1 Introduction

This research offers descriptions and guidance on frequently-cited best practice approaches and tools in Knowledge Management (KM). It is intended for organizations wishing to take advantage of corporate knowledge before it is lost to retirement and attrition, and to improve efficiency, effectiveness, resilience, adaptability and innovation.

No approach or tool works in all circumstances. The best advice is to think of KM as a *craft*, rather than a *methodology* or set of *tools*. The prevailing tendency in organizations is either to ignore good practice outside the organization, or to want to simply replicate good practice from another organization. Both extremes are naive and error-prone. Organizations need to think their way through their needs and challenges, and implement the strategies and tactics that are most relevant to their specific circumstances and needs. Indeed, the key to success seems to be the coalescence of three core elements of the craft of management:

- One, careful thinking: Asking the right questions in order to understand the real needs, issues and opportunities before deciding on the approach(es) to use
- Two, adaptive implementation: Knowing how best to employ the approach(es) to achieve the objectives, given the need and the circumstances
- Three, sound preparation and leadership: Preparing well, showing leadership, learning through experience and sustaining commitment throughout

This research therefore identified critical success factors in management practices as well as tactics and approaches.

The critical success factors that are described in the research are based on sound theory and academic research and are either validated from successful practice or lessons learned from not-so successful practice from a wide range of domains and organizational types. In some cases, the approaches described are actually categories or classes of tactics versus individual tactics, given the possible variations that are in use; in other cases, individual approaches or tactics are described. All can be used in a number of ways.

The intent, however, is not to replicate the detailed information that can be found elsewhere, especially with respect to specific tactics and approaches. Neither will the material provide detailed how-tos or case studies. Instead, the material focuses on key enduring lessons drawn from a broad range of domains and organizational types. While details of specific cases and variant uses of tactics may be helpful in some specific circumstances, we deemed it more important for practitioners and academics to delve

deeper, to uncover what appear to be critical success factors for each approach or category – a key element in helping organizations start their work of "thinking through" the organizational challenges they face, and how KM can help them. Further, in order to enhance retention we considered it important to present the study findings in a very concise way. There is a plethora of research and practice readily available related to KM and the reader is encouraged to continue their own path of adaptive learning by complementing these broader lessons with more detailed information that can readily be found elsewhere.

2 Knowledge and Knowledge Management

It is helpful to begin with a foundational understanding of the types of knowledge that are often most important to organizations and the ways that knowledge is created, shared, used, and retained in organizations.

Table 1 illustrates some of the kinds of knowledge that may be important for organizations to consider in the identification of critical knowledge that needs to be shared, used and retained. The choice of approaches described in the following sections needs to start with a thorough understanding of what knowledge is important to be managed.

Table 1: Scope and Types of KnowledgePaul McDowall

Scope of Knowledge	Types of Knowledge: Examples	
Personal Knowledge	 Personal experience, such as personal events, role in projects, types of responsibility, problems that have been addressed, different career experiences Personal expertise, such as level of expertise and/or professional accreditation Personal reflections and insights, personal priorities, beliefs, bias, and so on 	
Domain knowledge	 A body of knowledge/field of study, such as environmental science A policy area, such as aboriginal, international affairs, security Field of applied science, such as public management, leadership Program type, such as grants and contributions 	
Operational knowledge	 Good practice, such as "how-to," tips and tricks "How we really get things done around here" 	
Social knowledge	 Individuals and their personality and/or behavioural characteristics, especially in certain situations Social relationships, groupings and communities, and their shared mental models Trusted individuals, respected individuals "Who knows something about," "who knows someone who could help" Individuals and their personal (private life) circumstances, history, situations and circumstances Individuals "in the know" about new issues, ideas and plans, and those who are not 	

Scope of Knowledge	Types of Knowledge: Examples	
Historical knowledge	 Timelines of key events and the specific circumstances of each, including the results or outcomes Interplay and/or interrelationship with other internal and external factors Macro and micro pressures, trends, tensions, issues, etc Impact of organizational changes and shifts 	
Cultural knowledge	 Cultural norms, values and resulting behaviours Internal and external trends and influences that shape attitudes, beliefs and resulting behaviours Key periods in the organization's history, periods of transition and drivers of change 	
Systems and Systemic knowledge	 Understanding of the macro and micro systems at play and intersections Understanding why things are done a certain way Awareness of how things get done: process components, dependencies, conditions and interrelationships 	
Tactile knowledge	 Skills involving physical abilities and skills, such as an artisan's ability to demonstrate artistic and creative skill Sensorial knowledge, such as how an experienced technician can tell a machine isn't running properly because of the slight difference in the sound of the machine 	
Conceptual and Strategic Thinking	Ability to draw on past experience and/or current circumstances and/or creative thinking to develop ideas and approaches to positively affect future events and outcomes	

The SECI model of knowledge conversion (Table 2) below is a framework to categorize, characterize and describe the effective approaches to knowledge creation, conversion and transfer. It is perhaps the best known and most widely accepted model of knowledge creation, conversion and transfer, and is often used as a foundation in effective KM programs.

Table 2: SECI Model of Knowledge Conversion

Ikujiro Nonaka and Takeuchi Hirotaka¹

	To Tacit	To Explicit
From Tacit	Socialization	Externalization
From Explicit	Internalization	Combination

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¹ Ikujiro Nonaka and Takeuchi Hirotaka, *The Knowledge Creating Company: How Japanese Companies Create The Dynamics Of Innovation*, New York: Oxford University Press, 1995.

The Nonaka and Takeuchi model illustrated here in Table 2 portrays the key flows or modes of knowledge creation, conversion and transfer occurring between the two basic types of knowledge - tacit and explicit - as first posited by Michael Polanyi². *Explicit* knowledge is knowledge that has been codified in some fashion, whether in a document, database or on stone tablets. *Tacit* knowledge, by contrast, is that type of knowledge that represents a person's experience and wisdom and gives them insight and good judgment, and promotes creativity and innovation. The knowledge flows are as follows:

Socialization: Sharing and creating tacit knowledge (such as through conversation)

Externalization: Making one's tacit knowledge explicit (such as documenting what one

knows)

Combination: Organizing explicit knowledge in explicit ways and with other explicit

knowledge (such as text mining)

Internalization: Taking explicit knowledge and incorporating that into one's own

understanding (such as through reading, training, learning and

understanding how to be able to use it in practice)

Knowledge creation, use and transfer takes many forms and for many purposes. It is much more than simply the one-way movement of information from one place or person to another. The flows, as shown in the SECI model, infer distinctive needs in the characteristics and practices of organizations that need to enhance their effectiveness and efficiency through increased use of their knowledge.

The flow of knowledge is *multi-directional* in that it entails processes that see knowledge flowing back and forth, out and in, with new knowledge being created, sometimes taking unusual or unexpected paths. It is *multi-dimensional* in that people connect on many different levels and subjects and to varying degrees of intensity and intimacy. It is also *multi-modal* in that people can and should connect in various ways and means.

Yet not all of a person's knowledge, tacit or explicit, is critical to an organization. This is an issue which some organizations have difficulty with: identifying the important knowledge to manage.

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²http://www.newworldencyclopedia.org/entry/Michael Polanyi

Having laid a very brief foundation of knowledge and knowledge creation, conversion and respective flows it behooves us to talk specifically about the emerging management discipline of Knowledge Management, and so we will begin with first principles.

'Knowledge', reason, logic, experience, and thought has long been a focus of attention and study in the history of mankind, from man's earliest days, through early philosophers, early scientists, and into the post-modern era. The concept of 'management' has, similarly, developed over centuries. Frederick Taylor³ espoused the benefits of scientific management upon which most management disciplines were initially based. As noted above, Michael Polanyi contributed to the growing body of understanding with the seminal notion of 'tacit' knowledge. The terms 'knowledge work' and 'knowledge worker' were first described by Peter Drucker⁴ in the 1960s. Laurence (Larry) Prusak is widely cited as the person who coined the term 'Knowledge Management' around 1990.

The concept of Knowledge Management is based on sound management theory and presents a very compelling perspective on ways to specifically take greater advantage of the intelligence, knowledge, insight, experience, and collaboration and innovation potential of the people in an organization as well as with others. As such, KM is really founded on a number of principles, of vital importance to practitioners and academics alike. The most widely cited sets of working principles for KM are provided below.

In their book 'Working Knowledge: How Organizations Manage What They Know' (1998), Larry Prusak and Thomas Davenport identified a number of insightful principles:

- Knowledge originates and resides in people's minds
- Knowledge sharing requires trust
- Knowledge sharing must be encouraged and rewarded
- Management support and resources are essential
- Knowledge is creative and should be encouraged to develop in unexpected ways
- Technology enables new knowledge behaviours

Dave Snowden has articulated a number of other fundamental principles:

- Knowledge can only be volunteered, it cannot be conscripted
- We only know what we know when we need to know it
- In the context of real need few people will withhold their knowledge
- Everything is fragmented
- Tolerated failure imprints learning better than success
- The way we know things is not the way we report we know things
- We always know more than we can say, and we always say more than we can write down

³http://en.wikipedia.org/wiki/Frederick Winslow Taylor

⁴http://www.druckerinstitute.com/link/about-peter-drucker/

This research does not attempt to define KM nor propose a common set of processes or design heuristics. Indeed KM may look vastly different from organization to organization. While the principles will be resident in successful and effective KM programs, the programs themselves, the tactics and management approaches, may look very different due to the range of organizational types, domains, needs, issues and opportunities. This presents a significant opportunity and challenge for practitioners and academics alike. As noted earlier, it may be helpful to understand KM as more of a craft than as a specific methodology, or set of tactics or tools. Indeed, successful KM is more of a craftsman issue than a tool issue.

The findings of the research is presented in the structure shown below. Some inherent redundancy and overlap is included.

- 1. Social Networking
- 2. Team-based Learning
- 3. Mentoring and Coaching
- 4. Narratives and Storytelling
- 5. Innovation, Creativity and Discovery
- 6. Dialogue
- 7. Documentation and Collection
- 8. Interviewing
- 9. Knowledge Visualization and Representation
- 10. Media-based distillation and dissemination
- 11. Post-activity learning
- 12. Network Mapping
- 13. Text Mining and Semantic Analysis
- 14. Knowledge Organization Systems
- 15. Expert, Expertise and Experience Systems
- 16. Formal Learning
- 17. Informal Learning