

THE INTELLIGENT ENTERPRISE AND KNOWLEDGE MANAGEMENT

Karl M. Wiig

Knowledge Research Institute, Inc, Arlington, Texas, USA

Keywords: knowledge management, intelligent enterprise, intellectual capital, human capital, knowledge vigilance, meta-knowledge

Contents

1. Introduction: Successful and Viable Enterprises Require Knowledge Management
 2. The Intelligent Enterprise Perspective
 - 2.1. Four Areas of Emphasis for Intelligent Enterprises
 - 2.2. Success Factors for Intelligent Behavior
 - 2.3. It Is Important for the Enterprise to Be Intelligent!
 - 2.4. Enterprise Success Requires that Everyone Acts Intelligently
 - 2.5. Dimensions of Intelligent Behavior
 - 2.6. How Knowledge-Vigilant Is the Enterprise?
 - 2.7. Conditions that Prevent the Enterprise from Acting Intelligently
 3. Knowledge Management Supports the Intelligent Enterprise
 - 3.1. Enterprise Success Rests upon Effective and Knowledgeable Behavior
 - 3.2. Knowledge Required to Act Intelligently
 - 3.3. The Changing Workplace
 - 3.4. Knowledge Management Implementation Issues
 - 3.5. A Taxonomy of Potential Knowledge Management Building Blocks
 - 3.6. Job Descriptions and Service Paradigms
 - 3.7. Charting Knowledge Management-Related Activities in the Enterprise
 - 3.8. Mapping Knowledge Required for Desired Work
 4. Concluding Perspectives
- Glossary
Bibliography
Biographical Sketch

Summary

Needs for improved performance place different demands on enterprises everywhere. They must provide knowledgeable, intelligent behavior that requires new capabilities. Enterprises have turned to explicit and systematic knowledge management practices to make available the intellectual capital needed to perform effectively, internally and relative to stakeholders. They emphasize creation of people-centric practices to build, apply, and deploy knowledge and understanding for support of innovative and effective knowledge-intensive work. Starting knowledge management practices can be achieved by modifying and implementing standard building blocks. Whereas knowledge management has become a valuable business tool, its complexity may be vexing, and successful practice requires appropriate competence by both practitioners and their managements. The knowledge economy has already led to significant changes in the workplace, and future changes may be greater. As for many other management directions, it is expected that in the intelligent enterprise, knowledge management will be integrated into the basket of effective management tools, and hence disappear as a

separate effort.

1. Introduction: Successful and Viable Enterprises Require Knowledge Management

Intelligent enterprises have broad horizons with long-term perspectives. They are concerned about their long-term viability and success, and also about how well they serve their stakeholders and constituents. In addition, many manage to create highly effective, self-energizing enterprises with low friction, and rewarding work environments that operate with little wasted efforts. To achieve such ambitious goals, people within these enterprises maintain broad horizons. Their situation-awareness goes beyond immediate business areas, customer groups, market segments, and geographical regions. They consider the enterprise to be part of the world-at-large and as an open system with strong and widespread interactions that cannot be ignored or controlled, only influenced -- if that.

The degree to which the enterprise can act intelligently depends on the competencies of its people and its operational capabilities such as structure, systems and policies, and on driving forces such as motivation. The competencies determine how effectively work is performed when dealing with internal and external routine and difficult challenges. Its competencies are directly (but not only) a function of the knowledge – understanding, expertise, and skills – that is available at the workplace or is embedded in the enterprise's capabilities. The knowledge in the workplace consists of personal knowledge possessed by individuals and explicit and embedded structural knowledge in documents, technology, and practices, and in the enterprise's systems, procedures, policies, organization, and work structures. Hence, making the enterprise intelligent becomes an issue of how well knowledge can be managed.

Ideally, all enterprises should carry out their daily work exceptionally well. When they succeed in the short term, they should also, to the fullest extent possible, change their goals and strategies to pursue longer-term opportunities and conquer or avoid threats. Such behavior will require considerable resources, infrastructures, and dedicated personnel. Implicit expectations are that their enterprise should act “intelligently” at all times. It is often anticipated that all employees – and in the aggregate, the enterprise itself – always will “do the right thing.” It should make sense of challenges, find the best approaches to handle situations, anticipate outcomes, inform all concerned, implement decisions effectively, and so on. Unfortunately, few employees and enterprises, if any, live up to such expectations. Worse yet, only rarely is there an explicit and shared understanding among any of the enterprise's employees – or managers – of what “acting intelligently” might mean in practice. However, most would agree that such behavior would be highly beneficial. It is also difficult for most to determine what is required to make behavior more intelligent. In addition, enterprises are complex and it is not simple to manage the intangible and less visible functions associated with human intellectual work and application of structural intellectual capital. The complexity may be deceptive since the operational and structural patterns can only partially be seen and understood and it is tempting to focus only on what is readily apparent – what is directly observable. Nonetheless, the interplay of individual factors cannot be reduced to the study of individual and separate elements.

The enterprise can be intelligent in two ways. It can behave intelligently, or it can utilize “intelligence,” that is, competitive information about its environment, targets,

competitors, and so on, to achieve its goals. It is the combination of the two ways that makes it possible to achieve objectives exceptionally well. For the enterprise to be intelligent, it needs to maximize the extent and utility of its intellectual capital. Many commercial enterprises have market values several times the value of their financial and tangible assets. This difference in valuation is a result of the market perception of the large value of its personnel capital, customer capital, and structural capital. Yet, most enterprises do not provide explicit management of, or know who is responsible for, this part of the total value of their enterprise.

The main objective of knowledge management is to enable organizations to be intelligent-acting. People must be provided with knowledge to be competent and with incentives to be motivated. They must be permitted to work consistently and continually make the enterprise capable of making excellent decisions, performing high-quality knowledge work, and act appropriately at all times within its own domain, *vis à vis* its customers, other individuals and organizations, society, and the environment. As a result, they must be given the knowledge resources to "work smarter," the capability to keep their knowledge up to date, and the permission to use what they know. However, knowledge alone does not make it possible for the enterprise to behave intelligently. It is equally important to have information that is readily available, accurate, timely, well organized, and relevant – good intelligence – about its own conditions and the world around it. Other resources may also be required.

Personal knowledge and other intellectual capital assets serve vital functions within the enterprise. They form the fundamental resources for effective functioning and provide valuable assets for sale or exchange. From business perspectives, in spite of their importance, explicit and systematic management of knowledge has not been of general concern until recently, and as a result, availability of competitive expertise has often been haphazard. In proactive enterprises this is changing.

As enterprises become better at managing knowledge – and as their competitors improve their capabilities – they continue to develop their knowledge management practices. In these efforts, which become increasingly sophisticated and demanding, they build upon developments in technology and people-centric areas such as cognitive sciences. Implicit knowledge management has always been practices and many issues addressed in this article may be familiar. However, new perspectives emerge and must be considered when relying on systematic knowledge management to make the enterprise intelligent. Conventional perspectives focus on visible aspects of work such as physical work and information flows. Beyond that, knowledge management focuses systematically on what people must understand to deliver competent intellectual work. On the personal level, that requires explication of which knowledge needs to be created, obtained, organized, accessed, and made available to the workplace. Similarly, it requires that the enterprise must adopt or develop broader capabilities and structures to handle situations and challenges effectively.

2. The Intelligent Enterprise Perspective

Many writers have addressed the issues of the intelligent enterprise. The intelligent enterprise is an organization which acts effectively in the present and is capable of dealing effectively with the challenges of the future. It meets its objectives by implementing its visions and strategies through the actions of individual employees and

through its systems, policies, and organizational structure. It meets the objectives both of the enterprise itself and those of its stakeholders, and makes trade-offs between them. Management teams of intelligent enterprises recognize that to be viable in the longer term, they must acknowledge that they have broad responsibilities. These surpass conventional and narrow operating perspectives to include concerns for environment, local and larger economies, the society at large, and other stakeholders that are directly or indirectly affected by the enterprise's actions. The concerns also include attainment of the long-term objectives of the enterprise – the reasons for its existence. The breadth of responsibilities results from the understanding that the enterprise is an integrated element in the complex societal and environmental system and that the effects from its actions on other parts of the system will directly influence its medium and longer term viability. All parties are affected – owners, employees, customers, suppliers, society as a whole, and its physical environment – and the enterprise itself.

Many management teams express the conviction that knowledge is the principal force that enables the enterprise's ability to act intelligently. They work to sustain enterprise long-term viability by developing, cumulating, and deploying highly competitive knowledge assets to the points-of-action. They expect that intelligent behavior will lead to proper and effortless handling of routine and simple tasks and that non-routine, complex, and unexpected tasks will be handled punctually, competently, and in the best interests of all concerned with suitable balances between long-term and short-term objectives. They believe that consistent, intelligent behavior secures competitive leadership and the ability to pursue opportunities and render services that could not be delivered in a different way. For these reasons they need to manage knowledge explicitly and systematically.

2.1. Four Areas of Emphasis for Intelligent Enterprises

Intelligent enterprise managements look beyond the arena of daily work. They pursue durable performance over the long term by maintaining broad awareness. They emphasize that they, and their employees, not only deliver the work products that are directly associated with their functions but that they also act responsibly and productively in other respects as well. In particular, intelligent enterprises expect that all employees, departments, and organizational functions, as part of their daily activities, will support a wider scope of work. They emphasize four areas of expectations in the form of a service paradigm:

i) Generate Job-Related Deliverables Reliably and Competently – That is, fulfill expectations for delivery of the basic work products of the unit.

- Conduct and deliver work competently and according to high professional and craft standards and in the enterprise's overall interest.
- Ascertain that deliverables consistently are of high quality.
- Ascertain that deliverables consistently are on time.
- Take responsibility for ascertaining that complex and unexpected work tasks are handled competently.
- Take responsibility for “completed staff work.”
- Ascertain that best available knowledge is matched to the situation and that it is applied.
- Apply critical thinking.

ii) Secure and Improve Customer Relationships and Internal Contexts – That is,

fulfill expectations for maintaining or improving contexts and relationships within the work environment, between different departments and enterprise entities, between the enterprise and its customers and other stakeholders.

- Understand and satisfy customer needs and requirements while meeting enterprise strategic intents.
 - Maintain and improve customer-enterprise relationships and contexts.
 - Collaborate, help co-workers, build positive relationships, and network with others.
 - Help curb and control improper behaviors.
- iii) Conserve Enterprise Resources** – That is, fulfill expectations for dealing efficiently with enterprise resources, including time.
- Work effectively – on target, efficiently, and be engaged in work.
 - Use opportunities such as slack time to improve work environment, capture knowledge, establish valuable internal and external contacts, and so on.
 - Use every opportunity to learn, share, and embed knowledge – build intellectual capital.
- iv) Renew Enterprise Capabilities** – That is, fulfill expectations for aiding in the renewal of the enterprise.
- Innovate to improve enterprise capabilities in work processes, work environment, and all other areas.
 - Envision opportunities for, and pursue improvements of, new products and services.

2.2. Success Factors for Intelligent Behavior

A basic requirement for intelligent operation is a management philosophy of practiced beliefs that people will act responsibly when given the chance and when understanding that it is in their interest. However, this perspective must be tempered with the realization that a few employees may have quite different personal agendas that are not in the enterprise's interest. These people must be managed differently. Also, a significant group of people – some organizations report 40% – are reluctant to assume responsibility and prefer to work in supportive roles. These also need to be acknowledged and allowed for when collaboration teams are structured and evaluated. In most instances, these people are crucial for performing the enterprise's basic work tasks.

Still, most people are eager to take on broader responsibilities that allow them to use their versatility, be more flexible, and adjust their work to facilitate the situation at hand. They frequently report greater job satisfaction and feelings of personal rewards as a result. Greater customer satisfaction, lower costs, reduced error rates, and increased preventions of mishaps are reported by enterprises which support employees in building knowledge and accepting increased responsibilities in areas of competence. More importantly, the increased innovation that produces new approaches for enterprise strategies, tactics, and services is significant and leads to considerable increase in structural intellectual capital.

However, allowing employees to act responsibly when given the chance is not enough. The management philosophy and behavior must work to drive changes in the enterprise culture, particularly through practices and incentives. The culture must be changed to approve and foster new behaviors. They must become “the way things are done around here.” To achieve that, four factors need to be fulfilled to facilitate and foster desired

employee effectiveness and behavior:

- i) Knowledge and Resources.** Professional, craft, navigational knowledge and meta-knowledge, information, and other necessary resources must be made available for employees to deliver quality work products that satisfy the requirements of the situation and the general service paradigm. Employees must also possess requisite skills and attitudes (that is, personality traits). They must be supported by their ability to think critically and creatively by being provided with relevant meta-knowledge.
- ii) Opportunities.** Employees must be placed in situations where they have opportunity to use their capabilities. Workflows must be organized to take advantage of people's capabilities and to exploit the potentials for innovation and application of diversity.
- iii) Permission.** Employees must be provided with safe environments in which to do their work. That means that they must be given permission to innovate, improvise, and "stretch" enterprise policies and practices beyond predetermined scopes to serve the enterprise's – and the stakeholders' – best interest.
- iv) Motivation.** Employees must be motivated to act intelligently – to do the right thing – by being provided with understanding and emotional acceptance of how it will be of value to stakeholders, the enterprise, and most importantly, to themselves. This factor is most important, and difficult to effectuate. It requires practicing approaches to effective and active communication that will be new to most.

The general relationships between these factors are indicated in Figure 1. The figure also differentiates between the routine and non-routine tasks as indicated below. Routine and simple tasks can be handled effortlessly and efficiently with relatively standard knowledge. Complex and non-routine tasks require broader and deeper knowledge to be handled competently in the best interest of all parties.

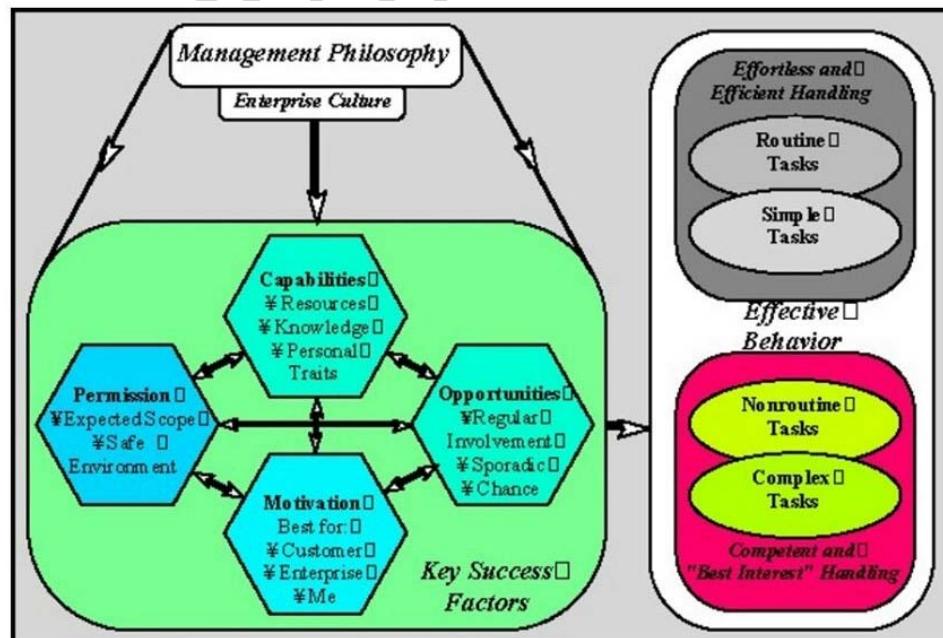


Figure 1: Management Philosophy and Enterprise Culture Drive Effective Behavior.
 (© Copyright 1997 by Karl M. Wiig. Reproduced with permission.)

2.3. It Is Important for the Enterprise to Be Intelligent!

“Why go to the trouble of making the enterprise act intelligently?” many ask. “What is the payback? We are already quite competitive and successful!” It is clear that making the enterprise intelligent requires management attention, effort, resources, and successful implementation of change. The results must justify the investments and priority that are placed on such an effort. Apart from being intuitively “the right thing to do,” improved intelligent behavior provides tangible benefits. Depending on which strategy and direction the enterprise pursues, examples of benefits from intelligent behavior in the commercial sector include:

When pursuing Customer Intimacy:

- Increased orders and proposal acceptance with resulting revenue enhancement by involving more knowledgeable sales and marketing people who learn about specific customer requirements and identify how those can be met while serving the enterprise’s intents. This can be achieved by transferring to all practitioners the mental models and perspectives that exceptional performers use.
- Higher customer satisfaction leading to greater customer loyalty, reduced cost of sales and marketing cost per dollar sold, and greater market penetration by providing better service to customers with individual requirements and made possible by pooling knowledge among collaborating team members and having instant access to expert networks.
- Greater market penetration and profit margins with individualized product specifications and customer service – achieved by obtaining and acting on in-depth knowledge of product use in customer environments and effects on customer profitability and success.

When pursuing Product Leadership:

- Higher quality products leading to higher value to customers and better market acceptance, which in turn provides greater profitability and enterprise viability – resulting from better transfer of knowledge from outside sources and new educational programs that provide wider horizons and general understanding among designers and marketing people.
- More innovative and advanced products that open up new market niches with increased sales to increase net income per share and share value – made possible by fostering personal innovation, increased sharing of knowledge between marketing, manufacturing, and product development, and a new research agenda.

When pursuing Operational Excellence:

- Less costly customer products and services producing higher net profit – resulting from increased benchmarking and greater sharing of best practices between different groups inside and outside the organization.
- More timely product deliveries, reduced inventories, less rework, and greater customer satisfaction – by increasing crafts people’s and foremen’s knowledge of their own and adjacent processes.
- Greater product consistency leading to reduced operating costs – from increased knowledge by all employees about the effects of product variations on customer requirements, sales, and enterprise profitability.

The value to stakeholders of consistent intelligent behavior can be large. When

employees – and the enterprise overall – always do the right thing the first time, the enterprise can tackle challenges and render services that otherwise could not be possible. Still, acting intelligently in all situations and particularly when facing difficult challenges is complex, difficult, and requires considerable planning and preparation – and may be nearly impossible to achieve. Nevertheless, it is a goal that all enterprises must strive towards to ensure quality and reliability for customers, to provide continued security for investors and employees and to serve its stakeholders well.

-
-
-

**TO ACCESS ALL THE 32 PAGES OF THIS CHAPTER,
Visit: <http://www.eolss.net/Eolss-sampleAllChapter.aspx>**

Bibliography

- De Bono, E. (1992) *Serious Creativity: Using the Power of Lateral Thinking to Create New Ideas*, 41pp. New York: Harper Business. [An excellent primer for practical methods of critical thinking by one of the world's authorities]
- Klein, G. (1998) *Sources of Power: How people make decisions*, Cambridge: MIT Press. [Definitive treatise of practical aspects of how people make good or bad decisions in real situations with in-depth examples from many fields including societal decision-making]
- Liebowitz, J., editor (1999). *Knowledge Management Handbook*, Boca Raton, FL: CRC Press. [Comprehensive and broad perspectives of practical knowledge-management approaches with emphasis on knowledge-management strategy, people and measures, selected KM elements, knowledge technologies, and applications]
- Pinchot, G. & Pinchot, E. (1994) *The End of Bureaucracy & the Rise of the Intelligent Organization*, 61pp. San Francisco: Berrett-Koehler Publishers. [Fundamental discussions of basic and necessary characteristics and operating modalities of the intelligent enterprise]
- Quinn, J. B. (1992) Intelligent enterprise: A knowledge and service based paradigm for industry, 354pp. New York: The Free Press.
- Simon, H. A. (1976). *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations* (third edition), 45pp. New York: The Free Press. [The groundbreaking text on decision-making in organizations with links to sociology, psychology and management science]
- Stewart, T. A. (1997) *Intellectual Capital: The new wealth of organizations*, 53pp. New York: Currency Doubleday. [Comprehensive treatment of intellectual capital approaches from the perspectives of the corporation, market place, and society]
- Wiig, K. M. (1993). Knowledge Management Foundations: Thinking about thinking – How people and organizations create, represent, and use knowledge, 31pp. Arlington, TX: Schema Press. [Knowledge management and related cognitive science concepts with implications for educating people for effective decision-making]
- Wiig, K. M. (1994) *Knowledge Management: The Central Management Focus for Intelligent-Acting Organizations*, 103pp. Arlington, TX: Schema Press. [Discussion of the role of knowledge management in the operation of organizations in part based on a survey of Chief Executive Officers in the Fortune 500

companies]

Wiig, K. M. (1995). *Knowledge Management Methods: Practical approaches to managing knowledge*, 19pp. Arlington, TX: Schema Press. [Collection of knowledge management methods and elements with worksheets and references to applicable AI and IT techniques]

Biographical Sketch

Karl Wiig focuses on management of knowledge at the organizational level. He has authored four books and over 40 articles on knowledge management, is co-founder of the International Knowledge Management Network, and has served as keynote speaker on six continents. He works extensively with client organizations in building internal knowledge management capabilities by focusing on business-related issues with senior management; tactical approaches and solutions with middle management; and hands-on methods and techniques with professional knowledge practitioners. Mr. Wiig holds undergraduate and graduate degrees from Case Institute of Technology, was Director of Applied Artificial Intelligence and of Systems and Policy Analysis at Arthur D. Little, Inc., and served as a management consulting partner with Coopers & Lybrand. He is listed in Who's Who in the World, Who's Who in America and other reference works.

UNESCO – EOLSS
SAMPLE – CHAPTERS