A PRIMER ON KNOWLEDGE MANAGEMENT IN THE PUBLIC SERVICE

A Working Paper for the
Canadian Centre for Management Development's
Action-Research Roundtable on the Learning Organization

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Introduction

- This document provides an overview of the field of knowledge management (KM) and its application within the public sector. Five main questions are answered:

  1. What is knowledge management?
  2. What is the role of knowledge management in the Public Service of Canada?
  3. What are the strengths and weaknesses of this management approach?
  4. What questions should we consider when discussing knowledge management?
  5. How does one find out more about knowledge management?

- Each of these questions will be addressed in turn.

1. What Is Knowledge Management?

Basic Features of Knowledge Management

- Knowledge management (KM) is a field that expanded rapidly over the 1990s and, as a result, it is a challenge to capture this complex body of ideas in its entirety. Thus, the description that follows is necessarily a partial and stylized account of KM.

- At its most basic level, knowledge management is a set of practices that create, organize and leverage collective knowledge to enhance organizational performance. This typically involves the following:

  — *Knowing What an Organization Knows* — Identifying unused and hidden knowledge within an organization so that it may be put into productive use.

  — *"Capturing" Tacit and Mobile Knowledge to Build Organizational "Memory"* — A great deal of knowledge embodied in humans and in organizational practices either exists in a form that is unusable to an organization, or exists in a form that is highly mobile (i.e., it is "leaky" insofar as it can leave with the workers when they go). KM practices aim at "capturing" such information or, in other words, converting it into a form that can be integrated into an organization's practices in a sustainable way (e.g., codified or documented).

  — *Facilitating Access to Information and Knowledge* — Once identified and captured, knowledge must be made available to those who can benefit from it. Information and communications technology and organizational design are used to facilitate access and dissemination.

  — *Cultivating Exchange of Ideas Between Knowledgeable Agents* — Some knowledge can only be transferred through direct exchange between individuals. This knowledge transfer is accomplished by mapping an organization's expertise

and facilitating communication linkages (either through face-to-face contact or mediated through technology), as well as by the creation of new knowledge and ideas.

— *Linking Knowledge to Business Practices* — For knowledge to enhance organizational performance, it must be linked to an organization's key business processes. There is also a need to demonstrate the value of knowledge to the organization, particularly through quantitative measures (i.e., new metrics).

Underlying Assumptions of Knowledge Management

- This approach contains several key assumptions that deserve to be underscored:

  — *Knowledge Should Be Actively Cultivated* — Without some form of intervention, it is assumed that a large portion of the knowledge within an organization is underutilized and not developed to its full potential. In other words, it is not sufficient for knowledge to merely exist, it must be accessible and used.

  — *Knowledge Is a "Resource"* — Knowledge is treated as a resource (or an "asset") for analytical purposes, much like any material resource or commodity within a productive process. In other words, it is an input to a process designed to achieve some end. It is something to be "leveraged," or used to create something of significantly greater value. And because knowledge has qualities similar to a resource, it can be manipulated and transformed in an instrumental fashion by those operating the process, although in a more complicated way than a simple material resource.

  — *Management Practices Serve As Catalysts* — Managers serve a particularly important role in orchestrating the process by which knowledge is developed and harnessed.

  — *Knowledge Requires Development of Socio-Technological Arrangements* —The key measures a manager has for making the most of knowledge is through the design of systems and practices that promote knowledge development and use. These systems are not simply technological in nature (electronic or otherwise), although technology does play an important role. Managers focus on the social side as well, including on the interaction between individuals, organizations, and technology.

  — *Learning Is Primarily About the Acquisition of Information and Knowledge* — KM approaches tend to emphasize the acquisition (transfer and sharing) of knowledge and information when describing learning, as well as the creation of new insights that comes from combining ideas. This “transactional” view of learning tends to be a much narrower notion of learning than is found within the broader organizational learning literature.

— *Organizations Can Be Conceived As Markets of Knowledge* — A primary concern is matching supply and demand for knowledge, particularly by providing better information about where knowledge resides (e.g., "knowledge mapping") and by connecting parties that are interested in exchanging and sharing information. Such market considerations as valuation, incentive systems, and the terms of exchange (i.e., means of reciprocity) are considered to be important factors within this literature.

Organizational Activities Most Influenced by Knowledge Management

- Compared to other approaches within the organizational learning literature, knowledge management is of relatively recent origin. It could not be called a coherent approach to management prior to the late 1980s. Since then, a variety of management disciplines have laid claim to the term, notably:

  — *Management of Information Systems (MIS) or Information Technology and Information Management (IT/IM)* — Knowledge management emerged in part out of IT management as it became clear that access to information and data was insufficient to provide enough insight to support decision-making. Recently, major software companies (e.g., Microsoft) have also decided to offer KM services to help integrate technology into the workplace.

  — *Human Resource Management* — It is said that the 1980s fixation with "business process re-engineering" had emphasized cost-cutting without appreciating the value of people. It became clear that people were not costs, they were in fact assets because of their knowledge and experience. Within human resource management circles, knowledge management grew as a way of demonstrating, in a more systematic way, the value of people to business processes.

  — *Change Management* — As regular or continuous change became a feature of organizational life, it was recognized that successful change needed to be managed. Since organizational change tends to involve the orchestration of people, technology and resources, knowledge management was considered a key method of tying these threads together.

  — *Project and Team Management* — As organizations began to rely on short-term projects, serial short-term contracts, and use of teams, it became necessary to provide appropriate support — and capture the resulting knowledge.

  — *Corporate Intelligence and Research & Development* — In an organization there are also several areas specifically devoted to acquiring and creating useful knowledge, such as technology research centres, intelligence gathering operations, corporate research and training facilities, and libraries.

2. Knowledge Management in the Public Service of Canada

- A number of KM initiatives have emerged within the Canadian federal government since the mid-1990s. All of them tend to operate as parts of units specializing in KM (or some related field) or pilot projects. These initiatives can be grouped into three categories:

  1. *Interdepartmental Initiatives* — The initiative with the highest profile is the Interdepartmental Knowledge Management Forum (IKMF), which is conducting research and analysis of the field in order to develop a common framework and distribute valuable KM insights.[1] The Forum's Leveraging Public Sector Knowledge initiative is attempting to promote greater awareness and appreciation of KM practices through such things as workshops, consultations, conference participation, and building bridges between relevant initiatives going on elsewhere.

  2. *Central Agency Initiatives* — A number of central agencies have launched KM initiatives. The most significant initiatives include:

     — The Treasury Board Secretariat of Canada operates a corporate renewal and knowledge management office that has launched a number of pilot projects involving information technology. These projects include Intranet resources designed to answer frequently asked questions, offer special leadership and coaching guidance, provide inspiration with leadership quotations, and map the knowledge sources found within an organization.

     — Extensive research has also been conducted on the subject within the Research Directorate of the Public Service Commission of Canada; this has included developing a proposal for a knowledge management network within the agency.

  3. *Departmental and Agency Initiatives* — A variety of departmental initiatives that draw on the ideas of KM are currently underway. Examples of just a few of these initiatives include:

     — A KM pilot project within Health Canada's Medical Services Branch designed to provide First Nations and Inuit people with the knowledge and expertise needed to design their own health programs;

     — National Resources Canada has launched an initiative called ResSources designed to create a national resource information database, as well as generate research, public participation, and policy options within the field; and,

[1] IKMF participants include the Bank of Canada, Canadian Centre for Management Development, Consulting and Audit Canada, Department of Finance, Health Canada, Human Resources Development Canada, Industry Canada, Department of Justice, National Archives, Department of National Defence, Natural Resources Canada, Public Works and Government Services Canada, Statistics Canada, and Treasury Board Secretariat.

— The Department of National Defence has developed the Integrated Defence Management Framework that involves extensive use of "knowledge management benchmarking," whereby the knowledge-intensive activities within the department are evaluated relative to successful KM initiatives elsewhere.

- To date, initiatives within the Public Service of Canada have been primarily exploratory in nature or pilot projects:

  — The first tend to be highly conceptual, enabling public servants to discuss the use of KM as an analytical tool that they can use to understand their organizations and to chart future courses.

  — The pilot projects are a more practical type of initiative that use a particular KM framework to develop new information and communications technology systems (e.g., electronic knowledge and expertise maps, databases of information, Intranet Web sites, and new communication systems).

  Initiatives that provide a more encompassing approach to KM — one that spans social and technological activities in a more holistic fashion — have yet to emerge. It should be noted, however, that these are early days in the development of KM initiatives.

3. Strengths and Weaknesses of the Knowledge Management Approach

- *Strengths* — Knowledge management offers some opportunity to address aspects of learning not discussed by the Roundtable to this point:

  1. *Looking at the Role of Structures to Promote Learning* — Much of the discussion paper provided to Roundtable participants is devoted to the issue of values, beliefs, culture and "soft" competencies. Focusing on these topics is important because they are largely ignored by the broader organizational learning literature. Knowledge management is devoted more to the issue of structures, such as information systems and organizational arrangements. There may be an opportunity to draw insights from this literature on these topics in order to provide a more holistic account of learning.

  2. *Lower-Order Forms of Learning* — Much of the discussion paper provided at the Roundtable discusses teaching and higher-order (i.e., more sophisticated and insightful) forms of learning. The reason for this is that the role of higher-order learning in the day-to-day activities of public servants has largely been ignored within existing writings. Discussion of factual learning and "hard" skills

development has been de-emphasized thus far, partly because these topics have been the focus of analysis within traditional public service discussions of learning.

— Knowledge management may offer an opportunity to partially bridge the gap by offering social and technical systems that help provide better access to some types of knowledge, information, and data.

— As Palmer Parker notes in his book on teaching, new technologies offer important opportunities for factual learning over traditional techniques, such as lectures. Knowledge management offers insights into how such technologies could be developed and implemented.

- *Weaknesses* — Knowledge management is controversial within some quarters for a number of reasons, including:

1. *Limits of the Resource Metaphor* — It is unclear whether knowledge management adequately captures the dynamics of how knowledge evolves and how learning occurs.

— Treating knowledge as if it were a material resource makes it possible to view learning as a series of transactions. This transactional approach to learning is most apparent in the terminology used by knowledge managers to describe the learning process: acquisition, capture, absorption, retention, and transfer.

— Popular KM authors, however, such as Davenport & Prusak, recognize that learning is a more complicated process that involves subtle psychological and relational dynamics. But they characterize KM as addressing a much narrower array of learning activities, notably those that involve building sustainable systems and practices to facilitate discrete knowledge transactions.

— For most KM authors, the process of learning remains a "black box" insofar as learning is assumed to take place in the presence of knowledge or in interaction with knowledgeable people. More recently, KM writers and practitioners have begun to incorporate the insights of the broader organizational learning literature, but a coherent approach has yet to emerge from this tendency.

2. *Supplying Knowledge Is More Than Providing Access* — Teaching plays an important role in motivating individuals to learn by making them inquisitive and interested in a subject matter. To a large extent, KM merely assumes that such a desire to know exists. As a result, much of KM is devoted to finding knowledge, facilitating access, and translating unfamiliar knowledge into familiar terms.

3. *Overstating the Ability of Individuals to "Manage" Knowledge* — Consistent with its use of the resource metaphor, KM assumes that knowledge can be managed like any other resource, although with special logistical challenges (e.g., capturing and using tacit knowledge). This assumption would seem to overstate the extent to which knowledge can be manipulated directly, since the generation of learning and knowledge involves a less tactile array of activities (inspiration, self-directed inquiry, etc.).

4. Further Questions to Consider

- The above discussion suggests that there are several questions that Roundtable participants and members of the Secretariat may want to explore. These include:

1. Does knowledge management complement the Roundtable's view of public service learning, or does it put forth an alternative approach?

2. What lessons can be drawn from knowledge management to promote learning, leadership, and cultural renewal?

3. What role do information technologies and social structures play in organizational learning? Where do they help and where to they hurt learning?

4. How can the public service harness the power of tacit forms of knowledge and subtle forms of creativity?

5. Further Readings About Knowledge Management

PUBLIC SECTOR READINGS

- The following public sector readings were selected as being loosely representative of the different types of knowledge management activities taking place within the Public Service of Canada.

Canada. Public Service Commission of Canada. "Leveraging Knowledge at the Public Service Commission of Canada: A Discussion Paper." (Ottawa: Public Service Commission of Canada, 1998).

BUILDING KNOWLEDGE MANAGEMENT CAPACITY — This discussion paper outlines the basic contours of knowledge management and the notion of intellectual capital. It proposes that the Public Service Commission build a robust knowledge management capacity premised on a new infrastructure. This infrastructure would integrate information and knowledge management activities with learning, policy development, communications, research, services, resources

and regional activities. The paper itemizes the potential risks and benefits, and provides a listing of similar private sector projects.

Canada. Public Service Commission of Canada. "Bibliography: Corporate Intelligence and Knowledge." Ottawa: Public Service Commission of Canada, Library Services, 1998.

BIBLIOGRAPHY — This partially annotated bibliography provides a listing of popular books, articles, magazines, and Web sites related to information and knowledge management, intellectual capital accounting, intelligence gathering, strategic learning, and human resource management.

Canada. Health Canada. *Vision and Strategy for Knowledge Management and IM/IT for Health Canada*. Ottawa: Health Canada, 1998.

STRATEGIC PLAN — This plan presents a vision and a strategy for achieving a "knowledge environment" premised on knowledge management practices. The strategy is aimed at Health Canada and the health system, and proposes a "knowledge culture," an enhanced internal research capacity, a new information infrastructure ("infostructure"), and information and knowledge management services.

Nicholson-O'Brien, Dawn. "Government in the Knowledge Age: How Governments Can Lead with Knowledge." *Knowledge Management Review*, vol. 3, no. 1 (March/April 2000), pp. 30–33.

KM VISION AND PILOT PROJECT — This brief article provides a vision for government use of knowledge management: Canadian governments' strategic investments in citizens, knowledge communities, and the development of knowledge will create a "smart" society that is more conducive to relationship building that enhances public services. The article also profiles electronic KM initiatives that are being conducted within the Treasury Board Secretariat, including: Intranet sites that promote leadership and coaching; an inventory of frequently asked questions; inspirational leadership quotes (electronic "fortune cookies"); diaries of officials who take secondments outside the public service ("Career Learning Diaries"); and other initiatives that help promote "career activism."

GENERAL READINGS

- The following introductory and advanced readings were selected as being loosely representative of the different types of knowledge management materials (textbooks, field books, readers) and different approaches to the subject.

INTRODUCTORY BOOKS

Koulopoulos, Thomas M., and Carl Frappaolo. *Smart Things to Know About Knowledge Management.* Dover: Capstone, 1999.

TEXTBOOK — This introductory guide to the field of knowledge management offers a plain-language discussion of key terms, concepts and insights of KM. It also goes on to discuss key technological innovations, the social side of KM (incentive systems, metrics, and community building), the different types of leadership that are involved, and areas requiring further research. The book has an extensive terminology of KM.

Bukowitz, Wendi R., and Ruth L. Williams. *The Knowledge Management Fieldbook.* London: Prentice Hall, 1999.

FIELD BOOK — This introductory account helps readers apply KM techniques with the aid of useful pointers, questionnaire-style diagnostic aids (e.g., checklists and other forms of organizational evaluation), and case studies. It provides an overarching KM “diagnostic," as well as guidance on: identifying and obtaining knowledge; elementary principles of knowledge usage; basic requirements (e.g., knowledge visibility) and pathologies (e.g., habituation) of learning; methods for encouraging individuals to contribute to organizational knowledge in a sustainable way and for evaluating the quality of knowledge.

Ruggles, Rudy, and Dan Holtshouse, eds. *The Knowledge Advantage: 14 Visionaries Define Marketplace Success in the New Economy.* Dover: Capstone, 1999.

READER — This reader focuses on the conceptual and practical issues associated with using knowledge to achieve sustainable market advantage. Notable contributions include Edward O. Wilson's discussion of the need for a unity of disciplinary knowledge ("consilience," or a convergent theory of truth that draws connections and provides coherence to the variety of disciplines and approaches). Peter Drucker expands on his theory of the characteristics and value of knowledge workers. Ikujiro Nonaka describes the dynamics of knowledge creation. Other contributions discuss the new role of knowledge with respect to individuals, organizations, strategy and the economy. Most essays give summaries of previously published books and articles or expand on ideas or arguments in them.

ADVANCED BOOKS

Nonaka, Ikujiro, and Hirotaka Takeuchi. *The Knowledge-Creating Company.* New York: Oxford University Press, 1995.

KNOWLEDGE CREATION — This book is the most widely cited so far on KM. The authors begin by discussing the importance of knowledge for the

competitiveness of firms and outline different philosophical approaches to the management of knowledge within organizations. They put forward their own theory of KM that emphasizes the conversion of tacit into explicit knowledge. They also promote intellectual diversity in the belief that different perspectives, abilities, expertise and interests combine to generate new insights. This theory is used to emphasize the need for knowledge creation within all organizational practices. They also discuss the need for new structures and management practices that allow knowledge to flow throughout an organization.

Dixon, Nancy M. *Common Knowledge: How Companies Thrive by Sharing What They Know*. Boston: Harvard Business School Press, 2000.

KNOWLEDGE SHARING — This book focuses on one central theme of knowledge management: transferring knowledge throughout an organization for the purpose of creating a shared "common knowledge" (lessons learned from engaging in organizational activity). Dixon looks at five means of knowledge "transfer": serial transfer (within organizational boundaries), near transfer (routine transfer of explicit knowledge across organizational boundaries), far transfer (non-routine transfer of tacit knowledge across organizational boundaries), strategic transfer (between organization transfer with respect to projects that are atypical), and expert transfer (transfer from outside experts). The book is highly critical of attempts to promote learning that are premised on the view that a learning culture must be developed first.

Davenport, Thomas H., and Laurence Prusak. *Working Knowledge: How Organizations Manage What They Know*. Boston: Harvard Business School Press, 1998.

MATCHING KNOWLEDGE SUPPLY WITH KNOWLEDGE DEMAND — Davenport and Prusak's widely cited book looks at knowledge management while highlighting the social, political and economic implications of knowledge supply and demand. The book views organizations as markets of knowledge and information, but markets with social and political dimensions. It puts forth several KM techniques designed to improve the functioning of these markets, including methods of generating, codifying, coordinating, and transferring knowledge. It discusses the various roles, skills, and technologies involved in KM. Finally, the book outlines what a knowledge management project is in practical and pragmatic terms.

Dorothy Leonard, Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation (Boston: Harvard Business School Press, 1995).

KNOWLEDGE MANAGEMENT STRATEGY — This seminal contribution looks at KM from the perspective of strategy; that is, at the knowledge strengths ("core capabilities") and weaknesses ("core rigidities") of an organization, with the aim of producing an organization based on an organic notion of a "continuous wellspring" (i.e., continuously producing and renewing) of knowledge. To this

end, several "innovation activities" are shown, including shared problem-solving, experimenting and prototyping, importing ideas from outside of the organization, and new technologies.

Sparrow, John. *Knowledge in Organizations: Access to Thinking at Work.* Thousand Oaks: Sage, 1998.

PSYCHOLOGY OF KNOWLEDGE MANAGEMENT — Sparrow's book examines the role of knowledge in organizations by first looking at the way knowledge is represented in the human mind, and suggests that managers need to do more to manage the perception of different forms of knowledge within an organization. He outlines the different forms of mental material, the role of physical representation in eliciting knowledge, and working with and invoking different thinking processes.

Brown, John Seely, and Paul Duguid. *The Social Life of Information.* Boston: Harvard Business School Press, 2000.

CRITICAL APPRAISAL OF KNOWLEDGE MANAGEMENT — Brown and Duguid debunk the claims made by enthusiasts of information technology, business process re-engineering, and myopic forms of KM. They try to offer an approach to learning and knowledge sharing that is more balanced in its consideration of the social and technological aspects. The authors discuss the shortcomings of technological automation and theories of organization which claim that distance and physical proximity are irrelevant. They advance a theory of learning and knowledge sharing that emphasizes the role of shared practice and practical relationships. They also critique modern educational systems that are fixated on narrow "targeting" of subject matter and technology to the exclusion of developing well-rounded, diverse, and sophisticated thinkers. This book is a critical, yet constructive, account of knowledge management.

WEB SITES

*Knowledge Management World (*www.kmworld.com) — This is a news site devoted to KM practices and events.

Knowledge Management Server– Publications (www.bus.utexas.edu/kman/pubs.htm) — This bibliography contains links to several on-line KM articles, including papers by popular KM writers Davenport, Prusak, and Sveiby. The most useful paper is probably by Davenport et al. explaining the practicalities of KM projects (www.businessinnovation.ey.com/mko/pdf/KPROJE.PDF). Note that this paper can only be viewed with Adobe's Acrobat Reader (available for free from www.adobe.com).

WWW Virtual Library on Knowledge Management (www.brint.com/km/) — The site has a number of on-line resources (articles, discussion forums, etc.) devoted to KM.

Our Favorite Knowledge Management Web Sites

(www.psc-cfp.gc.ca/library/knowledge/links_e.htm) — This selection of links to KM Web sites has been compiled by the Public Service Commission of Canada.