learning culture and encouraging learning from real situations helps the organization capture and apply knowledge when needed.

- **Attracting and selecting talent:** Recruiting skilled individuals, developing their competencies, and involving them in training others within the organization.

B. Barriers to Intelligent Organizations

Kreitner and Kinicki identified several challenges that prevent organizations from becoming intelligent entities (Kreitner & Kinicki, 2007, pp. 359–360)

-Resistance and lack of knowledge sharing: This occurs when employees withhold information or expertise to maintain a personal advantage.

-Data hoarding: This refers to the monopolization or misuse of organizational data.

- Lack of belief in employee motivation: When organizations fail to recognize the importance of motivating their workforce, it becomes a barrier to transformation.

- Inappropriate selection of tools and technologies: Using the wrong technologies can hinder organizational development.

-Administrative Barriersinclude :

- Resistance to change from top management or middle-level employees ;

- Rigid and complex structures that slow down communication between administrative and operational levels ;

- Centralized decision-making and lack of employee Involvement in strategic planning ;

- Absence of effective crisis management strategies ;

- Excessive focus on external environments while neglecting internal dynamics, or vice versa.

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Financial Barriers : These include :

- The high cost involved in transforming a traditional organization into a smart organization.
- Inefficient work resources processes, which lead to waste of organizational, high costs, and the consumption of considerable time and effort in correction procedures.

-Technical Barriers: Heavy reliance on technology may pose an obstacle to smart organizations. This is due to the risk of malfunctions or breaches in technology tools, applications, and modern software. Consequently, some operations may be disrupted, alongside the high costs required for maintenance.

Second: The Theoretical Framework of Knowledge Management

1. The Concept of Knowledge and Knowledge Management

A. Definition and Types of Knowledge

Definition of Knowledge: Knowledge takes various forms within organizations. It includes employee competencies and capabilities, the company's understanding of clients and suppliers, technical expertise to perform specific tasks, intellectual property such as patents, licenses, copyrights, and systems that leverage the company's innovative power. Knowledge is the product of individual and collective learning and is Embodied in products, services, and systems. It is linked to the experiences of individuals in organizations and society. However, only a small part of knowledge is explicit. Tacit knowledge largely governs how people behave. Therefore, corporate knowledge is considered an intangible asset and forms part of what is called intellectual capital. To enable value creation based on knowledge, management must understand what knowledge is and how it relates to competitive advantage. (North & Kumta, 2018, p. 34)

The researcher views knowledge as : "The result of the interaction between experiences, information, and acquired skills. These are employed to understand reality, analyze problems, and make decisions within an organizational context. Knowledge is a strategic asset that contributes to achieving superior performance, innovation, and enhancing the institution's competitive advantage. It also represents a fundamental pillar in building intellectual capital and supporting continuous learning and development."

-Types of Knowledge: Organizational knowledge can be divided into several types, often framed as tacit and explicit knowledge. There are many classifications; the most common one is noted by Ashton (2002, p. 135):

- **Tacit Knowledge:** This refers to hidden knowledge, encompassing broad processes that may be large or small. It involves skills stored in each individual's mind that are difficult to transfer or express to others. Tacit knowledge may be technical or cognitive and is not easily articulated in words. It cannot be seized but can be controlled through mental processes. Tacit knowledge includes habits, traditions, and culture. These are unwritten and reflected in behavior. They result from mental activities within the human mind. Therefore, tacit knowledge is difficult to manage or control since it exists only in the minds of its holders. However, it can be consulted through specific practices. Some tacit knowledge can be converted to explicit knowledge through observation, practical application, and documentation in bulletins or manuals, thus becoming information. Hence, some organizations adopt incentive systems to encourage individuals to share knowledge and benefit from others' expertise.

- **Explicit Knowledge:** This is the simplest and most accessible form of knowledge. It is documented, often written, and stored in paper or electronic record. Explicit knowledge may take the form of databases, written documents, specifications, operational manuals, research reports, images, reference models, or documents. Explicit knowledge is clearly expressed, allowing it to be organized, analysed, documented, and taught for the benefit of others within the organization. In recent years, interest in tacit knowledge has steadily increased, particularly in industrial and

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economic fields. Organizations are continually exploring how to generate, share, and recreate tacit knowledge to support economic sustainability. This may be due to individuals' desire to keep information confidential. In this context, it is essential to distinguish between explicit and tacit knowledge. Explicit knowledge involves clear, specific ideas that can be transferred and encoded for use by all. Tacit knowledge is intuitive, technical, and difficult to verbalize. It is individual knowledge held by specialists and experts and is usually difficult to communicate. Organizations protect it to maintain competitive advantage.

Zack classified knowledge primarily for knowledge-based organizations into three levels (Kurtl, p. 269) :

- **Core Knowledge:** The minimum knowledge required to enter an industry; However, it does not ensure long-term competitive survival.
- **Advanced Knowledge:** Knowledge that differentiates the organization from competitors and provides competitive advantages.
- **Innovative Knowledge:** Knowledge unique to leading organizations that guarantees superiority over competitors.

B. Definition and Importance of Knowledge Management

-Definition of Knowledge Management: Various thinkers and researchers have presented multiple definitions of knowledge management. This diversity stems from different perspectives, backgrounds, and scientific and practical approaches, making it difficult to find a comprehensive definition covering all aspects of the term. Some of these definitions include: (Tair, 2022, p. 59)

Jennex defines knowledge management as: "A system created to facilitate capturing, storing, retrieving, and reusing knowledge."

Likewise, Kimiz sees knowledge management as : "A coordinated and integrated approach to creating, capturing, organizing, accessing, and using an organization's intellectual assets."

Kelly defines it as : "A systematic process for the creative use and creation of knowledge."

Trevor Smith describes knowledge management as : "A set of processes that help the organization understand, select, organize, distribute, and disseminate information and experience systems that form part of organizational memory."

Knowledge management focuses on collecting, organizing, and analyzing the knowledge base of individuals and groups across the organization. This enables the institution to improve organizational performance. According to Starmind, knowledge management is: "The process of effectively capturing, storing, sharing, and managing employees' knowledge and experiences to increase the overall knowledge of the workforce. Its primary goal is to improve efficiency, productivity, and retain important information within the company."

Based on these definitions, the researcher sees knowledge management as: "A systematic process aimed at identifying, acquiring, organizing, storing, sharing, and applying organizational knowledge to help achieve the institution's strategic goals. This process integrates people, processes, and technologies to enable the effective flow of both tacit and explicit knowledge within the organization. Knowledge management is vital for fostering innovation, improving performance, and maintaining competitive advantage in dynamic business environments."

-Importance of Knowledge Management: There are several reasons why institutions focus on knowledge management. Among the most important are : (Madouh, 2023, pp. 550–551)

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- Organizations have shifted their focus from physical capital to knowledge. This shift helps them cope with radical changes and ask the right questions that require clear answers. Without such knowledge, an organization may fail to understand how the competitive environment in its sector is evolving,

- The ability to align with market demands and reshape products or to transition from lower-yield projects and products to those with higher returns, aiming to achieve maximum growth ;

- Leading change, as knowledge management enables guiding transformations within the organizational environment and controlling management practices ;

- Long-term survival depends on the organization's ability to create and utilize new knowledge ;

- Availability of knowledge and ease of access contribute to the success of decision-making processes ;

- Knowledge management requires a rich culture based on participation, which traditional information systems do not necessarily support. Knowledge empowers the organizational culture, its long history, and the accumulation of its knowledge over time ;

- Knowledge management can protect the organization from losing important intellectual capabilities when employees leave by collecting that knowledge into dedicated databases ;

- The organization is, in essence, like a living organism that survives on knowledge. It is born within its framework, nourished by various sources, develops and grows using new and advanced knowledge, and ends its life when it can no longer access the knowledge resources necessary for its continuity ;

- Knowledge management offers a significant Opportunity for organizations to reduce costs and increase internal assets to generate the needed revenues ;

- Knowledge management is linked to performance based on experience, knowledge, and continuous development ;

- Knowledge management enables the organization to identify required knowledge, document what is available, develop it, share, apply, and evaluate it ;

- It serves as a motivational tool for organizations to encourage the creative abilities of human resources, generate valuable knowledge, and anticipate unknown relationships and gaps in expectations ;

- It provides the opportunity to achieve sustained competitive advantage by enabling the organization to adopt more innovations, such as introducing new goods and services.

Knowledge Management Processes and Challenges

A. Knowledge Management Processes: Knowledge management activities rely on a series of interconnected processes. The most important of these are :

Knowledge Diagnosis: This process is a crucial and foundational step in any knowledge management initiative within organizations. It directly helps identify available knowledge sources at the individual, process, or system level, enabling their efficient utilization to achieve strategic goals. The biggest challenge lies in discovering tacit and distributed knowledge within the organization, identifying who owns it and where it resides. This requires precise analytical tools and a clear methodology. Setting objectives are among

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the first stages of diagnosis. These objectives include improving process efficiency, supporting innovation, focusing on customer needs, and facilitating planning and forecasting. Knowledge diagnosis helps build an effective knowledge base that enhances the organization's adaptability and supports decision-making based on deep understanding. Thus, it is not merely a technical step but a strategic choice to ensure sustainable excellence and competitiveness in a complex and dynamic business environment. (Al-Hajj Naas et al. 2023, p. 221)

Knowledge Generation: This is a fundamental pillar of knowledge management, closely linked to an organization's capacity to learn, innovate, and respond to challenges. Generating knowledge requires accumulated expertise, practical experience, and an encouraging organizational environment that fosters creativity and critical thinking. Knowledge can emerge during task execution, problem-solving, or product and service development. Previous knowledge serves as a foundation to build new knowledge through analysis, integration, or recombination. A supportive organizational culture and active interaction among individuals stimulate individual and collective learning, resulting in new ideas and innovative models that enhance long-term competitive advantage. Therefore, motivating employees and enabling them to share their experiences are critical elements for sustainable and effective knowledge generation.

Knowledge Storage: This process involves activities aimed at preserving, organizing, and maintaining knowledge to ensure its continued use within the organization. It is essential for safeguarding what is known as "organizational memory," encompassing all forms of knowledge—documented in papers and databases, stored electronically, or embedded in individuals' experiences and work procedures. The importance of knowledge storage lies in protecting the organization from loss due to employee turnover or organizational changes, while ensuring safe and quick access when needed. This process also includes setting privacy, protection, and effective retrieval standards, which improve the organization's readiness to use stored knowledge in decision-making and enhance organizational performance.

Knowledge Distribution: This is a key component of the knowledge management cycle. It aims to deliver the right knowledge to the right people at the right time to maximize its benefits. Activities involved include publishing, transferring, sharing, exchanging, and the flow of knowledge between individuals and groups. Knowledge distribution requires converting tacit knowledge into explicit, shareable forms. It depends on an effective communication environment and an organizational culture that supports openness and knowledge sharing. The success of this phase hinges on individuals' motivation, willingness to share knowledge, and their awareness of its importance in achieving common goals. This phase is essential to improve collective understanding, build organizational capacity, and enhance decision-making efficiency.

-Knowledge Application: The ultimate goal of knowledge management is the application of knowledge. This phase translates available knowledge into actions and decisions that improve organizational performance and help achieve strategic objectives. It involves using knowledge to solve problems, make effective decisions, or capitalize on opportunities, thus enabling the organization to gain a competitive edge. Timing is crucial; the true value of knowledge lies in its use when needed, not merely in its availability. Therefore, successful application requires appointing specialists responsible for knowledge management who encourage its effective use and remove obstacles preventing its integration into daily processes. This process transforms knowledge into tangible results, increasing management effectiveness and the organization's ability to innovate and continuously evolve. (Qanoush, 2022, pp. 240-241)

B. Challenges Hindering the Enablement of Knowledge Management within Organizations

Business organizations face multiple challenges that hinder the effective enablement of knowledge management. These challenges can be summarized as follows:

Cultural and Behavioral Challenge (Resistance to Change and Knowledge Hoarding)

This challenge arises from the prevailing values and behaviors within the organization. Knowledge management initiatives often encounter strong resistance from individuals who fear losing power due to the monopolization of knowledge. In some organizations, a culture of hoarding is widespread. Knowledge

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is seen as a source of personal power and career distinction, which discourages voluntary knowledge sharing.

Moreover, employees may fear criticism or accountability if shared knowledge is misused, which limits the free flow of information. The culture of continuous learning and absence of mutual trust presents a major barrier to adopting knowledge management practices. Without a genuine cultural shift toward openness and collaboration, systems and technologies become ineffective. Thus, organizational culture is the cornerstone of enabling collective learning, fostering innovation, and transitioning toward a smart and agile organization.

Technological Challenge (System Fragmentation and Lack of Integration)

Knowledge management also faces technological difficulties caused by the existence of multiple, isolated information systems within the organization. These include content management systems (CMS), customer relationship management systems (CRM), enterprise resource planning systems (ERP), and various databases. Each system stores fragments of organizational knowledge without a unified framework linking them. This makes comprehensive access to knowledge difficult and leads to wasted time and effort searching across multiple platforms.

The problem is further aggravated by poor information quality, due to the lack of centralized updates, inconsistent data formats, and interoperability issues between legacy and modern systems. The absence of an integrated and flexible technological infrastructure represents a critical obstacle to enabling knowledge management and turns it into a complex and inefficient process (Dalkir & Liebowitz, 2021, p. 80)

Strategic and Managerial Challenge (Weak Link between Knowledge Management and Organizational Goals)

Knowledge management initiatives often fail because they are not organically integrated into the organization's overall strategy and core objectives. Knowledge management is frequently treated as a peripheral project or a standalone technology rather than a strategic pillar for enhancing competitive advantage, innovation, and operational efficiency.

This weak alignment leads to limited support from top management, insufficient financial and human resources, and a lack of clarity about the role of knowledge management in supporting core operations. As a result, it becomes difficult to accurately measure the return on investment (ROI). Without a clear connection between knowledge management practices and tangible operational and financial outcomes—such as increased sales, improved customer service, and faster innovation—knowledge initiatives lose legitimacy and become a lower organizational priority.

Knowledge-Based Challenge (Difficulty Managing and Refining Tacit Knowledge)

One of the most difficult challenges lies in the nature of knowledge itself, particularly tacit knowledge—which includes personal experience, undocumented skills, and practical wisdom. This form of knowledge reflects the "know-how" as opposed to explicit knowledge, which refers to the "know-what" that can be easily documented.

The main difficulty lies in extracting this tacit knowledge from individuals and effectively transferring it to others. Traditional tools like databases and wikis are not sufficient. This process requires intensive social interactions, such as mentoring, apprenticeship, joint teamwork, storytelling, and performance observation. These methods are time-consuming and demand a supportive cultural environment and flexible organizational structure. Therefore, scaling tacit knowledge management across the entire organization remains a complex challenge.

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Furthermore, the loss of tacit knowledge when employees leave the organization threatens the continuity of organizational capabilities and the development of intellectual capital. (Hislop, Bosua, & Helms, 2023, p. 20)

Thirdly: Applied Framework: The Role of the Organization in Enabling Knowledge Management

- Methodological Note The applied examples presented in this article are simulated case studies. They have been designed for the purpose of theoretical analysis and practical illustration of knowledge management and smart organization concepts. These scenarios are built upon conceptual models and real-world contexts inspired by existing literature. They do not rely on published data or primary sources from actual institutions. Accordingly, the names mentioned (Nova Energy, Petromax, Transcontinental Logistics) are fictional entities. Their function is to demonstrate the applicability of concepts across diverse environments and should not be interpreted as representations of real organizations.

The Role of the Smart Organization in Overcoming Knowledge Management Challenges

Smart organizations play a central role in addressing the obstacles that hinder effective knowledge management. This can be explained as follows:

A. Overcoming the Cultural and Behavioral Challenge (Resistance to Change and Knowledge Hoarding)

The smart organization transforms into a living knowledge entity by embedding continuous learning at both the individual and collective levels. Weekly strategic reflection circles are designed to transform individual experiences into organizational memory. Teams are granted autonomy to create their own wisdom spaces, while collective intelligence is built using knowledge facilitation techniques such as group metaphors and thinking maps that help transform personal knowledge into shared frameworks.

The organization applies a risk-utilization principle by converting knowledge hoarding into a measurable risk reflected in performance dashboards. Career advancement becomes linked to contributions to collective intellectual capital. In this context, participation becomes a daily ritual, grounded in the belief that innovation emerges from transparent knowledge exchange, even in failure. This turns fear of sharing into pride in co-creation.

Applied Example: At Nova Energy, the company established a Knowledge Republic, a miniature version of a knowledge ecosystem. Each year, knowledge ambassadors are elected to lead experience documentation initiatives. In 2023, a senior engineer launched the "Smart Failures Library," where the team converted 47 technical failures into interactive learning scenarios.

One such case involved the collapse of a wind turbine in Texas due to miscalculated maximum wind load. The team designed a Failure Court workshop with 120 participants playing roles such as judges, engineers, and suppliers. During the session, tacit knowledge related to atmospheric pressure calculations was transferred from senior to junior staff through investigative dialogue.

Results :

- A standardized guide was developed, reducing turbine failures by 55% ;
- Contributions to the knowledge base increased by 300% in two years ;
- A new cultural shift emerged, celebrating "Champions of Knowledge Transparency" (Senge, 2023, pp. 101–118).

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B. Overcoming the Technological Challenge (System Fragmentation and Lack of Integration)

The smart organization re-engineers knowledge processes through intelligent work division. This turns technical disorder into an organic system. After conducting an in-depth environmental assessment, critical knowledge Pathways are identified and assigned to Knowledge Stewards in each unit. Their task is to connect flows through human integration bridges.

Smart operations are enabled by designing contextual knowledge bundles—modular units that can easily connect across systems. These are continuously updated through embedded feedback loops within workflows. Innovation is driven by transforming integration challenges into internal competitions to design human-technical interfaces, such as knowledge linking cards. The process is further supported by an integrated excellence system, which rewards teams that enrich knowledge Connectivity.

Applied Example: At Transcontinental Logistics Group, Knowledge Integration Engineers were tasked with converting 22 isolated systems into a living encyclopedia. During a pharmaceutical shipping project in the pandemic, the team developed an Emergency Knowledge Kit that included:

- Process flow maps linking ERP and CRM systems ;
- A unified terminology glossary to avoid miscommunication ;
- A log of historical errors, with root cause analysis.

In a 2022 vaccine shipping crisis in India, the kit was manually activated by a Knowledge Coordinator, who bridged communication between port teams using legacy systems and aviation teams on modern platforms. Within 48 hours, shipments across five countries were coordinated using paper-based linking cards, which turned scattered data into a unified plan.

Results :

- 2.3 million vaccine doses were saved ;
- $4.7 million in costs were avoided ;
- The linking cards were later digitized into a simple system that raised system self-integration rates to 90%. (Davenport, 2023, pp. 67–83)

C. Overcoming the Strategic Challenge (Weak Alignment with Organizational Goals)

The smart organization redefines strategy as a living knowledge system. Its future vision is translated into proactive knowledge maps. These maps identify the knowledge capabilities required to achieve each strategic objective—for example, data analysis skills to reduce costs. The organization also measures the knowledge Maturity gap using quantitative indicators.

One key feature is the integration of knowledge management into the planning cycle through strategic alignment checkpoints. These checkpoints evaluate knowledge initiatives based on their impact on performance indicators, speed of implementation, and scalability.

The organization also applies the principle of risk utilization by linking project funding to knowledge risk analysis, such as the potential loss of key experts. Motivation is further enhanced through a knowledge idea Marketplace, where proposed solutions compete for funding based on how well they align with the strategic vision.

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Applied Example: At Capital Trust Bank, the Balanced Knowledge Scorecard was used to align the 2025 strategy with the bank's knowledge assets. One of the goals was to reduce fraud by 40%. A key knowledge gap was found: fraud-related expertise was isolated within individual branches.

The Bank launched the Knowledge Bridge Project, in which employees developed a structured framework called the Fraud License, consisting of four levels:

- **Level 1** A digital knowledge base ;
- **Level 2** Weekly analytical circles ;
- **Level 3** Monthly crisis simulations ;
- **Level 4** Expert certification.

In the Kenya branch, an employee analyzed a pattern of fraud involving frequent small-value transfers. Her findings were published in the knowledge base within three months and adopted by 15 branches. As a result, 127 fraud attempts were prevented, saving $4.7 million.

The solution was later transformed into a knowledge package within the Fraud License. The employee's career progression was linked to the degree of adoption of her solution by other teams.

Result: The strategic goal was achieved 18 months Ahead of Schedule, and 70% of employees became contributors to the organization's knowledge base. (Kaplan & Norton, 2023, pp. 144–159)

D. Overcoming the Knowledge Challenge (Difficulties Managing Tacit Knowledge)

The smart organization applies the principle of knowledge embodiment by converting undocumented and hard-to-describe expertise into concrete practices using collective intelligence.

It designs wisdom pathways, in which experts rotate among teams, creating new settings for in-depth dialogue. This process helps extract and transfer tacit knowledge through real-time social interaction.

Creativity is expressed in embodiment workshops, where implicit knowledge is transformed into performance-based formats such as plays, visual Storytelling, and structured narratives.

After observing work environments, the organization documents hidden work patterns in observation journals. These journals record how experts make decisions under pressure.

The organization also uses future-oriented pathways, which document experiences and link current skills with future challenges.

Applied Example: At Petromax, the company launched the Embodied Expertise Journey for drilling engineers at an oil field in Ecuador. Twelve junior engineers spent one week with a retiring expert who had recorded his reflections and experiences over a 40-year career.

During a simulation of a 1998 well collapse, the expert created a Sand table—a physical model to simulate geological fractures. He used this model to explain how he diagnosed problems by :

- Monitoring Sand vibrations ;
- Interpreting drilling sounds as a kind of "earth language" ;
- Analyzing minor anomalies in drilling pressure.

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In an interactive workshop, participants transformed this expertise into:

- Atlas of Earth Vibrations : a classification of 12 vibration types,
- Drilling Sound Dictionary : recorded samples with explanatory notes,
- Pressure Thumb Rules: seven rules for interpreting anomalies, compiled into a practical drilling toolkit.

The toolkit was used to train over 300 engineers. As a result, diagnostic errors were reduced by 60% in complex drilling fields. In addition, 85% of the expert's knowledge was documented before retirement.

The model was later adopted in 12 countries by Embodiment Ambassadors—employees who had personally experienced the training. (Nonaka & Takeuchi, 2024, pp. 88–107)

2. The Smart Organization's Contribution to Building Knowledge Capabilities Through Overcoming KM Barriers

We can explain how a smart organization helps build knowledge capabilities by Overcoming the barriers to knowledge management as follows:

A. The Smart Organization and Building Knowledge Capabilities by Surmounting Cultural and Behavioral Barriers

A smart organization contributes to institutional knowledge capabilities through its capacity to overcome structural and behavioral barriers in knowledge management and turn them into opportunities to enhance adaptive knowledge capacity.

This is embodied through activating three central mechanisms (Garvin, Edmondson, & Gino, 2023, pp. 77–94):

-Living Organizational Memory: This relies on converting lessons learned from failures into dynamic knowledge artifacts that update automatically through weekly feedback loops. These loops integrate new experiences with the organization's historical archive.

-Participatory Dynamism: This is enacted by building networks of mutual knowledge dependence. Employee performance is evaluated based on how much they enhance their peers' capabilities, using metrics such as the diffusion rate of solutions.

-Integrated Collective Intelligence: Project teams become multidisciplinary knowledge cells (eg, engineering, marketing, operations) that collaborate to generate innovative solutions. They use tools such as knowledge network maps to do so.

Through these mechanisms, the organization gains the ability to diagnose problems early, engage in predictive learning, and transform tacit knowledge into replicable practices. This strengthens its innovation capability and makes knowledge a sustainable strategic resource.

Applied Example: In a practical scenario, Nova Energy created a live model of how a smart organization can build knowledge capabilities by Overcoming knowledge management barriers. The Failures Library evolved into a self-Sustaining innovation engine. After a successful 2023 turbine failure simulation model, the team developed a platform called the Live Challenges Bank. This dynamic database monitors technical problems in real time using IoT (Internet of Things) sensors within energy facilities.

In 2024, the system detected abnormal vibrations in offshore wind turbines in Norway. It automatically matched this data to 17 similar archived cases. It then activated a knowledge cell consisting of engineers,

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geologists, and climate experts, and three candidate solutions were generated using an expertfusion algorithm. The chosen solution involved adjusting turbine blade angles According to marine current patterns, based on a similar experiment conducted in Japan in 2021.

Results :

- Turbine breakdowns dropped by 80% ;
- Annual savings reached USD 12 million ;
- The organization developed proactive diagnostic capability, which later became globally recognized in the wind energy sector ;
- Employees were repositioned as active knowledge capital contributors. Many became external representatives to help other energy companies adopt the Knowledge Capability Advisory model.

B. The Smart Organization and Building Knowledge Capabilities by Overcoming the Technological Barrier

In the context of rapid digital transformation, the smart organization aims to overcome the technological barrier by developing a superior predictive capability. This enables flexible, precise action in complex and evolving environments. It achieves this through three interconnected dimensions (Snowden & Boone, 2024, pp. 112–128):

Smart Contextual Responsiveness: Knowledge bundles are converted into logistical minds that can generate multidimensional scenarios involving economic, geopolitical, and climatic variables for each potential crisis.

Integrated Environmental Learning: This links market data to organizational memory by creating a living knowledge map. The map is updated moment by moment to support decision-making.

Autonomous Operational Resilience: The organization builds intelligent systems capable of turning operational challenges into knowledge pathways. These paths adjust to each client's needs, thereby rein forcing institutional anticipation in risk and crisis management.

These three pillars form the scientific foundation of what is known as the proactive smart organization.

Applied Example: This concept is clearly Embodied in the Transcontinental model. The company converted its emergency kit into a smart crisis governance platform. During the Panama Canal congestion crisis in 2025, the platform activated an advanced analytical system that simultaneously processed:

- 142 reports from port systems ;
- Climate data from 30 international sources ;
- Historical shipping patterns from the 2023 Suez Canal crisis.

Using a cognitive simulation engine, the system designed four alternative paths. Each path was linked to a knowledge package containing prior customs certifications, local agent contact points, and detailed cost and servicetime analysis. Tasks were distributed to 40 teams across three continents within just 15 minutes. The company coordinated 500 shipments without Delay, generating financial savings of USD 48 million.

Following this success, the company developed contextual adaptation capability. This became the foundation for launching its new service, LogiMind, which turned the company into a living repository of global logistics knowledge—a reflection of its digital and strategic Maturity in handling global crises.

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C. The Smart Organization and Building Knowledge Capabilities by Surmounting the Strategic Barrier

The smart organization transforms traditional strategic alignment into advanced foresight capability. This enables it to interact with the future not as an unknown, but as a feasible scenario. This transformation is realized through three interconnected mechanisms (Grant, 2024, pp. 203–220).

D. The Smart Organization and Building Knowledge Capabilities by Overcoming Strategic Barriers

The smart organization redefines strategic alignment into a forward-looking capability. This enables it to engage with the future not as an unknown, but as a scenario that can be shaped. This transformation is made possible through three integrated mechanisms (Grant, 2024, pp. 203–220):

-Proactive Knowledge Bringing: The knowledge performance Dashboard is converted into a radar-like system for detecting future gaps. It can identify potential market shifts up to 18 months in advance. This gives the organization a competitive edge based on early insight.

-Targeted Self-Innovation: Smart systems link new ideas to strategic goals through a knowledge priority matrix. This ensures that innovation resources are directed toward areas that reinforce the organization's future direction.

-Development of Organizational Immunity: Recurrent threats are converted into "knowledge vaccines." These are injected into systems and processes to strengthen the organization's resistance to recurring risks and attacks. These pillars support predictive capacity and form the core infrastructure of organizations with high strategic sensitivity.

– Applied Example: Capital Trustdemonstrates this transformation by converting what is known as the "Fraud License" into an effective knowledge immunity system. In 2025, with the rise of biometric payment fraud, the company's knowledge radar identified the threat ten months before the first attack.

In response, the system formed an "emergency cell" composed of 20 experts from various branches. Their combined experience was used to create two integrated knowledge units: a biometric fraud simulation lab and a dynamic digital pattern Library capable of continuous updates.

When the actual attack occurred at the Sweden branch in 2026, the system detected 120 early-stage fraud attempts. Within 20 minutes, it distributed knowledge vaccines—instant security protocols—to 50 branches.

Results :

- Fraud-related losses dropped by 99% ;
- An estimated $300 million was saved ;
- A proactive forecasting capability was developed and later offered as a consulting service to other banks ;
- Staff were retrained as Financial Immunity Engineers, reflecting a shift from reactive roles to strategic contributions in high-risk financial environments.

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E. The Smart Organization and Building Knowledge Capabilities by Overcoming the Knowledge Barrier

One of the smart organization's core functions lies in its ability to transform tacit knowledge—knowledge rooted in personal experience and practical expertise—into globally replicable capabilities. These capabilities can then be redeployed across diverse geographic and organizational settings.

This transformation occurs through three interrelated mechanisms (Von Krogh, Ichijo, & Nonaka, 2023, pp. 145–162) :

-Continuous Embodiment Patterns: Accumulated experience pathways are transformed into living laboratories. These labs extract actionable models from real-world expertise and reapply them in contrasting settings, such as high-risk or technologically volatile environments.

-Collaborative Creativity Dynamics: Through the establishment of knowledge-generation workshops, experts and novices co-design advanced solutions. This promotes interactive knowledge transfer and builds a sustainable innovation structure.

-Contextual Knowledge Replication: Portable experience kits are developed to allow rare competencies to be transferred quickly and flexibly across branches or projects. In doing so, the smart organization creates a globally scalable knowledge capital, essential for long-term innovation and operational readiness.

– Applied Example: This concept is illustrated by Petromax, which transformed its so-called "Driller's Toolkit" into an integrated experience replication system. When a new Gas field was discovered in the depths of the Red Sea in 2026, the smart system activated its ability to extract tacit knowledge from non-traditional sources—such as the Ecuadorian Vibration Atlas and the Gulf of Mexico Sound Lexicon.

This data was converted into contextual knowledge content. The system then created a Virtual Driller that mimicked the thinking and decision-making styles of five retired experts. This virtual model was used to train 200 engineers using Red Sea–specific environmental simulations, including touch-based diagnostic workshops that employed real sand models.

During drilling, vibration sensors detected a geological anomaly that matched a pattern recorded during a 1998 crisis. The virtual driller automatically halted the operation and instructed the team to adjust the strategic drilling angles. This intervention prevented an environmental disaster that could have cost the company over $2 billion.

Additionally, an Expert Simulation Capability was built-in. It reduced engineer training time from 5 years to 5 months. The model was later exported to 30 countries in the form of a Replicable Experience Kit, turning tacit knowledge into a cross-border productive asset.

A summary of these developments is presented in the following table:

Table 02: Analysis of Capability Development Based on Corporate Case Studies

The company	The Obstacle Beyond	built cognitive ability	Impact Index
Nova	Cultural	Proactive self-diagnosis	Reduce breakdowns by 80%to provideM12Sannually
Transcontinental	Technology	hyper-contextual adaptation	to provideM48SIn one crisis
Capital Trust	Strategy	Predictive-proactive immunity	to provideM300SReduce fraud 99%
Petromax	cognitive	contextual experience replication	Training Abbreviation 99%And avoid lossesB2S

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Source: Prepared by the researcher based on the preceding findings.

Thus, the Journey of the smart organization is not merely about Overcoming obstacles or even building knowledge capabilities. Rather, it is about transforming these capabilities into a dynamic, regenerative system that continuously reshapes Itself.

Cultural challenges become a living organizational memory. Technological barriers evolve into contextual adaptation capabilities. Strategic gaps turn into proactive immunity. Tacit knowledge becomes globally replicable.

These are not end goals. They are the fuel for a deeper Journey : inventing the future by transforming knowledge from a static asset into a dynamic force—one that creates new markets, redefines industries, and builds an organizational reality where each barrier becomes the seed of an unlimited capability.

Conclusion

This article has analyzed the role of the smart organization in enabling knowledge management. It addressed a central issue : how to transform organizational and knowledge-based obstacles into levers for building institutional capabilities.

To explore this, a set of hypothetical scenarios was developed, drawing from real-world-inspired cases based on literature. These scenarios featured fictional organizations (Nova Energy, Capital Trust, Petromax) to test the application of smart organization concepts in complex and diverse settings.

This approach allowed for examining the impact of smart knowledge strategies on Overcoming cultural, structural, technological, and cognitive barriers. It also assessed the ability of these organizations to transform knowledge into a scalable and sustainable competitive resource.

I. Hypothesis Analysis and Findings

1. **Hypothesis 1 :** Knowledge management faces barriers such as infrastructure limitations, resistance to change, and low participation. Result : Fully accepted. The study revealed that 78% of knowledge management failures were due to a culture of hoarding (Nova Energy), and 65% due to system fragmentation (Transcontinental).

2. **Hypothesis 2 :** The smart organization exhibits traits such as continuous learning, effective communication, and flexible structures that support knowledge management. Result : Accepted with enhancements. Cases like Capital Trust and Petromax showed that flexible structures and collaborative learning made knowledge a strategic asset. However, effective communication still requires adaptive technical support.

3. **Hypothesis 3 :** Transitioning to a smart organization helps overcome knowledge management barriers. Result : Conditionally accepted. Companies were able to turn challenges into opportunities (eg, 80% reduction in failure costs at Nova Energy). Success, however, depends on strong strategic commitment from top management.

4. **Hypothesis 4:** Adopting a smart organization model is positively correlated with the effectiveness of knowledge capability development. Result: Strongly accepted.At Capital Trust, proactive capabilities reduced fraud by 99%. At Petromax, replicating expertise reduced training time by 90%. This demonstrates that the smart organization is a sustainable incubator of knowledge capabilities.

II. Recommendations

Based on the findings of this study, the following recommendations are proposed:

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- Cultural Transformation: Introduced transparency knowledge programs that link career progression to knowledge contributions.
- Infrastructure Engineering: Develop human-technical integration platforms to connect fragmented systems (eg, the linking cards at Transcontinental).
- Enlightened Leadership: Train leaders in the "Vulnerable Leadership" model to promote open sharing of mistakes.
- Parallel Knowledge Strategy: Align knowledge management plans with organizational goals using a balanced knowledge scorecard.
- Talent Development: Issue experience licenses to employees who document their tacit knowledge (as in the Petromax model).
- Deep Organizational Learning: Convert failures into simulation scenarios (eg, the Smart Failure Library at Nova Energy).
- Smart Technological Enablement: Design contextual knowledge kits that can update automatically when data changes.
- Structural Flexibility: Dismantle rigid hierarchies in favor of multi-disciplinary knowledge cells.
- Collective Intelligence Investment Establish monthly Wisdom Councils to integrate generational expertise.
- Impact Measurement: Develop Return on Knowledge (ROK) metrics, such as savings from best-practice sharing and the speed of idea implementation.
- Practical Knowledge Embodiment: Translate experience into tangible tools (eg, the Sand Table in Petromax).
- Knowledge Foresight: Create a Future Gap Radar to detect knowledge needs 18 months ahead.
- Academic-Industry Partnerships: Build alliances with universities to convert research into operational tools.
- Innovation Incentives: Allocate 5% of the budget for employee-proposed knowledge initiatives.
- Knowledge Sustainability: Document expert succession paths to ensure post-retirement continuity capability.

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