An integrated approach to effective knowledge management

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Managed transformation of knowledge into know-how is central to the success of a management reform program.

The application of management strategies and practices to an organization’s intellectual capital is often proposed as a way of improving corporate performance, but there is a huge gap between discussing the direction to take and finding the method to use. Starting with the various approaches proposed by management gurus, this article attempts to develop a framework for the management of knowledge resources.

To manage knowledge successfully in an organization, management must create the capacity to handle five interrelated tasks:

- development of new knowledge
- access to existing knowledge
- representation and integration of knowledge
- empowerment of knowledge
- utilization of skills.

Managers these days are up to their ears in books and articles about the knowledge revolution and knowledge management. Following the lead of Peter Drucker and Hervé Serieyx, proponents of organizational change emphasize that the future belongs to companies that learn how to use their knowledge strategically. The corollary is that a return to growth for advanced economies is based on utilizing that same expertise. Unfortunately, although there is widespread discussion of the need for such change, managers lack the methods to achieve it.

All the theorizing is based on one observation: increased global competition leads businesses in developed countries to count on their expertise (know-how, communication skills, planning skills, etc.) to maintain their competitive position. Productivity is tied to enhancement of the knowledge component for products and services. As a result, greater competitiveness should be ensured by improved productivity based on this expertise. To achieve this, businesses are advised to focus on strategic management of “knowledge” input and sound management of their “expertise.”

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This trend is a constant in the business strategies of emerging and growth companies. It also represents a strategy for preserving the dominant position of some major corporations. Their managers are encouraged to introduce mechanisms to manage their expertise. Otherwise, these organizations may be headed for economic problems.

The challenge of knowledge management

Since 1992, a task force of public and private sector professionals and managers has studied the challenge of managing knowledge. Its goal is to identify and apply various management methods and approaches to developing a framework for sound, effective knowledge management. This group recognizes that knowledge management on an organizational level is a strategic orientation in that its goal is to profit from the experience and hence expertise of the organization’s staff and partners. The concept of the ordered and managed transformation of knowledge into know-how is central to the success of a management reform program aimed at competing on a knowledge basis.

For an organization’s managers, knowledge management involves establishing a set of operational processes intended to subject knowledge resources to a management cycle that includes planning, organizing, decision making, controlling and coordinating.

Many authors who have studied knowledge management define management as the application of a cycle of management activities. This is true of Gorey and Dobat,[4] for whom knowledge management involves the introduction of an organizational learning process through four management practices:

- identifying the end result of organizational knowledge (planning)
- establishing structures that facilitate learning (organization)
- establishing frameworks for eliciting and developing knowledge (management/coordination)
- developing a feedback mechanism (control).

While it appears authoritative, this type of guideline remains difficult to put into practice. There is still a significant component missing – an understanding of the process itself. It is one thing to “manage your knowledge,” but something else to do so effectively.

Lessons learned

Corporate management practices are not new, but organizing them into a body of knowledge is relatively recent. In the period between the two world wars, the initial foundations of management were laid. During the years of American involvement in the Second World War it became an administrative credo and Chairs were established at major universities.[6]

Contemporary management is based on simple principles for managing the things that make up a company’s resources – its market, finances, staff, equipment, information and production systems. The particular nature of management is derived from the fact that this approach vertically integrates overall management mechanisms (strategy, policy, decision making, follow-up) and horizontally integrates management cycles applied to processes for the conversion of resources (production, staff, markets, finances, etc.).

Many management labels have appeared over the years (project management, management by results, risk management, data management, etc.), but the ones that have survived are those with physical, quantifiable and measurable objectives. Those that focused on cross-functional processes, such as management of systems development or of quality control, were redeployed with the advent of alternative technologies. To a great extent, these “methods” were developed to allow management of information flow and decision making in complex environments. Some information technologies succeeded in managing this complexity. The sustainability of the knowledge management concept thus depends on the ability to manage knowledge resources rather than the learning process.

Is knowledge management possible?

When looking at an organization's management of financial or human resources, it is easier to see what are now recognized as essential processes for the sound management
of these resources. For example, human resource management is considered sound when there are staffing, training/development, compensation, classification and occupational health and safety practices in place. Similarly, financial resource management must reflect a set of practices that include accounting, cash management, audit of accounts, and so on. There are, of course, different schools of thought, but, in general, each is based on a set of interdependent and complementary management processes. To be sound and sustainable, these processes must be practised with fairness, effectiveness, continuity, transparency, balance and impartiality. This will guarantee that the management methods are reliable, predictable and capable of producing lasting and convincing results.

With knowledge management, there are no well-established processes that apply to an easily quantifiable resource. By comparing established management practices for other resources and taking inventory of the various proposed management methods, we can list the tasks for knowledge managers:

- Create the conditions for the production of certain knowledge required to meet the organization’s objectives.
- Provide direction and create ways to access knowledge to ensure its effective and sustainable use.
- Establish and maintain methods of representing the available knowledge and putting it in the context of the organization’s needs.
- Introduce methods for converting knowledge into skills that are applicable, practised and reproducible by the organization.
- Identify and introduce ways to utilize skills for improving the organization’s performance.

Each of these management accountabilities is a category of activities for which there is not necessarily a well-established formula with recognized practices and, therefore, a typical process to manage. The relative youth of the knowledge management field is revealed by weaknesses in the organization of the interrelationships among the various processes. In many cases, exponents of a knowledge management discipline prefer to fall back on “everything else being equal” to promote their vision for change. This approach may be scientifically correct but is hardly practical in the boardroom or on the factory floor.

**Knowledge production**

In consulting the literature on the learning organization or the knowledge-creating company, we find that the main theme is how they produce their knowledge. The concept of knowledge production is a prescription for managers whose goal is to improve the productivity, creativity or competitiveness of their organization. This category of activities includes a series of initiatives and practices whose function is to create solutions for the challenges facing the organization and codify them in the form of a process or method.

In the case of the learning organization, the process involves adopting and practising a set of disciplines that result in improved collective behaviour. Strongly influenced by behaviourist “operant conditioning” approaches, this concept proposes that the result of knowledge is a new appreciation for things that can be transformed into more productive behaviour. These are essentially learning processes and the function of knowledge production is to retain what is essential from everyday learning within the organization.

This category usually includes innovation, problem solving and strategic and tactical reflection processes, such as:

- the strategic and operational planning process or cycle
- problem-solving methods
- methods for managing training and development of managers
- teamwork techniques.

Some of these methods have evolved from social and industrial psychology and focus mainly on modifying collective behaviour. In other cases, they are an extension of prescriptions for training and developing human resources as a productivity strategy. In that sense, innovation, creativity and problem-solving methods are ways for managers to increase their existing knowledge and develop new expertise.
Access to knowledge

A second series of prescriptions takes the form of recommendations for change in knowledge access and acquisition methods. In most cases, the required knowledge already exists within an organization: creativity will help to identify it. The manager’s role is to clear the way and determine methods for accessing this knowledge.

In this category of knowledge management disciplines there is a mix of processes for information acquisition and processing and utilization of the knowledge available either from individuals (eliciting of tacit knowledge) or from the organization’s operations (knowledge acquisition). The best-known model, by Ikujiro Nonaka, is called the “knowledge-creating company.” Nonaka proposes that management efforts be focused on transforming tacit knowledge into explicit solutions. The manager’s role is to create the conditions for taking advantage of the expertise available from employees, partners and the environment.

For the manager, accessing knowledge is a kind of staffing system for the organization’s knowledge. The function of this process is not to produce new knowledge (research function), but to enhance potential skills (development function) by expanding the pool of available usable knowledge. Organizations can improve access by using databases, information networks, networking and interpersonal communication methods.

A number of experts have recognized the relationship between these disciplines and the management models proposed by the movement advocating total quality, business process reengineering and quality circles. The main idea of these approaches is to counter the dominant influence of consulting and work engineering and design firms by rehabilitating the knowledge, abilities and expertise of skilled workers and work teams.

In this group of disciplines, we must also include a set of methods intended to establish the role and function of knowledge management, its place in the organization and its contribution to the organization’s business strategies. For advocates of these disciplines, such activities are made possible by introducing a set of technical methods to support the acquisition, storage and communication of information on the organization’s knowledge, such as

- business studies and processes
- methodologies and operating manuals
- procedures, directives and rules
- access to databases, libraries, information networks.

In this group, there is also a set of theoretical frameworks emerging from trends in the development of artificial intelligence and the cognitive sciences. The main challenge of this method is to develop and apply techniques to codify and utilize the acquired experience. This involves codifying rules, organizing them and developing mechanisms, procedures and methods to ensure their effective use.

Representation and integration of knowledge

A third group of prescriptions comes from the field of information management and focuses on information management infrastructure. In this category, there are several management models, most of which focus on the development and implementation of a set of methods for managing information resources that play a role in providing structures and methods for data codification and storage.

The difference between these approaches and those described earlier is that information serves as a medium for knowledge and knowledge management occurs through information management. This approach is favoured by many major consulting firms. The main premise is that information is a representation of the state of knowledge in the organization and consequently is the tool by which knowledge can be measured and therefore managed.

Some of the methods proposed by advocates of these approaches are databases on lessons learned, longitudinal studies and assessment. Others prefer structures that allow the knowledge subjects to be organized to facilitate their integration within the operations and activities of centres of expertise. This type of knowledge management activity is intended to create methods for dissociating the organization’s knowledge from an individual’s knowledge and ensuring its long-term preservation.
Among representation and integration infrastructures, we must include mechanisms for feedback and measurement of the results obtained. Models such as the Knowledge Management Assessment Tool (KMAT) developed by Arthur Andersen & Co. are tools aimed mainly at allowing us to “account” for knowledge and be in a position to administer it more effectively. To do so, this type of assessment requires the introduction of classification methods, which is achieved most often by creating organizational structures for knowledge subjects and situating their planned use in the organizational context. An organization can acquire data describing knowledge and organize the data collected with the assistance of

- information architecture
- skill or expertise centre structures
- methods for auditing intellectual capital
- knowledge bases, data banks, inventories, archives.

There are obvious links between this type of management method and computer science disciplines. In many cases, they are based on an area of confusion between the concepts of data, information and knowledge. In the methods proposed, there are some points in common with information resource management techniques, since the main challenge is to input and organize available knowledge productively.

Knowledge is compiled in the form of information that must be collected, systematically organized and made accessible to users on the basis of defined needs. The basic difference is that the information is delivered by people who are in a position to add various forms of expertise to the information. The basic equation is

\[ \text{information} + \text{human interpretation} = \text{knowledge}. \]

**Empowerment of knowledge**

Studies done by the task force showed that the possession and accumulation of knowledge were not sufficient for its sound management. The effectiveness of organizational learning, like the idea of knowledge management, requires the presence of a mechanism by which knowledge becomes know-how. That is why managers are confronted with the need to introduce methods for utilizing the knowledge pool to the organization’s advantage. This need engenders a series of proposed methods, approaches and disciplines. Knowledge empowerment practices include various methods of work organization and process design that ensure the transformation of knowledge into key skills and facilitate the transfer of knowledge to its areas of use.

Sustainable knowledge management requires the introduction of a knowledge-sharing culture organized around key skills and a set of incentives to reuse knowledge to reinforce the skills required for the effective operation of the organization. This combination of activities constitutes a discipline of effective and optimal utilization of available knowledge.

While learning disciplines centre on acquiring and eliciting knowledge, this group focuses mainly on skills acquisition. The expected result is the transformation of explicit knowledge into a set of work tools, methods or procedures that facilitate the systematic and continuous utilization of the knowledge. In this category we find a set of so-called skills development methods, including

- product and service development processes
- staff development processes
- “learning organization” development programs
- innovation and continuous improvement programs and incentives.

**Utilization of skills**

When an organization’s primary objective is to meet the challenge of competition, some managers think that sound management of cognitive assets involves using them to achieve a competitive edge. It is natural, therefore, for some prescriptions to address the introduction of mechanisms for the optimal utilization of skills in a company’s overall strategy. The objective of knowledge management then involves using key skills as weapons in business strategy.

This category includes a set of methods intended to create and exploit opportunities to apply key skills (or know-how) to new fields or in new sectors, as was the case for the
prescriptions of James Brian Quinn, Peter Drucker and John Della Costa. It represents a set of practices for transfers of technology, skills and applied knowledge to partners, clients or even new activity sectors in the organization.

Management consists of utilizing acquired skills to obtain added results or to make others produce similar results, new alliances or diversification. For the manager, such activities are a set of skill-based practices:

- management of relationships with partners
- strategic alliances
- intellectual property programs
- capacity to export skills.

This group of prescriptions produces the most literature and is also the most confused in terms of proposed strategies and tactical methods.

**Toward an explanatory model**

Having seen this plethora of prescriptions, it is easy to understand managers’ skepticism. Some wonder whether the cure is worse than the disease. It becomes difficult for managers to make prudent and judicious choices about which strategy and approach to use.

- Each of the techniques is originally based on the same observations: increased competition, required productivity and the strategic role of knowledge.
- One way or another, each one proposes a catch-all solution, although they differ as to methods (market strategy, organizational development, systems development).
- All confuse individual knowledge and company skills, information and knowledge, disciplines and systems.
- Very few can claim an implementation history that would allow for identification of the lessons learned, the universality of their application and the sustainability of their solutions.

In the end, it is difficult for managers to differentiate between these activities, methods and approaches because they do not have the key that would enable them to identify the respective roles, functions and expected results.

The illustration below gives an idea of the interrelationships of the various proposed activities. In this
model, knowledge is considered an input and key skills are an expected result of knowledge management. Other activities play a systematic role to the extent that they serve to balance one of the components of the system:

- Knowledge production involves aligning inputs (knowledge) with company needs.
- Knowledge empowerment involves transforming knowledge into a set of learned, applied and, therefore, productive skills.
- Utilization of skills is a process of managing the results of the knowledge management process in the sense that it focuses on a use derived from the knowledge management process.
- Management of representation and integration is an infrastructure service to the system in that it is not a component of the production cycle but a tool that increases the efficiency and effectiveness of the system itself.
- Management of access is a regulatory component in that it serves as an essential component of the control system by codifying rules, determining their use and guiding their implementation.

The last two processes are components of management of the superstructure and the infrastructure of the system. Thus there is a complementary set of methods that, systematically organized, could result in the development of a framework for knowledge management that is sustainable and predictable.

**Toward a management framework**

Having considered the challenges facing managers, we must conclude that a significant number of prescriptions are not necessarily accompanied by clear instructions. Without this type of instruction, it is unlikely that the knowledge management concept will be anything more than a management fad. Yet it is increasingly clear that the thinking that leads some theoreticians and analysts to choose this route is sound and that it is imperative to introduce effective methods for managing knowledge. There is divergence in the perception of theoreticians of the respective roles of knowledge, skills and the organization.

The objective of developing a management framework is worthwhile, since it attempts to identify a set of generally recognized management principles, to coordinate their use and to validate the results. It would be a mistake to believe that knowledge management is a straightforward, easily applied concept. Experience in the management of financial, human and information resources has amply demonstrated that introducing a new factor into the management equation requires long, arduous and sometimes painful organizational learning. There is no reason for it to be otherwise with cognitive resources.

Many of these means, methods and techniques have proven their value. What remains is to map out the framework and structure – a set of practices that can serve as a guide for management decision making. In the end, we return to the starting point – a manager’s skill in managing knowledge depends on his or her ability to translate it into a set of effective, reliable and reproducible methods.
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Endnotes


2. This group was formed in 1992 by practitioners in the Society of Canadian Office Automation Professionals (SCOAP), the Institute of Certified Management Consultants of Canada, and managers of the Canadian International Development Agency. It has since become a network of theoreticians and practitioners in the field.


6. A remark attributed to the Canadian Minister of War Industries during World War II, C.D. Howe, summarized his department’s objective in these words: “If it can be counted, manage it to win the war!”


8. These six attributes were listed in Principes généralement reconnus, 1994.


