# Knowledge Management: Issues, Challenges and Opportunities for Governments in the New Economy

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## Abstract

*Throughout history, knowledge has always been viewed from multiple perspectives - abstract, philosophical, religious and practical. This paper focuses on the practical perspective and how governments can capitalize on it as they attempt to come to terms with the forces being unleashed by what is being described as the "new economy."*

*To deliver more innovative services to a demanding public, governments must be involved in the deployment of such new services as e-Government and e-Commerce. Active management of their knowledge assets is mandatory for success. Drawing from reported private sector experiences, some issues, challenges and opportunities for government services provision are examined. A suggested implementation approach highlights leadership, culture, technology, and measurement as critical success factors. Examining some US government early practices, the paper advocates for "communities of practice", cautions on "best practices" and concludes with recommendations.*

***Keywords:*** *knowledge assets, knowledge management, communities of practice, best practices, e-Commerce, e-Government.*

## 1. Introduction

It seems strange to talk about the new economy perhaps because there isn't a readily agreed upon definition of what it is, when it first appeared or just what we are supposed to do differently. Some might describe the new economy in terms of new products or services that have recently become available – palm pilots, cell phones, the Internet, etc. Others might define the new economy in terms of the new tools and technologies that permit us to manage data and information faster and better than ever enabling us to discover if not create, knowledge. Enterprise Resource Planning systems that enable new businesses such as e-commerce, data mining tools that help us manage tremendous amounts of data so as to better understand customer behavior and supply chain management systems that help us to better manage our supply chains are but a few examples.

While we have always been concerned with managing data and information in order to improve organizational efficiency and effectiveness, today the Internet and related technologies have enabled us to make data, information and even knowledge available to anyone at anytime. This has resulted in not only more efficient business processes but also in more effective learning and innovation.

One thing that distinguishes the new economy from the old one is speed – the speed of data capture, processing, and dissemination. The speed of learning and innovation enable firms to more effectively compete in today's highly competitive global economy. Perhaps the most important distinguishing feature of the new economy, however, is that it has become a knowledge economy where "knowledge, not labor or raw material or capital, is the key resource" of production [1]. As customers demand and receive more customization at ever diminishing costs from knowledge-oriented private sector firms, they have also come to expect similar benefits from the public sector.

Public sector organizations generally do not operate as private sector organizations. Consequently, fulfilling the needs of customers in the new economy is not an easy task. Poised to operate in a reasonable manner, just as private organizations, governments are now embarking on e-Government and even e-Commerce. However, they might not succeed in these endeavors without actively engaging in managing their key resources. The rest of this paper contributes to an understanding of how this can be achieved through knowledge management (KM).

## 2. Knowledge Assets and KM

In the new economy, success in business depends much on one's ability to exploit the distinguishing asset or key resource of production -- knowledge.

For private sector firms this asset consists of the company's knowledge regarding its business processes, technologies, markets, organization and products [2]. Knowledge in the products for example can command a premium price because it is perceived as being more beneficial to users [3]. Knowledge in its processes enables the company to be able to streamline production operations to achieve greater efficiency and higher performance. Knowledge about its customers and their tastes is an asset that assists the company in learning how to adjust product quality and quantity so as to create and maintain a loyal customer base.

Knowledge assets exist for governments as well and include but are not be limited to knowledge about itself, its policies, citizens, states and allies, environment, governing processes and various technologies. Some authors, including [4], [5] have proposed a classification of knowledge assets as being one form of human, intellectual, social and structural capital, which could be tangible or intangible and hidden within the organization.

The concept of KM has been in practice for a long time, and mostly in an informal manner. It has been suggested that the ancient Egyptians understood and practiced KM [4]. An understanding of this concept is compounded by confusion on the differences and relationships in the data, information and knowledge continuum. This continuum has been extensively discussed in the literature and is briefly presented here.

Data is "a set of discrete, objective facts about events." [6]. Private sector organizations collect data about their customers while governments do the same on citizens. For these data to be of value, however, they must be processed (put in a given context) to obtain information. In other words, information is "data that makes a difference", which "moves around organizations through hard and soft networks" [6]. Such information is termed actionable if actions are based on it. Knowledge is created when pattern-understanding processes are used to interpret actionable information [7]. It has been argued that regrouped information provides analytics, which can be subsequently interpreted to produce knowledge [8] or that there is a discontinuity between information and knowledge caused primarily by the way new knowledge is created from received information. [9] According to [9], creating new knowledge is a complex process in which insights have to be internalized by establishing links with existing or prior knowledge.

The links can range from established relationships to vague associations where the resulting knowledge and understanding "is formed by combinations of mental objects and links between them that allow individuals to sense, reason, plan, judge and act."

The above ideas have been succinctly captured in the following definition [6]: "Knowledge is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment of and framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it is often embedded not only in documents or repositories but also in organizational routines, processes, practices and norms."

Opining on the above definition, four dimensions of knowledge can be noted: focus (operational and strategic, which can be external or internal), complexity (degree of context which gives meaning and makes it useful), life span (validity and criteria) and dynamics (how it evolves) [10]. The complexity dimension often categorizes knowledge as tacit (embedded in human minds: insights, intuition, etc), explicit (embedded in documents or repositories) and organizational (embedded in organizational structures, processes, practices, norms and linkages).

It might be helpful in thinking of knowledge as an asset to think in terms of the "management of knowledge." However, because of its intangible nature and the complex processes associated with its creation, this simple view does not capture the complete meaning of the concept. Information is also intangible and yet we don't concern ourselves as much with its definition. One reason is that information builds up to knowledge -- it is a subset of knowledge that does not have all the properties of knowledge.

To clear up any confusion about the process of KM, think of whatever it is that has to be managed, data, information or knowledge as "stuff." It has been suggested that KM is different from information management (IM) in that "the latter focuses on finding the stuff and moving it around, while the former is also concerned about how people create and use the stuff." [11]. IM is usually, though not always, concerned with electronic and paper-based information, while KM deals with a far broader range of approaches to communicating and using both knowledge and information. KM includes a number of soft issues that involves fostering an environment in which both knowledge and information are not only shared but also created.

Many formal definitions of KM abound in the literature, but we consider one that we think is quite revealing, proposed by [12]: "Knowledge management is the discipline dedicated to more intentional means of

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people creating and sharing knowledge – data, information, and understanding in a social context – to perform the right organizational or business actions."

The above definition incorporates all aspects of the data, information and knowledge continuum and goes further when it makes reference to ideas such as "intentional means of people" and "understanding in a social context". These ideas are critical in KM efforts.

## 3. The Importance and Necessity of KM

Interest in KM has surged in recent years. Scholarly publications have increased. Courses, certificate or degree programs are being introduced in some universities, for example [13]. Many more organizations are now engaged in it. Research conducted by Teltech Corporation three years ago, showed that KM was taken seriously. The results of the research reported in [14] concluded that forty five percent of the respondents had no major interest in KM. Forty percent indicated only an unconscious readiness. Nine percent indicated some formal leadership support for KM, and only six percent indicated they had integrated KM into their performance appraisal. Another report by [15] on a subsequent Teltech study barely a year later indicated that fifty percent of the companies were engaged in KM, and doing so because of expected savings. The other fifty percent was concerned with growth and quality of service.

The importance and necessity of KM cannot be overemphasized. It timeless nature has been discussed by [4], illustrating its role in the construction of the pyramids at Giza. Research carried out at the National Defense University involving public and private sector participants concluded that as far as the necessity and importance of KM is concerned, not much has changed from what it was during the days of the construction of the pyramids. The necessity to develop organizations' social and structural capital, innovate, transfer knowledge across time, space and boundaries as well as satisfy customers remain in place [4].

We contend that the reason why the above needs have remained uncharged is that the task of building and maintaining various structures - nations by governments and businesses by firms is analogous to that of building the pyramids. One conclusion that can be drawn from the research is that regardless of whether it is a new or old economy KM is essential. From this conclusion, the rationale for KM is fully justified. Furthermore, due to the influence of various technologies and the globalization of world trends, KM presents a viable alternative for firms to create and maintain competitive advantage in turbulent economies. A compelling reason for this is the fact that unlike physical goods that are subject to decreasing returns, knowledge appreciates and consequently yields increasing returns.

Many governments are still living in the 'apparent' luxury of non-competitive environments. The US government sees the situation quite differently and is poised to be a major player in the expected knowledge-based economy [12]. While embracing e-Government and e-Commerce, the hope is that KM will help agencies meet some critical requirements as the Clinger-Cohen Act of 1996 and the Government Performance and Results Act. Many agencies are already engaged in some form of KM [16], [17], while others are already reaping some benefits [18].

Whatever the case, if governments are not pursing KM now emerging conditions will ultimately force them to do so. For example, it is estimated that by the year 2004 thirty percent of the US federal workforce will retire, and by 2005 upwards of sixty percent of its Senior Executive Service members will also retire [19]. These statistics are not confined to the US alone, most governments are facing the same problems. KM implementation presents the greatest challenges, and is what we consider next.

## 4. KM Processes and Implementation

### 4.1. Theoretical Considerations

Seven KM processes have been proposed, each with sub-processes [2]: develop (acquire, capture, create, discover); apply (use, enact, execute, etc), assess (appraise, evaluate, validate, verify, etc), preserve (store, secure, conserve, retain, etc), update (evolve, improve, maintain, refresh), transfer (communicate, deploy, disseminate, share) and transform (compile, formalize, standardized, explicate, etc).

Four KM processes have been proposed by [20]: identification (what knowledge do we need? who has it? What type of knowledge is it?), elicitation (how can we acquire the knowledge, what tools can we use?), dissemination (how do we represent, store, process and disseminate the knowledge?), and utilization (how much are we making use of?, what are the benefits? ). Opining on earlier research by [21], and considering the complex nature of knowledge [20] has further identified four enablers that act as critical success factors (CSF) of KM: leadership, culture, technology and measurement. These KM processes and enablers when juxtaposed on a 4x4 table form sixteen cells representing Belardo's matrix approach to KM.

The matrix focuses attention on critical questions in accordance with the relative impact of each CSF on the various processes. For example it draws attention to the critical role that leadership plays in identifying

knowledge by analyzing who the organization listens to during KM. External boundary spanning that has been shown to dramatically improve an organization's absorptive capacity and its ability to learn, innovate and compete is dependent upon which knowledge sources are available. Its culture determines the success of its internal boundary spanning capability and the degree to which individuals are capable of communicating with one another and their willingness to share what they know.

## 4.2. Practical Considerations

A practical ten step sequential perspective in a four-phase roadmap has been proposed by [10] that includes: infrastructure evaluation (analyze existing infrastructure, align KM and business strategy), KM system analysis, design and development (design the KM infrastructure, audit existing knowledge assets and systems, design KM team, create KM blueprint, develop the KM system), system development (deploy via results driven-driven incremental methodology, manage change, culture and reward structures), and evaluation (evaluate performance, measure return of investment and incrementally refine KM system). Each of the steps in the four phases has sub-steps, with distinct activities.

## 4.3. A Suggested Implementation Approach

From the two perspectives presented above, the practical approach is more appealing. However, it contains a number of limiting assumptions. One assumption, and perhaps the most critical is the mandatory requirement for firms to have an appreciation of both the significance and limitations of technology and corporate culture. In view of the fact that most governments planning to employ KM might not have the pre-requisite appreciation, we recommend an exploration of the matrix approach as an initial step, prior to embarking on the roadmap approach. This recommendation has two major advantages: it bridges the gap between theory and practice, and captures the hard and soft aspects required in veritable KM.

## 4.4. The Initial Step in KM Implementation

The matrix approach suggested by [20] provides the opportunity to study and appreciate the impact of each CSF on each KM process. Even though each of the sixteen cells is essential to ensuring KM success, we will not dwell on the four processes that have been largely discussed in the literature. Of the four CSFs that have received limited coverage, we will not consider measurement because it is not an essential

requirement for the application of the practical roadmap also more importantly because, as of yet, there are no generally accepted accounting methods for measuring such intangible assets. Though not specified by [10], we'll discuss leadership, since corporate culture and technology somehow depend on it.

**4.4.1. Technological Considerations.** Technology is employed in all the processes of KM and various technological solutions are already available in the market. Unfortunately, technology solution providers tend to amplify the benefits. In this process they erroneously present technology as the sole answer to KM [22]. In reality, this is not so. Present day technology presents the least impediments to successful KM. As noted by [10], technological impact is less that 35 percent of the whole KM effort. Given vendors' mis-presentation of technology, the problem is actually one of selecting an appropriate technology.

Research by [23] had concluded that effective knowledge transfer is possible only when the process fits the knowledge being transferred. The same principle applies here: effective use of technology depends on how well the technology fits the process it supports. As a general principle, it is best to know what has to be done before looking for a technology to support it. A way to do this as suggested by [10] is to target KM objectives to technology. Another suggestion is a technology selection map [24]. This map specifies for example, that if your objective is to locate knowledge, then knowledge bases, search and retrieval tools, and yellow pages would be considered technological enablers. If the objective is to create knowledge, then collaborative decision-making, expert, decision support and data mining systems, notes databases, externalization tools, etc would be considered technological enablers. If the objective is to reuse and validate knowledge, then customer support and feedback, knowledge bases, past project records and communities of practice would be used.

**4.4.2. Leadership Considerations.** The success of any organization depends on leadership and the success of any leader depends on his/her assigned roles and how the roles are performed. The recognition of KM in organizations has lead to a proliferation of titles such as Chief Knowledge Officer (CKO), Knowledge Architect, Knowledge Manager, etc. all charged with the responsibility of ensuring successful KM within the organization. Even though some of the CKO roles may be in conflict with the traditional roles of the Chief Information Officer (CIO), the underlying fact is that new titles/positions are being created to make the best of the organization's knowledge capital [25]. A major distinction between the roles of the CKO and CIO has

been given by [26]: "while CIOs focus much of their activity on physical computer and network assets, CKOs focus their efforts on an integrated set of activities that address organizational behaviors, processes and technologies."

The roles to be assigned to a CKO according to [26] include but are not limited to: leadership and strategy (create and sell KM vision, lead by example, etc), resources (develop KM budget, provide resource when needed, etc), taxonomy (develop common language to facilitate understanding of concept, champion taxonomy, etc), education (educate leadership, employees, define other roles in KM, etc), technology (keep up to date on KM technologies, share information about KM tools, etc), incentives and rewards (develop incentives, recognize and promote knowledge contribution, etc), communities of practice (champion cross organizational communities of practice, form relationships with related leaders: HR, CIO, etc), knowledge sharing culture (foster cultural change, promote inter-organizational culture that facilitates tacit and explicit knowledge sharing, etc ), and 'best' practices (means to bench mark, etc).

**4.4.3. Cultural Considerations.** Some researchers such as [27], indicate that one of the biggest challenges to successfully implementing KM is to properly address the cultural change issues. To effectively carry out his/her role, the CKO must understand the dynamics of the organizational culture, and how individuals relate to it. Fortunately, many researchers such as [28], [29], [30], [31] have proposed ways for doing this. [29] has suggested a knowledge diffusion map, in which tacit and explicit knowledge can easily be captured and shared across individual, group, inter- and intra- organizational participants. Such diffusion however depends on considerations of the strategic value of knowledge and its location within the organization. [31] discusses knowledge sharing from individual and organizational value perspectives. Where the value of the knowledge is high to the individual but low to the organization, there is a tendency for hoarding. On the other hand, if the value of the knowledge is high to both the individual and the organization, there is a tendency for selective sharing. If the value is low to both, then there is full sharing.

Evidently, it is the duty of the CKO to ensure that full, rather than selective sharing occurs when the knowledge is of high value to both the individual and organization. Unfortunately, the individual's objectives may not always align with those of the organization and vice versa. This is especially true in instances where there is low job security, and poor communication within the organization. It is from this perspective that [31] has suggested an understanding of

the juxtaposition of cultural attributes of individuals and the organization. Organizations that are employee oriented and favor open communication do obtain better results in knowledge sharing.

While the CKO can achieve good results by focusing on the knowledge sharing dynamics suggested by [29], [30], [31], we think that better results will be obtained, if the CKO also understands the knowledge creation dynamics. More specifically, the CKO should understand the 4-stage knowledge creation process suggested by [28]. These authors identified four permutations of knowledge creating activities that involve tacit and explicit knowledge. They suggest that tacit knowledge can be created from tacit knowledge via the process of socialization when one individual shares tacit knowledge with another in face-to-face contact; from explicit to explicit via combination when an individual combines discrete pieces of explicit knowledge into a new whole, from tacit to explicit via externalization when the organization's knowledge base is extended by codifying experience, insight, or judgment into a form which can be reused by others; and from explicit to tacit via internalization when the staff begins to internalize new or shared explicit knowledge and then use it to broaden, extend, and rethink their own tacit knowledge.

The World Bank is one international organization that is actively engaged in KM. Based on practical experience, its CKO, Steve Denning, has concluded that KM is about 90% cultural change and 10% technology [32]. Evidently, creating the right culture is essential for KM success and one way to do this is through storytelling [33].

Different types of KM projects and applications exist. Based on a study of successful KM efforts, [6] identified four major classes: Knowledge Repositories, Knowledge Access, Knowledge Environment and Managing Knowledge as an Asset. In the next section, we examine how Knowledge Repositories and Knowledge Access are practiced in government. The other two project types are not considered here. The bureaucratic nature of government does not favor them as early entry points in KM.

## 5. KM Practices in the US Government

### 5.1. Background

There is no single, overarching KM strategy for government [19]. Some agencies such as the Navy and Air Force have well defined strategies. Most of the other agencies daring into the field are struggling and learning through experimentation. They are engaged only in projects primarily of the Knowledge

Repositories, Knowledge Access types and occasionally a combination of both. The goal of Knowledge Repositories projects is to take documents (memos, presentations, articles, reports) embedded with explicit knowledge and store in a repository where they can be easily retrieved for use as needed. An instance of Knowledge Repositories is "Best Practices". Knowledge Access projects focus on providing access to knowledge (tacit and explicit) as well as facilitating linkages and socialization among members. An instance here is "Communities of Practice" (CoP). These two instances offer the opportunity for knowledge sharing and dissemination. Our research further revealed that between the two practices, CoPs have a greater potential than "Best Practices" because they more appropriately address the major KM CSF -- culture. In the following sub-sections we will examine these two practices.

## 5.2. Knowledge Sharing through CoP

Two broad views of the meaning of CoP are found in the literature. The first view is represented by [34], who sees CoPs as channels in which knowledge sharing takes place through the process of learning: "A group of people who share an interest in a domain of human endeavor and engage in a process of collective learning that creates bond between them: a tribe, garage band, a group of engineers working on similar projects."

The second view is representative of that proposed by [10], who considers CoPs as channels in which knowledge sharing can take place on demand: "Groups of virtual or local members with similar specialization as opposed to hard networks (network computing) which connects computers through a variety of information technology techniques to ensure distribution of data and information, community of practice – form soft networks – the establishment of a community of practice and collating a number of people who can be called upon when such expertise is required."

We find that the two views are complementary. A CoP operating with the underlying principles of the above two views will not only serve its members [34], but will also serve external members on demand i.e. on a-need-as basis [10]. Three distinguishing characteristics of CoP make them excellent knowledge sharing mechanisms. A CoP operates in a specific domain, it has specific communities to serve and there is adherence to practices. Interest in CoPs lies in the fact that they can organize a society based around issues and functions, foster short and long term value creation, facilitate tacit to explicit knowledge creation, overcome cultural barriers in knowledge sharing and

ensure collaboration, as well as handle deficiencies associated with downsizing and limited budgets. These characteristics have been referred to as structural, relational and cognitive dimensions by [35] who have elaborated on how to make CoP an ideal mechanism for fostering social capital. According to [35], these dimensions often lead to an increased ability to manage organizational knowledge. As a result, anyone seeking to increase the level of social capital via these CoP must identify CoPs that influence critical goals within the organization, provide tools that enable the community to identify and maintain contacts with new and existing members, and as well as opportunities to meet.

Perhaps another compelling reason for using CoPs is offered by [36], who points out that tacit knowledge is just what it is, and one simply cannot capture in written form the answers to questions that have not yet been asked. A CoP acts like a kind of gene pool within which lies the ability to evolve future solutions. Through such communities one can also address the issues of trust and motivation essential to ensuring knowledge sharing and continuity of KM.

## 5.3. CoP in the US Federal Government

The Social Security Administration (SSA) is perhaps one of the first US non-military federal agencies to have been engaged in CoP. Its CoP − PolicyNet, a groupware pilot project was established in 1995. The objective of PolicyNet was to speed up the agency's response to changes in legislative laws, so that requests from the public are correctly handled immediately after the laws have been enacted. The complexity of the tasks at SSA are attributed to the fact that policies to implement new laws go into effect immediately after the law is passed, and SSA employees must consult all the material related to the new policies so as to be able to explain them to citizens. PolicyNet serving as a CoP renders the task easy and faster as SSA employees can easily exchange and consult material with each other on a given issue. According to [37], PolicyNet now serves 80,000 users at more than 1,000 offices throughout the US, includes more than 130 distinct areas of collaboration and receives thousands of daily visits on its intranet.

The CIO Council, established in 1996, is another successful CoP for CIOs of the federal IT community. It has been operating to help deliver standard IT strategies and solutions across all federal agencies. Success in handling the Y2K problem is one of the visible results of this CoP. While the CIO Council CoP is designed for federal top management, federal technologists have an opportunity to collaborate through the KM Learning-Consulting Network.

The Federal Highway Administration (FHWA) has created a CoP called the FHWA Resource Center Expertise Locator [12], [38]. According to a study carried out by [12], this CoP has helped several specialists to share expertise, thereby saving time and money for the agency. Furthermore, it is now serving as a prototype for other online knowledge centers.

The FHWA has also created another CoP, called Re:NEPA after the National Environmental Policy Act (NEPA) [12], [39]. This CoP is a virtual network of people who share interest and responsibility in highway-related environmental issues. This CoP attempts to establish an open, collaborative environment for developing NEPA guidance, ongoing dialogue and discussion on timely issues supplemented with follow-up to live meetings. A major anticipated benefit is a greater understanding inside and outside FHWA about key NEPA issues.

The most recent community of practice at the federal level is a set of Special Interest Groups (SIG), formally working on KM for the US government. Each SIG is actually a community of practice. At the moment there are nine such SIGs: CKO Competencies, Communities of Practice, Legislation and Intellectual Property, KM Training, KM.Gov Content and KM Technology, KM Strategies and Best Known Practices, Public Policy, Ethnography, Anthropology and Program Planning and Strategic Support. It is important to note that in the above list, there is a CoP specifically designated to develop methods of building and maintaining CoPs. Given this commitment and thrust of the US government to KM, there is the distinct possibility that the U.S is likely going to become the first government to include knowledge assets in its annual reports in the nearest future.

## 5.4. Potential CoP for Governments

Based on the $2^{nd}$ definition of CoPs above, one notes that these CoPs can be very useful for customer support services. In the private sector, these are the usual support groups we know of, but which are often known under various names such as Global Support Groups (GSG), Customer Support Centers (CSC), etc. Providing 24-hour, seven days a week support is mandatory for private sector companies, since they have to compete for customers. However, due to limited budgets and lack of staff with required skills, private sector companies have embarked on KM projects for their support groups in order to meet the expectation of their customers. Even though governments do not in most cases have what we traditionally think of when we think of competitors, citizens are increasingly demanding more and more services from their governments.

## 5.5. A CoP Metaphor for Governments

A very successful private sector KM initiative in the area of support services is that of Nortel [10]. This system could easily be adapted for use by governments. Nortel was facing problems providing support to its customers because there was no suitable mechanism that allowed a support representative to check if anyone in the support unit had encountered a certain problem before. This happened because teams in different offices did not share any of their knowledge related to problem solving. As a result Nortel ended up reinventing solutions time and again.

The Nortel service provision problem clearly exists at all levels of government. Consider government e-Commerce and e-Government for example where webmasters of all government websites are expected to provide the same service to all government customers. The services are the same in all states, and customers from all states are likely to be asking the same questions. Naturally, since there is no CoP for the webmasters, they are obliged to reinvent the wheel at one point or another. Most of the problems identified by Nortel can also be seen in governments. The following examples can be cited: lack of knowledge sharing between support teams based in different locales, excessive rework and reinvention of solutions (since there is no formal mechanism for capturing problems and solutions), inconsistent measure of customer satisfaction, webmasters operating as isolated teams in isolated locales rather than as a single distributed team, and no centralized collection or repository of predefined solutions.

The following steps adopted by Nortel could well be employed by governments: Capturing knowledge and processes being used by the webmaster in the various locations, consolidating the processes to provide an environment for cooperative and collaborative problem solving, and implementing an integrated system to enable collaborative knowledge-intensive processes.

## 5.6. Best Practices for KM in Government

The Center for Technology in Government (CTG) [40] at the State University of New York at Albany (SUNY/Albany) is currently involved in facilitating KM with state agencies [17]. Since its creation in 1993, this center has been actively involved in IT projects, trying to 'make technology work for state and local governments'. The Center is a double state award winner (Archive – 1999 and "Best Practices" – 2000). A few years ago, the center became involved in e-Government. At a recent e-Government Round Table Conference [41] organized by the Center for state and

local government organizations, the Center found a great demand by its audience for guides, repositories and case studies on various issues.

We interpret this to be a high demand for "Best Practices" – an aspect of KM, which the CTG is definitely going to support. However, echoes from experts in the field seem to suggest serious limitations concerning the notion of "Best Practice." We examine some of these limitations not only to reinforce the case for CoPs, but also to alert government agencies of the potential pitfalls pointed out by experts.

### 5.7. Some Limitations of "Best Practices"

The "Best Practice" approach is an essential component of KM. It provides an opportunity to retain and use knowledge even when the expert leaves the organization. However, some authors such as [42] point out that within a changing business environment, such an approach might lead organizations to the stage where "they themselves are doing 'more of the same' better and better, however, with diminishing marginal returns…the cycle of doing 'more of the same' tends to result in locked-in behavior patterns resulting in an organizational 'death spiral'" In effect, what is 'best' today may be 'worst' tomorrow depending upon the shift in the references that determined its 'best-ness' [42]. The underlying argument is that yesterday's core capabilities embedded in today's best practices could become tomorrow's core rigidities. Therefore, there is a need for ongoing reassessment. In order to properly and continuously reassess these best practices, [42] suggests the use of a number of core processes such as programming and deprogramming; reinforcement and exploration; learning and unlearning; and construction and deconstruction. These processes ensure that a real time "feedback-and-feedforward" loop of activities is set up within the organization. This will enable the organization to constantly scan the environment for emerging patterns that suggest the emergence of something new before implementation of "Best Practices".

We contend that "Best Practices" continuously reassessed and updated and stored in databases, websites etc. along with innovative, collaborative and learning processes can be of significant value to all government organizations. However, if not properly managed, they may yield only limited some short-term results if used at all. In a recent interview with CHIPS Magazine[32], the CKO at the National Defense University, Professor Robert Neilson, commented on the issue of "Best Practice": "What we have found is that people don't look at best practices databases. Here's an office example, an employee is having trouble with an application. Does he go to a database to find the information or the onscreen Help? No, he walks down the hall to the person he knows is the expert in this application to solve his problem. This kind of exchange is a flow of information—key to building a knowledge-centric organization (KCO)."

In the same interview, Professor Neilson described how a Navy aircraft pilot, in need of help following an attack would probably not resort to 'best practices' to help him land his crippled aircraft, but would rather prefer to speak directly to someone with experience who could talk him safely down. A CoP for Navy Flight Emergencies Specialists is valuable and recommended. Other authors have also implicitly indicated the limitations of "Best Practices" used in governments. For example, [43] indicates "Intranets allow for new procedures, data, policies, etc., to be quickly shared throughout an organization. In some instances, however, it is better to find the expert than the documents authored by the expert".

The above discussions suggest that the lifespan of "Best Practices" could be short. Naturally, with information overload, and time pressures, people are obliged not to depend on "Best Practices" no matter how "Best" they may be. The wish is to have tacit knowledge transferred directly to tacit knowledge. This is where CoPs come in. The 'non-usefulness' of "Best Practices" as discussed above suggests that the transfer of knowledge from explicit to tacit through "Best Practices" could turn out to be a wasted effort for many organizations unless they are continually reviewed, modified and integrated with other KM components. If this is the case, then strategies and budgeting for the creation of the explicit knowledge must be carefully reviewed. This issue can easily be assessed through measurement as suggested by the matrix approach. Whatever the case, we estimate that these practices are a means to an end in KM. They constitute a good start point. Their usefulness can be enhanced if used in combination with other alternatives, such as CoPs.

## 6. Conclusions and Recommendations

In this paper, we have attempted to contribute to developing an understanding of the underlying foundations and processes associated with KM by examining some of the issues, challenges and opportunities associated with this new discipline, and especially how governments can get engaged and benefit from it. The main ideas and recommendations presented can be summarized as follows:

The purpose of KM, in the "new economy" is to provide on line, real time access to knowledge, information and data throughout the organization and to its customers in that order. The organization's slogan in KM should be: Anyone, Anytime, Anywhere

and Anything for organizational performance, efficiency and competitive advantage. For governments, this requires a radical change in mindset – stripping away unnecessary bureaucratic procedures that cause delays and hamper information and knowledge flow, putting in place the appropriate networks (human and technical) and above all recognizing that they must "compete" with private sector organizations in the quality of services rendered to customers/citizens. To this end, governments must understand that the stakeholders in any KM initiative include: management, employees, partners, customers and even other governments; and their roles are to participate, collaborate and learn in all stages of KM.

Furthermore, with the looming retirement of a large number of civil servants, KM initiatives would be beneficial in preserving and extending organizational knowledge.

Knowledge sharing networks and especially CoPs provide an easy entry point in KM with enormous benefits. They readily overcome cultural barriers to knowledge sharing. They offer the opportunity and ability to manage organizational knowledge, on which the level of social capital can be released. Furthermore, they act like gene pools within which the ability to evolve future solutions lie. Through such communities the issues of trust and motivation essential to ensuring continuity in KM can also be addressed. Governments should setup CoPs for webmasters and helpdesks as suggested earlier. These CoPs can support and ensure e-government and government E-Commerce services. Government can and should replicate instances of successful KM practices from the private sector. The pay off is a smarter government, offering veritable government e-Commerce and e-Government services to its citizens and customers.

KM systems are much more complex than traditional IM systems. With a history of high IM system failure rate in governments [44], KM projects should be initiated and carried out in small manageable phases. In these phases, reinvention should be avoided at all cost. It is important to reuse what is known or available, to the limit possible. There should be a focus on organizational culture and norms, external knowledge, past experience and technologies. Considering the wide array of activities involved, an incremental approach as suggested in this paper is highly recommended. In this process, a street light analogy can be made: Technology is the green light, leadership is the yellow (amber) light and culture is the red light. Unlike in other business areas, where technology is a major barrier to success, technology has a minimal effect on KM compared to the other CSF. Technological solutions are already available for veritable KM efforts that can handle all the technical

and soft aspects but care must be exercised in selecting and putting in place an appropriate infrastructure. Capabilities for leadership in KM, required for roles of the CKO come from various backgrounds. Success depends on how much the CKO can understand the intricacies of all the processes and CSF involved and how he/she can respond to the challenges. Culture as the red light is the biggest barrier to KM. Its impact is often under estimated or even ignored. If an organization is unable to handle cultural issues properly, it should probably stay with IM, rather than attempting KM.

Finally, "Best practices" are a good starting point, but organizations should be conscious of the pitfalls of using them. These practices should not be used in isolation. They should be integrated with other endeavors such as CoPs. Award winning state organizations such as the CTG, which act as enablers and catalysts for innovative application of technology in government agencies should be transformed into Government Knowledge Centers. This will give them the opportunity to be more involved in KM while still performing their current activities. This means they would not be confined to producing "Best Practices" that might soon become outdated or not used at all as they are doing now, but they would effectively help government agencies to implement KM, which is an imperative for governments in the 21$^{st}$ century and the new economy♦.

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