

New Generation Knowledge Management: What May We Expect?

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This article is based on selected excerpts from Karl Wiig's new book
People-Focused Knowledge Management

Introduction

During the last decades, the practice of Knowledge Management (KM)¹ has become a central management topic throughout most of the World. Globalization opportunities and pressures coupled with World-wide communication have spread both the need and understanding that increased emphasis on personal and structural intellectual capital assets is a necessary cornerstone for competitive behavior in the Knowledge Economy. However, KM still needs extensive development – it is in its infancy. Nevertheless, KM is already very valuable for those enterprises who practice it deliberately and systematically. During the last 15 years, KM has changed from one generation to the next through constant improvements and new perspectives. Resulting from new insights and practices a “New Generation Knowledge Management” (NGKM) is emerging with fresh objectives, methods, and results. Enterprises that practice NGKM pursue broader concepts and in other ways depart from earlier KM approaches by understanding and exploiting underlying mechanisms, be they economical, social, psychological, organizational, or technical.²

The Tail Has Been Wagging the Dog – Problems with Historic KM

The last decade's Informatics (Information Management/Information Technology - IM/IT) forays into KM have largely been *ad-hoc* and not solidly founded on deeper understanding of such fundamentals as cognitive processes of people-at-work, business functions or management philosophies and practices. Many organizations are still surprised when acquiring an KM/ERP system and find that they have installed not only a broad-ranging IM/IT capability but also have obtained a rigorous system of management and operations practices that are at odds with their management philosophies and beliefs, culture, and intended business directions and practices. Some other problems that have surfaced include:

- Idealistic KM system implementers working in isolation from senior management create capabilities that match their personal beliefs and understandings of best operating practices but not those that the enterprise prefers. It is thereby provided with a capability that may not be used fully – or will force operating practices that may not be in its best interest.
- KM systems have been promoted to have unrealistic capabilities with resulting frustrations, disappointments and frequently, cancellations.

¹ We view KM as the management and orchestration of knowledge and other IC asset-related activities, processes and capabilities be they personal or organizational. KM involves creating maintaining, deploying and exploiting these assets. KM also involves planning, facilitating, monitoring and governing from enterprise and stakeholder perspectives. In this article we use “Knowledge” and “IC assets” interchangeably.

² Organizations that have adopted NGKM (without calling it KM!) include SAS Institute, Nokia, Chaparral Steel, Buckman Laboratories, W. L. Gore & Associates and Malden Mills to name a few.

- Instead of focusing on business needs and opportunities, the focus has been on introducing KM as a generic capability of unquestioned but unspecified value. Many such KM efforts have been found to be of limited business value.
- Many KM efforts have failed after having been introduced without allocating sufficient effort – capable personnel and other resources.
- KM problems caused by lack of understanding of the long duration before the initial KM efforts translate into enterprise bottom-line results.

Knowledge Management Advances We Might Expect

KM touches human behavior, attitudes and capabilities, business philosophies, models, operations and practices and complicated technologies. Creating and operating KM capabilities cover many disciplines with aspects. They often require integration to provide functions that are of appropriate strategic and operational support and use within the target operations.

Two Broad and Distinct KM Developments

The world around us changes constantly. Businesses invent and pursue new strategies, develop new products and services and devise better ways of running their operations – all to remain successful and viable. Scientists make discoveries and extend our understanding in many fields. Technologists create new devices and methods. All these developments bring new opportunities for development and, when implemented, progress. Two broad KM development areas advance in parallel and will greatly influence the value and acceptance of KM. The areas represent “demand pull” and “supply push” and are:

1. Management and operating philosophies and practices developments to pursue IC-related capabilities to make enterprises perform better and more effectively. The resulting culture reflects positive practical experiences with KM, marketplace and societal pressures to increase focus on IC assets for competitive reasons and the greater understanding and capabilities of KM approaches and technologies.
2. Science and technology developments that make it possible to create new solutions built on solid, relevant and practical understandings of underlying.

Among the many areas in which we expect developments the following are important:

KM Developments with People Focus

- Cognitive sciences research that provide practical insights into how people learn, possess knowledge, use knowledge in different kinds of work, innovate and become motivated. These developments provide the foundation required for creating KM approaches that will effectively support work environments and gain broad acceptance.
- Research on the nature, role and use of stories and other KM-related knowledge sharing processes that fit naturally and easily into people’s work styles and enterprise business functions. This research includes new methods for transfer cognitive skills between people.

- Approaches to build and teach metaknowledge such as critical thinking to make people competent to tackle unfamiliar challenges and opportunities.
- Methods to provide educational and other means for people to build libraries of mental reference models relevant to the work complexities they face.
- Increased understanding of how to prepare and furnish IC assets to individuals and organizations to improve knowledge work. This includes business and work functions simulators and “games” for fast and effective training and creation of work-related operational mental model libraries for routine and almost-routine work and for development of critical thinking and abstract mental models for tackling more general and infrequent challenges.
- Knowledge-related situation-handling and other analysis and action-oriented behavioral models that explain and provide frameworks for analysis and development of KM capabilities. As indicated in Figure 1, from a situation-handling perspective, decision-making is an integral part of a chain of tasks starting with observation and receiving situation information and resulting in action.

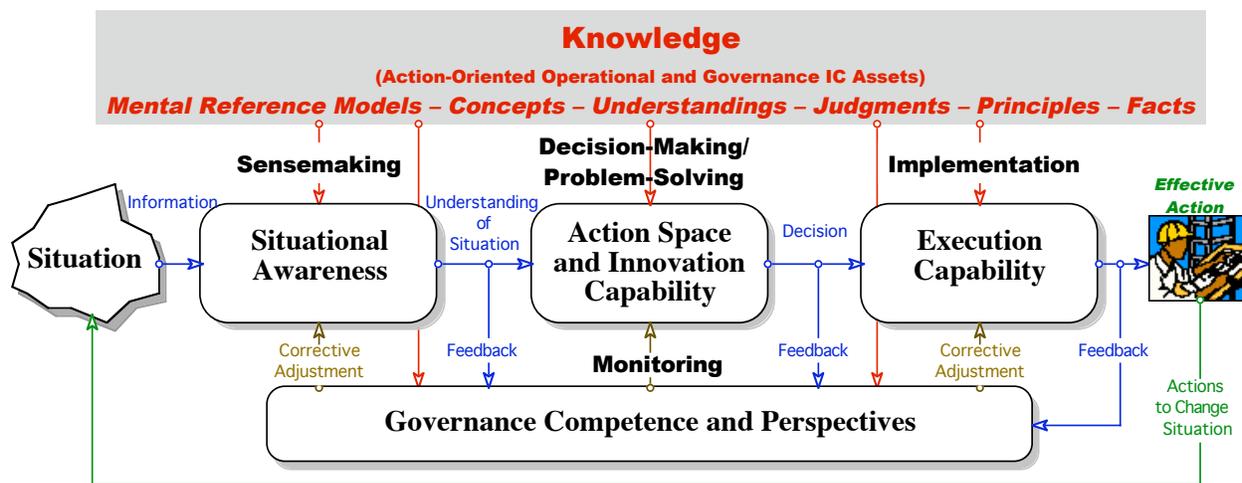


Figure 1. Effective actions depend on the specific knowledge that creates the competences of Situational Awareness, Action Space and Innovation Capability, Execution Capability, and Governance Competence and Perspectives.

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Technology Focus

- Broad Artificial Intelligence (AI) technologies for automation of reasoning in operations, diagnostics and troubleshooting, research and creative exploration and information management.
- Natural language understanding (NLU) and reasoning for information management tasks such as abstracting, prioritizing and routing and for automated situation-handling of cases with varying complexity.

- Automated performance support systems (PSS) to complement knowledge workers with reasoning and other capabilities for complex tasks.
- Mathematical modeling of business and social processes to support “soft computing” and other exploratory and computational synthesis methods.
- Greater reasoning sophistication of computer-based systems to reduce operating costs, improve reliability of routine tasks and free employees to perform higher value work.
- State-of-the-Art information technology-based infrastructure functions to support communication, collaboration, and many other processes.

Enterprise Focus

- Understanding that competitiveness requires innovating and learning faster than competitors and that deliberate and systematic KM is the key to achieve objectives.
- Understanding that strategies are implemented by rank and file and that the workforce needs in-depth understanding of enterprise goals and of how they, as individuals contribute and benefit from delivering effective work.
- New approaches to make personnel at all levels know and understand enterprise strategy and appreciate how they, as individuals, can participate in implementing enterprise strategy and intents.
- Powerful new methods for transfer personal knowledge into structural IC including targeted ontologies.
- Knowledge diagnostics and related analysis approaches to identify, describe and find means to address critical knowledge functions and opportunities. Most of these approaches require expertise and insights into several disciplines as indicated in Figure 2 and are based on understanding of underlying knowledge-related mechanisms that affect work and performance.

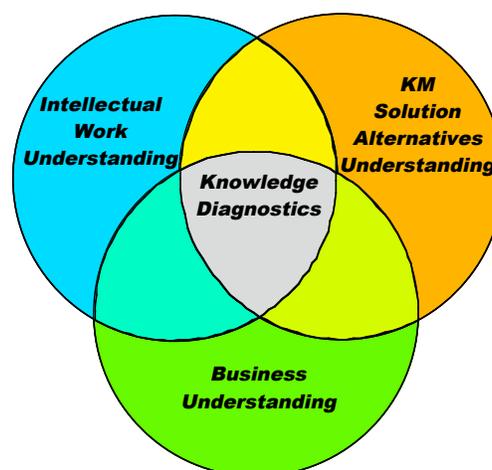


Figure 2. Knowledge diagnostics requires combined insights into intellectual work mechanisms, knowledge-related solution alternatives and business processes.
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New Generation Knowledge Management (NGKM)

One difference from earlier KM generations is the degree to which NGKM is integrated with the enterprise's philosophy, strategy, goals, practices, systems, and procedures and how it becomes part of each employee's daily work-life and motivation. Furthermore, NGKM is different because of its concerns for the overall enterprise performance and its emphasis on utilizing all available scientific and professional insights to provide the best possible KM support for the enterprise. These differences lead NGKM practitioners to pursue KM approaches that are systematically combined with all other practices and activities, both within the enterprise and in interactions with all outside parties. Characteristics of NGKM include:

➤ ***Broad and Proactive Business Philosophy and Management Beliefs – Not Static & Mechanistic Control***

NGKM pursues an “anti-Tayloristic”³ and “anti-Command-and-Control” management model. This model rests on the need to provide clear leadership and the understanding and belief that people – employees – perform better and support the enterprise more effectively when they are competently knowledgeable, given appropriate action freedom and authority, work in a supportive culture, and are held accountable for their actions. The management model, as practiced by many organizations, relies extensively on management and leadership examples, proactive mentality, and agile and adaptive behaviors to take advantage of opportunities and adapt to changes. The model also is supportive of employees' welfare and motivations. Furthermore, it rejects the technology-based view of KM – it adopts people-centric views of the enterprise's work, its ability to innovate and learn, and the role of human intellectual capital (IC) in the enterprise's capital accounting.⁴

The philosophy and beliefs behind the management model embrace perspectives that are much broader than often are found in business. In particular, in addition to consider short-term operational and survival needs (to meet financial obligations, for example), there is deliberate focus on long-term viability of the enterprise. Furthermore, beyond concerns for first-order implications of actions, there are concerns for second- and higher-order implications of actions as they affect stakeholders of all kinds. These considerations are not new. They have been observed by enterprises for centuries and are common traits within enterprises that have been in existence for over 100 years.⁵

➤ ***Knowledge-Focused Business Strategies and Practices***

Enterprises that pursue NGKM exploit IC-related opportunities and strengths in their strategies. Some enterprises target new markets with specially developed IC capabilities such as when developing the expert ability for customer service representatives in the financial industry to deliver new areas of advice to clients. Others collaborate deliberately

³ “Taylorism” refers to operation and management philosophy and practices initiated by the father of scientific management, Frederick W. Taylor (1856-1915).

⁴ For discussion of intellectual capital, see Amidon (2003), Edvinsson (2002), Roos et alia (1998), Stewart (1997 and 2002), Sveiby (1997).

⁵ See de Geus (1997).

and extensively with clients and suppliers develop new products and services that are based on specifically developed IC assets. These approaches differ from regular research and development (R&D) activities by their specific focus on creating and leveraging knowledge flows in new ways.

➤ ***Intellectual Capital Stewardship Mentality***

NGKM practitioners develop widely shared mindsets across their organizations. The typical mindset focuses on two aspects:

1. The psychological, social, organizational, economic, and technical mechanisms that make IC assets strengthen operational and strategic situation handling and the effectiveness of resulting actions; and
2. How IC assets need to be managed from operational performance and investment points of view to support the enterprise and its stakeholders (including the employees themselves).

The mindset embraces proactive, exploratory, and innovative perspectives with the notions of the careful and responsible management of IC assets. The mindset amounts to a benevolent “Intellectual Capital Stewardship Mentality” (ICSM) which brings constructive and actionable IC perspectives to everyday situations – automatically and naturally. Building the ICSM is achieved by helping people develop in several ways. They need to develop understanding of options for developing, obtaining, and leveraging IC assets for everyday work. They need to be provided with role models. They need to be motivated. They need to understand the advantages for themselves, their customers and stakeholders, and the enterprise.

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In organizations that pursue NGKM, ICSM has become a natural part of the daily “Living the Job” resulting in automatic operational considerations for how to acquire and apply the best possible expertise by collaborating, discussing with experts and peers, hiring, accessing knowledge bases, using computer models and in numerous other ways. From strategic perspectives, ICSM makes people consider options and tradeoffs for how to invest time, effort, and resources to build IC assets for future needs.

➤ ***Systemic, Self-Sustaining, and Self-Renewing KM Practices***

NGKM practices are systemic. They are distributed, understood, and generally pursued by employees everywhere within the enterprise. The wide distribution and utilization, and the natural character of the practices, have led them to be continually adopted by people across the enterprises. They have become self-sustained. In addition, people at all levels

innovate to make the KM practices better and more effective to the extent that the practices are steadily improved and renewed.

➤ ***Systems Perspective of Enterprise & Environment***

In the proactive enterprise, managers and people at any level tend to adopt systems perspectives of knowledge-related processes.⁶ They perceive the enterprise as consisting of many closely coupled dynamic systems or processes that influence each other and change as result of external influences or internal dynamics. They also perceive the enterprise to be part of a larger system – the society, the environment, the economy, etc., with customers, competitors, suppliers, governments, and so on.

When working with systems perspectives, people tend to think of their work and their actions as part of a much larger whole. In the extreme, that view could lead inability to deal with an impossibly complex world. However, healthy systems perspectives set priorities and focus on expediency and target processes while considering wider implications.

➤ ***Vigilant Application of State-of-the-Art KM Practices and Infrastructure Capabilities***

KM methods and practices are under constant development. New and more effective State-of-the-Art options become available as indicated above. Increasingly, these approaches build on improved understanding of IC-related processes and mechanisms which may be cognitive, psychological, social, organizational, economic, or technical in nature. As new KM methods are developed, some replace other practices, but overall, current, well-established KM practices are effective and continue to deliver good business value. NGKM practitioners pursue knowledge-vigilant practices. Whenever possible, they adopt KM approaches that will provide most favorable cost effectiveness seen from enterprise objectives.

In addition to adoption of concrete practices, NGKM practitioners also adopt abstract models of how to manage knowledge. They develop advanced visions and plans for how to shape and take advantage of KM for potentials to improve strategies and operations. Practitioners develop management philosophies that partly build upon insights from State-of-the-Art KM concepts and experiences in other organizations. When conducting benchmarking, NGKM practitioners not only focus on what was done successfully, the associated costs and which results were obtained. They are as concerned with the conceptual considerations of “What is the context?” “Why was it done?” “Why was done in the particular way?” “What did it require in terms of added expertise

⁶ We cannot assume that everyone will share broad perspectives. People can be classified into five groups according to the breadth of their focus:

1. Pragmatic focus on effective delivery of "Today's Work."
2. Operational focus also on improving work methods and environment.
3. Tactical focus also on improving products and services.
4. Strategic focus also on improving the business for long-term viability.
5. Visionary and societal focus on enterprise role in the World-at-Large.

It is possible to migrate people to a broader focus in parts of their domain through education, peer influences and cultural conventions.

and management and operating practices?” “Which cultural changes needed to be introduced?” “How did personal motivations need to be influenced?” and “Which problems were encountered and how were they overcome?” These factors are different from traditional benchmarking methods but are important for obtaining the required insights.

A particular aspect of NGKM is the reliance on “natural” and automatic KM practices such as storytelling, knowledge sharing, apprentice nurturing, collaboration, and other behaviors that are instinctive and effortless for people when such behaviors are supported by the reigning cultures. Some of these behaviors are innately natural whereas others become the most natural choices when fostered through management examples and incentives.

Emerging Opportunities Require New Efforts and Directions: NGKM Implications for Businesses and Other Enterprises

Enterprises that pursue NGKM operate differently from other organizations in several ways. Most importantly, they plan strategic moves based on existing and developing IC assets to pursue new directions. They create increased competitive value through innovation, expertise and other results from their IC assets which are continually improved by NGKM. They foster and maintain open and supportive, yet goal-oriented and accountable, environments by pursuing widespread IC stewardship mentality. This mentality is promoted by senior management participation and as role models. The focus is on maximizing enterprise effectiveness and performance and on adopting long-term perspectives and performance objectives subject to short-term health and survival. They pursue interdisciplinary approaches for NGKM and also for integrative management to provide the most conducive conditions to facilitate effective work, motivation and employee dedication.

The Bar Has Been Raised: NGKM Implications for Researchers, Vendors and Practitioners

NGKM provides new opportunities but also many challenges for researchers and IC-related capability suppliers be they consultants, technology suppliers or other parties. Researchers in areas like cognitive sciences, epistemology, social sciences, organizational sciences, management theory, economics and AI and informatics will need to tackle a range of issues. A number of topics require investigations of how people and organizations create, possess, transfer, utilize IC and how one might enhance and deal effectively with these processes with operational methods and technologies.

KM products increasingly become more sophisticated and suppliers need to include new capabilities to build products and services on firm and fundamental understandings of underlying processes and mechanisms as explained by scientific findings and practical experience. We expect clearer distinction between supplier types such as:

- Providers of services to create KM capabilities and associated management systems.
- Providers of tools for knowledge audits and analysis like knowledge mapping, knowledge diagnostics, knowledge inventory management, IC navigator, etc.

- Providers of KM capability development tools such as automatic reasoning tools, knowledge discovery in data bases (KDD), tools to build structural knowledge from personal knowledge, tools to create ontologies and so on.
- Providers of support facilities for KM capabilities such as collaboration environments,
- Providers of KM capabilities such as expertise knowledge bases, educational systems, etc.

Concluding Perspectives

In summary, NGKM in some ways provides a whole new direction of corporate leadership and practices as has been demonstrated by several organizations. It requires new efforts to adopt and implement by both suppliers and user organizations. By being better engineered cognitively, socially and technically, NGKM practices are easier and more natural to use and become preferred modes of operations by managers and workforce alike.

NGKM fosters progress in many areas. It leads to higher levels of effectiveness and performance in personal, enterprise and regional or national innovation, operation and success in securing competitiveness and viability.

References

- Amidon, Debra M. (2003) **The Innovation Superhighway: Harnessing Intellectual Capital for Sustainable Collaborative Advantage**. Newton, MA. Butterworth-Heinemann.
- de Geus, Arie (1997) **The Living Company: Habits for survival in a turbulent business environment**. Boston: Harvard Business School Press.
- Edvinsson, Leif (2002) **Corporate Longitude: What you need to know to Navigate the Knowledge Economy**. New York: Financial Times – Prentice Hall.
- Roos, Johan; Roos, Göran; Edvinsson, Leif; & Dragonetti, Nicola, C. (1998) **Intellectual Capital: Navigating in the new business landscape**. New York: New York University Press.
- Stewart, Thomas A. (2002) **The Wealth of Knowledge: Intellectual Capital and the Twenty-First Century Organization**. London: Nicholas Brealey.
- Sveiby, Karl Erik (1997) **The New Organizational Wealth: Managing & measuring knowledge-based assets**. San Francisco: Berrett-Koehler.