

Integrating Intellectual Capital and Knowledge Management

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INCREASINGLY, LEADERS OF SUCCESSFUL enterprises focus on finding better approaches to improve their organization's performance. They are particularly interested in securing sustained viability and success in the knowledge era into which the world has entered. The concerns affect commercial enterprises, nations, local governments and municipalities alike. Progressive leaders seek to shape and position the organization's assets, driving forces and activities to remain competitive. Frequent disappointments with past management initiatives motivate managers to obtain new understandings of the basic mechanisms that govern present-day markets and organizations. Hilmer and Donaldson¹ and others point to single-factor management initiatives they consider 'fads' (such as TQM, BPR, downsizing, etc.). When pursued in isolation, as normally is the case, these one-dimensional initiatives often lead to brief performance improvements followed by reduced effectiveness and undesirable side-effects.

In contrast to the importance of such faddish pursuits, a survey of chief executive officers of large US companies pointed to the fundamental role that knowledge and intellectual capital plays within the modern enterprise.² The CEOs agreed that "knowledge is our most important asset." They also agree that knowledge-based assets will be the foundation of success in the 21st century. As a result of such convictions, efforts to manage knowledge and intellectual capital, are now pursued with considerable success by many leading organizations.³ In 1996, Europe and the US saw numerous management conferences devoted to intellectual capital management (ICM) and knowledge management (KM). The major management consulting firms are providing ICM and KM services to clients and the cadre of in-house practices is growing rapidly. These developments result from the momentum gained over the last decade as

Progressive managers consider intellectual capital management (ICM) and knowledge management (KM) to be vital for sustained viability. Recent practices support this notion and have provided important approaches and tools. IC focuses on renewing and maximising the enterprise-wide value of intellectual assets. KM supports ICM by focusing on detailed systematic, explicit processes and overlap and synergy between ICM and KM, and advanced enterprises pursue deliberate strategies to coordinate and exploit them. From ICM perspectives, they create balanced intellectual capital portfolios that they implement with KM approaches and tools. © 1997 Elsevier Science Ltd

organizations have increasingly realized that knowledge and intellectual assets and capital must be managed deliberately, systematically and with expertise to survive.⁴ Progressive managers have recognized that the enterprise's viability depends directly on: 1. the competitive quality of its knowledge-based intellectual-capital and assets; and 2. the successful application of these assets in its operational activities to realize their value to fulfill the enterprise's objectives.

It is our belief that ICM and KM are far from the narrow management initiatives that Hilmer and Donaldson consider fads. They are fundamentally different from the fads in both objectives and scopes. They are broad, multi-dimensional, and cover most aspects of the enterprise's activities. In contrast, the fads have gained popularity by focusing on a limited scope to simplify the problem setting. Whereas sim-



plicity has been their attractiveness, it is also their weakness.

The Functions

There is considerable overlap in the scope of intellectual capital management and knowledge management. There are, however, major differences between their foci and perspectives, and this is not an artificial distinction. Intellectual Capital Management (ICM) focuses on building and governing intellectual assets from strategic and enterprise governance perspectives with some focus on tactics. Its function is to take overall care of the enterprise's intellectual capital.

Knowledge Management (KM) has tactical and operational perspectives. KM is more detailed and focuses on facilitating and managing knowledge-related activities such as creation, capture, transformation and use. Its function is to plan, implement, operate and monitor all the knowledge-related activities and programs required for effective intellectual capital management.

In particular, the two initiatives complement each other in addition to having important overlaps. As discussed later, they need to be closely integrated to prevent conflicts and to maximize effectiveness. From a broader perspective, ICM and KM are fundamental building blocks—even cornerstones—in the effective management model for the 21st century. However, ICM and KM cannot be pursued in isolation. They must be interwoven with other management considerations to make a sound, balanced and competitive enterprise. By managing intellectual assets and knowledge appropriately, the employees, and the enterprise as a whole, will be in position to act intelligently—the basic requirements for sustained competitiveness, success, and viability.

The opportunities to capitalize on the use of knowledge can cover a wide range of activities. In its simplest form it may mean using the best knowledge available to perform a particular task. In more complex circumstances, it may involve embedding knowledge in specific 'building blocks' such as technology platforms. In other situations, it will mean to license patents or sell technology outright.

In our work with many organizations, we have observed that they pursue different KM strategies to match their culture, priorities and capabilities. Fundamentally, they attempt to derive the best business value from their existing knowledge-based assets or try to create new, competitive knowledge-related assets where required. To achieve this, enterprises tend to pursue one or several of five basic knowledge-centered strategies (from Wiig³):

□ **Knowledge strategy as business strategy**—emphasizes knowledge creation, capture, organ-

ization, renewal, sharing, and use in all plans, operations, and detailed activities to provide the best possible knowledge available at each point of action.

- **Intellectual asset management strategy**—emphasizes enterprise-level management of specific intellectual assets such as patents, technologies, operational and management practices, customer relations, organizational arrangements, and other structural knowledge assets. Management's task is to renew, organize, evaluate, protect and increase the availability and marketing of these assets.
- **Personal knowledge strategy**—emphasizes personal responsibility for knowledge-related investments, innovations and competitiveness, renewal, effective use and availability to others of knowledge assets within each employee's area of accountability. The objectives are continually to build knowledge and to apply the most competitive knowledge to the enterprise's work.
- **Knowledge creation strategy**—emphasizes organizational learning, basic and applied research and development, and motivation of employees to innovate and capture lessons learned to obtain new and better knowledge which will provide improved competitiveness.
- **Knowledge transfer strategy**—emphasizes systematic approaches to transfer (i.e. obtain, organize, restructure, warehouse or memorize, repack for deployment and distribute) knowledge to points of action where it will be used to perform work. This strategy includes knowledge sharing and adopting best practices.

To pursue these strategies, organizations undertake specific programs and activities, provide supporting infrastructure capabilities, and sometimes create incentives to motivate individual employees, teams, and even departments and business units to cooperate with the new objectives.

Intellectual Capital Management

The value of a commercial enterprise, its market value, consists of its financial capital and 'everything else'. Financial capital represents the enterprise's book value and consists of the value of its financial and physical assets. 'Everything else' defined as the 'intellectual capital', consists of assets created through intellectual activities ranging from acquiring new knowledge (learning) and inventions to creating valuable relationships.

Intellectual capital management focuses on renewing and maximizing the value of the enterprise's intellectual assets. Skandia, the Swedish insurance company, has led the development of this practice

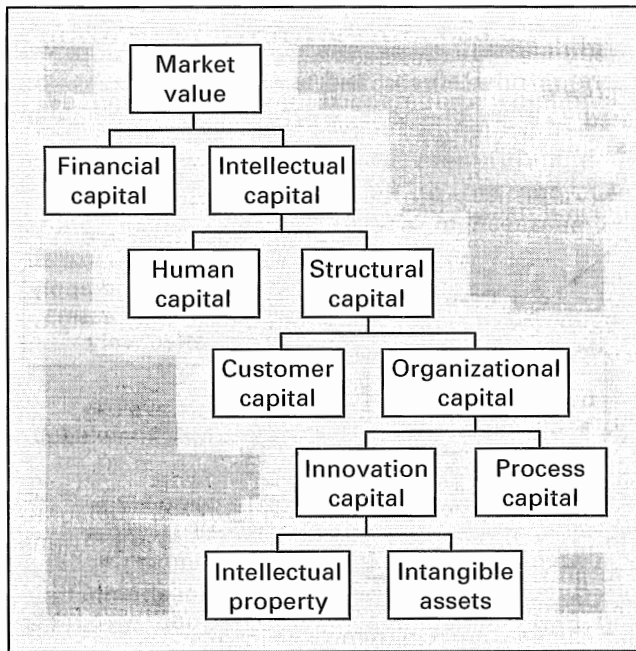


FIGURE 1. Skandia's intellectual capital model.

and has developed a powerful model with validity far beyond the financial service industry.* Their model is illustrated in Figure 1 and shows the relationships between the different areas which comprise intellectual capital. In Skandia's model intellectual capital consists of several entities facets which may be defined as follows:

- ❑ *Human Capital*—consists of competence and capabilities of the employees. When an enterprise educates its employees, it increases its human capital. (In a free society the enterprise cannot own, only rent, its human capital.)
- ❑ *Structural Capital*—consists of the results of intellectual activities in data and knowledge bases, documents, etc. Skandia suggests that “structural capital is what is left after the employees have gone for the night.”
- ❑ *Customer Capital*—consists of the value of the enterprise's relationships with its customers.
- ❑ *Organizational Capital*—consists of embedded knowledge assets in the process and innovation areas.
- ❑ *Process Capital*—consists of the enterprise's value creating processes such as its organizational structure, management practices, systems and procedures, infrastructure computer systems and the like.

*These concepts and methods are presented and discussed in Skandia (1995, 1996), Sveiby (1997) and Stewart (1997).

- ❑ *Innovation Capital*—consists of both explicit knowledge and hard-to-identify intellectual assets such as a positive culture.
- ❑ *Intellectual Property*—consists of documented and captured knowledge such as innovations, operational practices, patents, technology, educational programs, corporate knowledge bases, and designs and specifications of products and services.
- ❑ *Intangible Assets*—consists of the value of positive culture, community image, etc.

All organizations that pursue ICM emphasize that intellectual capital defines the future capabilities of the enterprise. They also indicate that its value—both real and potential—typically is greater than that of the financial capital. Nevertheless, the management emphasis and attention given it is usually far less. The value placed on intellectual capital is often obtained by market valuations based on perceived and qualitative impressions by investors and financial analysts instead of established by diligent study.

The perspectives of Nonaka and Takeguchi⁵ are important when considering intellectual capital. They emphasize that tacit, personal knowledge possessed by individuals is most important for the enterprise to act intelligently. However, tacit knowledge must be transferred to explicit, shared knowledge to be of general and lasting value. In Skandia's model, that means that there must be a continual effort to transfer customer capital to innovation capital, particularly to intellectual property.

Knowledge Management

Many organizations have started to pursue knowledge management. Their objectives typically are to increase the enterprise's organizational effectiveness and to improve its short- and long-term competitiveness. Most management teams pursue KM by conviction based on their management philosophy and broader understanding of economic and competitive forces.

Similarly to ICM, the overall purpose of knowledge management is to maximize the enterprise's knowledge-related effectiveness and returns from its knowledge assets and to renew them constantly. KM is ‘hands-on’ to understand, focus on and manage systematic, explicit, and deliberate knowledge building, renewal and application, i.e. to manage ‘effective knowledge processes’ (EKP).

From a managerial perspective systematic and explicit KM covers four areas of emphasis. The areas focus on:

- top-down monitoring and facilitation of knowledge-related activities;

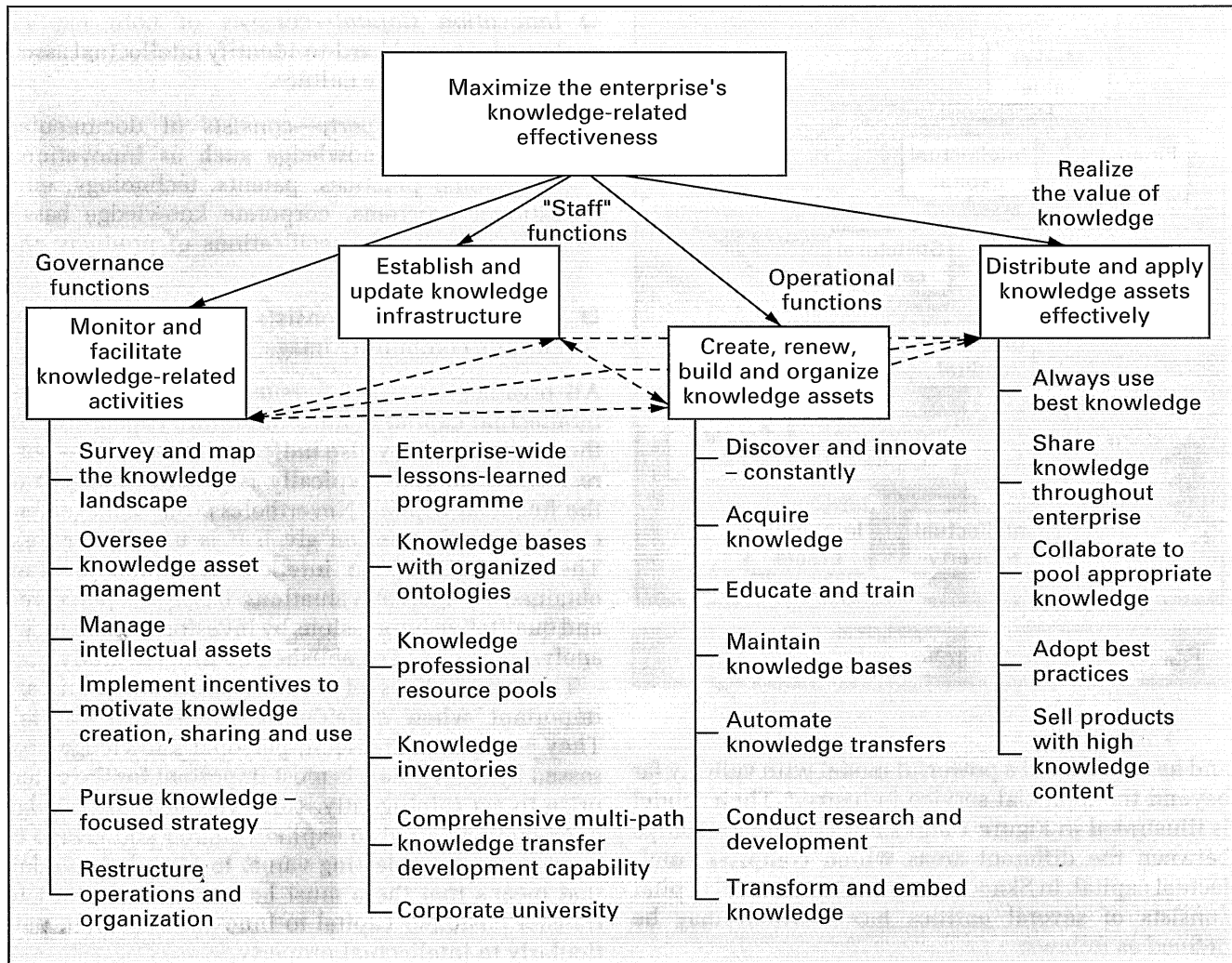


FIGURE 2. The four areas of knowledge management (from Wiig³).

- creation and maintenance of knowledge infrastructure;
- renewing, organizing and transforming knowledge assets;
- leveraging (using) knowledge assets to realize their value.

These areas are shown in Figure 2 which also indicates some relevant knowledge-related practices and activities for each area.

In a narrow, practical sense, KM is a set of distinct and well-defined approaches and processes. Their purpose is to find and manage positive and negative critical knowledge functions in different kinds of operations, identify new products or strategies, augment human resource management, and achieve a number of other, highly targeted objectives. In so

doing, KM addresses both managerial 'top-down' and individual 'bottom-up' activities.

Of particular importance are the activities related to fostering individual behaviours that lead to innovation and discovery, knowledge creation and improved knowledge use. Based on this definition, KM focuses on *eight important operational areas*:*

- ❑ Survey, develop, maintain and secure the intellectual and knowledge resources of the enterprise.
- ❑ Promote knowledge creation and innovation by everyone.
- ❑ Determine the knowledge and expertise required to perform effectively, organize it, make the requisite knowledge available, 'package' it (in training courses, procedures manuals or knowledge-based systems, for example) and distribute it to the relevant points-of-action.

*From Wiig¹⁷.

- ❑ Modify and restructure the enterprise to use knowledge most efficiently, take advantage of opportunities to exploit knowledge assets, minimize knowledge gaps and bottlenecks, and maximize the value-added knowledge content of products and services.
- ❑ Create, govern and monitor future and long-term knowledge-based activities and strategies—particularly new knowledge investments—R&D, strategic alliances, acquisitions, important hiring programs, etc., based on identified opportunities, priorities and needs.
- ❑ Safeguard proprietary and competitive knowledge and control use of knowledge to ascertain that only the best knowledge is used, that valuable knowledge does not atrophy, and that knowledge is not given away to competitors.
- ❑ Provide KM capabilities and a knowledge architecture so that the enterprise's facilities, procedures, guidelines, standards and practices facilitate and support active KM as part of the organization's practices and culture.
- ❑ Measure performance of all knowledge assets and account for them—at least internally—as capitalized assets to be built, exploited, renewed, and otherwise managed as part of fulfilling the organization's mission and objectives.

Interest in, and understanding of, ICM and KM are becoming more widespread, and proactive enterprises are now at various levels of implementing ICM and KM practices. Some focus almost exclusively on ICM. Others focus on KM and work to ascertain that knowledge is widely shared among their employees. Still others promote knowledge creation and other knowledge-related aspects.

The Integration Process

The scope of intellectual capital management and knowledge management is vast and affects almost all of the enterprise's functions. Sakaiya, Savage, and Senge discuss the breadth of scope involved in managing knowledge.⁹⁻¹¹ This explains why no organization to date has been able to undertake a comprehensive ICM/KM effort.

Instead, by pursuing limited efforts advanced enterprises expect to achieve improvements in some characteristics that will lead to sustained enterprise viability. These characteristics range from maximizing individual intellectual capital on the one hand, to infrastructure elements such as corporate knowledge bases on the other. To illustrate the complexity involved, Figure 3 presents over 40 selected

characteristics that fall within the combined ICM/KM scope. ICM progresses from the left of the figure while KM progresses from the right. In the middle there is overlap ("Superior Products and Services" will fall within both areas). The precise area of overlap depends on the enterprise's priorities and arrangements.

Clearly, it is necessary for management to focus on specific activities and factors that support existing policies and the needs of the enterprise. Experience indicates that this works well, and that it is feasible later to expand the scope gradually into new areas to serve additional needs. It is also important to align the KM activities with the intellectual capital results that have been targeted. ICM and KM must be integrated at an early stage to monitor progress, achieve the desired business results, obtain enterprise management buy-in, set priorities, and motivate employees at all levels to implement and use the new capabilities in their daily work.

Figure 3 also shows the links between the characteristics. It is of vital importance to identify and explain the links which describe causal relationships and other driving forces. The links indicated are only those that relate to knowledge-related characteristics. In practice there are many additional links to be considered, and many more knowledge-related aspects which are important. e.g. the knowledge flows which exist or should be created.⁶ Another is the understanding needed to identify the concepts, mental models and experiential knowledge required to perform intellectual work in order to deliver quality products and services.^{5,7,8,16}

Of great importance is the need to integrate the intellectual capital management and knowledge management objectives and perspectives. The combined system must be treated as a dynamic process. Many observable characteristics may be symptomatic of other underlying factors and cannot be influenced directly. For example, it may be highly desirable to have a 'knowledge friendly' culture. But it is generally agreed that culture cannot be changed directly but only through indirect means such as incentives, role models and the like.

Given the dynamic nature of the system, it is important to determine which characteristics and KM activities are needed to obtain the desired intellectual capital results, and to determine how—and at what speed—the effects can be expected to propagate. Lead times can often be many months and considerable advance planning may be required.

Concluding Remarks

Intellectual capital, and knowledge are the most important assets of most enterprises—and managers are starting to realize it. These assets represent the

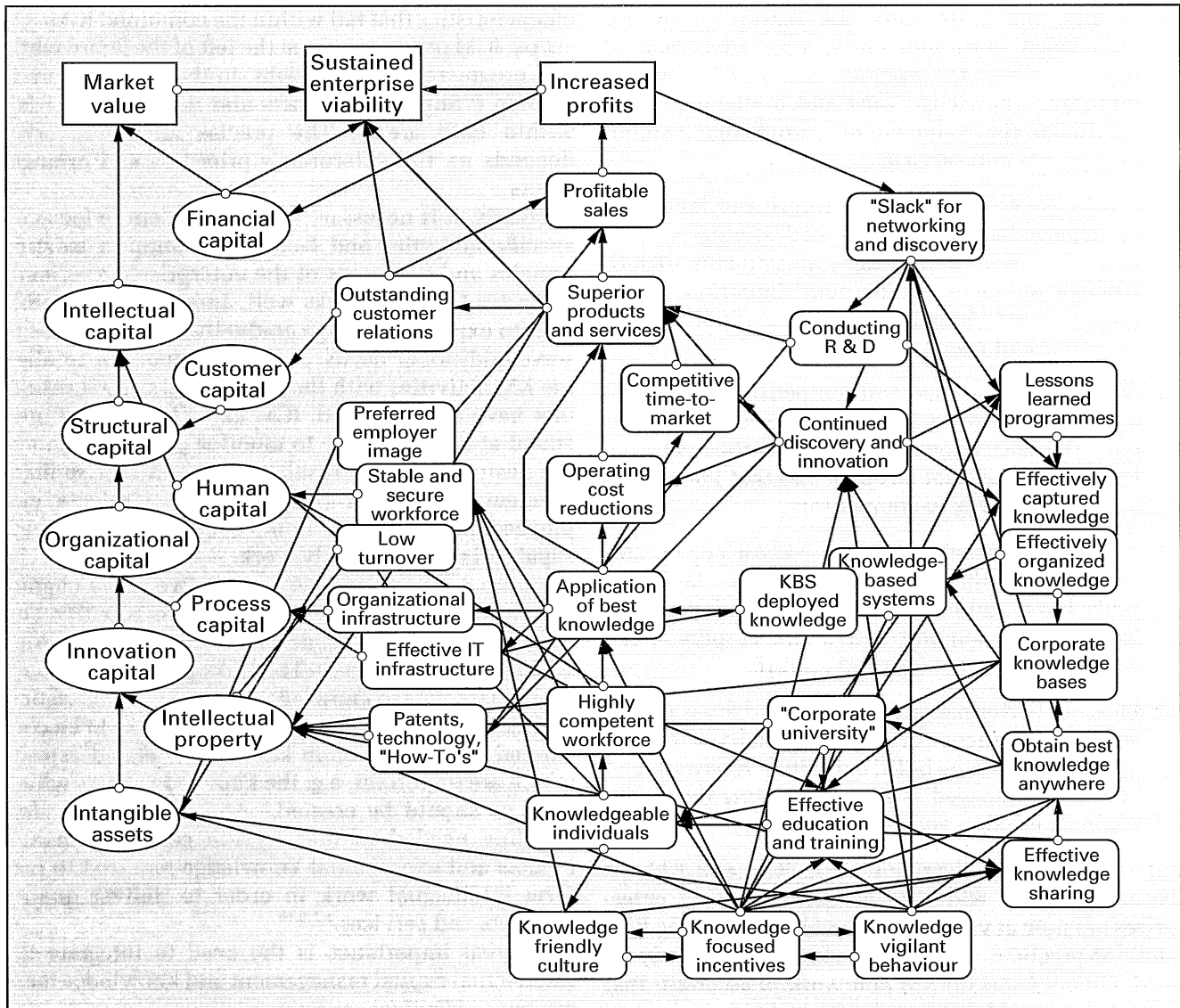


FIGURE 3. Intellectual capital management and knowledge management: selected characteristics.

enterprise's future potential. However, they can only contribute to the enterprise's success and viability if they are renewed continually and used effectively, or their value is realized in other ways. Intellectual capital elements appear in many forms. Consequently, there are numerous approaches to building and embedding these assets for further use and to capitalize on their value for the benefit of the enterprise. In all these situations, however, it is crucial to ascertain that the assets are used as intended—and particularly that they do not become 'dead assets'. In most instances, ascertaining sustained renewal and profitable use requires implementing supportive infrastructure capabilities and very importantly, targeted motivators and incentives. Only when these capabilities are in place will the enterprise capitalize effectively on its knowledge resources.

To be highly competitive and successful, enterprises must create and sustain a balanced intellectual capital portfolio. They need to understand how to set broad priorities and integrate the goals of managing intellectual capital with the detailed machinery of managing the corresponding effective knowledge processes (EKPs). This requires systematic knowledge management. It is particularly important to set priorities to decide which intellectual capital elements must be strengthened and which EKPs need to be undertaken to support the overall goals.

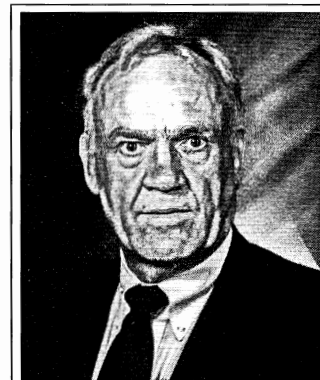
From quite another perspective, we may consider a different metaphor for knowledge processes and assets in the enterprise. We must account for the chaotic and unplanned nature of events, the complexity of the activities involved, and the symbiotic nature of the relationships between knowledge and the busi-

ness managers, innovators, educators, knowledge organizer, and knowledge users. For this purpose, we can compare the 'body of knowledge' within the enterprise to a complex living organism with all its flows and functions which energize, motivate and

revitalize the enterprise and make it possible to function. It is the role of intellectual capital and knowledge management to keep the body of knowledge alive and vibrant to secure the enterprise's well-being and long-term viability.

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