

Personal Knowledge Management : A Tool to Expand Knowledge about Human Cognitive Capabilities

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Abstract—Knowledge Management programs are typically tied to organisational objectives such as improved performance, competitive advantage, innovation, developmental processes, lessons learnt transfer (for example between projects) and the general development of collaborative practices. Knowledge Management is frequently linked and related to what has become known as the learning organisation, lifelong learning and continuous improvement. Knowledge Management may be distinguished from Organisational Learning by a greater focus on the management of knowledge as an asset and the development and cultivation of the channels through which knowledge, information and signal flow. This paper discusses the issues related to Personal knowledge management (PKM). PKM is a label for the effort to integrate personal information management (PIM), focused on individual skills, with knowledge management (KM). Understanding the organizational perspective has been developed in light of expanding knowledge about human cognitive capabilities and the permeability of organizational boundaries.

Index Terms—Personal knowledge management, personal information management

I. INTRODUCTION

Knowledge Management ('KM') comprises of a range of practices used by organisations to identify, create, represent, distribute and enable adoption of what it knows, and how it knows. It has been an established discipline since 1995 with a body of university courses and both professional and academic journals dedicated to it. Many large companies have resources dedicated to Knowledge Management, often as a part of 'Information Technology' or 'Human Resource Management' departments. Knowledge Management was a multi-billion dollar world-wide market[12].

A. Classification of Knowledge Management

There is a broad range of thought on Knowledge Management with no unanimous definition. The approaches vary by author and school. Knowledge Management may be viewed from each of the following perspectives:

- Techno-centric: A focus on technology, ideally those that enhance knowledge sharing/growth.
- Organisational: How does the organisation need to be designed to facilitate knowledge processes? Which organisations work best with what processes?

- Ecological: Seeing the interaction of people, identity, knowledge and environmental factors as a complex adaptive system.

Knowledge Management has always existed in one form or another. Examples include on-the-job peer discussions, formal apprenticeship, discussion forums, corporate libraries, professional training and mentoring programs. However, with computers becoming more widespread in the second half of the 20th century, specific adaptations of technology such as knowledge bases, expert systems, and knowledge repositories have been introduced to further enhance the process.

The emergence of Knowledge Management has also generated new roles and responsibilities in organisations, an early example of which was the Chief Knowledge Officer. In recent years, Personal knowledge management (PKM) practice has arisen in which individuals apply KM practice to themselves, their roles and their career development.

II. KNOWLEDGE ACCESS STAGES

Knowledge may be accessed at three stages: before, during, or after knowledge-related activities. Some people would argue that there is a life cycle to knowledge use. Starting with capture (although that word is itself contentious) or creation, moving on to use and reuse with the ultimate goal of enriching an organisation's capability. In counter to this, many would state that such a life cycle view is too linear in nature and reflects an information centric view. The applicability of this model will strongly depend on how repeatable subsequent activities of the company are, and how static the environment or context is in which they are carried out.

For example, individuals undertaking a new project for an organization might access information resources to identify lessons learned for similar projects, access relevant information again during the project implementation to seek advice on issues encountered, and access relevant information afterwards for advice on after-project actions and review activities. Knowledge management practitioners offer systems, repositories, and corporate processes to encourage and formalize these activities with varying degrees of success. The recorded knowledge could either be captured in databases of experiences, or embedded directly into updates of guidelines for subsequent projects.

Similarly, knowledge may be accessed before the project

implementation, for example as the project team learn lessons during the initial project analysis. Similarly, lessons learned during the project operation may be recorded, and after-action reviews may lead to further insights and lessons being recorded for future access. Note: In this context recording knowledge relates only to those aspects of knowledge which can be codified as text, or drawings.

Different organizations have tried various knowledge capture incentives, including making content submission mandatory and incorporating rewards into performance measurement plans. There is considerable controversy over whether incentives work or not in this field and no firm consensus has emerged. General reflectiveness of the organization, time pressure on the individual, quality and completeness checks on the submissions, and regular clean-out and condensation of collective submissions to keep them readable will all influence the success. Some organizations use facilitators to capture the submissions for the teams, in order to achieve consistent quality and ease the administrative load on operational staff.

A. *Adhoc knowledge access*

One alternative strategy to encode knowledge into and retrieve knowledge from a knowledge repository such as a database[4], is for individuals to make knowledge requests of subject matter experts on an ad hoc basis. A key benefit claimed for this strategy is that the response from the expert individual is rich in content and contextualized to the particular problem being addressed and personalized to the particular person or people addressing it. Other benefits are that the workload on the knowledge user is reduced in validating historically collected knowledge, and that the knowledge is only recorded when needed, reducing the risk of information overload. The downside of this strategy is that it is tied to the availability and memory recall skill of specific individuals in the organization. It does not capture their insights and experience for future use should they leave or become unavailable, and also does not help in the case when particular technical issues or problems previously faced change with time to the point where a new synthesis is required, the experts' memories being out of date. Adhoc knowledge sharing should therefore be accompanied by a knowledge retention program to capture critical knowledge in time before staff is leaving or before long breaks. The emergence of narrative approaches to knowledge management attempts to provide a bridge between the formal and the ad hoc, by allowing knowledge to be held in the form of stories.

III. DRIVERS OF KNOWLEDGE MANAGEMENT

There are a number of claims as to the "drivers", or motivations, leading organizations to undertake a knowledge management program[10]. Popular business objectives include gaining competitive advantage within the industry and increasing organizational effectiveness with improved or

faster learning and new knowledge creation. As knowledge management programs can often lead to greater innovation, better customer experiences, consistency in good practices, knowledge access across a global organization, and other organizational benefits, many knowledge management programs will usually set some of these as end objectives as well. The government sector represents a highly active area, for example DiploFoundation Conference on Knowledge and Diplomacy (1999) outlines the range of specific KM tools and techniques applied in diplomacy.

Some typical considerations driving a Knowledge Management program include:

- Making increased knowledge of content available for the development and provision of products and services .
- Achieving shorter new product development cycles .
- Facilitating and managing organizational innovation and learning .
- Leveraging the expertise of people across the organization .
- Increasing network connectivity between employees and external groups with the objective of improving information flow .
- Managing the proliferation of data and information in complex business environments and allowing employees to access appropriate information sources .
- Managing intellectual capital and intellectual assets in the workforce (such as the expertise and know-how possessed by key individuals) as individuals retire and new workers are hired

A. *Knowledge Management Technologies*

The early Knowledge Management technologies were online corporate yellow pages and document management systems. Combined with the early development of collaborative technologies, KM technologies expanded in the mid 1990s. Subsequently it followed developments in technology in use of Information Management. In particular, the use of semantic technologies for search and retrieval and the development of knowledge management specific tools such as those for communities of practice.

More recently social computing tools (such as blogs and wikis) had been developed to provide a more unstructured, self-governing approach to the transfer, capture and creation of knowledge through the development of new forms of community, network or matrix. However, such tools for the most part are still based on text and code, and thus represent explicit knowledge transfer. These tools face challenges in distilling meaningful re-usable knowledge and intelligible information and ensuring that their content is transmissible through diverse channels, platforms and forums.

Knowledge mapping is commonly used to cover functions such as a knowledge audit (discovering what knowledge exists at the start of a knowledge management project), a network survey (Mapping the relationships between communities involved in knowledge creation and sharing) and creating a map of the relationship of knowledge assets to core business process. Although frequently carried

out at the start of a Knowledge Management programme, it is not a necessary pre-condition or confined to start up.

B. Knowledge Management enablers

Historically, there have been a number of technologies 'enabling' or facilitating knowledge management practices in the organization, including expert systems, knowledge bases, various types of Information Management, software help desk tools, document management systems and other IT systems supporting organizational knowledge flows[13].

The advent of the Internet brought with it further enabling technologies, including e-learning, web conferencing, collaborative software, content management systems, corporate 'Yellow pages' directories, email lists, wikis, blogs, and other technologies[14]. Each enabling technology can expand the level of inquiry available to an employee, while providing a platform to achieve specific goals or actions. The practice of KM will continue to evolve with the growth of collaboration applications, visual tools and other technologies. Since its adoption by the mainstream population and business community, the Internet has led to an increase in creative collaboration, learning and research, e-commerce, and instant information.

Organisational enablers for knowledge management programs include Communities of Practice, Networks of Practice, before-, after- and during- action reviews (see after action review), peer assists, information taxonomies, coaching and mentoring, and so on.

IV. REASONS FOR FAILURE OR SUCCESS OF KNOWLEDGE MANAGEMENT

No established evidence attests to the reasons behind failure and success of Knowledge Management initiatives in organizations. Some argue that a failure to sustain investment is one factor, but it can equally be argued that if knowledge management delivers on its promises, investment would continue. As with many management initiatives, particularly those with a heavy IT basis (as can be the case with Knowledge Management), frequent questions are raised about the level of consultation necessary before a program is started; these questions are linked to issues of cultural change and a willingness to share and collaborate with colleagues. There is no evidence that Knowledge Management, in all these respects, is any different from other management initiatives.

A. Focus on Individual Knowledge Worker

PKM is focused on personal productivity improvement for knowledge workers in their working environments. While the focus is the individual, the goal of PKM is to enable individuals to operate better both within the formal structure of organizations and in looser work groupings. This is as different from KM as traditionally viewed, which appears to be focused on enabling the corporation to be more effective by "recording" and making available what its workers know. A core focus of PKM is 'personal inquiry', a quest to find, connect, learn, and explore.

PKM is a response to the idea that knowledge workers increasingly need to be responsible for their own growth and learning. They need processes and tools by which they can evaluate what they know in a given situation and then seek out ways to fill the gaps in their knowledge. This frequently involves the use of technology, though one can be good at PKM without using specialised tools.

B. Connections to Organizations and Groups

PKM has recently been linked to social bookmarking, blogging or knowledge logs (K-logs). The idea is individuals use their blogs to capture ideas, opinions or thoughts and this 'voicing' will encourage cognitive diversity, promote free exchanges away from a centralized policed knowledge repository that is additional to ordinary work.

Some organizations are now introducing PKM 'systems' with some or all of four components:

- Just-in-time Canvassing - templates and e-mail canvassing lists that enable people looking for experts or expertise to identify and connect with the appropriate people quickly and effectively
- Knowledge Harvesting - software tools that automatically collect appropriate knowledge residing on subject matter experts' hard drives rather than waiting for it to be contributed to central repositories
- Personal Content Management - taxonomy processes and desktop search tools that enable employees to organize, subscribe to, publish and find information that resides on their own desktops
- Personal Productivity Improvement - knowledge fairs and one-on-one training sessions to help each employee make more effective personal use of the knowledge, learning and technology resources available to them, in the context of their own work

V. PKM SKILLS

Skills associated with personal knowledge management.

- Reflection. Continuous improvement on how the individual operates.
- Manage learning. Manage how and when the individual learns.
- Information literacy. Understanding what information is important and how to find unknown information.
- Organizational skills, Personal librarianship, Personal categorization and taxonomies.
- Networking with others. Knowing what your network of people knows. Knowing who might have additional knowledge and resources to help you
- Researching, canvassing, paying attention, interviewing and observational 'cultural anthropology' skills
- Communication skills. Perception, intuition, expression, visualization, and interpretation.
- Creative skills. Imagination, pattern recognition, appreciation, innovation, inference. Understanding of complex adaptive systems.
- Collaboration skills. Coordination, synchronization,

experimentation, cooperation, and design.

A. Criticisms of PKM

Not everyone agrees that the focus on the individual is a good thing, or that PKM is anything more than a new wrapper around personal information management (PIM). Most notably, some argue that knowledge is never an individual product - that it emerges through connections, dialog and social interaction. PKM has been associated with a focus on personal branding, responsibility for personal learning, personal networking - using networking engines (Ryze, Friendster, LinkedIN) and management of individual documents, thought and writings. These activities do not illustrate the rich reach of the concept.

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