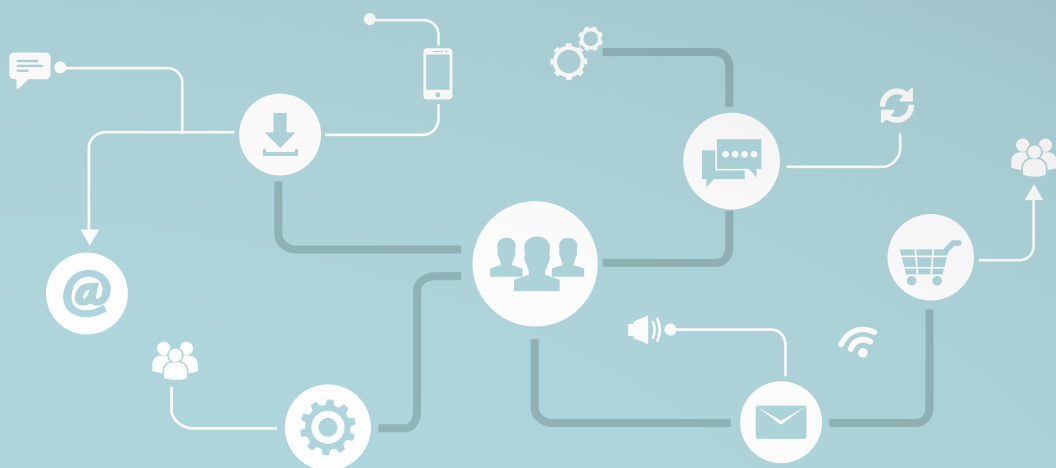


Fábio Ferreira Batista

Organizador



EXPERIÊNCIAS INTERNACIONAIS DE IMPLEMENTAÇÃO DA GESTÃO DO CONHECIMENTO NO SETOR PÚBLICO

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EXPERIÊNCIAS
INTERNACIONAIS
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GESTÃO DO CONHECIMENTO
NO SETOR PÚBLICO

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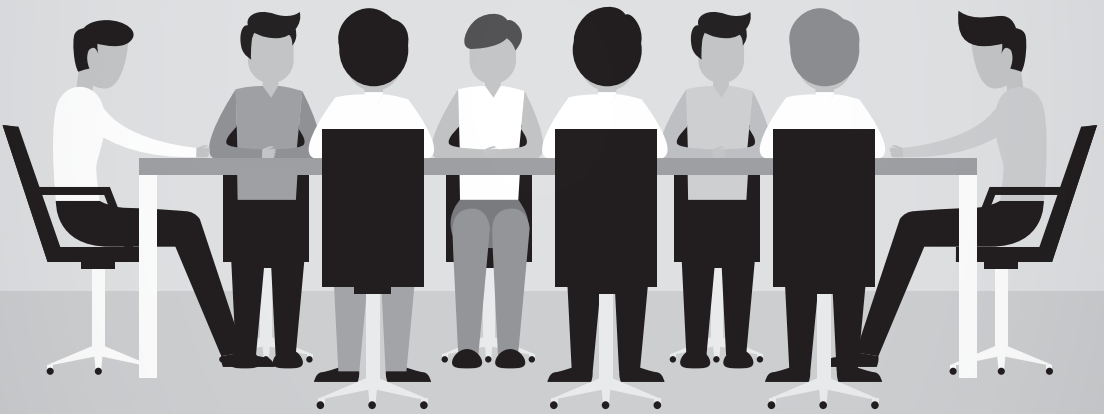
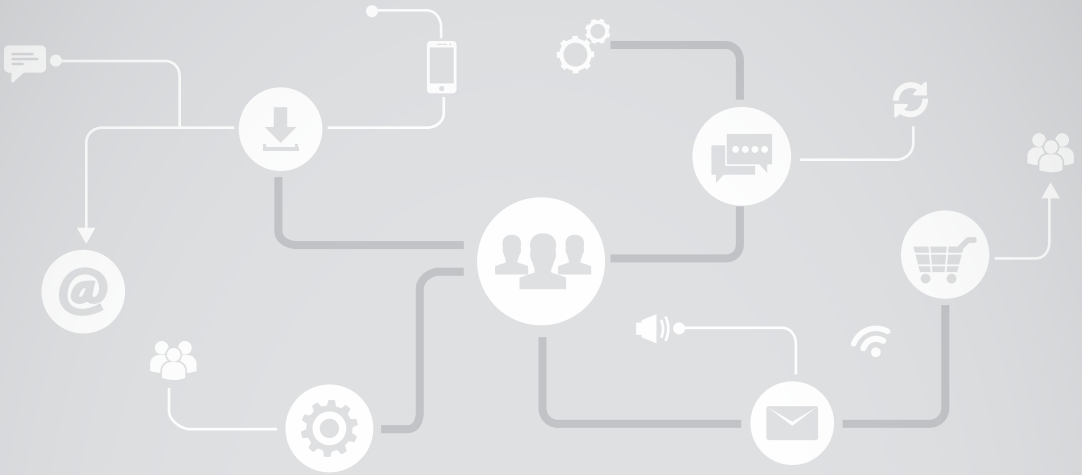
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APRESENTAÇÃO

Estudo publicado recentemente, de autoria de Massaro, Dumay e Garlatti (2015),¹ destaca que a gestão do conhecimento (GC) no setor público como área de pesquisa cresceu em importância nos últimos anos. No entanto, destaca alguns problemas: há poucos autores especializados no campo; o nível de colaboração entre eles e de comparações internacionais ainda é baixo; e as principais revistas que tratam do assunto publicaram poucos trabalhos sobre GC na América Latina na última década. Além disso, a literatura acerca dessa área de pesquisa ainda contribui pouco para a sua implementação em organizações públicas.

Considerando as contribuições que a GC pode trazer para aumentar a eficiência, inovar processos de trabalho e melhorar a qualidade dos serviços públicos, e levando em conta as características específicas do setor, Massaro, Dumay e Garlatti (2015) argumentam que o estudo de GC no setor público demanda uma agenda separada de pesquisa.

O Ipea conta com uma agenda específica de pesquisa sobre GC no setor público desde 2003, quando realizou o trabalho, publicado no ano seguinte, intitulado *Governo que Aprende: gestão do conhecimento em organizações do executivo federal*.² De 2004 até os dias atuais, o instituto publicou nove trabalhos que analisam como a GC é tratada em diversas áreas: empresas estatais do Executivo federal; órgãos e entidades da administração direta também do Executivo; organizações do Judiciário; área de saúde; instituições de ensino superior; Ministério Público; e Legislativo federal (Batista, 2004).³ Além disso, publicou uma obra⁴ em que

1. Massaro, M.; Dumay, J.; Garlatti, A. Public sector knowledge management: a structured literature review. *Journal of Knowledge Management*, v. 19, n. 3, p. 530-558, 2015.

2. Batista, F. F. *Governo que aprende: gestão do conhecimento em organizações do executivo federal*. Brasília: Ipea, 2004. (Texto para Discussão, n. 1022).

3. Batista, F. F. *Gestão do conhecimento na administração pública: resultados da pesquisa Ipea 2014 – grau de formalização e externalização*. Brasília: Ipea, 2015. (Texto para Discussão, n. 2066). Batista, F. F. et al. *Gestão do conhecimento na administração pública*. Brasília: Ipea, 2005. (Texto para Discussão, n. 1095). Batista, F. F. et al. *Casos reais de implantação do modelo de gestão do conhecimento para a administração pública brasileira*. Brasília: Ipea, 2014. (Texto para Discussão, n. 1941). Batista, F. F. et al. *Gestão do conhecimento em organizações públicas de saúde*. Brasília: Ipea, 2007. (Texto para Discussão, n. 1316). Batista, F. F. *O desafio da gestão do conhecimento nas áreas de administração e planejamento das instituições federais de ensino (Ifes)*. Brasília: Ipea, 2006. (Texto para Discussão, n. 1181).

4. Batista, F. F. *Modelo de gestão do conhecimento para a administração pública brasileira: como implementar a gestão do conhecimento para produzir resultados em benefício do cidadão*. Brasília: Ipea, 2012.

propõe um modelo de GC para a administração pública brasileira e um método de implementação. Também lançou estudos de caso⁵ que descrevem a adoção desse modelo por organizações públicas diversas, tais como: a Empresa Brasileira de Correios e Telégrafos (ECT); a Agência Brasileira de Desenvolvimento Industrial (ABDI); a Superintendência de Aeronavegabilidade da Agência Nacional de Aviação Civil (SAR/Anac); o Ipea; o Ministério Público do Distrito Federal e Territórios (MPDFT); e o governo do estado de Minas Gerais.

Nesta obra, a décima publicada por este instituto sobre o tema, são analisadas experiências de implementação de GC no setor público de três países do continente americano (Canadá, México e Chile) e de cinco países europeus (Portugal, Reino Unido, Alemanha, Áustria e Suíça). Trata-se de obra pioneira cuja principal colaboração é descrever políticas, estratégias e práticas de GC no setor público desses países, assim como os resultados alcançados.

Com este livro, o Ipea contribui, mais uma vez, para a teoria e a prática de GC em organizações públicas. A literatura é enriquecida com este primeiro trabalho destinado a analisar experiências de sua implementação no setor público de países de dois continentes. Além disso, as políticas, as estratégias e as práticas de GC aqui descritas poderão servir de subsídio para a institucionalização dessa gestão em órgãos e entidades da administração pública brasileira dos três poderes (Executivo, Legislativo e Judiciário) e dos três níveis de governo (federal, estadual e municipal) e, dessa forma, contribuir para a melhoria dos serviços prestados pelo Estado à sociedade.

Jessé Souza
Presidente do Instituto de Pesquisa Econômica Aplicada

5. Batista, F. F. et al. *Casos reais de implantação do modelo de gestão do conhecimento para a administração pública brasileira: o caso da Fundação Oswaldo Cruz*. Brasília: Ipea, 2015. (Texto para Discussão, n. 2075). Batista, F. F.; Quandt, C. *Gestão do conhecimento na administração pública: resultados da pesquisa Ipea 2014 – práticas de gestão do conhecimento*. Brasília: Ipea, 2015. (Texto para Discussão, n. 2120).

INTRODUÇÃO

Fábio Ferreira Batista¹

Uma era pode ser definida como um período que começa com mudanças significativas na economia e na sociedade. Na Era do Conhecimento, iniciada no final do século XX, surge uma forma nova e avançada de capitalismo. Nesta fase, o conhecimento e as ideias são a principal fonte de geração de riquezas – e, portanto, de crescimento econômico –, mais importante que terra, trabalho, capital e outros recursos tangíveis. Além disso, surgem formas novas de trabalho e de negócio, e, como consequência, tornam-se necessários novos tipos de trabalhadores, com diferentes competências (conjunto de conhecimentos, habilidades e atitudes).

Na Era do Conhecimento, o significado do conhecimento está mudando. Ele não é mais visto apenas como algo produzido e armazenado nas mentes dos especialistas, ou como o conteúdo presente em livros e revistas, classificado em disciplinas como matemática, física, química, biologia etc. Conhecimento é definido não só como “entendimento obtido por meio da experiência, análise e compartilhamento” (Weidner, 2014, tradução nossa), mas também como uma forma de energia, um sistema de redes e fluxos, como algo que faz coisas ou torna as coisas possíveis de acontecer. Nesta era, o conhecimento é conceituado e valorizado não pelo que é, mas pelo que pode fazer. O conhecimento relevante não é mais resultado do trabalho individual, mas do esforço de uma inteligência coletiva, isto é, de grupos de pessoas com competências complementares que colaboram entre si com propósitos claramente definidos.

O entendimento sobre o que é gestão do conhecimento (GC) também está em constante evolução. A consultora Nancy Dixon classifica as mudanças na maneira de ver a GC, desde meados da década de 1990 até os dias atuais, em três eras. Cada uma delas é marcada por uma ênfase específica.² Na primeira era da GC, período que vai de 1995 a 2000, entendia-se GC como gestão da informação. A sua função de destaque era coletar e disseminar, isto é, as organizações buscavam captar o conhecimento explícito contido em documentos e disponibilizá-los em

1. Técnico de planejamento e pesquisa da Diretoria de Desenvolvimento Institucional (Dides) do Ipea; e professor do mestrado em gestão do conhecimento e tecnologia da informação da Universidade Católica de Brasília (UCB).

2. Dixon, N. *Three eras of knowledge management*. (Apresentação em vídeo para o YouTube). Disponível em: <https://www.youtube.com/watch?v=_YC8jYeKpBw>. Acesso em: 16 dez. 2015.

repositórios digitais. A ênfase era mais na tecnologia que nas pessoas. Na segunda era da GC, ocorrida entre 2000 e 2005, o entendimento de GC passou a ser de gestão da experiência. Dava-se ênfase à experiência das pessoas, ao conhecimento tácito. É nessa era que surgem as comunidades de prática virtuais, popularizadas pelo trabalho de Wenger, McDermott e Snyder (2002). A função da GC valorizada nessa época era conectar as pessoas, para que elas pudessem compartilhar suas experiências profissionais, com o intuito de se aprofundarem num determinado domínio do saber. O entendimento predominante após 2005 é que GC diz respeito à gestão de ideias. O foco está na produção coletiva do conhecimento para resolver problemas e inovar. Nesta era, as organizações começam a aprender a usar o conhecimento coletivo e, com isso, aumenta a importância da criação de uma cultura organizacional colaborativa.

A GC, portanto, é vista nos dias de hoje como a gestão mais apropriada para a Era do Conhecimento. As mudanças na economia global levaram as organizações a enfatizar temas como aprendizagem, inovação e compartilhamento de conhecimento para assegurar o uso do melhor conhecimento disponível. A GC é relevante devido ao papel preponderante do conhecimento. Isto pode ser observado na importância atribuída à comunicação, à colaboração e ao compartilhamento, assim como à otimização dos processos por meio da utilização, da reutilização e da criação do conhecimento. O sucesso é resultado de uma estratégia clara de integração dos princípios e práticas da GC aos processos de trabalho.

Para a alta administração no setor privado, a GC é relevante porque contribui para que a empresa seja competitiva e alcance a liderança estratégica na Era do Conhecimento. Na administração pública, por sua vez, a GC é o caminho para a excelência por ser um método capaz de assegurar a qualidade nos serviços prestados à população. Também é vista como estratégica pela liderança das organizações porque permite melhorar de maneira significativa o desempenho organizacional, ao preconizar o foco da gestão em atividades intensivas em conhecimento: educação e treinamento, gerenciamento de projetos, gestão de processos, planejamento estratégico e trabalho em equipe.

Para o trabalhador do conhecimento, a GC é um meio para facilitar suas atividades profissionais. Ao contribuir para que o conteúdo certo chegue à pessoa certa na hora certa, a GC ajuda os colaboradores a terem um melhor equilíbrio entre trabalho e vida pessoal. Além disso, contribui para reduzir o estresse no ambiente de trabalho, e promove a aprendizagem individual e novas oportunidades na carreira. A GC permite tornar mais fértil o profissional que usa o intelecto para produzir informação e conhecimento. A implementação de práticas de GC libera o trabalhador para ser mais criativo, inovador e produtivo, além de desenvolver suas competências (conjunto de conhecimentos, habilidades e atitudes).

Recente estudo publicado em uma das principais revistas na área, o *Journal of Knowledge Management*, destaca que cresce a importância da GC no setor público como área de pesquisa. Salienta, também, que o baixo nível de cooperação internacional entre os autores e o número reduzido de estudos de caso comparativos demonstram que a literatura é fragmentada (Massaro, Dumay e Garlatti, 2015).

Este livro contribui tanto para os órgãos e as entidades da administração pública interessados em implementar a GC como para o desenvolvimento da pesquisa na área, ao reunir análises de especialistas sobre políticas, estratégias e práticas de GC sendo implementadas nos setores públicos do Canadá, do México, do Chile, de Portugal, do Reino Unido, da Alemanha, da Áustria e da Suíça.

No capítulo 1, Kimiz Dalkir, professora da disciplina de GC da School of Information Studies, da McGill University (em Montreal, no Canadá), descreve cinco casos exitosos de implementação da GC no Canadá, em especial, em organizações públicas federais e estaduais. O foco da autora é nas práticas implementadas pelas seguintes instituições: *i*) Natural Resources Canada, que elaborou uma referência interna e externa de práticas de GC; *ii*) Transport Canada, que produziu um plano de sucessão para a organização; *iii*) Hydro-Quebec, que compilou narrativas para captar lições aprendidas e construir sistemas de memória organizacional; *iv*) Tobacco Control Branch, que efetua análise de redes sociais para agilizar a resposta aos pedidos da Lei de Acesso à Informação; e *v*) Center for Security Science, que criou uma rede de especialistas em antiterrorismo. Além disso, ela descreve como a avaliação foi realizada e demonstra o sucesso das iniciativas. Para cada caso de implementação, o grau de implementação e alcance na organização foi avaliado com base no modelo 4 Is (Crossan, White e Lane, 1999).

No capítulo 2, Gregorio Pérez Arrau, professor da Faculdade de Administração e Economia da Universidade de Santiago do Chile, descreve e analisa a aplicação de políticas, práticas e ferramentas de GC no setor público chileno. Nas seis organizações pesquisadas, as práticas implementadas não recebem o rótulo de GC. Estão em um estágio embrionário e relacionam-se à educação corporativa. Os casos estudados foram: *i*) Academia de Obras Públicas (AOP), do Ministerio de Obras Públicas; *ii*) Escuela Técnica de Formación, da Dirección del Trabajo; *iii*) Fondo de Solidaridad e Inversión Social (Fosis); *iv*) Academia de Formación, da Defensoría Penal Pública; *v*) Escuela de Gendarmería; e *vi*) Programa de Gestão do Conhecimento, do Departamento de Recursos Humanos da Aduana de Chile. Arrau destaca a origem, o objetivo, o tipo de política ou prática aplicada, o contexto social e organizacional em que a iniciativa foi executada, os resultados alcançados e as barreiras e facilitadores.

No capítulo 3, Leonor Pais, professora e pesquisadora da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra, de Portugal,

descreve e caracteriza os processos de GC existentes nas câmaras municipais (CMs) portuguesas, correspondentes às prefeituras municipais brasileiras, avaliados a partir das percepções dos seus colaboradores. A autora verifica se há diferenças nos processos de GC quando se comparam CMs com serviços certificados e CMs sem serviços certificados; analisa o papel da cultura organizacional na implementação dos processos de GC estudados; e apresenta, a partir dos resultados encontrados, recomendações para a implementação da GC em outras organizações do setor público.

No capítulo 4, Francisco Javier Carrillo, professor de GC e diretor do Grupo de Pesquisa Estratégica das Sociedades do Conhecimento do Instituto Tecnológico de Monterrey, no México, apresenta uma visão geral das iniciativas de GC no setor público do México. O autor enfatiza principalmente a GC no nível organizacional, mas também aborda o tema a partir de uma perspectiva social mais ampla: o desenvolvimento baseado no conhecimento (*knowledge-based development* – KBD).

Finalmente, no capítulo 5, Peter Heisig, pesquisador da Leeds University Business School, do Reino Unido, analisa iniciativas e projetos de GC no setor público de quatro países: Áustria, Alemanha, Reino Unido e Suíça. O autor conclui que a GC é considerada um assunto relevante em todos estes países. É relevante em todos os níveis de governo, do local ao federal, assim como em várias áreas: da financeira à de defesa nacional. Destacam-se nas experiências destes países europeus: *i*) pesquisas realizadas para diagnosticar a situação das iniciativas de GC (Áustria e Alemanha); *ii*) definição de estratégias de GC para o setor público (Áustria, Suíça e Reino Unido); *iii*) iniciativas para reter o conhecimento de especialistas devido a fatores diversos, tais como: aposentadoria, promoção, rotatividade e demissão (Prefeitura de Erlangen, no estado da Baviera, na Alemanha; e Ministério da Fazenda da Áustria); e *iv*) compartilhamento do conhecimento entre órgãos públicos via *blogs*, *wikis*, *network* e páginas amarelas (*Civil Pages*, no Reino Unido), e entre governos locais (Reino Unido).

A leitura atenta das experiências de realização de diagnósticos e de implementação de políticas, estratégias e práticas de GC analisadas mostra a relevância da GC em todos os países analisados. A expectativa dos autores deste livro é que os casos reais aqui apresentados de implantação da GC na Alemanha, na Áustria, no Canadá, no Chile, no México, em Portugal, no Reino Unido e na Suíça sirvam de incentivo para servidores e gestores públicos encarregados de institucionalizar a GC nas suas instituições, e de referência para a elaboração e a implementação de políticas e estratégias de GC nos três poderes (Executivo, Legislativo e Judiciário) e nos três níveis de governo (federal, estadual e municipal) do Estado brasileiro.

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KNOWLEDGE MANAGEMENT IN THE PUBLIC SECTOR: SOME CANADIAN SUCCESS FACTORS

Kimiz Dalkir¹

1 INTRODUCTION

This chapter describes five successful KM implementations in the Canadian public sector, primarily in federal and provincial government organizations. The major focus is on the implementation with some discussion of how the success of their implementation was assessed and demonstrated. These five examples include: internal and external benchmarking on KM practices; incorporation of KM into government policy, notably for succession planning; narratives in the form of organizational storytelling for lessons learned capture and organizational memory systems; communities of practice or knowledge networks to create a network-centric anti-terrorist organization; and a social network analysis to improve response time for Access to Information requests. For each implementation, the degree of implementation and the outreach scope was assessed, using the Crossan, White and Lane (1999) 4I model of institutionalization. The types of results that can be assessed are characterized as either qualitative (e.g. improved ability to adapt to changes) to more measurable results (e.g. increased efficiency).

1.1 Country profile

Canada was one of the early adopters of a constitutional framework relevant for KM in the public sector and has been consistently highly ranked with respect to using information and communication technologies to interface with citizens. In a traditional model, citizens request document information and typically receive a paper copy. In the new model, governments provide “proactive disclosure” in order to increase transparency and citizen empowerment. This means that information is made available online and citizens can actively search for and retrieve the information they are interested in. Eggers (2005) coined the term “Government 2.0” to refer to the integration of new-generation digital media technologies into government structure and operations. Government 2.0 is also referred to as “e-government”, “e-governance”, “e-participation” or “open government,” to denote a more

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bi-directional interaction, not only to request information from the government but to also provide feedback on service, statistics and policy (Davies and Lithwick, 2010).

The government of Canada expressed a goal of “becoming a model user of information technology and the Internet” for its citizens, and attempted to achieve this goal by making all governmental information and services available online² to ensure all Canadian citizens are provided convenient and secure access regardless of location or time. The government’s commitment to “improving Canada’s information infrastructure [to] support the exchange of ideas and the conduct of business over computer networks, connect[ing] Canadians to the information highway, and accelerate[ing] the adoption of electronic commerce” (Privy Council Office, 1999). The goal was to introduce legislation to become a model user of information technology and the Internet while protecting personal and business information (Fraser, 2009). To this end, Canada launched the Government Online Initiative (GOL) in 1999 and appointed a Chief Information Office as the coordinator. Initially, GOL focused on a producing and delivering content over the web (OECD, 2005) but this static model gradually gave way to a more interactive style of e-government where citizens were not only consumers but also producers of content (Roy, 2007).

In 2001, the Canadian government developed a one-stop shop website: a single centralized point of entry for citizens to most federal websites (Accenture, 2007). In 2005, GOL was extended to the whole of government to become the Government of Canada portal and became a part of a larger, cohesive strategy for a knowledge-based economy and society. At the same time, Service Canada introduced their portal to provide citizens access a wide range of government programs and services.³ This too began as an information push tool and later evolved into a more interactive transactional space (Roy, 2006).

In March 2011, The Government of Canada first launched its Open Government strategy as part of their efforts to foster greater openness and accountability, to provide Canadians with more opportunities to learn about and participate in government, to drive innovation and economic opportunities for all Canadians and, at the same time, create a more cost effective, efficient and responsive government⁴ Historically, Canada has been a world leader in making information available and in being accountable to its citizens. Government of Canada legislation, policies, and practices have consistently advanced transparency and openness. Major advancements have included:

2. Available at: <<http://canada.gc.ca/home.html>>.

3. Available at: <<http://www.servicecanada.gc.ca/en/about/index.shtml>>.

4. Available at: <<http://data.gc.ca/eng/canadas-action-plan-open-government>>.

- 1977 – Privacy Commissioner: appointment of Canada’s first Privacy Commissioner to protect and promote the privacy rights of individual.
- 1983 – Access to Information Act: Canada became one of the first countries to enact federal access to information legislation almost three decades ago.
- 1983 – Information Commissioner: appointment of the first Information Commissioner in Canada to ensure that individuals’ rights to information under the Access to Information Act are respected and that government operates within a culture of transparency and fairness.
- 1983 – Privacy Act: legislation enacted to place limits on the collection, use, and disclosure of personal information, and provides Canadians the right to see and correct personal information the Government of Canada holds on them.
- 2003 – Proactive Disclosure: began publication of information on government operations to allow Canadians and Parliament to better hold the Government and public sector officials to account.
- 2011 – Open Government Initiative: on March 18, 2011, the Government announced its commitment to an open government initiative along three main streams: open information, open data, and open dialogue.
- 2011 – Open Data Pilot Project: launched an Open Data Portal – data.gc.ca – which now has more than 272,000 datasets from 20 departments and which has already resulted in over 100,000 dataset downloads since its launch.
- 2012 – Access to information Request Summaries: all departments are now publishing summaries of completed ATI requests monthly on their websites.
- 2013 – Blueprint 2020: the major focus of the Canadian public service today is on a vision that integrates innovation, transformation and continuous renewal to promote shared values, high performance and excellence.
- 2014 – Open Government 2014: specifies ways the federal government is working towards creating a more open and transparent government and maximizing the sharing of government information and data.

The last 10 years provided a challenging environment for the successful development and implementation of a national vision and ICT policy for digital

inclusion and innovation in Canada.⁵ Nonetheless, putting the right policies, application programs, and networks in place to promote innovation has served to accelerate the knowledge transfer process needed to empower individuals and promote organizational change. The focus on capacity building, starting with youth, has been a critical factor towards furthering Canada's national vision for digital inclusion and innovation. In the information society, the networking of people and organizations enables them to actively share information and knowledge, accelerating the technical, cultural, and managerial innovation processes. For the last two years in a row, Accenture has ranked Canada first among 22 countries for its leadership in eGovernment.

Canada succeeded in managing this change process through a combination of policy and application programs, focusing on capacity building. Today, 75% of Canadians and 83% of our SMEs use the internet. These achievements are no small feat considering that Canada is the second largest country geographically in the world; has two official languages; and has a population of just 31 million that extends into the remote areas of the Arctic Circle. Canada is rated highest in the Provision of e-Government Services due to the fact that it periodically consults its citizens on what kind of e-services they want.⁶ Unlike many countries, Canada's e-Government action plan is built on a foundation of facts based on known information from its customer base. Canada regularly surveys citizens and businesses about their attitudes and needs – more so than any other country. Canada also actively markets its e-Government services to the citizens, business and non-citizens. It advertises on TV and radio, in airline magazines and newspapers to get citizens to use the portal, www.canada.gc.ca. Canada, like many nations, has a national Chief Information Officer (CIO), who has been given the muscle to drive standards and promote e-Government across the government.

Blueprint 2020 promotes a unifying vision for all public servants to help build the Public Service of Tomorrow. The overarching goal is to improve services to Canadians and advance Canada's social and economic interests. The key tenets are that constant improvement and innovation will lead to increased productivity. Engagement, collaboration, effective teamwork and professional development are some of the major ways of creating high performance. The role of KM is thus to contribute to collaborative ways of working and to help catalyze innovation (Government of Canada, 2013).

5. Available at: <<http://www.ic.gc.ca/eic/site/wsis-smsi.nsf/eng/00035.html>>.

6. Available at: <<http://egov.comesa.int/index.php/en/e-government-resouces/14-e-government-best-practices-and-lessons-review>>.

2 REVIEW OF THE LITERATURE AND METHODOLOGY

The author has been personally involved in the key Knowledge Management initiatives described here. A modified form of the case study method will therefore be used to present five illustrative examples of successful KM implementations in Canada. The key stakeholders were interviewed as needed to provide additional information and to provide context for the interpretation of results. A review of the literature was also done in by consulting primary scholarly and practitioner sources in the areas of e-government, knowledge management in Canada and in the specific types of initiatives described here. In this way, the Canadian case studies can be better situated in the extant literature as well as to provide an easier comparison and benchmarking with respect to KM implementations in other countries.

2.1 Description of Canadian case studies

2.1.1 Case 1. Internal and external benchmarking on KM practices

Benchmarking is an activity used to assess the performance, or progress towards goals, of an organization when compared to either a standard or an exemplary performer in their sector of activity. Leal and Roldan (2001) were among the first to apply this approach to KM initiatives. They focused on KM strategies and how companies could use intra and inter-organizational benchmarking to improve their chances of succeeding with KM. Spendolini (1992) defines benchmarking on the cover of his book as: “a continuous, systematic process for evaluating the products, services, and work processes of organizations that are recognized as representing best practices for the purpose of organizational improvement.” At the time the book was written, benchmarking was a relatively new practice; now it has become an expectation. Spendolini also developed three categories of benchmarking: external (comparison with other competitors), internal (comparison between different units of the same organization) and functional benchmarking (comparison to best in class or industry leaders) that were usually published or available to all.

The research question addressed was: could KM strategies and initiatives be benchmarked? Both internal and external benchmarking was carried out in order to help the corporate KM group at Natural Resources Canada (NRCan) develop and implement a KM strategy. The driving force behind this work was that NRCan wanted to know what had already been done, roughly where they stood with respect to general standards and specific comparable organizations (especially with respect to the US government) and to then use these findings as the starting point to craft their KM strategy and priorities. The external benchmarking was done with eleven (11) other similar organizations (similarly sized government departments). In addition, internal benchmarking was done with other units within Natural Resources Canada, notably the Canadian Forest Services unit, as they were significantly more advanced

in the implementation of core KM processes. From this analysis, 24 best practices in knowledge sharing and retention as well as best practices in general knowledge management were extracted from primary sources. The methodology used was to first consult publicly available resources and then to contact key stakeholders for telephone and face-to-face interviews at each of the selected benchmark organizations. In addition, 40 best practices were compiled from secondary sources, namely two key studies from the Conference Board of Canada and the American Productivity and Quality Control Centre, two benchmarking organizations. Some examples of KM benchmarking from these two organizations are provided in Appendix B.

A template for the successful transfer of these best practices was then developed. One of the key features of this template was the analytical process needed to identify first of all, whether the best practice could simply be applied “as is” without any modification. If not, then the specific changes needed to ensure its successful adoption within the Canadian government were identified. The notion of knowledge stickiness, as described by Szulanski (1996) and Argote *et al.* (2000) proved useful in adapting KM practices to a different setting. These authors note that the stickier knowledge is, the more likely it is to stay where it originated from. Sticky knowledge refers to best practices that are not easily applied in any other context. They are too specific, difficult to generalize and therefore do not move around too much. This template is shown in table 1. The structure of this template was such that the information could be easily imported into a database of best practices. In this way, NRCan could continue monitoring KM initiatives both internally and externally in the future.

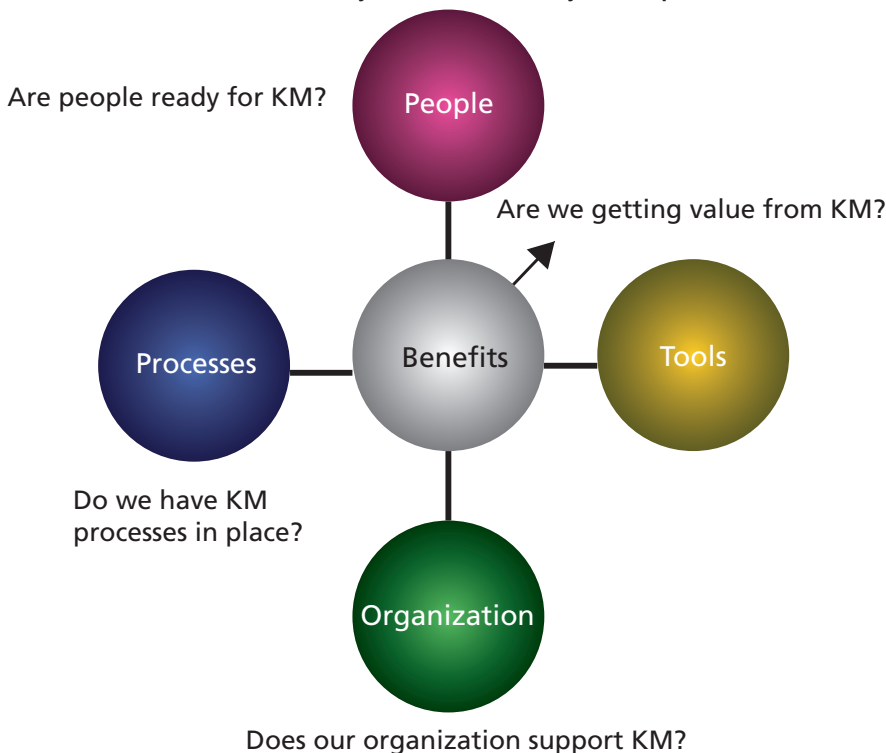
TABLE 1
Template to characterize KM best practices

| | |
|--------------------------------|---|
| Name of best practice | Unambiguous short label should be used |
| Site | Name of organization where this BP originated |
| Number of employees | Number of employees in organization; number of KM employees |
| Description | Short description (paragraph or so) |
| Target audience | Who should use this BP (and who should not) |
| Target practice | What is the objective of this BP (which process will it improve)? |
| Approach | How to implement the BP (including tools, training etc.) |
| Prerequisites (if any) | What needs to be in place before successfully implementing this BP? |
| Implementation recommendations | What needs to be modified, refined in order to implement within the public sector? |
| BTOPP | What are the expected benefits? Are the necessary people, process, organization and tools in place? See figure 1 below. |
| Additional notes | Comments (especially by anyone who has already made use of this BP, how well they succeeded, what they would change, challenges they had) |
| Other resources | Links to manuals, background documents, other useful readings |
| Related best practices | Describe similar best practices in other organizations where relevant |

Author's elaboration.

Part of the implementation feasibility analysis consisted of comparing the degree to which the two organizations were similar, particularly with respect to policies and legislation. In addition, a “BTOPP” analysis was conducted, which consisted of analysing the feasibility of transferring this best practice to NRCan. This consisted of answering five (5) questions, as shown in figure 1 below.

FIGURE 1
The BTOPP framework to analyze the transferability of best practices



Author’s elaboration.

The key findings were categorized as knowledge codification, knowledge sharing, knowledge preservation and general KM practices. The knowledge codification best practices include: storytelling, lessons learned training, know-how databases, after action reviews and exit interviews. These are all BPs that help convert tacit knowledge (which is contained in the heads of knowledge workers) into documented and “annotated” explicit knowledge. Once knowledge has been rendered concrete and, it becomes much easier to share, disseminate and preserve this valuable know-how. Stories are excellent at documenting tacit knowledge because they can capture the contextual elements – in what year did this event occur? What was the legislative

environment like then? What was the technological landscape like? Context is needed so BPs can be replicated by other organizations. Both best practices (what worked and why) and lessons learned (what didn't work and why) can then be represented much like the templates shown in this report. Along with standard templates, training is required so that people understand what to document, who to submit their stories, BPs and LLs, and – perhaps most importantly – how to find them and use them in their own work. After action reviews and exit interviews are an excellent means of eliciting such content. AARs tend to be conducted with a project team while exit interviews tend to be individual interviews.

The knowledge sharing and dissemination best practices include: communities of practice, knowledge fairs, knowledge portals, BP manuals, collaboration software and initiatives aimed to facilitate inter-generational knowledge sharing. Tacit knowledge is generally best shared through communities of practice and informal networking events as people can interact directly with people. However, while the sharing occurs naturally, there is often only a minimal trace of the tacit knowledge that was shared. Collaboration software and knowledge portals serve to mediate knowledge sharing but they also preserve it for future reuse. Manuals and best practice and lessons learned documents/databases also help to share the content more widely and to preserve it in organizational memory. Training creates awareness of how knowledge sharing mechanisms work and helps people better understand their roles. The greater the level of diffusion of a given know-how, the less vulnerable the organization will be should someone with that knowledge leave. Knowledge sharing best practices highlights the prescription that knowledge should be shared and documented in a systematic manner throughout the organization as a continuous process. Often referred to as KR&T (Knowledge Retention and Transfer), this is something that should be part of how every employee performs their job and how every organization learns and remembers from past experience.

The knowledge preservation best practices of leading organizations are always some form of information system, typically a database combined with a user-friendly interface (intranet or web-based) where BPs, LLs and stories may be stored. Knowledge portals, described in the previous section, serve to help share knowledge but they also serve to preserve knowledge. The key processes are very similar to the information management or document management lifecycle, including criteria on what content to include, how to tag them (metadata to categorize them for future retrieval) and how to archive this content. The very nature of “best” practice means that this form of content will need to be updated fairly frequently as new and better practices should always be appearing. Lessons learned, on the other hand, remain more stable and, as long as they are generic enough, can continue to be applied. They will only need to be validated periodically to ensure that the context (environmental conditions

such as legislation, technological advances etc.) have not changed sufficiently to render the lesson no longer useful.

Some general KM best practices were that incentives are “in the eye of the beholder” and must be varied in order to suit different employees. The active participation of senior management in KM strategy development entails participation at meetings to ensure KM initiatives will result in concrete and measurable results and provide the “big picture” guidance throughout the strategy development process. Existing frameworks such as the RMAF (Results Based Management Accountability Framework) are used as starting points for KM performance evaluation but the leading organizations then go on to instantiate and customize these in order to answer the specific questions they have regarding KM contributions to organizational objectives. KM often requires an evolution in the organizational culture in order to promote more widespread knowledge sharing and leading organizations have succeeded by diagnosing the current cultural status quo and then using the same instrument to monitor progress. Finally, KM will require a strong governance structure. The U.S. has addressed this through the CHCO Act (Chief Human Capital Officer Act) which changes the traditional role of HR from an administrative unit to a more strategic one. Human capital is recognized as having very high value and each major government department is required to have a CHCO and each CHCO is required to network with the others through a CHCO Council (for work) and a CHCO Academy (for learning).

Initially, although NRCan had thought that they were very much behind when it came to KM, they were in fact pioneering some excellent best practices that even the private sector had not yet adopted. They had a “Vault” that had served as an excellent archive for all innovative initiatives – yet only a few units knew of its existence. As a result of the benchmarking, they were able to extend the scope of the Vault to become a department-wide vehicle for knowledge retention. They also found the CFS (Canada Forest Services) had successfully implemented an extended form of the exit interview that included videotaping employees who were about to leave the department (due to retirement or other reasons). Traditionally, exit interviews are performed by Human Resource (HR) departments and they typically focus on very operational requirements such as ensuring the employee has returned access cards and equipment and feedback on what they liked or didn’t like about their employment and what areas of the organisation they feel need improvement.

More recently, the concept of exit interviewing has been revisited and expanded as a knowledge management tool, as a way of capturing knowledge from people who are leaving the organisation. Rather than simply capturing human resources information, the interview also aims to capture knowledge about what it takes to do the job. The primary focus of the knowledge-focused interview is on knowledge

that would be helpful to the next person who will do the job or to others in the organisation doing similar jobs (e.g. network of other similar knowledge holders). The best practice identified recommends that in the case of explicit knowledge, make sure that the employee moves relevant files – both hard copy and electronic – into shared folders or a document library. Ask them to prune and organise these files and to create role and task folders or notes for their successor. For tacit knowledge, you will need to interview the employee face-to-face. Prepare for the interview by reviewing the key tasks the person does based on a job description or annual performance plan. You can then use that information as the basis for discussing how they go about those tasks, what knowledge and skills are needed, any problems or pitfalls to be aware of, etc. It is also important to uncover the employee's network of contacts and other sources of knowledge. If possible, create an overlap period between the person leaving and their successor so that a “live” handover can be done.

While some knowledge capture needs to happen before the person leaves, it may be advantageous to keep in contact with the employee after they leave to ask specific questions or to conduct additional interviews when the employee is less stressed.

2.1.2 Case 2. Incorporation of KM into government policy, notably for succession planning

One of the earliest KM successes in the Canadian government consisted of a knowledge retention and transfer policy to ensure valuable knowledge was not lost when experience employees retired. Robertson and Davidson (2011) note that the area of KM government policy is one of the most challenging: “they are messy and irregular processes that are hard to summarize in a few precepts that policy makers can use as levers for change” (p. 2). Green, Stankosky and Vandergriff (2010) point out that this is becoming an increasingly urgent requirement for the US government as more and more Babyboomers are expected to retire from the federal government in the next few years. The research question was: can KM policy be developed and implemented within the Canadian government?

A series of three pilot studies were carried out with Transport Canada on how best to capture, preserve and transfer the experience and expertise of senior researchers, engineers and scientists who were about to retire from public service (Dalkir, 2002, 2010). The results of these pilot studies were then implemented as a nation-wide policy by the federal Treasury Board and serves to this day as a best practice in succession planning. The pilot study showed that knowledge capture, transfer and preservation needed to occur at three levels: the individuals (retiree and successor), their knowledge networks (teams, associations) and the organizational level (organizational memory). A three-tiered approach was developed and this was

later implemented as policy and guidelines for both retiring employees and their managers in the public sector (the succession planning and management guide.⁷

The three-tiered approach to knowledge transfer is shown in table 2 and consists of:

- 1) Individual: knowledge mapping of expertise and task support systems to transfer operational knowledge from an expert individual to less experienced individuals just-in-time and within the context of their task at hand.
- 2) Community: social interaction mapping to identify the networks and connections involved in the transfer of knowledge members of a community of practice.
- 3) Organization: intellectual asset mapping to help visualize where the valuable knowledge points are (systems, people, processes, communities) and to easily pinpoint those at risk of being lost to the organization.

TABLE 2
Three-tiered approach to knowledge transfer

| Knowledge transfer (KT) approaches | Types of knowledge | Tangible by-products of the transfer |
|---|--|--|
| Individual structured interviews with experts KT at individual level | Operational Anecdotal Lessons learned Best practices Where to find knowledge and experts | Map of key knowledge Map of key contacts, memberships Glossary of discipline Interview templates Interview transcripts Key tasks and task support systems |
| Facilitated workshops with community of practice (CoP) members KT at group level | Tactical Knowledge flow facilitators Knowledge flow blocks Identification of CoP | Workshop notes Knowledge repository design and implementation Map of social interactions within CoP and with external stakeholders |
| Storytelling workshops and individual interviews with key senior managers KT at executive levels | Strategic Consensus re. key intellectual assets Criteria for evaluation of intellectual assets' business value | Map of key intellectual assets of the organization Organizational lexicon of key concepts Springboard stories Historical knowledge (organizational "saga") |

Author's elaboration.

At the individual level, interviews are necessary to map out where knowledge exists, in both tangible documents and in the minds of human experts. At the group level, a social network analysis of knowledge flows can be very beneficial. This type of analysis is particularly good at identifying who asks whom for what type of assistance, the so-called unofficial experts. Finally, at the organizational level, it is important to identify the strategic criteria used to determine the value of specific types of knowledge and expertise. This is typically represented as a map

7. Available at: <<http://www.tbs-sct.gc.ca/gui/spgr/spg-gpgr-01-eng.asp?for=hrps>>.

of intellectual assets. In addition, interviews are needed with key decision-makers to understand the procedural, legislative and policy constraints that need to be respected. There is not one specific approach that should be used with each of the three tiers. Rather, a wide range of knowledge retention and transfer approaches should be used with at all three levels in order to identify what is fairly easy to transfer, hard to transfer and impossible to transfer from one individual to another, in a retirement or succession planning situation.

The results of the pilot studies formed the basis of new knowledge retention and transfer policies implemented by the Treasury Board of Canada. These new policies were applicable to all government units and agencies. Some of the key tools included online guides for employees about to retire and another guide for the managers of those employees, outlining their key roles, and expectations of each.⁸ Some of the innovative new programs that were put into place included the 3/3/3 plan where highly qualified government researchers, scientists and engineers could elect to spend the last 3 years before their retirement in the following manner: in year 1, they would spend 1/3 of their time on knowledge retention and transfer activities; in year 2, this would comprise 2/3 of their time; and in year 3 they would be full-time on these activities.

2.1.3 Case 3. Narratives in the form of organizational storytelling for lessons learned capture and organizational memory systems

Denning (2000, 2005) was among the first to highlight the role of storytelling as a springboard to gain management support and catalyze organizational change. He noted stories can be very effective in motivating others to action, transmitting organizational values, getting people to work together, sharing knowledge, solving problems, and innovating. Storytelling was implemented as a KM practice that could help embed the learning from experience in training, practice, policy and continuous improvement programs (Dalkir, 2007; 2011b; 2014). The research question for this study was: could stories serve as a way of eliciting, documenting and making available to future employees' important lessons learned?

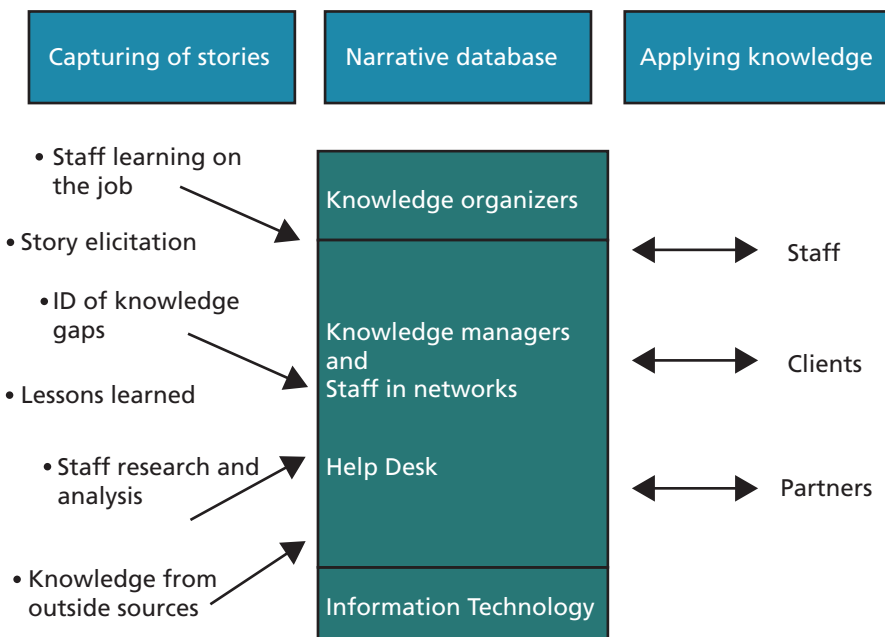
Hydro-Quebec is Quebec's hydroelectric public utility company. The sole shareholder is the Quebec provincial government. Following a major ice storm in 1998, the senior management and the Quebec government were very concerned about learning from this catastrophic natural disaster. The organization was very good at doing after action reviews but there was little evidence that lessons were actually learned or institutionalized. The objective of the senior management team was to document what they had learned from their responses to catastrophes, in particular the Quebec ice storm of 1998. There were a number of knowledge

8. Available at: <<http://www.tbs-sct.gc.ca/gui/spgr/spg-gpgr-01-eng.asp?for=hrps>>.

sources, including photos, videos, reports, newsletter capsules but these were not organized in any manner (other than chronologically). The challenge was to convert these documents, in addition to individual testimonials, to answer the question: if this occurs again, are we better prepared? Content analysis was done on all documents relating to the ice storm response. In addition, 15 individuals were interviewed and five focus groups were convened to discuss this question of whether or not organizational learning had occurred, and if it had, to what extent.

The springboard story (Denning 2000, 2005) was used as these stories have the purpose of triggering transformative change in the organization. A springboard story is one that incites the audience to reframe their mental models and to thus act fairly immediately in order to effect the desired change. This is the type of story that was selected for this research. The narrative database (Snowden, 2003) was selected as the best type of story (content) and tool (container) to capture and make available things that were “learned the hard way.” The objective is to ensure that even if an individual or unit was not involved in the actual incident, they can still learn and not repeat the same mistakes. The design is shown in figure 2.

FIGURE 2
Narrative database design



Author's elaboration.

The database proved to be a successful method of preserving the ice storm stories and making them easily accessible e.g. through a search on a specific event, date, emergency response team or theme such as communication errors. One of the major themes that emerged were that the response teams were highly efficient and effective in normal operations but less so in emergency situations. The company is a fairly stable one with little turnover. It was found that roles, standard operating procedures and communications channels had to be radically modified in times of crisis. One of the more difficult challenges was to remove the hierarchical, formal communication processes that were so ingrained in all individuals and project teams. In order to increase the adoption of the lessons to be learned, the content of the database was also deployed in employee training sessions which involved role playing: managers and operational agents were asked to switch roles in order to gain an appreciation of the challenges faced by them. Our recommendation was to Add organizational learning competencies to employee skills for recruitment, performance evaluation and promotion criteria purposes. However, to date this has not yet been adopted as a company-wide policy.

2.1.4 Case 4. Communities of practice or knowledge networks to create a network-centric anti-terrorist organization

Following the events of 9/11, Canada established CRTI, the Chemical, Biological, Radiological, Nuclear (CBRN)⁹ Research and Technology Initiative (now called the Centre for Security Science)¹⁰ to bring together government departments, agencies, research institutes, universities and technology developers/vendors to increase capability to address any terrorist threats on Canadian soil. This was part of the Canadian government's initiative to promote innovation and knowledge creation through communities of practice, which they named 'knowledge clusters' (Barthelt, Malmberg and Maskell, 2004; De la Mothe and Foray, 2001). The creation of clusters around the different types of terrorist threats (chemical, biological and nuclear) resulted in knowledge networks that could mobilize experience and expertise quickly in order to respond to threats more efficiently and more effectively. KM played a key role in forging this new organizational structure and way of working. The KM Secretariat was established to serve as knowledge brokers who could transverse the different cluster, thus preventing them from becoming new silos. The research question was: could communities of practice be used to better mobilize knowledge resources and experts within the context of the federal government?

9. The Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Research and Technology Initiative (Defence Research and Development Canada's Centre for Security Science).

10. Available at: <<http://www.drdc-rddc.gc.ca/en/science-tech/security-science.page>>.

The network-centric model for anti-terrorism proved to be very successful for the Canadian government. The US Department of Homeland studied the Canadian case study to better understand the power of networked connections, especially when the 20 or so KM Secretariat was compared to the 720,000 employee US department. The CRTI KM initiative was assessed five years into the program before it was renewed for another five years (as the Centre for Security Science). The strength of this approach was to harness the benefits of community networks so that anti-terrorist experts knew who knew what and could access both documented and human expertise as needed. The clusters met face-to-face at least once a year at a symposium and it was at one of these that a new cluster was identified: bomb disarming experts from different parts of the country were found seated at the same roundtable. A new cluster was formed around explosives expertise due to this fortuitous interaction.

Equally innovative was the method used to assess its performance after five years, based on a results or outcome-focused assessment. Some of the questions posed by the government were to help them decide whether they should continue to fund the program:

Did the KM program contribute to the success of the program?

Did it impact the Federal Laboratories' capability and capacity to respond to CBRN incidents or contribute to focused expertise, knowledge and capabilities of Canadian CBRN science and technology performers in the short-term?

Did it assist in any way in engaging the Canadian Innovation System in CBRN counter-terrorism or help the creation of industrial products, technologies and knowledge for CBRN counter-measures in the medium term?

Does the KM program contribute to the long-term goals of building the Canadian S&T capacity and capability to prepare for, prevent and respond to CBRN attacks, or enhance the communication, cooperation, collaboration, and interoperability amongst Canadian and international CBRN counter-terrorism communities, or eventually to a effectively positioned Canadian S&T innovation system that contributed to national and international security? (Dalkir, 2007, p. 157).

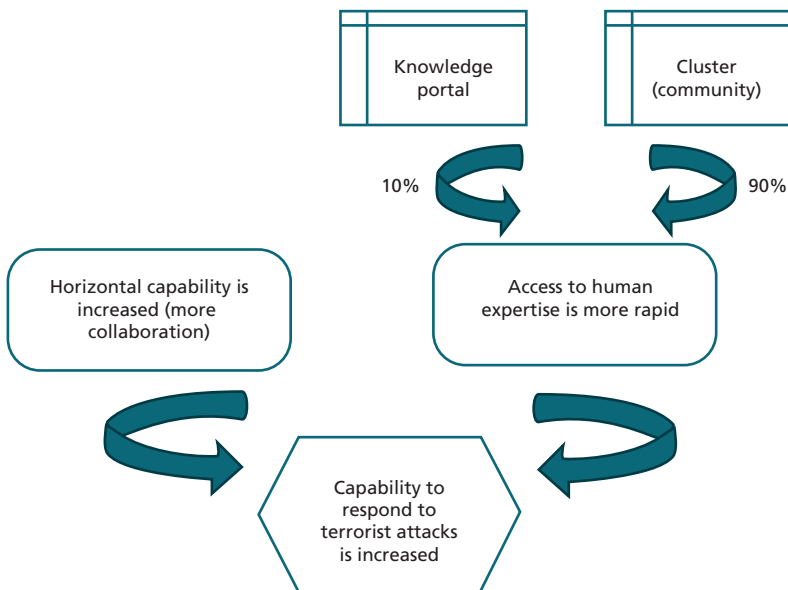
A combined measurement model was used, with quantitative, qualitative and anecdotal evidence. An online survey with 32 questions (multiple choice and short answers) was administrated to 213 CRTI members. A 20% response rate was obtained. In addition, members were also interviewed in order to better interpret the results of the survey. The survey showed that the knowledge portal was hardly used at all and the interviews showed that most people felt the content was not up-to-date and they had concerns over the security of the environment. The community and networking aspects, however, were extremely highly rated in both interviews and the survey. Anecdotes such as the one describing how the new

explosives cluster was formed were gathered through the interviewing process. It was then felt that the best way to get a broader picture of whether or not CRTI was meeting its objectives was to focus on the expected outcomes. The RMAF (Results-based Management Accountability Framework) was selected as the assessment tool. This method was adopted by the Treasury Board of Canada in 2005. Our team was surprised to find that it was indeed a strong framework to assess the contributions of KM initiatives – surprised because the Treasury Board had already mandated its use by all federal government departments and any organizations funded by them. However we quickly found that as with any tool, it was not always effectively applied (Dalkir *et al.*, 2007; Dalkir and McIntyre, 2011, 2013).

The RMAF is well suited to assess the contributions specific activities (projects, activities) make to strategic outcomes and intermediate outputs that lead to these outcomes. It is a visual depiction of a logic chain and has an accompanying set of indicators or metrics for all immediate and intermediate outcomes. The contribution to the ultimate outcome is shown as a percentage. Figure 3 shows a simplified version of the CRTI logic chain. Two projects were assessed (among others): the knowledge portal and the clusters (communities of practice). Each of these projects were expected to contribute to more rapid location of expertise, an intermediate outcome. The indicators used were the survey and interviews. The portal was found to have a very low contribution (only 10%) while the clusters contributed much more than initially expected (90%). The intermediate outcome in turn is estimated to contribute to the increased capability to respond to terrorist attacks but the quantitative amount of the contribution cannot be as easily assessed. It is not unusual to have less quantitative measures for the final outcome as these tend to be fairly high-level missions, objectives and goals of the overall organization.

The RMAF proved to be an easy to communicate measure of how well CRTI was meeting its stated goals. The evidence showed that KM did indeed contribute to the overall success of the new network-centric organization, that it did improve science and technology capability, as well as to the longer term goal of improving Canada's ability to respond to terrorist attacks.

FIGURE 3
Simplified CRTI logic chain



Author's elaboration.

2.1.5 Case 5. Social network analysis to improve response time for access to information requests

Social network analysis is defined by Krebs as: “the mapping and measuring of relationships and flows between people, groups, organizations, computers or other information/knowledge processing entities. The nodes in the network are the people and groups while the links show relationships or flows between the nodes. SNA provides both a visual and a mathematical analysis of complex human systems”.¹¹ Prell (2012) was one of the first to outline how SNA can be used to track the flow of information in governments. She referred to “gatekeeper functions where government officials take in information from the public to pass on to others” (p. 127). While the Canadian government still holds on to the notion that social networks are not for serious work (and indeed the use of instant messaging and Facebook was, for a long time, blocked for all government employees), there have been inroads in establishing the legitimacy and the growing importance of understanding what they are the role they play in connecting people in the modern age (Bronskill, 2013). The research

11. Available at: <<http://www.orgnet.com/sna.html>>.

question was: could social networks and their analysis serve as a method to better understand and ultimately improve government procedures?

Canada's Access to Information Act¹² was implemented in 1983 to allow Canadians to retrieve information from government files. The Act clearly establishes what information could be accessed and it mandates timelines for responses. This Act provides every Canadian citizen with the possibility of requesting any information held by the Government to be provided in response to a question they ask. The Tobacco Control Branch of Canada's Department of Health was being criticized for not respecting these mandated timelines. There had been some fairly negative press and some accusations that they were holding back information on purpose. Many of their files had to do with health risks associated with smoking and therefore there was much interaction with the tobacco industry and many lawsuits were underway. Any delays in compliance were quickly denounced as the government trying to hide something and the media reports were largely negative. In order to decrease the average length of time they needed to provide the requested information, the KM team conducted a social network analysis (SNA) over a 3-month period to try to identify any bottlenecks and to see if the information seeking and finding processes could be streamlined (Dalkir, 2011a).

A facilitated brainstorming session was then held to identify ways in which they could improve their performance. A first session was held to map out the knowledge flows associated with an ATIPS request. This analysis quickly showed that the progression of the request was largely dependent on personal rather than role-based networks. In other words, people tended to talk to people they knew or who were in close proximity to them. This preference was not necessarily the optimal or even the formal process that should have been followed. There was a further vulnerability in that if a given person was absent, the request could be delayed for a significant amount of time as there were no contingency plans that were used. The speed with which the set of historical requests was analyzed post-hoc. In addition, the percentage of "incorrect" responses, defined as any situation in which the citizen making the request was not satisfied with the response, were noted. It was found that a request took an average of three (3) weeks to answer and that that accuracy rate was less than 50%. In other words, using the premise that customer (in this case citizen) is always right, they were not satisfied with the response.

Next, a second group session was held. This time participants were asked to brainstorm ideas on how they could improve upon their performance. A suggestion was made by our research team to explicitly define roles and have at least a plan B or alternative person to go to should anyone not be available. Once these organizational and procedural changes were implemented, the same analysis was carried out on a comparable sample of requests. This time, the processing time was found to have decreased to an

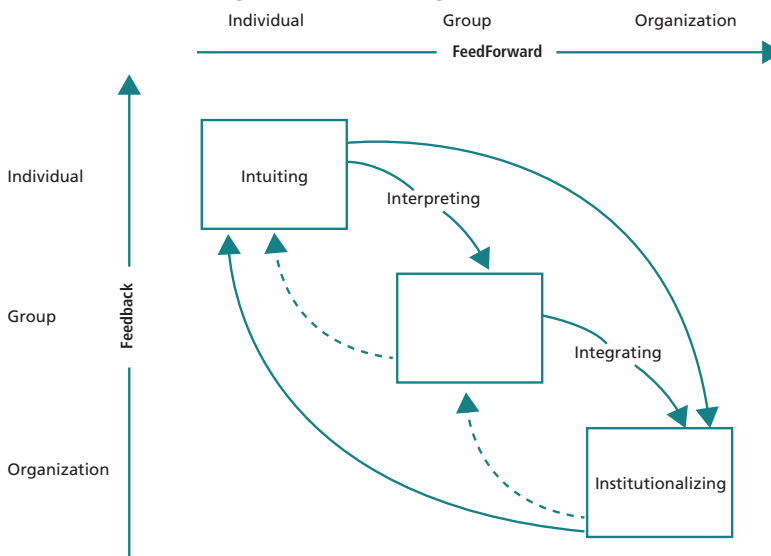
12. Available at: <<http://laws-lois.justice.gc.ca/eng/acts/A-1/>>.

average of 6 days for a response with fewer than 30% unsatisfactory outcomes. A pre/post comparative analysis showed considerable improvements. In addition, the social network analysis method was found to be an effective tool that could be generalized to measure the effectiveness of a number of other government functions.

3 EVALUATION OF THE RESULTS

Each of the five KM initiatives discussed here can be evaluated using the Crossan, White and Lane (1999) 4I model of institutionalization (shown in figure 4) and also in terms of qualitative and quantitative outcomes. Table 3 summarizes the types of outcomes that were measured for each. Crossan, Lane and White (1999) developed a model organizational learning called “The 4I framework” that identified four key processes (intuiting, interpreting, integrating and institutionalizing) as being critical to organizational learning. These four processes occur at three different levels: individual, group and organizational level. Intuiting and interpreting occur at the individual level. Interpreting and integrating occur at the group level.¹³ Integrating and institutionalizing occur at the organizational level.

FIGURE 4
The 4I framework of organizational learning



Author's elaboration.

13. Note that in the original model, there is not label given to the middle box representing organizational learning processes at the group level. In present-day terminology, KM researchers would typically refer to this the emergence of a community of practice.

TABLE 3
Using the 4I Model to evaluate the KM initiatives

| KM initiative | 4I model level | Qualitative measures | Quantitative measures |
|---|---|---|---|
| KM benchmarking | Individual/group levels and integrating phase | | Ratio of best practices implemented to number of best practices identified |
| Knowledge retention and transfer policy | Organizational level and institutionalizing phase | Implementation of mandatory KM policies | Number of departments that make use of new KM programs |
| Organizational storytelling | individual level and interpreting phase | Interviews to gather anecdotal data to validate impact of stories | Number of stories in a narrative database |
| Communities of practice | Group level and integrating phase | RMAF and interviews | Surveys |
| Social network analysis | Organizational level and institutionalizing phase | Press coverage (degree to which it is unflattering); reputation of department | Number of citizen complaints; % of unsatisfied requests; time to process requests |

Author's elaboration.

Intuition is a uniquely individual process that occurs when individuals recognize patterns in their own past or present experiences and subsequently identify their potential use in their current work environment. At this stage, knowledge tends to exist in a tacit state. Interpreting is the process through which individuals verbalize or put into action their own insights and ideas. At this stage, the knowledge is transformed from tacit to explicit form in order to share with other individuals. Language and metaphors are often used to help individuals interpret and share their intuitions with others. As the interpretation process moves beyond the individual and the ideas become embraced by the group, the process becomes integrative.

Integrating is the collective development of a shared understanding of new ideas and of how to put them into action (typically seen in communities of practice). The focus at this stage is on collective knowledge that is coherent and that is shared by a group (e.g. best practices for a community of practice). Knowledge sharing remains informal and repeatable only by group members – the knowledge has not been fed into organizational memory yet. When new ways of thinking and acting are recurrent and have a sufficiently significant impact on organizational action, the changes become institutionalized.

“The process of embedding learning that has occurred by individuals and groups into the institutions of the organization including systems, structures, procedures, and strategy” (Crossan and Bedrow, 2003, p. 1090). Lawrence *et al.* (2005) view institutionalization as organizational learning and organizational memory development. Institutionalization means that a deliberate effort has been made to embed knowledge in the organizational level so that it may persist and be reused in the future. When knowledge has been institutionalized, this means that individuals may come and go but that what they have learned as individuals and as members of a group will not necessarily leave with them. The learning of

individuals and groups has been embedded in organizational memory in the form of systems, structures, procedures, policies and strategy.

The 4I model phases can be used to measure the reach of the KM initiatives with respect to the individual, group and/or organizational levels being involved as well as with respect to the four phases of intuiting, interpreting, integrating and institutionalizing. The greatest reach is found when the organizational level is involved and when KM initiatives have become institutionalized: that is, they have become part of the way of doing things. The five KM initiatives presented here can be situated on the 4I model and characterized with respect to qualitative and quantitative measures used to assess their effectiveness as shown in table 3.

The reach of the KM initiatives ranged from impacting on individual employees at the interpreting phase all the way to the organizational level where there was institutionalization.

4 CONCLUSIONS AND NEXT STEPS

These five examples show that Canada has experimented with and successfully implemented a wide range of KM initiatives. The results of these studies can be generalized and applied to other organizational settings as long as the contextual and cultural factors are accounted for. Benchmarking, both internal and external, can and should be carried out for KM applications in the public sector. It may soon become possible to carry out functional benchmarking when KM standards become established and published (e.g. Association for Information and Image Management – AIIM – Standards Board call for KM standards).¹⁴ While KM often deals with unstructured and undocumented knowledge, it is possible, and highly desirable, to formulate and implement KM policies. In particular, given the potential for knowledge loss, a priority would be KM policy on knowledge retention and transfer. Equally important is the implementation of an organized way of capturing tacit lessons learned in the form of a story or narrative database. Stories are a particularly good way of capturing otherwise hard to document contextual knowledge which is of critical important for organizational learning and continuous performance improvement. Communities of practice have played a significant role in the organizational restructuring of the Canadian anti-terrorist effort. The Treasury Board agreed to finance a network-centric organization governed by a small KM Secretariat in order to effectively mobilize antiterrorist expertise. The outcome-based RMAF assessment tool proved to be an excellent way of showing the contributions KM made to this effort and resulted in the program being renewed for another five-year period. Finally, some of the newer technologies, while often (and still) viewed with some apprehension in the public sector are starting to make inroads.

14. Available at: <<http://www.aiim.org/Research-and-Publications/Standards>>.

The use of social network analysis was demonstrated to be one way of analyzing and subsequently improving upon standard operating procedures, particularly those concerned with citizens' access to government information.

Some of the unique characteristics of the Canadian government landscape continue to provide challenges to the application of KM. These include:

- **Multilingual requirement:** Canada's Official Language Act¹⁵ ensures that all public sector organizations provide service to citizens in their preferred choice of official language: English or French. This has proved to be significant challenge to many KM practices, in particular in being able to implement a multilingual taxonomy for search engines and to provide additional support to ensure knowledge sharing can take place across languages.
- **Provincial vs. federal jurisdictions:** When Canada was founded in 1867 it was designed as a federal system with shared jurisdictions between the central federal power and the provinces (a government in each province). The federal jurisdiction covers such areas as trade, defence, currency, taxes and criminal law. The provincial jurisdiction covers such areas as health, education while shared jurisdiction covers agriculture, economic development and transportation. There are multiple challenges to implementing good KM governance such as policies and providing incentives for all the stakeholders.
- **Geographical distances:** The sheer size of Canada makes face-to-face interactions costly and difficult to organize. As a result, technology-mediated knowledge sharing channels are often used but these are never as effective as in-person knowledge exchanges (Dalkir, 2009).
- **Continuity issues:** The advancing age of baby-boomers will bring about a large scale retirement. The public sector is particularly vulnerable according to the latest figures from Statistics Canada.¹⁶
- **Security and information privacy concerns:** The Access to Information Act enforces government transparency which can impact on information and knowledge management practices. In addition, public sector work places often bar instant messaging and social network sites such as FaceBook. Procurement policies are long as tools are purchased centrally in order to standardize across the public sector. These factors combine to make it difficult to implement many collaborative tools that have been proven to facilitate KM practices.

15. Available at: <<http://laws-lois.justice.gc.ca/eng/acts/o-3.01/>>.

16. Available at: <<http://www.statcan.gc.ca/pub/11-621-m/11-621-m2008068-eng.htm>>.

Current work in the Canadian public sector include the development of organizational stories to transform leadership models, sentiment analysis to track public opinion and citizen trust in the government, big data analytics to support the use of evidence-based policy development and the evaluation of efficiency and achieving objectives. Canada was one of the early adopters of e-government and its continuing quest to apply knowledge management principles and applications shows its commitment to harnessing new means of providing the best possible service to its citizens.

Blueprint 2020 (Government of Canada, 2013) emphasizes the need to take advantage of networks amongst public servants and with their partners in order to produce meaningful policy advice, better program designs and better service while at the same time ensuring that there is adequate accountability, appropriate values and ethics. Two policy instruments have recently been issued by the Treasury Board Secretariat. The Policy on Acceptable Network and Device Use encourages open access for employees to the internet, including social media. The Standard on Social Media Account Management sets out a framework for managing the official social media presence of federal departments and agencies. These policies aim to make the public service a more networked environment where there is more fluid use of technologies such as social media. For example, Industry Canada and Heritage Canada carried out a national consultation to update Canada's copy law. Whereas traditionally this would have been done through focus groups, this time public servants made use of an interactive website that received more than 30,000 unique visits and social media that yielded approximately 2,500 threaded discussions. Another example is the creation of a young professional's network bringing together young public servants from 11 different departments to form peer-to-peer networks share ideas and promote innovation as they discuss key issues facing the public service today.

The second emphasis is on the need to encourage innovation and risk-taking. This also means that we need to ensure public servants have the necessary competencies and leadership skills so that we can generate, identify and leverage the best ideas. A recent initiative is the new Government of Canada Innovation Hub (May, 2015). This is a new think tank that brings together the best thinkers to brainstorm ways in which policy is made and services are delivered. The hub will help public servants become less risk-averse by offering advice, expertise, the ability to test new tools and ideas and help government departments tackle difficult policy and service delivery problems. The hub will play a pivotal role in helping public servants deal with continuing budget cuts, ever-increasing volumes of data and a never-before seen level of retirement and turnover in the public service. Some of the themes will include big data analytics, social innovation and behavioural economics. The hub will consist of experts from such fields as psychology, anthropology, sociology and product designers. Similar initiatives have been implemented in other countries

such as the Mind Lab in Denmark created to redesign its tax service and the “nudge unit” in Great Britain which uses behavioral economics to “nudge” citizens to change their behavior so that policy outcomes are improved (Thaler and Sunstein, 2008). The idea is to quickly test ideas to see what would work and what would not without fear of failure. This of course involves transforming the culture of the public service.

The Department of Defence is currently implementing its World Class Knowledge Sharing initiative that focuses on an organizational learning strategy to learn from past successes and failures (DND, 2013). They will benchmark best practices on an international level and implement an organizational process for lessons learned (McIntyre *et al.*, 2015). Finally, the Open Government initiative¹⁷ is now underway with the aim of “helping the Government of Canada is working with the national and international open government community to create greater transparency and accountability, increase citizen engagement, and drive innovation and economic opportunities through Open Data, Open Information, and Open Dialogue”. This initiative encourages greater citizen participation, greater transparency and increased national and international collaboration to advance economic development. Code¹⁸ (The Canadian Open Data Experience) is a national competition that consists of an “intense 48-hour coding sprint where innovators from coast to coast compete to build the best app utilizing federal government data from the Canadian Open Government Portal”.¹⁹

Knowledge management in the Canadian Public Sector has thus become embedded in more global priority themes revolving around collaboration: networking, knowledge sharing in order to improve and in order to innovate.

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17. From the Open Government website: <<http://open.canada.ca/en>>.

18. From the Code website: <<https://www.canadianopendataexperience.ca/>>.

19. From the Open Government portal website: <<http://open.canada.ca/data/en/dataset>>.

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APPENDIX A

BEST PRACTICE CATEGORIES USED IN BENCHMARKING STUDY

- 1) Codification best practices
 - a) Knowledge capture techniques for tacit and explicit knowledge;
 - b) After action reviews;
 - c) Exit interview practices; and
 - d) Databases and knowledge capture tools.
- 2) Collaboration best practices
 - a) Communities of practice;
 - b) Knowledge fairs;
 - c) Government outreach programs; and
 - d) Portals and collaboration tools.
- 3) Preservation best practices
 - a) Succession planning;
 - b) Policies;
 - c) Taxonomy and tagging; and
 - d) Archives and knowledge preservation tools.
- 4) General KM best practices
 - a) KM strategy;
 - b) Role of managers;
 - c) Performance measures;
 - d) Legislation (US Chief Human Capital Officer Act);
 - e) Governance; and
 - f) Culture.

APPENDIX B

EXAMPLES OF BENCHMARKING REPORTS FROM THE CONFERENCE BOARD OF CANADA AND THE AMERICAN PRODUCTIVITY AND QUALITY CONTROL CENTRE (APQC)**Conference Board of Canada**

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APQC

KM capability assessment tool. Available at: <<http://www.apqc.org/km-capability-assessment-tool>>.

Key approaches for knowledge retention and transfer. Available at: <<http://www.apqc.org/knowledge-base/documents/key-approaches-knowledge-retention-and-transfer>>.

Transferring and applying critical knowledge (best practices report). Available at: <<http://www.apqc.org/knowledge-base/documents/transferring-and-applying-critical-knowledge-best-practices-report>>.

General KM benchmarking information available at: <<http://www.apqc.org/knowledge-management>>.

APPENDIX C

GLOSSARY OF TECHNICAL TERMS¹

Benchmarking – A measurement of the quality of an organization’s policies, products, programs, strategies, etc., and their comparison with standard measurements, or similar measurements of its peers. The objectives of benchmarking are (1) to determine what and where improvements are called for, (2) to analyze how other organizations achieve their high performance levels, and (3) to use this information to improve performance (<http://www.businessdictionary.com>).

Best Practice – Context-independent, unambiguous, prescriptive activities that have consistently shown results superior to those achieved with other means.

Explicit Knowledge – Consists of anything that can be codified, or expressed in words, numbers, and other symbols (such as plans, marketing surveys, customer lists, specifications, manuals, instructions for assembling components, scientific formulae, graphics) and can, therefore, be easily articulated, usually in the form of documents, processes, procedures, products, and practices.

Knowledge Management – The *process* through which organizations generate value from their intellectual and knowledge-based assets; a *conscious strategy* of putting both tacit and explicit knowledge into action; a *discipline* that promotes an integrated approach to identifying, managing and sharing all of an enterprise’s information assets.

Knowledge Retention – The process of capturing the knowledge and expertise from employees before they leave an organization.

Knowledge Transfer – The one-way dissemination of knowledge given or sent for the purpose to inform.

Knowledge Stickiness – The stickier knowledge is, the more it is “glued” to its point of origin; it will be very difficult to move the knowledge around – it is usually only shared very locally, within limited proximity. The stickier knowledge is, the more important is context is. This attribute is important to consider when attempting to apply best practices and lessons learned to new contexts.

Story – The telling of a happening or connected series of happenings, whether true or fictitious; account; narration.

Springboard Story – A story that enables a leap in understanding by the audience so as to grasp how an organization or community or complex system may change. A springboard story has an impact not so much through transferring large amounts

1. Definitions are provided by the author unless otherwise referenced.

of information, but through catalyzing understanding. It enables listeners to visualize from a story in one context what is involved in a large-scale transformation in an analogous context.

Tacit knowledge – Knowledge or understanding which is stored in an individual's head or embedded within the culture of an organisation. It is not written down and therefore is difficult to share without direct contact and coaching by the individual who holds the knowledge.

GESTIÓN DEL CONOCIMIENTO EN EL SECTOR PÚBLICO CHILENO¹

Gregorio Pérez Arrau²

1 INTRODUCCIÓN

Este capítulo es el resultado de una invitación de (Ipea) a estudiar casos de gestión del conocimiento en el sector público en diversas partes del mundo, en un gran esfuerzo por contribuir a la modernización y el desarrollo de los países mediante el mejoramiento de su gestión organizacional. El objetivo de este capítulo es describir y analizar la aplicación de políticas, prácticas y herramientas de gestión de conocimiento en el sector público chileno, para lo cual se han tomado seis experiencias en organizaciones públicas en las que se han aplicado exitosamente este tipo de prácticas.

Asimismo, se buscará describir de la manera más simple y precisa posible el origen, objetivo, tipo de política/práctica aplicada, contexto social y organizacional en la cual se ejecutó la iniciativa y los resultados observables de las mismas. Junto a lo anterior, el capítulo también analizará aquellos aspectos del entorno social y cultural chileno que facilitan o dificultan la implementación de gestión del conocimiento en las organizaciones del sector público chileno.

La gestión del conocimiento es un área relativamente reciente en el campo de la administración de empresas. A pesar de que en la historia de las sociedades pueden encontrarse prácticas, instancias y organizaciones (formales e informales) con similares objetivos (no siempre explícitos) a la gestión del conocimiento, fue sólo a finales de los años 90's en que ésta comenzó a sonar con fuerza en el ámbito organizacional, tanto académico como de la consultoría. Este creciente interés en esta materia no estuvo exento de controversias, siendo una de ellas la duda fundada de muchos respecto al alcance de la gestión del conocimiento y su posible carácter de moda pasajera, sin embargo, en los últimos años estos debates han ido

1. El autor desea agradecer a los participantes y colaboradores que hicieron posible el desarrollo de esta investigación. Primeramente quisiera dar las gracias al Instituto de Pesquisa Econômica Aplicada y, en particular, al Dr. Fabio Batista por haberme invitado a participar de este estudio; éste me ha permitido conocer en mayor profundidad un tema tan apasionante como lo es la gestión del conocimiento en el ámbito del sector público, en particular para los países como Chile que aspiran al desarrollo y al mejor nivel de vida de su población. Asimismo, quisiera hacer un especial reconocimiento a Jorge Aguirre Cuadra y Fabiola Flores Moraga, quienes recolectaron parte importante de la información que fue usada en este documento; sin sus valiosos aportes este trabajo simplemente no hubiera sido posible. También deseo agradecer a los entrevistados de las organizaciones estudiadas, quienes generosamente nos recibieron, describieron los hechos y compartieron sus apreciaciones al respecto. Por último, quisiera mencionar a la Universidad de Santiago de Chile, en especial a la Facultad de Administración y Economía, por apoyarme y proveer las condiciones necesarias para esta investigación.

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zanjándose y poco a poco se ha ido aceptando que la gestión del conocimiento llegó para quedarse (Hislop, 2010; Dalkir, 2011).

Sin embargo, a pesar la creciente relevancia de la gestión del conocimiento en las organizaciones, aún persisten vacíos teóricos por resolver, siendo uno de ellos la evidente falta de investigación acerca de la forma en que la gestión del conocimiento se da en el sector público y, segundo, la aún desconocida realidad de los países llamados “en desarrollo”. Sobre estos últimos, es fundamental conocer el grado de penetración que ha tenido este modelo en las organizaciones de estos países y, luego, la forma en que su contexto social y cultural específico ha afectado la aplicación de políticas y prácticas de gestión del conocimiento. Creemos que muchos de los supuestos fundamentales sobre los que se sostienen la teoría de gestión del conocimiento podrían ser cuestionados al ser contrastados con la realidad de estos países. En ese sentido, este capítulo intenta contribuir a conocer estas interrogantes mediante la revisión de seis casos de aplicación de gestión del conocimiento en organizaciones del sector público chileno.

2 LA GESTIÓN DEL CONOCIMIENTO EN CHILE

En el caso de Chile, la penetración del modelo de gestión del conocimiento en el ámbito organizacional ha sido más bien lento. Si bien es cierto que Chile ha destacado en la región por sus progresos en el ámbito económico y social, se ha sostenido que existe un evidente atraso en las organizaciones en cuanto a la adopción de prácticas organizacionales avanzadas. Por ejemplo, Chile es uno de los países del OCDE donde más horas de trabaja al año y sin embargo no es uno de los más productivos; otros estudios han llamado la atención sobre el empeoramiento de las relaciones laborales; también se ha mencionado la creciente demanda de mejores condiciones de calidad de vida de los trabajadores de parte de los empleados y existe una preocupante tendencia a la precarización del empleo (Perez Arrau, Eades y Wilson, 2012; Perez Arrau, 2008).

La gestión del conocimiento ha sido escasamente estudiado en las universidades y centros de investigación chilenos, por lo que podría ser descrito como en “estado gestacional”. En un estudio llevado a cabo recientemente (Santana, 2012), se encontró la casi inexistencia de cursos de gestión del conocimiento en las mallas curriculares de pre y post grado de las universidades mejor evaluadas del país. Lo anterior, se suma a las escasas publicaciones científicas encontradas sobre gestión del conocimiento en el contexto local, mientras que entre los pocos trabajos conocidos se evidencia la casi nula conexión teórica entre ellas, generando un cuerpo de conocimiento incoherente y desarticulado.

No obstante, en los últimos años han aparecido un número cada vez mayor de estudios que, aunque todavía escasos, demuestran que la temática está adquiriendo más relevancia en el mundo de las organizaciones chilenas (Perez Arrau, 2010a,

2010b; Liberona y Ruiz, 2013; Liberona y Fuenzalida, 2014; Arenas y Griffiths, 2014; Griffiths y Arenas, 2014). En estos estudios se evidencia la incipiente y muchas veces poco rigurosa aplicación de planes, políticas y prácticas relacionadas a la gestión del conocimiento y la presencia de barreras de tipo cultural tales como la poca disposición a compartir conocimiento y el escaso acceso a éste entre los empleados (Carvalho y Arata, 2002). De igual forma, otras investigaciones realizadas mencionan el desconocimiento del término entre los ejecutivos de las organizaciones (Radnic Mira, 2003) y, a la vez, la reducción del modelo de gestión del conocimiento a asuntos meramente relativos a entrenamiento y capacitación del personal (Perez Arrau, 2013). Sin embargo, otros estudios dan cuenta de un mayor grado de interés de parte de las empresas en Chile, las que progresivamente han ido incluyendo unidades a cargo de gestionar el conocimiento (Espina y Soto, 2012).

La tesis que sostiene el creciente interés por la gestión del conocimiento en Chile es apoyada por recientemente estudios exploratorios sobre el grado de adopción de prácticas de gestión del conocimiento entre organizaciones chilenas. Por ejemplo, Liberona y Fuenzalida (2014) afirman que en promedio las empresas en Chile usan el 50,58% de las 17 herramientas de gestión del conocimiento incluidas por la OCDE (2001), siendo el uso de internet para obtener información la herramienta más comúnmente usada (74,82%). También se señala que las pequeñas empresas aparecen muy por detrás de las grandes empresas en el uso de estas tecnologías y que un tercio de los respondientes de esta encuesta señala no tener una política formalmente establecida al respecto. Asimismo, el estudio deja en evidencia que en general las empresas en Chile no cuentan con una estratégica clara y definida, ni con una visión a largo plazo, por lo que difícilmente la gestión del conocimiento podría ser declarada como tal.

Considerando que en Chile la aplicación de políticas de gestión del conocimiento en el sector privado es relativamente incipiente no es de extrañar que el desarrollo de iniciativas de gestión del conocimiento en el sector público sean aún menores; esto porque las empresas privadas superan por lejos en número a las organizaciones del sector público y también porque generalmente estas últimas tienen más recursos para su desarrollo. A pesar de que hace más de una década atrás el tema fue propuesto en el debate público (Peluffo y Catalán, 2002), se estima que en los últimos años sólo algunos pocos organismos del Estado han explorado algún tipo de acción al respecto. Sin embargo, la poca investigación en esta materia no nos permite conocer con nitidez el número de instituciones llevando a cabo algún tipo de iniciativa, ni tampoco antecedentes de directrices o políticas formales desde el Gobierno Central. Se sabe, sin embargo, que en Chile la corriente del *New Public Management* ha sido adherida ampliamente en el sector público de Chile

(Morales Casetti, 2014), situación que podría haber abierto un espacio y facilitado el ingreso de la gestión del conocimiento al sector público.

3 SIETE CASOS DE GESTIÓN DEL CONOCIMIENTO EN EL SECTOR PÚBLICO EN CHILE

A continuación se presenta una descripción de seis casos de organizaciones del sector público chileno que han emprendido iniciativas de aplicación del conocimiento. La información ha sido recolectada mediante el uso de métodos cualitativos de investigación, principalmente entrevistas semiestructuradas a personas implicadas en la gestión del conocimiento, a fin de conocer con el mayor detalle posible en qué consistió la iniciativa, como fue su gestación, desarrollo y resultados, para luego analizar las barreras encontradas en el proceso y finalmente poder extraer lecciones que permitan a futuro aplicar gestión del conocimiento con mejores resultados. El instrumento (pauta de entrevista) que fue utilizado se basó en el “*questionnaire on knowledge management in public administration*” (Batista, 2012), más un conjunto de preguntas de carácter abierto que fueron creadas acorde a los objetivos antes descritos.

3.1 Caso 1: Ministerio de Obras Públicas (MOP) – la necesidad de resguardar la valiosa experiencia

El primero de los casos a desarrollar es el Ministerio de Obras Públicas (MOP) y el desarrollo de la Academia de Obras Públicas (AOP), una unidad similar a lo que se conoce en el ámbito de la gestión del conocimiento como universidad corporativa (Jansink, Kwakman y Streumer, 2005). El MOP es la Secretaría de Estado encargada del planeamiento, estudio, proyección, construcción, ampliación, reparación, conservación y explotación de las obras públicas fiscales y el organismo coordinador de los planes de ejecución de las obras que realicen los servicios que lo constituyen y otras entidades.

El MOP juega un papel fundamental en el desarrollo de la infraestructura del país a través de inversión directa o concesiones privadas. El elevando número de tareas que se realizan diariamente, la responsabilidad que ellas involucran y la enorme cantidad de factores que son tomados en consideración hacen que trabajar en el MOP sea un actividad desafiante y compleja, que demanda una alta dosis de experiencia y criterio para ser llevadas a cabo. Lamentablemente estos elementos no pueden ser adquiridos mediante la tradicional formación académica o capacitación formal, sino que se ganan mediante la experiencia directa o de mecanismos más sofisticados de absorción del conocimiento tácito. De hecho, muchos dicen que el conocimiento de la cultura y la forma de gestionar los proyectos sólo pueden aprenderse estando en el MOP y que eso puede tomar un tiempo considerable. Como si eso fuera poco, otro aspecto que resulta gravitante desde el punto de vista

de la gestión es el hecho de que una parte considerable del MOP se encuentra disperso en las diferentes regiones del país, produciendo la división geográfica del conocimiento organizacional.

Consciente de la importancia crucial del conocimiento como factor de éxito y de la necesidad de recoger, organizar, compartir y utilizar de manera más racional la experiencia acumulada de los más de ocho mil quinientos funcionarios, el año 2009 se decide dar inicio a las actividades de la AOP, Presidente José Manuel Balmaceda Fernández. Esta unidad nació al amparo del área de recursos humanos con el apoyo de las más altas autoridades del MOP con el objetivo de resguardar y desarrollar el conocimiento crítico para el funcionamiento de la organización, función que en la teoría de la gestión del conocimiento está fuertemente asociado al concepto de “universidad corporativa”. Los objetivos que se plantearon al crear la AOP fueron: *i)* formación; tanto para funcionarios antiguos que deseen fortalecer sus competencias como también para aquellos profesionales “nuevos” recién integrados en el MOP que no hayan tenido acceso al “conocimiento interno” necesario para realizar una gestión exitosa; *ii)* investigación: cuyo objetivo es facilitar el desarrollo del conocimiento mediante la búsqueda de redes colaborativas con otras instituciones del Estado y redes de expertos a nivel nacional e internacional; y *iii)* custodiar la Información Técnica, con el propósito de generar una biblioteca con archivos técnicos presentes e históricos de las obras públicas.

En el presente sólo se ha podido avanzar en la primera de estos objetivos, es decir en la formación de profesionales, esto debido a la dificultad para contar con “recursos frescos”, sin mencionar algunas limitantes de tipo cultural. La asignación de recursos depende en gran medida de decisiones políticas, las que indistintamente de los partidos que estén gobernando, generalmente se han mostrado reticentes a invertir en esta área. A pesar de ello, el pequeño equipo a cargo se ha mantenido motivado y presto a seguir desarrollando esta iniciativa, convencidos de que esta abre una gran oportunidad para el desarrollo del MOP.

En el campo de la formación, la Academia ha abordado principalmente las siguientes áreas: Dirección Profesional de Proyecto, Programa de Inspectores Fiscales y talleres generales (relatorías, charlas, seminarios), los que se desarrollan a lo largo de todo el año. Según las fuentes consultadas, el programa de Inspectores Fiscales ha sido el más exitoso de todos con más de quinientas personas egresadas. Aquí se trata de entregar elementos cognitivos y valóricos que ayuden a realizar todas aquellas labores que debe desarrollar el inspector fiscal y, de esta manera, fortalecer el desempeño de cada uno.

El mecanismo de reclutamiento de estudiantes es mediante la recomendación boca a boca. En el caso de los expertos, se trata de setenta personas aproximadamente que imparten las clases de manera presencial o por video-conferencia; quienes han aceptado participar de forma voluntaria y sin mediar incentivo monetario,

posiblemente motivados solamente por la gratificación intrínseca de compartir sus conocimientos.

A pesar de las evidentes dificultades mencionadas, los logros alcanzados en la Academia son auspiciosos y han logrado llamar la atención de la Dirección del MOP acerca de la relevancia de implementar iniciativas tendientes al uso racional del conocimiento. En el presente, el equipo de la Academia se encuentra trabajando en la generación de un Directorios de expertos, el que posteriormente daría paso a una biblioteca virtual, mapas de conocimiento, Redes virtuales y comunidades de práctica.

3.2 Caso 2: la Dirección del Trabajo y la escuela de formación de fiscalizadores

La Dirección del Trabajo (DT) es un servicio público y técnico bajo el resguardo del Ministerio del Trabajo y Previsión Social cuyo propósito es cautelar el respeto a las leyes laborales del país. En 1967 se promulga la ley orgánica que regula su funcionamiento hasta el día de hoy, en la que se consideraba el funcionamiento de una Escuela Técnica de Formación obedeciendo, principalmente, a la necesidad del servicio por contar con profesionales calificados que se encargasen de las labores de fiscalización en terreno. La Escuela funcionó de manera continua hasta 1977, año en que se detiene su operar debido a motivaciones de índole ideológico del gobierno de Augusto Pinochet.

La labor de los fiscalizadores requiere un conocimiento técnico específico que sólo es posible de encontrar parcialmente en universidades e institutos profesionales, pero de forma dispersa en diferentes programas educacionales. Asimismo, una proporción importante de la labor fiscalizadora requiere de un criterio de interpretación y acción que sólo se obtiene mediante la experiencia en terreno (conocimiento tácito). De este modo, el oficio de fiscalizador de la Dirección del Trabajo sólo puede lograrse mediante la experiencia práctica o mediante el entrenamiento que se recibe en la Dirección del Trabajo.

Junto con el retorno de la democracia y debido a los numerosos asuntos laborales postergados durante los años de la Dictadura, la Dirección del Trabajo tuvo un importante repunte de sus actividades y con ellas la necesidad de crecimiento en su dotación. Sin embargo, la organización debió enfrentar numerosos problemas derivados de la falta de conocimiento y la experiencia (conocimiento tácito) de los recién ingresados para desempeñarse en las labores específicas requeridas por el Servicio. Con esta situación, la Escuela de Formación Técnica (EFT) reinicia su funcionamiento con tres propósitos centrales: primero, haciendo el trabajo de inducción a todo nuevo ingresado a la organización, en el cual se le inculcan los conocimientos básicos para desempeñarse en el trabajo de fiscalizador. Segundo,

mediante la formación en conocimientos técnicos específicos a los funcionarios en posiciones críticas dentro de la organización; y, tercero, mediante cursos de actualización para todos los empleados interesados. Todos los cursos de formación son dictados por personal interno no remunerado y son desarrollados mediante formato *e-learning* o presencial, permitiendo transferir experiencias entre todas las unidades distribuidas en el territorio nacional.

Asimismo, la unidad de estudio de la Dirección del Trabajo elabora informes a partir de información obtenida de casos laborales reales, los cuales son analizados por expertos laboralistas en una actividad similar a las llamadas *After Action Review*, permitiendo a la organización aprender de sus errores y aciertos. Estos casos son utilizados por la EFT como medio para mejorar el proceso de enseñanza-aprendizaje y la transferencia de conocimiento tácito en la organización.

En el presente, la EFT sigue operando normalmente, siendo valorada por los funcionarios. Sin embargo, en el corto plazo requiere enfrentar algunos importantes desafíos, si lo que desea transformarse en un componente principal de la gestión del conocimiento institucional. Uno de los más importantes es contar con una malla (estructura) de cursos que le dé a los funcionarios la posibilidad de continuidad en la internalización de los conocimientos que reciben y que estos se traduzcan en un posible desarrollo de carrera profesional. De lograrse este avance, es de suponer que la EFT amplificaría significativamente su impacto organizacional, generando así todos los beneficios que en teoría tiene una universidad corporativa.

3.3 Caso 3: identificación de expertos y transferencia de conocimiento en la Aduana de Chile

La historia de la Aduana de Chile se remonta a 1774 cuando el Gobernador Don Agustín de Jáuregui decide organizar la primera Administración de Aduanas. Luego de la Independencia de Chile en 1810, se promulga la Ley de Libertad de Comercio, siendo ésta la primera ley de la República, que aporta interesantes artículos de incidencia aduanera vinculados con el comercio exterior. En el presente, la Aduana de Chile cumple funciones fiscales de control del comercio de importación- exportación del país, de recaudación del IVA en las importaciones, de protección social y seguridad de la cadena logística del comercio internacional de Chile, y de las estadísticas de éste.

El objetivo de manejar de manera más racional el conocimiento de la Aduana no es nuevo para ellos. Desde sus inicios, funcionarios y directores se dieron cuenta de que el conocimiento que requiere La Aduana, lo tiene solamente La Aduana. A mediados del siglo pasado la formación de los funcionarios aduaneros tuvo un gran progreso cuando pasó de la capacitación en la antigua escuela interna a una formación a nivel universitario en la Escuela de Aduanas de la Universidad de Chile, que se transformaría por años en la principal formadora de generaciones de profesionales

aduaneros. Al egresar de esta Escuela, los funcionarios se integraban a la planta profesional. Durante el tiempo de formación los estudiantes ingresaban a la Aduana en calidad de aspirante a Vista de Aduanas, periodo en que practicaba de manera activa la relación maestro-aprendiz (hoy conocida como *mentoring*), y durante el cual se preparaban una memoria, que abordaban diferentes aspectos de la gestión aduanera. Estas memorias se almacenaban en una biblioteca cuyo propósito era, precisamente, servir como central de acopio y distribución de conocimiento valioso de sus funcionarios. Junto a lo anterior, existía una publicación interna llamada *Boletín Mensual* que servía como medio de difusión de noticias, casos y análisis de problemáticas propias del Servicio, que permitía a los funcionarios mantenerse informados y actualizados. Gracias a este tipo de políticas, por algún tiempo la Aduana Chilena fue considerada una de las más modernas en Latinoamérica; siendo estudiada por expertos de otros países. Sin embargo, tanto la Escuela de Aduanas como la biblioteca terminaron con la Dictadura Militar que gobernó Chile entre 1973 y 1990, que no vio con buenos ojos la participación de los funcionarios en estas actividades. Con esto se interrumpió una dinámica de análisis, creación, acopio y uso de conocimiento que permitió a la Aduana que por décadas pudiese transformarse a la luz de su propio conocimiento.

Con la llegada de la democracia en 1990 el país recuperó la libertad política y se abrieron nuevas posibilidades en el ámbito económico. La apertura de Chile al exterior trajo consigo el incremento de las importaciones y exportaciones, sin que existiera en ese momento un sistema de formación de profesionales que le permitiera a la Aduana incorporar nuevos funcionarios a sus unidades. Surgen ofertas educacionales privadas que buscan suplir esa necesidad, aunque esto tardaría un tiempo en concretarse. Esta situación deja al descubierto las falencias heredadas en cuanto a la gestión de conocimiento interno de la organización y las limitaciones evidentes del Servicio de Aduanas para afrontar las demandas del Siglo XXI.

A partir de los primeros años de la década de los noventa comienza a plantearse el problema de gestionar el conocimiento en la aduana, creándose el Departamento de Capacitación para actualizar las competencias de su fuerza laboral. El año 2002, en colaboración con una prestigiosa universidad, se crea una malla de formación que llegó a tener hasta 24 cursos y que muchos vieron como una recomposición de la antigua Escuela. En aquellos años, las nuevas demandas producidas por el dinamismo económico generaba entre los funcionarios la creencia de que era necesario crear un sistema de formación más acorde a los nuevos requerimientos.

Desde el año 2013, la Aduana está implementando un programa de gestión del conocimiento que busca, en un primer momento, capturar y transferir el conocimiento experto de viejos empleados aduaneros próximos a jubilares. Muchos de ellos poseen un conocimiento único sobre el quehacer de la aduana y se teme que,

con muchos de ellos próximos a retirarse, la organización perderá un importante activo de conocimiento. Para esto se crea una función dentro del Departamento Nacional de Capacitación que está abocada exclusivamente a la labor de capturar y respaldar el conocimiento valioso de estos funcionarios. Además, en los próximos meses se espera implementar otras iniciativas complementarias que profundicen la gestión del conocimiento en la Aduana, tales como un mapa de expertos; un plan de formación de formadores; un sistema de *e-learning* que facilite la difusión del conocimiento interno y externo; y la creación de grupos de discusión e intercambio entre funcionarios expertos en temas específicos, similar a las llamadas comunidades de práctica. Estos planes están actualmente en desarrollo.

Hasta el momento, los resultados han sido positivos; los funcionarios monitores han sido reconocidos en el ambiente interno como expertos y están iniciando un trabajo que busca dar a conocer su experiencia acumulada de largos años.

3.4 Caso 4: conociendo la experiencia del “relator interno” en el Fosis

El Fondo de Solidaridad e Inversión Social (Fosis) es un servicio del Gobierno de Chile cuya misión es liderar estrategias de superación de la pobreza y vulnerabilidad de personas, familias y comunidades, contribuyendo así a disminuir las desigualdades de manera innovadora y participativa. Es un organismo del Estado cuyo fin es apoyar a las personas en situación de pobreza o vulnerabilidad que buscan mejorar su condición de vida. Con un número cercano a los mil empleados, cuenta con 15 direcciones regionales y 20 oficinas provinciales, las que llevan a cabo programas en tres ámbitos: emprendimiento, trabajo y habilitación social.

El Fosis es un organismo público que si bien no ha implementado programas formales de gestión del conocimiento, está consciente de la importancia y necesidad de crear, difundir, utilizar y mantener el conocimiento crítico de la organización a fin de lograr sus objetivos. Su orgánica está compuesta por una proporción importante de trabajadores del conocimiento especialistas en diversos temas de naturaleza social y superación de la pobreza, con una vasta experiencia en gestión de programas sociales. Por eso se dice que el Fosis es como una gran escuela, en el sentido de que los funcionarios que ahí se desempeñan se transforman en reconocidos expertos en temas de desarrollo social.

El año 2012 el Fosis da inicio a un nuevo programa llamado programa Ingreso Ético Familiar, actualmente llamado Programa de Seguridades y Oportunidades, que buscaba otorgar un beneficio directo del Estado a ciento setenta mil familias de bajos ingresos mediante la entrega de bonos asociados al logro y cumplimiento de deberes en áreas de salud, educación y trabajo. Para su implementación este proyecto requería la contratación de unas doscientas personas, aproximadamente un 20% más de dotación que tenía en ese momento, las que se desempeñarían

en las distintas funciones del organismo. Desde el punto de vista de la gestión del conocimiento, este crecimiento abrupto implicaba la formación de recursos humanos capacitados en aquellos aspectos claves para la ejecución de programas sociales tales como objetivos, reglamentación institucional, procedimientos internos y sistemas y también la no menos importante cultura organizacional, entre otros. Con ese desafío en mente, el área de recursos humanos del Fosis propone la preparación de Relatores Internos (RI), como una manera de transmitir eficazmente y en un tiempo acotado el conocimiento crítico de la organización a los nuevos ingresados. Las áreas centrales que los relatores deberían abordar eran: los Programas específicos de intervención social del Fosis, Finanzas, Recursos Humanos y Procesos y Soporte.

A fin de concretar la idea de RI, el año 2012 el Fosis inicia un proceso de búsqueda con el objeto de reclutar a diecisiete profesionales de acuerdo al perfil definido de competencias técnicas, experiencia, habilidades de comunicación; sin mencionar un alto nivel de compromiso con los objetivos del Fosis. El proceso de reclutamiento fue todo un éxito y se presentaron más de cien postulaciones internas. Una vez seleccionados, a los futuros RI se les dio una inducción intensiva a cargo de altos funcionarios del organismo y un programa de entrenamiento específico en relatoría. En poco tiempo, los diecisiete RI estuvieron preparados para iniciar sus relatorías internas.

El resultado del programa de RI fue todo un éxito; éste no sólo se desarrolló de acuerdo a lo planificado, sino que superó las expectativas de los propios organizadores al obtener una masiva asistencia de funcionarios, quienes con entusiasmo generaron un prolífico intercambio de ideas y puntos de vista. Obviamente, para los nuevos funcionarios esta era una gran oportunidad de conocer a las personas claves en cada área temática, la cultura organizacional y los aspectos técnicos fundamentales de una forma dinámica y hasta entretenida, sin tener que recurrir a los viejos manuales normativos y procedimentales. A tal grado llegó la popularidad de estos RI que en el ambiente organizacional se les llamaba “embajadores”; en directa referencia a la importancia dentro de la estructura organizacional y su papel como portadores del conocimiento y los lineamientos centrales del Fosis.

Como complemento al programa de RI, se incluyeron otras actividades e instancias relacionadas a la gestión del conocimiento. Por ejemplo, se iniciaron foros en vivo con profesionales internos e invitados llamados Fosis Debate, espacios en los que se analizaban y discutían en profundidad temas del mayor interés para los profesionales de la organización. Asimismo y, como forma de mantener actualizado a sus funcionarios, Fosis desarrolló una unidad de cooperación internacional en la que se está constantemente compartiendo experiencias de superación de la pobreza con otros países. Por último, se creó una plataforma intranet que permite a los nuevos funcionarios acceder a una importante cantidad de información esencial

para el trabajo en el Fosis. Todas estas iniciativas están actualmente funcionando y han permitido la mejor difusión y uso del conocimiento crítico en la organización.

Aunque los resultados de estas iniciativas no fueron cuantificados, en aquel momento su impacto fue evaluado como positivo por la Dirección Ejecutiva, quienes percibieron el cambio en el ambiente interno. Las encuestas de evaluación de los RI evidenciaban el entusiasmo de los participantes y los comentarios de pasillo dejaban entrever una alta valoración a esta iniciativa por parte de la gente. Otras consecuencias indirectas de los RI fueron el mejoramiento de la comunicación interna y el cambio de cultura organizacional, que finalmente se reflejó en una actitud más proactiva e integrada de trabajo en equipo.

Lamentablemente este programa se detuvo a finales del año 2013 debido al desajuste propio de un cambio de Gobierno (desde el mandato del Presidente Piñera al de la Presidenta Bachelet), agudizado por el hecho de que en ese caso en particular, además, no existía una continuidad en el partido gobernante, dejando entrever la fragilidad de este tipo de programas frente a los cambios políticos.

A pesar del término del programa de RI, la experiencia acumulada permitió al Fosis desarrollar nuevas iniciativas en este ámbito. Como consecuencia, en el presente la institución está llevando a cabo un proyecto llamado Gestión del Conocimiento para el Desarrollo de las personas y sus talentos que busca principalmente diversificar la oferta de capacitación actual y generar nuevos canales de información y aprendizaje para la organización, con el propósito de dar cumplimiento a los objetivos estratégicos declarados por el Gobierno y el Fosis para el periodo 2014-2018.

3.5 Caso 5: la academia de formación en la Defensoría Penal Pública

La Defensoría Penal Pública (DPP) es un organismo autónomo, creado en el año 2001 bajo el marco de la reforma procesal penal, cuya función es proporcionar defensa penal a los imputados o acusados por un crimen, garantizando así el derecho de las personas a contar con un abogado defensor. La prestación de los servicios se hace a través de abogados que forman parte de la institución o también mediante la contratación vía licitación de abogados privados. El lema que orienta el accionar de la DPP es “Sin defensa, no hay justicia”, frase que refleja la convicción de cada defensor de que una persona imputada es inocente hasta que se demuestre lo contrario; y que esa demostración debe realizarse mediante un juicio previo, en el que el imputado cuente con igualdad de fuerzas para sostener su punto de vista frente a las imputaciones que se le formulan.

Una primera consideración desde la perspectiva de la gestión del conocimiento se refiere a la naturaleza del trabajo de los abogados Defensores de la DPP, quienes deben recolectar e interpretar una vasta cantidad de datos e información, muchas veces desde

una compleja trama de hechos y situaciones, las que deben ser articuladas a la luz del marco jurídico vigente, en las que además cada caso es distinto al anterior. Claramente, el conocimiento necesario para llevar a cabo esta tarea va más allá de la formación académica formal; requiere de conocimiento experiencial directo o de transferencia del mismo a nivel tácito-tácito. Difícilmente un abogado poco experimentado podría conocer aspectos tan relevantes como, la comprensión del medio social local, la forma de tratar a los imputados, cuestiones de la cultura delictual o respuestas típicas de los jueces. En ese sentido, la tarea de los Defensores corresponde a lo que la literatura especializada identifica como trabajador del conocimiento; que a diferencia del trabajador común o tradicional requiere de condiciones laborales especiales, incluyendo la posibilidad de actualizar constantemente el conocimiento.

Históricamente, la necesidad de actualización de la DPP se ha resuelto mediante una política de capacitación tradicional que generalmente opera mediante el ofrecimiento de diversos cursos en todas las áreas relevantes. Estos cursos son obligatorios para los Defensores de la DPP y voluntarios para los abogados licitados siendo, por lo general, bien evaluados por los asistentes. Sin embargo y dada la naturaleza de la capacitación, estos cursos se restringen a temáticas muy específicas, dominio del relator, muchas veces desaprovechando el conocimiento tácito que es generado en el actuar cotidiano de la DPP.

Teniendo en cuenta la naturaleza del trabajo, este caso aborda la necesidad de actualización de los abogados defensores de la DPP; en particular la llamada Academia de Defensores Públicos (ADP), una instancia donde los abogados pueden conocer, analizar y debatir experiencias y casos relevantes a fin de ampliar su perspectiva y así incrementar el impacto de su gestión como Defensores. Asimismo, en este documento se describe el funcionamiento de la biblioteca de la DPP y el *Proyecto Inocente*, ambos relacionados con la gestión del conocimiento institucional, en general.

Es en ese contexto, en el de la necesidad de actualización de los Defensores, que el año 2009 se dio inicio a las denominadas ADP. Con ellas se esperaba cumplir con la ya a ese entonces evidente necesidad de obtener, combinar, organizar y transferir el conocimiento tácito emanado de situaciones relacionadas al trabajo de la DPP. Estas Academias se dictarían 3 o 4 veces por año y en ellas se expondrían temas específicos y situaciones de las cuales se pudiesen extraer lecciones de utilidad. La propuesta fue aceptada y ejecutada con éxito, tratándose temas tales como: defensa penal de inmigrantes, defensa penal juvenil, defensa penal por género o defensa penal indígena. Generalmente, estas sesiones han consistido en reuniones en las que participan relatores expertos externos a la Defensoría, y a las que asisten un número determinado de abogados defensores, algunos de los cuales también exponen sus experiencias, para

luego debatir sobre aspectos controversiales o lecciones aprendidas. Las actividades de la ADP siguen desarrollándose hasta el presente.

Como complemento a la función de las Academias, además se han desarrollado tres subsistemas que operan como apoyo en términos de recolección, ordenamiento y uso de la abundante información que se va generando en la actividad de la DPP y otros organismos vinculados. En primer lugar, existen los llamados “Informes en Derecho” que consisten en documentos en los que se plasman estudios de un tema específico, normalmente derivados de una nueva normativa carente de jurisprudencia. Estos Informes aspiran a proveer información relevante y a responder a las probables inquietudes que puedan acaecer a los abogados defensores en el ejercicio de su labor. Estos informes son clasificados y ordenados junto a otros numerosos documentos y libros en el sistema bibliotecario de la DPP que se encuentra en el Centro de Justicia de Santiago y que puede ser consultado libremente por cada profesional que lo requiera. Esta biblioteca alberga en su colección un importante número de escritos en el ámbito del derecho penal, procesal penal y civil, criminología, derecho internacional y constitucional, entre otros.

Por último, y también en el marco de la mejora continua en la DPP, se desarrolla el Proyecto Inocente, cuyo objetivo es dar a conocer a la sociedad en general casos en los que se ha privado de libertad por más de 6 meses a un imputado por delito, habiéndose comprobado su inocencia posteriormente, obteniendo su causa sentencia por sobreseimiento por inocencia o por absolución. Generalmente estos casos también son analizados por la ADP, instancia en que se revisan los detalles de cada uno y se exponen las circunstancias que podrían haber inducido a errores. Este proyecto está inspirado en *Innocent Project*, una iniciativa llevada a cabo en Estados Unidos y que posteriormente fue replicada en Canadá, Australia y Nueva Zelanda.

En el tiempo que se ha desarrollado, el Proyecto Inocentes de la DPP ha expuesto casos nacionales en que personas acusadas han sido dispuestas en prisión preventiva, normalmente por un periodo extenso de tiempo y han resultado inocentes luego de concluidas las respectivas indagaciones, sin derecho a reparación alguna. Gracias a ese trabajo, el Proyecto ha logrado sistematizar en su página de internet los diversos casos en que se ha hecho parte, enfatizando ciertas recomendaciones a tomar en cuenta en los procesos investigativos. Mediante este mecanismo, la DPP no sólo permite que las personas injustamente involucradas en estos procesos cuenten con un lugar de reconocimiento permanente y público sobre su inocencia, sino que también hace visible los errores del sistema judicial chileno y fin de aprender de ellos, dando cumplimiento a uno de sus

principales objetivos que es difundir su rol a la comunidad a través de la gestión del conocimiento y su política comunicacional.

A pesar del evidente éxito de la experiencia de la Academia y sus otras acciones de apoyo, en la DPP consideran que aún existen aspectos a mejorar. Uno de ellos es aumentar el número de asistentes a las ADP y que además se pueda destinar mayor tiempo a ellas. Asimismo, en la biblioteca podría idearse un mecanismo para contar con un mayor número de ejemplares a disposición de los interesados. No obstante aquello, el esfuerzo ya realizado y los resultados obtenidos hasta ahora mantienen optimistas a los organizadores respecto a las posibilidades de desarrollo futuras.

3.6 Caso 6: el caso de la Escuela de Gendarmería

Gendarmería de Chile es un servicio público bajo el alero del Ministerio de Justicia. Su objetivo principal radica en atender, vigilar y contribuir a la reinserción social de todas aquellas personas, que por una determinación de las autoridades competentes, estuviesen detenidas o con privación de libertad.

En nuestro país, desde los orígenes de la Colonia existió personal encargado del cuidado de los prisioneros y de quienes cometían diferentes tipos de delitos. Fue en 1871 que se le dio un carácter institucional a esta función, creándose la Guardia Especial para la vigilancia de personas privadas de libertad. No obstante, su profesionalización no se produce sino hasta la creación de la Escuela para el personal de tropas de Gendarmería de prisiones en 1929. Posteriormente en la década del treinta se crea el primer curso para aspirantes a oficiales y en 1954 nace la Escuela Técnica de Prisiones, que es la primera en generar una formación integral tanto para vigilantes, oficiales, administrativos y empleados. Finalmente en 1975, en medio de un ambiente político agitado producto de una dictadura militar, se decidió dar un cambio al órgano formador y denominarlo Escuela de Gendarmería de Chile del General Manuel Bulnes, nombre con el cual se reconoce hasta nuestros días.

La Escuela de Gendarmería nació con el propósito de nutrir los recursos humanos necesarios para el cumplimiento de su misión institucional, lo que se traduce en la formación de gendarmes y oficiales preparados en los aspectos legales, administrativos, éticos y sociales relacionados con la actividad. Para llevar a cabo esta labor, la Escuela dispone de dos recintos debidamente acondicionados, uno ubicado en la comuna de Santiago y otro en la comuna de San Bernardo.

Por una parte, la formación académica de los aspirantes a Oficial comprende temas como: Seguridad Penitenciaria; Reinserción Social; Legislación y Reglamentación Penitenciaria; Desarrollo Ético-Laboral; Desarrollo Físico; Talleres. En su totalidad este programa abarca 2.304 horas pedagógicas y tiene una duración de dos años de estudio. De forma complementaria, el plan de formación contempla

la realización de una práctica laboral, la que debe llevarse a cabo en establecimientos penitenciarios y especiales del país. Por otra parte, la formación de Gendarmes abarca solo un año de estudio. Dentro de éste son tratados los mismos ejes temáticos de la especialidad, pero aproximadamente la mitad de horas de dedicación. En este mismo contexto, cabe destacar además que la institución conjuntamente con la dirección de la Escuela de Gendarmería, están desarrollando en la actualidad un Modelo Educativo Integral que cambia una tradicional formación por objetivos a una formación por competencias, del mismo modo, pretende extender la formación de los futuros oficiales a 3 años y la de los gendarmes a un año y medio, y junto con ello, lograr el reconocimiento como institución de Educación superior por parte del Ministerio de Educación de tres instancias académicas distintas: la Academia Superior de Estudios Penitenciarios y Criminológicos, la Escuela de Oficiales Penitenciarios y la Escuela de Suboficiales y Gendarmes.

Para ambas especializaciones la escuela cuenta con una dotación de 91 docentes, 47 de ellos uniformados y 44 civiles. A su vez éstos se agrupan en tres categorías: profesores a tiempo completo; funcionarios de gendarmería; y profesionales a honorarios. Cabe destacar que los funcionarios de gendarmería que participan en esta labor realizan las actividades docentes sin que existan incentivos económicos para ello, posiblemente motivados por la gratificación intrínseca que conlleva realizar actividades pedagógicas. Para el año 2014 los recursos con los que cuenta la institución para la Escuela son de más de U\$ 5 millones.

La gestión del conocimiento aparece en esta institución como con concepto clave para sus autoridades. Por una parte está la Escuela de Gendarmería, que sin duda podría ser catalogada como una iniciativa de gestión del conocimiento en tanto permite adquirir, desarrollar, compartir y respaldar conocimiento organizacional crítico que le permita a la institución cumplir con su misión institucional. Sin embargo, esta no es “etiquetada” como tal todavía, aunque las nuevas autoridades esperan darle un papel central, más amplio y complejo en el manejo del conocimiento organizacional en el corto plazo. Las nuevas autoridades, no sólo conocen la teoría de gestión del conocimiento, al menos en sus aspectos fundamentales, sino que interpretan su quehacer diario de acuerdo a ella.

La nueva visión de Gestión del Conocimiento puede apreciarse en dos iniciativas concretas que enriquecen el funcionamiento de la Escuela. Por una parte, este año, se dio inicio a un nuevo proyecto que consistía en recolectar experiencias difíciles, traumáticas o significativas de algunos miembros de Gendarmería quisieran compartir voluntariamente con sus compañeros en proceso de formación. Actualmente ya se encuentra en etapa de edición cada una de estas cintas para ser analizadas y asignadas a la cátedra que corresponda. Con esto se espera recuperar algunas de las lecciones aprendidas (y consejos) más importantes que los funcionarios

más antiguos puedan dejar a los más nuevos, recuperando así el conocimiento tácito de la organización. La segunda medida ha sido la próxima presentación de un libro por quien fuese el último hombre en realizar una ejecución a bala salva por concepto de pena de muerte en Chile, la que intenta entregar lecciones y compartir experiencias a todos los funcionarios en formación respecto a la presión psicológica de cargar con la vida de alguien.

Asimismo, en el presente se está trabajando en otras nuevas iniciativas que faciliten que funcionarios antiguos de carrera puedan dar a conocer de la mejor forma posible sus experiencias más valiosas en Gendarmería de Chile, en pro de mejoras para esta institución. Sin embargo, de momento no existe en Gendarmería una propuesta formal que clarifique qué herramientas puedan ser aplicadas con ese propósito.

Por último, a pesar de que este proyecto ha contado con el apoyo de la alta dirección y de que, en términos gruesos esta puede ser considerada exitosa, el camino recorrido no ha sido fácil. Además de lo complejo que ha resultado la aplicación de herramientas de gestión del conocimiento en una institución tan burocratizada como esta, están otros problemas, como la rivalidad que se da entre personal civil y de carrera, o entre Oficiales y Gendarmes. Sin embargo, la buena disposición del equipo a cargo y los resultados obtenidos hasta ahora permiten ser optimista respecto a las oportunidades de desarrollo hacia el futuro.

4 EL POTENCIAL DE LA GESTIÓN DEL CONOCIMIENTO EN EL SECTOR PÚBLICO CHILENO: ANÁLISIS DE LOS CASOS, CONCLUSIONES Y RECOMENDACIONES

Un primer aspecto a destacar de este estudio es la evidencia encontrada acerca del creciente interés de los profesionales y directivos del sector público por conocer más y aplicar modelos y técnicas de gestión del conocimiento en sus organizaciones. Esta inquietud nace ante la evidencia creciente de que las organizaciones del sector público se alejan cada vez más de la mecánica propia del modelo weberiano de burocracia y se mueven rápidamente hacia relaciones más dinámicas y orgánicas necesarias para procurar una gestión más eficiente en la era del conocimiento. El sector público requiere de una administración diferente, una que reconozca la relevancia del conocimiento tácito de sus *trabajadores del conocimiento* y lo gestione de manera racional en pro de sus objetivos. La evidencia encontrada en esta investigación demuestra que la gestión del conocimiento ha llegado al sector público para quedarse, en tanto obedece a una necesidad imperiosa de racionalizar el uso de la información y el conocimiento organizacional.

Asimismo, se pudo constatar que las iniciativas desarrolladas han tenido una excelente recepción entre los funcionarios de las organizaciones estudiadas. No

sólo han participado entusiastamente las personas objeto de las capacitaciones o sistemas descritos en estos casos, sino que también lo han hecho los colaboradores voluntarios de estos proyectos, principalmente relatores internos, y que han accedido a compartir sus conocimientos sin recibir pago monetario alguno por ello. Esto da cuenta de un ambiente apto y receptivo para la aplicación de estas iniciativas y de la necesidad que tienen los *trabajadores del conocimiento* en el sector público de compartir su experiencia con otros.

Un segundo hallazgo dice relación a la lentitud de la adopción de prácticas y herramientas y al tímido uso del término “gestión del conocimiento” de parte los involucrados en las organizaciones estudiadas. La descripción de los proyectos da cuenta de un avance reservado de estas iniciativas, generalmente bajo la responsabilidad de un pequeño número de personas, muchas veces sin lugar en la estructura, y que incluso en algunas situaciones toma un modo que podría calificarse de experimental, pero que posteriormente va recibiendo mayor apoyo a la luz de sus resultados auspiciosos. Llamó especialmente la atención una organización inicialmente incluida en este estudio que, a pesar de tener un interesante plan de gestión del conocimiento, sus profesionales expresaron con franqueza no saber si lo que estaban haciendo correspondía o no a gestión del conocimiento propiamente tal. Otros entrevistados indirectamente expresaron las mismas dudas, dejando entrever la inseguridad con la que se desarrollan este tipo de propuestas. No obstante, no es de extrañar que no exista una clara convicción respecto a qué es gestión del conocimiento cuando esta área de estudio es casi inexistente en las universidades y centros de investigación en el país; ni tampoco es de extrañar que no exista claridad respecto a sus resultados cuando éste es aún un debate inconcluso (Perez Arrau *et al.*, 2014). Estos hechos demuestran el estado de desarrollo incipiente de este tema en Chile y la necesidad imperiosa del Estado por contar con mayor cantidad de profesionales preparados en la materia.

En tercer lugar, se encontró que, en la mayoría de los casos, las propuestas de gestión del conocimiento tuvieron su origen en el área de recursos humanos a las que posteriormente se fueron incorporando herramientas complementarias de apoyo tales como directorio de expertos, comunidades de práctica, etc. De hecho, muy pocas de las iniciativas incluidas en este estudio fueron etiquetadas como gestión del conocimiento en un principio, sino que fueron consideradas actividades de capacitación (training) y desarrollo, bajo el paraguas de la gestión de recursos humanos. Posteriormente estas actividades de capacitación derivaron en un plan más general, ambicioso y complejo, al que luego se le dio un carácter de gestión del conocimiento, a la manera como es generalmente entendido por los especialistas. Resulta interesante constatar que, contrario a la tendencia teórica mundial que se ha focalizado principalmente en la gestión de la información a través de tecnologías “duras” de manejo de información y comunicación (TICs), en el sector público

chileno su desarrollo se ha iniciado con una perspectiva centrada en el individuo y la gestión de recursos humanos. Una explicación plausible a este hecho dice relación al momento histórico en el que se introducen estas prácticas; cuando el avance tecnológico ya ha permitido resolver casi completamente las barreras técnicas para la transferencia de conocimiento entre personas.

Luego, quisiera referirme a las barreras más importantes para el desarrollo de iniciativas de gestión del conocimiento. Una primera dificultad encontrada dice relación a herencias del Régimen Militar que gobernó Chile entre 1973 y 1990. Tanto en el caso de la Dirección del Trabajo como de la Aduana existieron Escuelas de formación que permitieron a sus organizaciones abastecerse de empleados competentes, también centros de información y publicaciones internas que promovían, en cierta medida, compartir experiencias valiosas para las organizaciones. A partir de la profunda transformación al Estado realizada en las décadas de los setenta y ochenta, estas iniciativas fueron eliminadas. Asimismo, el fuerte componente liberal de los asesores económicos de Gobierno de Augusto Pinochet llevo a reducir el rol del Estado y a limitarlo en su funcionamiento, postergando todo intento de mejoramiento como los señalados anteriormente (Durán-Palma, Wilkinson y Korczynski, 2005). Asimismo, la represión y la gestión autoritaria propia de las dictaduras socavaron el clima colaborativo que primo en el pasado, así como también el sentido de orgullo y pertenencia de los funcionarios. Como consecuencia, en el presente las organizaciones públicas han tenido que comenzar la gestión del conocimiento prácticamente desde cero, intentando crear un clima de confianza y colaboración, generando además el sentido colectivo del trabajo y la interdependencia de las tareas.

Otra dificultad reside en el impacto negativo de las relaciones laborales verticales y paternalistas en Chile. Un elemento que caracteriza a las relaciones laborales paternalistas es el miedo inherente en la relación, que se ve reflejado en la imagen de un padre fuerte y autoritario que a la vez también es protector. Esta característica pudiese ser un primer impedimento para el desarrollo de programas de gestión del conocimiento; tanto por el temor a fracasar en su implementación como por ser un impedimento a la comunicación abierta y franca, que es fundamental para un ambiente de aprendizaje. Un caso que llamó la atención se refiere a una de las organizaciones estudiadas, la que luego de haber aceptado participar en este estudio posteriormente solicitó ser removida, aparentemente debido a que la descripción aquí hecha acerca de su proyecto de gestión del conocimiento reconocía algunas falencias y limitaciones. Este caso no es aislado, otros entrevistados también expresaron indirectamente su temor a que sus proyectos no cumplieran con lo que en teoría debiese ser un plan de gestión del conocimiento, evidenciando gran preocupación frente a una reacción negativa de la autoridad. Aquí la pregunta que surge es entonces, ¿Cuál es el temor que subyace al hecho de transparentar los resultados de un proyecto que para ser perfeccionado requiere, justamente, ser conocido?

Y de ser así, ¿En qué medida el carácter autoritario de la cultura laboral chilena podría ser un impedimento al desarrollo de la gestión del conocimiento? Creemos que estas preguntas debieran ser abordadas en futuras investigaciones.

Por último, un aspecto a destacar dice relación al apoyo de parte de las Direcciones de cada organización para el desarrollo de planes de gestión del conocimiento. Resulta evidente que la gestión del conocimiento debe ser apoyada por la alta dirección del organismo, de lo contrario está condenada al fracaso. Por el contrario, las organizaciones que no han contado con ese apoyo tienden a ejecutar planes de forma confusa y errática y estos tienen a acabarse en el tiempo. Un problema encontrado al respecto dice relación a los cambios de Gobierno, los que afectan directamente a las iniciativas de gestión del conocimiento en tanto cada partido o coalición intenta priorizar sus propios objetivos, deteniendo o postergando planes del Gobierno anterior. En ese sentido, la gestión del conocimiento debe ser entendida como un plan de modernización del Estado que no responde a las necesidades de un Gobierno u otro, sino a las necesidades que emergen de la sociedad del conocimiento y la información.

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A GESTÃO DO CONHECIMENTO NA ADMINISTRAÇÃO PÚBLICA PORTUGUESA: A TEORIA, A PRÁTICA E AS LIÇÕES APRENDIDAS

Leonor Pais¹

1 INTRODUÇÃO

Este capítulo foca os processos de gestão do conhecimento (GC) operantes em organizações da administração pública em Portugal. Focaliza, concretamente, as organizações do sector público local, designadas por Câmaras Municipais (CMs) ou Autarquias Locais, que constituem os órgãos executivos de cada um dos 278 municípios portugueses (continente e ilhas).

À semelhança do ocorrido com as organizações privadas, também as organizações públicas têm procurado adaptar-se às mudanças requeridas pela globalização, pelo desenvolvimento tecnológico e pela valorização crescente da economia baseada no conhecimento. Esta adaptação procura ainda responder às exigências de um consumidor cada vez mais informado, exigente e consciente dos seus direitos. É neste contexto que as organizações da administração pública (central e local) se têm confrontado com a necessidade de desenvolver uma cultura organizacional voltada para a prestação de melhores e mais eficazes serviços públicos (Brito e Cardoso, 2011). Assim, numa lógica de melhoria contínua, um número crescente de CMs, tem desenvolvido esforços no sentido da sua certificação para a qualidade. Tais esforços decorrem do facto de se considerar que a qualidade viabiliza um desempenho sustentável das organizações aos níveis económico, social e ambiental, promovendo a satisfação de todos os seus *stakeholders* (Godinho e Neto, 2001). Considerando que é nosso objectivo estudar as experiências de implementação da GC operantes nestas organizações, decidimos introduzir no estudo uma variável relativa à Certificação da Qualidade. Fazemo-lo para podermos não só descrever, caracterizar e analisar os processos de GC nas câmaras estudadas em geral, mas também para poder comparar CMs com e sem serviços certificados. Se um serviço certificado é, por princípio, um serviço de qualidade, afigura-se-nos relevante compreender como operam os processos de GC num e noutro contexto ou, dito de outra forma, importa saber se existem diferenças nos processos de GC em serviços prestados (ou não) sob o selo da qualidade. A existência destas diferenças e

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a sua compreensão poderão fazer emergir sugestões/recomendações de boas práticas para as organizações da administração pública que desejem melhorar a qualidade dos serviços que prestam, mesmo que não tenham os seus serviços certificados.

Neste contexto definimos os seguintes objectivos para o presente capítulo, conforme a seguir descrito.

- 1) Descrever e caracterizar os processos de GC operantes em CMs portuguesas, avaliados a partir das percepções dos seus colaboradores.
- 2) Verificar se existem diferenças nos processos de GC quando se comparam CMs com serviços certificados e CMs sem serviços certificados e, em caso afirmativo, caracterizar essas diferenças.
- 3) Analisar o papel da orientação cultural para o conhecimento nos processos de GC estudados e analisar as suas relações conceptuais.
- 4) Extrair recomendações dos resultados obtidos que possam ser instrumentais para a implantação da GC noutras organizações da administração pública.

2 ENQUADRAMENTO CONCEPTUAL

O estudo realizado fundamenta-se, do ponto de vista conceptual, no modelo de Cardoso (2007b) que integra uma visão da GC “orientada para as pessoas”, preconizando que o conhecimento está intimamente associado à pessoa que o desenvolveu, que o detém e que o utiliza, e que as interacções sociais (sobretudo as presenciais) são o meio privilegiado para que a sua aquisição, partilha e utilização ocorram de um modo eficaz (sobretudo se o conhecimento partilhado for maioritariamente tácito) (Pais e Santos, 2015; Snowden, 2000). Nesta abordagem, considera-se que a tecnologia funciona essencialmente como um catalisador de alguns dos processos de GC e assim é quando este possui uma natureza maioritariamente explícita.

Neste contexto, a GC é por nós entendida enquanto conjunto de actividades de cariz quotidiano, relativo à criação e desenvolvimento das condições organizacionais internas que catalisam todos os processos relacionados com o conhecimento, enquanto recurso imprescindível, no sentido da concretização dos objectivos de uma dada organização (Pais, 2014, p. 196).

Assim sendo, Cardoso (2007b) considera seis processos de GC que sumária e seguidamente descrevemos: *i*) criação e aquisição; *ii*) atribuição de sentido/interpretação; *iii*) partilha e difusão; *iv*) memória organizacional; *v*) medição; e *vi*) recuperação.

O processo de criação e aquisição de conhecimento é, por princípio, o motor dos demais processos, podendo assumir um carácter interno (por recurso a fontes internas de conhecimento) ou externo (por recurso a fontes externas).

A atribuição de sentido ao conhecimento (ou interpretação) relaciona-se com a necessidade que os diferentes actores organizacionais têm de compreender o que de mais importante vai ocorrendo no seu contexto de intervenção, particularmente no que respeita aos acontecimentos organizacionais mais relevantes.

O processo de partilha do conhecimento permite que o conhecimento se difunda e se propague a toda a organização. Este processo pode ocorrer com graus variáveis de formalização. Os processos formais de partilha e difusão ocorrem por intermédio de acções instituídas pela organização para esse fim (*e.g.*, reuniões de trabalho, acções de formação). A partilha e difusão informais podem ocorrer em interacções diversas, por exemplo, quando se conversa sobre trabalho nas pausas para almoço ou café ou mesmo quando se contam histórias engraçadas que aconteceram no trabalho em eventos sociais que ocorrem na organização. Enfatiza-se a natureza fundamentalmente explícita do conhecimento que é formalmente partilhado e a natureza maioritariamente tácita daquele que é alvo do processo informal de partilha (Cardoso e Gomes, 2011).

A memória suporta o armazenamento do conhecimento organizacional relevante e orienta-se para o interior e/ou para o exterior da organização (Pais, 2014, p. 195). A memória interna pode assumir duas dimensões: intencional ou tácita. A intencional é constituída, por exemplo, por procedimentos e rotinas, pelos produtos desenvolvidos e/ou serviços prestados, que corporizam competências nucleares, distintivas e por vezes únicas. À memória interna tácita pode aceder-se, por exemplo, pela análise das teorias organizacionais de acção (*e.g.*, missão, visão), por intermédio da cultura da organização, representando esta, entre outros aspectos, a forma como numa dada organização se aprendeu a olhar, sentir e ler a realidade. A memória externa remete, essencialmente, para questões relacionadas com a reputação e imagem da organização no meio envolvente, assim como para informações que a seu respeito estão registadas em repositórios diversos (*e.g.*, pessoas, serviços diversos, organismos públicos, meios de comunicação social).

O processo de medição do conhecimento organizacional envolve a definição de critérios (intimamente relacionados com os objectivos da organização e aplicáveis num período de tempo considerado adequado) que possibilitam o desenvolvimento de sistemas de medição organizacionalmente específicos. Estes são validados antes de se evoluir para a sua aplicação e posterior elaboração de relatórios internos e externos.

Por fim, o processo de recuperação do conhecimento pode ocorrer de forma controlada ou automática e é indispensável à sua posterior utilização. A recuperação controlada tem lugar, por exemplo, quando os actores organizacionais

reflectem criticamente sobre prévios sucessos e insucessos, quando recorrem a registos diversos para recuperar informação e conhecimento que posteriormente utilizam no trabalho que realizam. Já a recuperação automática envolve, essencialmente, um conhecimento maioritariamente tácito e ocorre quando, por exemplo, os colaboradores de uma organização trabalham, sem que disso se deem conta, de acordo com certos valores e princípios ou automaticamente actuam de um certo modo em situações inesperadas.

Cardoso e Ferreira Peralta (2011) ampliam o modelo de Cardoso (2007b), propondo uma sétima dimensão relativa à acção de utilização do conhecimento. Acentua-se, assim, a relevância teórica e prática da utilização efectiva do conhecimento detido já que a sua mera detenção, partilha e acumulação não se traduzem na promoção sustentável do desempenho organizacional.

Tal como previamente referimos, pressupõe-se que as acções empreendidas no âmbito dos referidos processos de GC se encontrem alinhadas com os objectivos organizacionais e estejam focadas na obtenção de resultados interna e externamente orientados. Contudo, todas estas acções dependem da existência de uma cultura organizacional orientada para o conhecimento e que sustente e promova o comprometimento de todos os actores organizacionais e da organização como um todo para com a GC (De Long, 1997; Wilkesmann, Wilkesmann e Virgillito, 2009).

Considerando, agora, as condições organizacionais facilitadoras da implementação da GC, Monteiro e Cardoso (2008) concluíram pela relevância de se investir em estratégias de personalização, em detrimento de abordagens mais tecnológicas. Consideram ainda fundamental atender às dinâmicas comportamentais, comunicacionais e interpessoais, susceptíveis de gerar uma linguagem e um entendimento partilhados, indispensáveis ao envolvimento e implicação dos atores organizacionais no arranque e desenvolvimento de projectos de GC. As comunidades de prática são por estes autores consideradas um pilar, uma estrutura social de apoio estratégico fundamental, que possibilita aos colaboradores a assunção do duplo papel de agentes e alvos das iniciativas de GC, colocando as pessoas no cerne da mudança. Ainda no contexto das condições organizacionais facilitadoras da implementação da GC, Monteiro e Cardoso (2012) destacam o papel da Gestão de Recursos Humanos (GRH) na criação de um contexto cultural com impacto positivo nos processos de GC. Monteiro e Cardoso (2012) e Figueiredo (2013) concluem que quanto mais a GRH for desenvolvida numa perspectiva orgânica, de valorização das pessoas, de desenvolvimento e investimento maior a probabilidade de implementação com sucesso da GC. Contrariamente, a adopção de uma política de GRH assente em pressupostos mais mecânicos, restritivos e de constrangimento tende a ter um impacto nulo ou mesmo negativo nos processos de GC. Os referidos autores apresentam ainda sustentação empírica para os

benefícios acrescidos que se retiram da GRH quando esta possui uma natureza estratégica e é desenvolvida de uma forma integrada. Rocha, Cardoso e Tordera (2008) salientam que a GRH detém um papel activo na promoção de iniciativas criadoras do vínculo dos colaboradores às suas organizações e que este tem impacto na GC. Enfatizam, concretamente, o papel do comprometimento pessoal já que impacta positivamente os processos de GC. Os autores concluem pela relevância de se harmonizarem a estratégia e a estrutura organizacionais, as políticas de GRH e as iniciativas de GC no sentido do alcance de objectivos individuais e organizacionais numa lógica de complementaridade.

Considerando os resultados que as organizações podem alcançar com a implementação da GC, a literatura a este respeito produzida tem dado conta da existência de algum consenso entre os autores quanto à consideração de que a GC contribui para um desempenho organizacional distintivo e sustentável. Cardoso (2007a; 2007b) sustenta empiricamente que a GC tem um impacto positivo na competitividade organizacional, medida através de indicadores objectivos de desempenho. A autora comparou organizações cujos dados relativos à GC foram categorizados em três níveis: GC baixa, média e alta. Concluiu que nas organizações onde a GC era percebida como aplicando-se num grau mais elevado, os resultados das organizações em todos os indicadores económico-financeiros eram superiores, as taxas de crescimento reais médias das vendas eram mais elevadas, a produtividade por colaborador era maior, a remuneração média era superior, e predominava a avaliação perceptiva de uma superior qualidade de vida no trabalho. Marques, Cardoso e Zappalá (2008) referem a existência de uma relação positiva e estatisticamente significativa entre os comportamentos de partilha do conhecimento e o desempenho individual no trabalho. É, assim, expectável que colaboradores que evidenciam mais comportamentos de partilha do conhecimento tendam a alcançar *scores* mais elevados de desempenho ou que pessoas com melhor *performance* tendam a partilhar mais conhecimento.

Brito (2010), num estudo realizado em autarquias locais, concluiu que os processos de gestão estratégica do conhecimento e as práticas de GC têm impacto no desempenho organizacional, medido por recurso à satisfação dos munícipes e à imagem organizacional. Os níveis de satisfação foram medidos pela autora quer relativamente a aspectos tangíveis (por exemplo, instalações) quer a aspectos intangíveis (por exemplo, prestação do serviço nos prazos devidos) dos serviços prestados pelas referidas organizações. A imagem organizacional foi avaliada em duas dimensões, nomeadamente imagem favorável e imagem desfavorável. A autora salienta os resultados que apontam para a capacidade discriminativa dos processos de GC, da gestão da qualidade e os relativos à satisfação e imagem. Neste contexto, verificou que os processos de gestão estratégica do conhecimento, as práticas de GC, a satisfação dos munícipes com os aspectos tangíveis e os

intangíveis e a imagem favorável detida diferenciavam significativamente as câmaras certificadas das não certificadas, sendo estes os processos que mais impacto tinham nas câmaras certificadas.

3 MÉTODO

3.1 Amostra

A amostra é constituída por 1.391 colaboradores dos serviços de atendimento e urbanismo de 84 CMs portuguesas. Destas 84 organizações, 42 possuem os serviços de atendimento e urbanismo certificados, enquanto nas outras 42 esses serviços não são certificados. O quadro 1 apresenta os elementos caracterizadores da amostra, diferenciados por processo de certificação da qualidade. A amostra é maioritariamente do género feminino (62,0%), com idades compreendidas entre os 35 e os 49 anos (52,7%) e com mais de 10 anos de trabalho nas organizações estudadas (54,6%). As habilitações literárias mais frequentes correspondem ao ensino secundário (10º ao 12º anos; 52,2%) e à Licenciatura (31,9%). O departamento de Urbanismo integra um maior número de colaboradores (65,5%) e a função “administrativo” é a mais frequentemente desempenhada (47,0%).

QUADRO 1
Caracterização da amostra

| Autarquias | | Não certificadas | | Certificadas | | Total | |
|-------------------------|------------------------------------|------------------|------|--------------|------|------------|-------------|
| | | Número | % | Número | % | Número | % |
| Género | Masculino | 246 | 18,2 | 268 | 19,8 | 514 | 38,0 |
| | Feminino | 370 | 27,3 | 469 | 34,7 | 839 | 62,0 |
| Idade | De 18 a 24 anos | 9 | 0,7 | 19 | 1,4 | 28 | 2,1 |
| | De 25 a 34 anos | 197 | 14,5 | 240 | 17,7 | 437 | 32,2 |
| | De 35 a 49 anos | 325 | 23,9 | 391 | 28,8 | 716 | 52,7 |
| | De 50 a 64 anos | 87 | 6,4 | 88 | 6,5 | 175 | 12,9 |
| | Mais de 65 anos | 1 | 0,1 | 2 | 0,1 | 3 | 0,2 |
| Habilitações literárias | 1ª ao 4ª ano do EB | 2 | 0,1 | 10 | 0,7 | 12 | 0,9 |
| | 5ª ao 6ª ano do EB | 0 | 0,0 | 10 | 0,7 | 10 | 0,7 |
| | 7ª ao 9ª ano do EB | 49 | 3,6 | 63 | 4,6 | 112 | 8,2 |
| | Ensino secundário (10ª ao 12ª ano) | 344 | 25,3 | 366 | 26,9 | 710 | 52,2 |
| | Bacharelato | 23 | 1,7 | 26 | 1,9 | 49 | 3,6 |
| | Licenciatura | 182 | 13,4 | 252 | 18,5 | 434 | 31,9 |
| | Mestrado | 17 | 1,3 | 14 | 1,0 | 31 | 2,3 |
| | Doutoramento | 1 | 0,1 | 1 | 0,1 | 2 | 0,1 |

(Continua)

(Continuação)

| Autarquias | | Não certificadas | | Certificadas | | Total | |
|------------------|--------------------------------|------------------|------|--------------|------|------------|-------------|
| | | Número | % | Número | % | Número | % |
| Departamento | Urbanismo | 447 | 32,1 | 460 | 33,1 | 907 | 65,5 |
| | Atendimento | 181 | 13,0 | 303 | 21,8 | 484 | 34,8 |
| Anos de trabalho | Menos de 1 ano | 20 | 1,5 | 35 | 2,6 | 55 | 4,0 |
| | Entre 1 e 5 anos | 97 | 7,1 | 116 | 8,5 | 213 | 15,6 |
| | Entre 5 e 10 anos | 154 | 11,3 | 199 | 14,5 | 353 | 25,8 |
| | Mais de 10 anos | 350 | 25,6 | 397 | 29,0 | 747 | 54,6 |
| Função | Administrativo | 284 | 20,9 | 354 | 26,1 | 638 | 47,0 |
| | Assessor | 2 | 0,1 | 4 | 0,3 | 6 | 0,4 |
| | Cargo de direcção e chefia | 52 | 3,8 | 53 | 3,9 | 105 | 7,7 |
| | Direcção política | 2 | 0,1 | 1 | 0,1 | 3 | 0,2 |
| | Operário | 3 | 0,2 | 11 | 0,8 | 14 | 1,0 |
| | Operário qualificado | 6 | 0,4 | 8 | 0,6 | 14 | 1,0 |
| | Técnico profissional | 107 | 7,9 | 108 | 8,0 | 215 | 15,8 |
| | Técnico superior | 163 | 12,0 | 199 | 14,7 | 362 | 26,7 |
| Área de trabalho | Área administrativo-financeira | 54 | 4,1 | 61 | 4,7 | 115 | 8,8 |
| | Área de assessoria | 5 | 0,4 | 6 | 0,5 | 11 | 0,8 |
| | Área social | 9 | 0,7 | 2 | 0,2 | 11 | 0,8 |
| | Área do urbanismo | 349 | 26,6 | 358 | 27,3 | 707 | 53,9 |
| | Atendimento | 90 | 6,9 | 192 | 14,6 | 282 | 21,5 |
| | Obras e infra-estruturas | 51 | 3,9 | 45 | 3,4 | 96 | 7,3 |
| | Outra | 29 | 2,2 | 60 | 4,6 | 89 | 6,8 |

Elaboração da autora.

3.2 Instrumento, descrição e validação

Em entrevistas breves realizadas aos responsáveis pela gestão de recursos humanos para se averiguar se alguma Câmara Municipal teve ou tem a decorrer algum projecto na área da GC, constatámos que não. Contudo, a indicação de inexistência de projectos formais sob a designação “gestão do conhecimento” não significa que estas organizações não tenham e não desenvolvam acções que se inscrevem naquelas que consideramos serem acções organizacionais de GC. Assim, inquirimos os participantes no presente estudo, convidando-os a dizer se de acordo com a sua percepção diversas acções que identificámos tinham lugar, ocorriam, “se aplicavam” às CMs em que trabalhavam.

Para colectar dados junto dos 1.391 participantes no estudo recorreremos à versão original do *Questionário de Gestão do Conhecimento* (QGC) constituída por 56 itens (Cardoso, 2007a). Este instrumento organiza-se em subescalas cujos

itens permitem avaliar as percepções dos colaboradores quanto à operância ou aplicação de diferentes processos de GC às suas organizações. Os processos em questão são, designadamente: processos de aquisição do conhecimento; processos de partilha do conhecimento; processos de interpretação do conhecimento; memória organizacional; e processos de recuperação do conhecimento. Além destes processos, o QGC integra ainda uma subescala relativa à orientação cultural para o conhecimento.

As opções de resposta estão centradas na expressão “aplica-se”, sendo apresentadas numa escala de Likert com cinco possibilidades de resposta, em que 1 corresponde a Quase nunca se aplica e 5 a Aplica-se quase totalmente. Dado que o ponto de partida desta investigação consistiu no estudo de cada processo de GC individualmente considerado, procedemos a validações de constructo e de fidedignidade para cada subescala/conjunto de itens que avalia cada um dos referidos processos. Procedemos de igual modo quanto à subescala relativa à orientação cultural para o conhecimento.

Previamente verificámos a representatividade e adequação dos itens dos cinco processos de GC e da dimensão referente à Orientação cultural quanto ao seu grau de clareza e compreensibilidade. Procedemos, depois, aos estudos de validação de constructo recorrendo a Análises em Componentes Principais (ACP) e à análise da fiabilidade através do cálculo do coeficiente de consistência interna alpha de Cronbach. Os itens que diminuíram consideravelmente a consistência interna (itens invertidos, em um total de onze) e que apresentaram saturações factoriais inferiores a .50 ou que não mostraram capacidade discriminativa interfactor (diferenças de saturações factoriais inferiores a 10) foram excluídos. Após averiguação dos requisitos necessários a uma interpretação fiável da ACP (amostragem adequada segundo as medidas de Kaiser-Meyer-Olkin e matriz de intercorrelações diferente da matriz de identidade segundo teste de Bartlett – quadro 2), chegámos a um conjunto final de 42 itens avaliadores dos seguintes processos, conforme explicitado a seguir.

- 1) Processos de aquisição do conhecimento (solução unifactorial, nove itens).
- 2) Processos de partilha do conhecimento (solução bifactorial: processos formais, quatro itens; processos informais, cinco itens).
- 3) Interpretação do conhecimento (solução unifactorial, quatro itens).
- 4) Memória organizacional (solução bifactorial: memória interna, sete itens; memória externa, três itens).
- 5) Processos de recuperação do conhecimento (solução unifactorial; cinco itens).
- 6) A dimensão de orientação cultural para o conhecimento apresentou-se unifactorial, integrando cinco itens.

QUADRO 2

Processos de GC, factores constituintes e orientação cultural para o conhecimento: pontuações médias, desvios-padrão, saturações factoriais (F1 e F2) e comunalidades (h^2) para as soluções uni e bifactoriais [$N = 1.391$]

| | M | DP | Dimensão | | h^2 |
|--|-------------|-------------|--------------|--------------|--------------|
| | | | F1 | F2 | |
| Processos de aquisição do conhecimento [$KMO = 0.857$; $X^2(36) = 2872.05$, $p < 0.001$] | | | | | |
| 12. Colaboramos com outras organizações para adquirir mais informação | 3.05 | 1.08 | 0.713 | – | 0.509 |
| 13. Somos encorajados a tomar a iniciativa | 2.83 | 1.11 | 0.693 | – | 0.480 |
| 34. Assistimos a seminários/conferências. Lemos e contratamos especialistas | 2.65 | 1.14 | 0.692 | – | 0.480 |
| 24. Aprendemos com os sectores da nossa Câmara que funcionam melhor | 2.71 | 1.00 | 0.638 | – | 0.407 |
| 56. Frequentamos cursos de formação ou temos formação no posto de trabalho | 2.73 | 1.11 | 0.631 | – | 0.398 |
| <i>46. Procuramos estar a par das mudanças que vão acontecendo</i> | <i>3.55</i> | <i>1.02</i> | <i>0.619</i> | – | <i>0.383</i> |
| 1. Aproveitamos os conhecimentos que novos colaboradores nos trazem | 3.03 | 0.98 | 0.592 | – | 0.351 |
| 23. Estamos atentos ao que as outras câmaras municipais vão fazendo | 2.59 | 0.97 | 0.520 | – | 0.270 |
| <i>2. Conhecemos as ideias pelas quais as câmaras municipais existem</i> | <i>3.56</i> | <i>0.97</i> | <i>0.500</i> | – | <i>0.250</i> |
| Processos de partilha do conhecimento [$KMO = 0.767$; $X^2(36) = 2594.33$, $p < 0.001$] | | | | | |
| 37. Juntamo-nos em grupo para resolver alguns problemas | 2.84 | 1.12 | 0.824 | 0.113 | 0.691 |
| 36. Passamos informação em reuniões de trabalho | 2.98 | 1.09 | 0.817 | 0.069 | 0.673 |
| 47. Fazemos circular a informação entre nós | 3.06 | 1.17 | 0.600 | 0.255 | 0.426 |
| 14. São recompensados aqueles que partilham o que sabem | 2.03 | 0.95 | 0.566 | 0.024 | 0.321 |
| 26. Conversamos sobre trabalho quando casualmente nos encontramos | 2.95 | 1.01 | -0.063 | 0.746 | 0.561 |
| 48. Contamos uns aos outros histórias engraçadas que se passaram no trabalho | 3.28 | 0.96 | 0.192 | 0.657 | 0.468 |
| 3. Falamos de trabalho em momentos de descontração | 2.77 | 1.10 | -0.031 | 0.649 | 0.422 |
| 43. Falamos da nossa Câmara | 3.36 | 0.95 | 0.291 | 0.647 | 0.504 |
| 54. Falamos das nossas funções | 3.28 | 0.85 | 0.313 | 0.564 | 0.416 |
| Processos de interpretação do conhecimento [$KMO = 0.723$; $X^2(6) = 769.60$, $p < 0.001$] | | | | | |
| 38. Procuramos perceber as regras da nossa organização | 3.28 | 0.96 | 0.769 | – | 0.592 |
| 27. Procuramos perceber porque correu tão bem determinado trabalho | 3.18 | 0.93 | 0.732 | – | 0.536 |
| 16. Procuramos perceber o que de mais importante vai acontecendo na Câmara | 3.39 | 0.89 | 0.682 | – | 0.465 |
| 49. Falamos sobre assuntos que não compreendemos bem | 3.37 | 0.90 | 0.646 | – | 0.417 |
| Memória [$KMO = 0.814$; $X^2(45) = 2044.83$, $p < 0.001$] | | | | | |
| 7. Sabemos o que se espera de cada um de nós e da nossa Câmara | 3.30 | 0.98 | 0.734 | 0.001 | 0.539 |
| <i>17. O que sabemos vê-se na forma como trabalhamos</i> | <i>3.69</i> | <i>0.92</i> | <i>0.656</i> | <i>0.241</i> | <i>0.488</i> |
| 39. Temos meios para registar o mais importante que sabemos/aprendemos | 3.36 | 1.00 | 0.591 | 0.082 | 0.355 |
| <i>18. É na forma como fazemos as coisas que encontramos soluções para novos problemas</i> | <i>3.59</i> | <i>0.85</i> | <i>0.590</i> | <i>0.127</i> | <i>0.365</i> |
| 6. O que sabemos vê-se naquilo que fazemos melhor do que outras câmaras municipais | 3.11 | 0.92 | 0.575 | 0.062 | 0.334 |
| 51. Sabemos como esta Câmara está pensada/organizada | 3.02 | 0.95 | 0.542 | 0.159 | 0.319 |
| <i>29. Cada um de nós tem uma função a cumprir</i> | <i>3.89</i> | <i>0.90</i> | <i>0.507</i> | <i>0.251</i> | <i>0.320</i> |
| 52. Sabemos que lá fora algumas pessoas sabem se a nossa situação é boa ou má | 3.32 | 0.94 | -0.077 | 0.738 | 0.551 |

(Continua)

(Continuação)

| | M | DP | Dimensão | | h ² |
|--|------|------|----------|-------|----------------|
| | | | F1 | F2 | |
| <i>41. Os colegas que saem levam opinião sobre nós</i> | 3.63 | 0.88 | 0.144 | 0.729 | 0.552 |
| <i>8. Sabemos que os nossos clientes/municípios têm uma ideia a nosso respeito</i> | 3.87 | 0.87 | 0.321 | 0.566 | 0.424 |
| Recuperação do conhecimento [KMO = 0.760; X ² (10) = 921.37, p < 0.001] | | | | | |
| 31. Pensamos na forma como resolvemos problemas no passado | 3.30 | 0.87 | 0.729 | – | 0.532 |
| 42. Perguntamos aos colegas como resolveram problemas parecidos | 3.48 | 0.88 | 0.689 | – | 0.475 |
| <i>32. Agimos de acordo com a forma como estamos organizados</i> | 3.63 | 0.80 | 0.687 | – | 0.472 |
| <i>9. Usamos os registos que fomos fazendo ao longo do tempo</i> | 3.77 | 0.95 | 0.603 | – | 0.364 |
| <i>53. Utilizamos informação guardada nos nossos meios informáticos</i> | 3.74 | 0.96 | 0.588 | – | 0.345 |
| Orientação cultural para o conhecimento [KMO = 0.732; X ² (10) = 947.24, p < 0.001] | | | | | |
| <i>33. Procuramos informação que possa melhorar a qualidade do que fazemos</i> | 3.86 | 0.96 | 0.777 | – | 0.603 |
| <i>44. Todos somos responsáveis pelo que devemos saber para trabalhar com qualidade</i> | 3.78 | 0.95 | 0.715 | – | 0.511 |
| <i>21. Agimos de acordo com certos princípios</i> | 3.75 | 0.90 | 0.652 | – | 0.425 |
| 11. Os nossos chefes alertam-nos para o que é importante saber | 3.39 | 1.07 | 0.613 | – | 0.375 |
| 22. O que sabemos é uma "arma" fundamental para ultrapassar outras câmaras municipais | 2.81 | 1.03 | 0.490 | – | 0.240 |

Elaboração da autora.

A opção pelas soluções uni/bifactoriais obedeceu ao critério de Kaiser (*eigenvalue* superior à unidade) e mostrou-se de acordo com o Scree Plot.

No quadro 2 indicam-se os itens da versão final, pontuações médias e desvio-padrão, bem como saturações factoriais e comunalidades para cada processo de GC e dimensões constituintes, bem como para a orientação cultural para o conhecimento. Em itálico encontram-se os itens com maior pontuação média (> 3.50). Conforme se observa, todas as saturações factoriais superaram o valor de .55 e as comunalidades situam-se entre .250 e .691, suportando a validade factorial dos conceitos em análise.

3.3 Procedimento e análise de dados

O QGC foi administrado aos colaboradores dos departamentos de Atendimento e Urbanismo das 84 CMs estudadas. Os questionários foram entregues e recolhidos por aplicadores treinados para o efeito e que garantiram as condições necessárias ao correto preenchimento do questionário e ao anonimato dos respondentes.

Os dados foram tratados por recurso à estatística descritiva e inferencial, sendo utilizado o Programa SPSS (*Statistical Package for the Social Sciences*, Versão 22.0; SPSS Inc, Chicago, IL). As análises da regressão linear múltipla multivariada foram implementadas no *software* Amos (v. 22, SPSS Inc, Chicago, IL). Consideraram-se estatisticamente significativos os efeitos com $p < .05$.

4 RESULTADOS

4.1 Processos de gestão do conhecimento

No quadro 3 apresentam-se os valores mínimo (Mín.) e máximo (Máx.), as pontuações médias (M), os desvios-padrão (DP) e os coeficientes de consistência interna para cada uma das subescalas do QGC, seus factores constituintes e dimensão relativa à orientação cultural para o conhecimento, bem como os *eigenvalues* e a proporção de variabilidade explicada de cada factor (% variância).

QUADRO 3

Valores mínimo e máximo, pontuações médias, desvios-padrão, coeficientes de consistência interna, *eigenvalues* e proporção de variabilidade explicada dos processos de GC, factores constituintes e orientação cultural para o conhecimento (N = 1.391)

| | Mín. | Máx. | M | DP | α de Cronbach | <i>Eigenvalue</i> | % variância |
|--|------|------|------|------|----------------------|-------------------|-------------|
| GC_global | 1.40 | 4.76 | 3.26 | 0.48 | 0.925 | – | – |
| Aquisição do conhecimento | 1.00 | 4.78 | 2.97 | 0.65 | 0.810 | 3,53 | 39,20 |
| Partilha do conhecimento | 1.11 | 4.67 | 2.95 | 0.58 | 0.739 | – | – |
| F1_Processos formais de partilha do conhecimento | 1.00 | 5.00 | 2.73 | 0.79 | 0.704 | 2,98 | 25,02 |
| F2_Processos informais de partilha do conhecimento | 1.00 | 4.80 | 3.13 | 0.65 | 0.693 | 1,50 | 24,78 |
| Interpretação do conhecimento | 1.00 | 5.00 | 3.30 | 0.65 | 0.669 | 2,01 | 50,23 |
| Memória organizacional | 1.50 | 5.00 | 3.48 | 0.50 | 0.730 | – | – |
| F1_Memória interna | 1.43 | 5.00 | 3.43 | 0.57 | 0.725 | 3,01 | 26,76 |
| F2_Memória externa | 1.33 | 5.00 | 3.61 | 0.63 | 0.495 | 1,24 | 15,70 |
| Recuperação do conhecimento | 1.00 | 5.00 | 3.59 | 0.59 | 0.673 | 2,19 | 43,76 |
| Orientação cultural para o conhecimento | 1.00 | 5.00 | 3.52 | 0.64 | 0.662 | 2,16 | 43,10 |

Elaboração da autora.

Os resultados apontam para a aplicação às organizações estudadas da generalidade dos processos de GC ($M_{\text{global}} = 3.26$).

O valor médio mais baixo refere-se aos processos formais de partilha ($M = 2.73$), indicando que este processo é, ainda assim, moderadamente operante nestas organizações. Integrando nesta análise as informações do quadro 1, verificamos que a acção de partilha formal que apresenta um valor médio mais elevado, ainda que correspondente apenas à sua moderada aplicação, relaciona-se com a circulação de informação (item 47; $M = 3.06$). Já a acção de partilha formal que apresenta um valor médio mais baixo, correspondente à sua pouca aplicação, relaciona-se com a recompensa dada aos colaboradores que partilham o que sabem (item 14; $M = 2.03$). Este item consubstancia mesmo a acção organizacional relacionada com o conhecimento com a pontuação média mais baixa dos 42 itens.

A memória externa é o processo que apresenta uma pontuação média mais alta ($M = 3.61$), seguindo-se-lhe o de recuperação do conhecimento ($M = 3.59$). Estes valores indicam que na percepção dos colaboradores as acções relacionadas com estes dois processos tendem a aplicar-se muito aos seus contextos de trabalho. Relativamente à memória externa, os participantes consideram estar muito presente a consciência de que os clientes/municípios têm uma imagem formada a seu respeito. De facto, é o item 8 (Sabemos que os clientes/municípios têm uma ideia a nosso respeito) que apresenta um valor médio mais elevado neste factor ($M = 3.87$), indicativo de que este se aplica muito a estas organizações. Quanto ao processo de recuperação do conhecimento, a utilização dos registos que foram sendo feitos ao longo do tempo pelos colaboradores destas organizações é a acção que evidencia uma pontuação média mais elevada (item 9; $M = 3.77$).

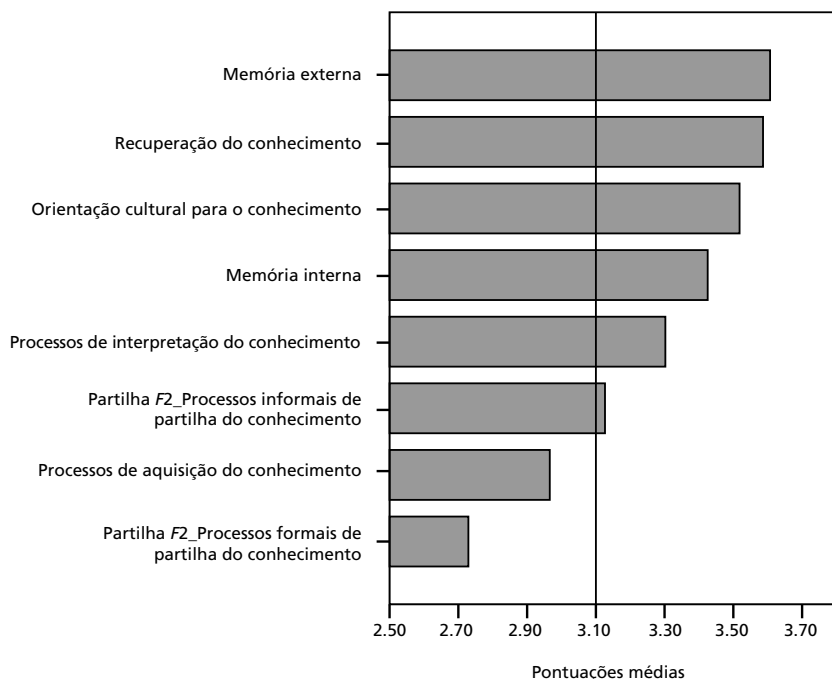
Os demais processos de GC apresentaram pontuações médias próximas e indicativas da sua moderada aplicação às organizações estudadas: processos informais de partilha ($M = 3.13$), processos de interpretação ($M = 3.30$) e memória interna ($M = 3.43$). É ao nível deste último factor que se apresenta o item com a pontuação média mais elevada nos 42 itens. Trata-se do item 29 (Cada um de nós tem uma função a cumprir), cuja pontuação média é de 3.89.

Por fim, a dimensão relativa à orientação cultural para o conhecimento apresentou um valor médio de 3.52, valor que em duas décimas supera o ponto intermédio entre as opções “aplica-se moderadamente” e “aplica-se muito”. O item 33 (Procuramos informação que possa melhorar a qualidade do que fazemos) é o mais pontuado nesta dimensão, apresentando uma média de 3.86 indicando que é muito actuante nas CMs estudadas.

Na figura 1 representam-se graficamente, por ordem decrescente, as pontuações médias dos cinco processos de GC, dos factores constituintes, bem como da orientação cultural para o conhecimento. A linha de referência traçada relativamente ao eixo dos yy evidencia que, excluindo os processos formais de partilha do conhecimento, os demais se aplicam além do ponto intermédio da escala. Destaca-se a maior operância dos processos de memória e recuperação, bem como da orientação cultural para o conhecimento.

Em termos da fiabilidade, calculada pelos coeficientes α de Cronbach, verifica-se que a escala global apresenta um coeficiente de consistência interna muito elevado ($\alpha = .925$; quadro 3). Considerando os cinco processos de GC, os factores constituintes e a subescala relativa à orientação cultural verifica-se que a maioria possui uma fiabilidade aceitável ($\alpha > .70$) (Nunnally, 1970), explicando uma proporção de variância total compreendida entre 15,70% e 50,23%.

FIGURA 1
Pontuações médias dos processos de GC, factores constituintes e orientação cultural para o conhecimento



Elaboração da autora.

4.2 Influência da certificação da qualidade

Quando consideramos a Certificação da Qualidade, os resultados indicam que as CMs estudadas se diferenciam em função desta variável. Procedeu-se a uma análise multivariada da variância (Manova, procedimento *General Linear Model*), tomando como variável independente a (in)existência de certificação da qualidade e como variáveis dependentes as pontuações médias em cada uma das subescalas do QGC.

A análise do teste multivariado indica que o efeito global se revela estatisticamente significativo, Λ de *Wilks* = 0.967, $F(8, 1382) = 5.98$, $p < .001$. Conclui-se que, quando se consideram os processos de GC globalmente e a subescala referente à orientação cultural para o conhecimento, a certificação da qualidade reverte-se em diferenças. O quadro 4 ilustra as pontuações médias, desvios-padrão e os resultados dos testes univariados dos processos de GC em função da (in) existência de certificação da qualidade nas autarquias. Os testes univariados indicam a existência de diferenças estatisticamente significativas nos processos de aquisição, na partilha formal e na memória externa. As pontuações médias indicam que os processos de aquisição e partilha formal operam mais nas

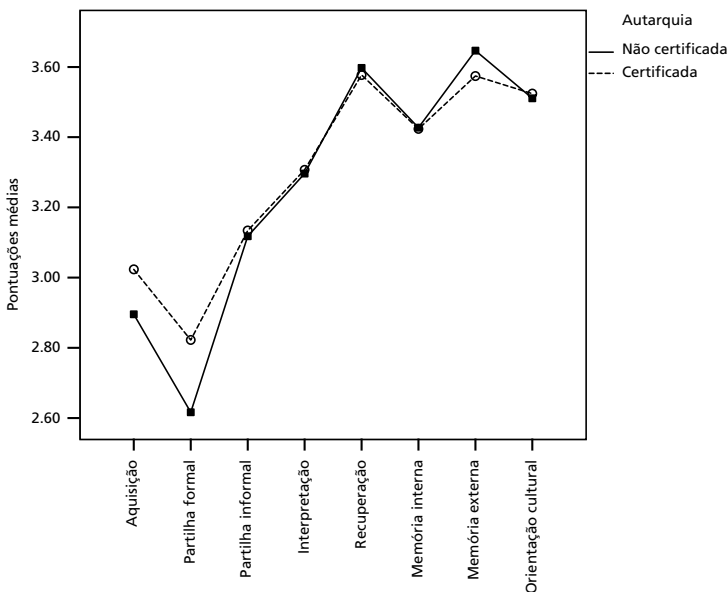
CMs cujos serviços são certificados. Por outro lado, é nas CMs não certificadas que a memória externa é mais operante (figura 2).

QUADRO 4
Pontuações médias e desvios-padrão das subescalas do QGC em função da (in)existência de certificação da qualidade das autarquias: testes univariados

| Subescalas do QGC | Autarquias | | | | | | F (1,1389) |
|--|-------------------------------|------|---------------------------|------|----------------------|-------------|------------|
| | Não certificadas (n = 628) | | Certificadas (n = 763) | | Total (N = 1.391) | | |
| | M | DP | M | DP | M | DP | |
| GC_global | 3.23 | 0.48 | 3.28 | 0.48 | 3.26 | 0.48 | |
| Aquisição do conhecimento | 2.90 | 0.70 | 3.02 | 0.61 | 2.97 | 0.65 | 13.33*** |
| Partilha do conhecimento | 2.89 | 0.57 | 3.00 | 0.59 | 2.95 | 0.58 | |
| F1_Processos formais de partilha do conhecimento | 2.62 | 0.81 | 2.82 | 0.76 | 2.73 | 0.79 | 23.79*** |
| F2_Processos informais de partilha do conhecimento | 3.12 | 0.63 | 3.13 | 0.67 | 3.13 | 0.65 | 0.22 |
| Processos de interpretação do conhecimento | 3.30 | 0.65 | 3.31 | 0.66 | 3.30 | 0.65 | 0.10 |
| Recuperação do conhecimento | 3.60 | 0.59 | 3.58 | 0.59 | 3.59 | 0.59 | 0.41 |
| Memória | 3.49 | 0.49 | 3.47 | 0.50 | 3.48 | 0.50 | |
| F1_Memória interna | 3.43 | 0.58 | 3.42 | 0.57 | 3.43 | 0.57 | 0.01 |
| F2_Memória externa | 3.65 | 0.64 | 3.57 | 0.63 | 3.61 | 0.63 | 4.49* |
| Orientação cultural para o conhecimento | 3.51 | 0.64 | 3.52 | 0.64 | 3.52 | 0.64 | 0.15 |

Elaboração da autora.
Obs.: * $p = .03$ e *** $p < .001$.

FIGURA 2
Pontuações médias dos factores do QGC em função da (in)existência de certificação de qualidade das autarquias



Elaboração da autora.

4.3 (Inter)dependência entre os processos de GC, dimensões constituintes e orientação cultural para o conhecimento

Avalia-se agora a interdependência dos processos de GC, as dimensões constituintes e a orientação cultural para o conhecimento. O quadro 5 ilustra a matriz de intercorrelações entre as oito dimensões, bem como os coeficientes de determinação R^2 (entre parênteses), indicativos da proporção de variabilidade partilhada entre variáveis.

As intercorrelações são todas estatisticamente significativas e de magnitude maioritariamente elevada. Considerando a classificação de Cohen (1988), as magnitudes elevadas situam-se a partir de .371, as moderadas entre .243 e .371 e as baixas de .100 até .243. As associações com r de Pearson a partir de .65 encontram-se destacadas em negrito no quadro 5; referem-se à associação entre os processos de aquisição do conhecimento e os processos formais de partilha e a orientação cultural para o conhecimento, bem como entre a memória interna e a orientação cultural para o conhecimento. Os processos de interpretação também apresentam correlações consideráveis com aquisição, partilha e recuperação do conhecimento, bem como com memória interna e orientação cultural para o conhecimento. As intercorrelações mais fracas situam-se ao nível da memória externa, sobretudo com os processos formais de partilha, com os de aquisição do conhecimento e com a orientação cultural para o conhecimento.

QUADRO 5

Matriz de intercorrelações de Pearson entre as dimensões do QGC e coeficientes de determinação R^2 entre parênteses

| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] |
|---|-----|-------------------------|------------------|------------------|------------------|------------------|------------------|-------------------------|
| [1] Processos de aquisição do conhecimento | 1 | .684*** (.47) | .364*** (.13) | .619*** (.38) | .531*** (.28) | .649*** (.42) | .202*** (.04) | .676*** (.46) |
| [2] Processos formais de partilha do conhecimento | | 1 | .341*** (.12) | .565*** (.32) | .440*** (.19) | .509*** (.26) | .105*** (.01) | .534*** (.29) |
| [3] Processos informais de partilha do conhecimento | | | 1 | .445*** (.20) | .451*** (.20) | .317*** (.10) | .319*** (.10) | .276*** (.08) |
| [4] Processos de interpretação do conhecimento | | | | 1 | .614*** (.38) | .626*** (.39) | .283*** (.08) | .629*** (.40) |
| [5] Recuperação do conhecimento | | | | | 1 | .626*** (.37) | .399*** (.16) | .610*** (.37) |
| [6] Memória interna | | | | | | 1 | .335*** (.11) | .712*** (.51) |
| [7] Memória externa | | | | | | | 1 | .274*** (.08) |
| [8] Orientação cultural para o conhecimento | | | | | | | | 1 |

Elaboração da autora.

Obs.: * $p = .03$ e *** $p < .001$.

Uma análise aprofundada das interrelações entre os processos de GC conduz-nos a colocar a hipótese de haver uma relação de dependência dos processos de recuperação e de memória (interna e externa) relativamente aos demais processos nucleares (aquisição, partilha e interpretação do conhecimento). Para avaliar as trajectórias dos processos de aquisição, partilha e interpretação do conhecimento nos de recuperação e de memória, procedemos a uma análise da regressão linear múltipla multivariada com estimação dos parâmetros pelo método da máxima verossimilhança. Os processos de aquisição, partilha formal e informal e interpretação do conhecimento foram tomados como variáveis predictoras e os de recuperação e memória interna e externa como variáveis critério. Utilizámos a distância quadrática da Mahalanobis (D^2) para avaliar a existência de *outliers* (Tabachnick e Fidell, 2007), não se verificando valores indicativos da sua presença. Para avaliar a normalidade das variáveis utilizámos os coeficientes de assimetria (sk) e curtose (ku) uni- e multivariada, tendo-se constatado uma não violação à distribuição normal, já que $|Sk| < 3$ e $|Ku| < 10$ (Marôco, 2010). Calculando os VIF pelo programa SPSS, assegurámos que não existem problemas de multicolinearidade entre as variáveis (VIF situados entre 1.28 e 2.57).

No quadro 6 indicam-se os coeficientes de regressão não standardizados, erros-padrão, rácios-críticos e coeficientes de regressão standardizados. O modelo com estimativas standardizadas dos coeficientes de regressão e dos R^2 das variáveis critério representa-se na figura 3. Verificamos que o modelo ajustado explica 44%, 50% e 14% da variabilidade dos processos de recuperação, memória interna e memória externa, respectivamente. A memória externa é o processo menos dependente da aquisição, partilha e interpretação do conhecimento, opondo-se à memória interna, bastante dependente destes processos. Analisando as trajectórias das variáveis predictoras para as critério, constatamos que a mais elevada relaciona-se com a influência do processo de aquisição do conhecimento na memória interna ($\beta = .41$). As trajectórias não significativas correspondem à influência da partilha formal na recuperação e na memória interna, assim como da partilha informal na memória interna. Verificamos ainda que a partilha formal tem um efeito negativo ao nível da memória externa, indicando que, quanto mais se aplicam os processos de partilha formal do conhecimento, menos opera a memória externa. Já com a partilha informal o processo é inverso, já que, quanto mais informalmente o conhecimento é partilhado, mais operam os processos de memória externa. A interpretação do conhecimento apresenta efeitos consideráveis na sua recuperação e na memória interna, evidenciando efeitos menores na memória externa.

QUADRO 6

Coefficientes de regressão não estandardizados (b), erros-padrão (EPE), rácios-críticos (RC) e coeficientes de regressão estandardizados (β)

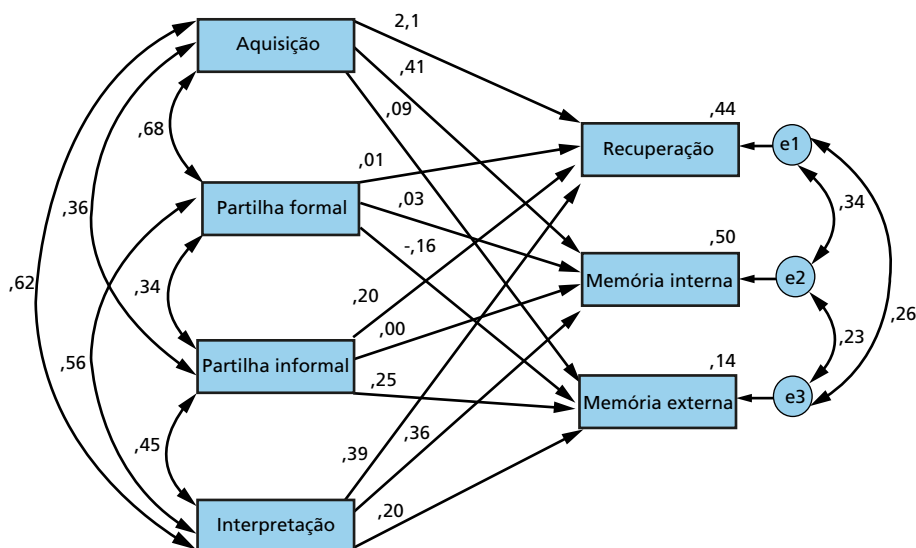
| | | | b | EPE | RC | β |
|-------------------|---|-----------------|--------|-------|----------|---------|
| Aquisição | → | Recuperação | 0.193 | 0.027 | 7.18*** | 0.214 |
| Aquisição | → | Memória interna | 0.359 | 0.025 | 14.49*** | 0.408 |
| Aquisição | → | Memória externa | 0.091 | 0.036 | 2.53* | 0.094 |
| Partilha formal | → | Recuperação | 0.004 | 0.021 | 0.21 | 0.006 |
| Partilha formal | → | Memória interna | 0.020 | 0.019 | 1.041 | 0.028 |
| Partilha formal | → | Memória externa | -0.127 | 0.028 | -4.49*** | -0.158 |
| Partilha informal | → | Recuperação | 0.179 | 0.020 | 8.79*** | 0.198 |
| Partilha informal | → | Memória interna | 0.000 | 0.019 | 0.01 | 0.000 |
| Partilha informal | → | Memória externa | 0.241 | 0.027 | 8.85*** | 0.249 |
| Interpretação | → | Recuperação | 0.352 | 0.025 | 14.25*** | 0.390 |
| Interpretação | → | Memória interna | 0.314 | 0.023 | 13.83*** | 0.358 |
| Interpretação | → | Memória externa | 0.197 | 0.033 | 5.97*** | 0.203 |

Elaboração da autora.

Obs.: * p = .03 e *** p < .001.

FIGURA 3

Modelo de regressão linear múltipla multivariada dos processos de recuperação do conhecimento e memória previstos a partir dos processos de aquisição, partilha e interpretação do conhecimento



Elaboração da autora.

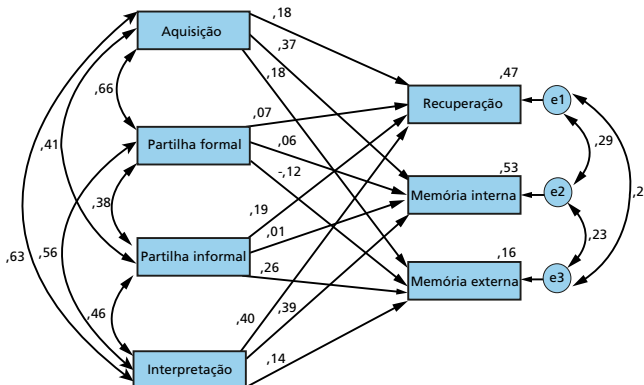
A repetição do modelo de regressão linear múltipla multivariada para as CMs certificadas e não certificadas fez emergir diferenças. O quadro 7 apresenta os coeficientes de regressão não standardizados, erros-padrão, rácios-críticos e coeficientes de regressão standardizados para os dois tipos de autarquias, cujas estimativas standardizadas dos coeficientes de regressão e dos R^2 das variáveis critério se representam nas figuras 4 (autarquias certificadas) e 5 (autarquias não certificadas).

QUADRO 7
Coeficientes de regressão não standardizados (b), erros-padrão (EPE),
rácios-críticos (RC) e coeficientes de regressão standardizados (β) em autarquias
certificadas e não certificadas

| | | | Autarquias certificadas | | | | Autarquias não certificadas | | | |
|-------------------|---|-----------------|-------------------------|-------|----------|---------|-----------------------------|-------|----------|---------|
| | | | b | EPE | RC | β | b | EPE | RC | β |
| Aquisição | → | Recuperação | 0.169 | 0.037 | 4.55*** | 0.176 | 0.230 | 0.039 | 5.89*** | 0.267 |
| Aquisição | → | Memória interna | 0.347 | 0.034 | 10.21*** | 0.371 | 0.389 | 0.036 | 10.80*** | 0.466 |
| Aquisição | → | Memória externa | 0.185 | 0.050 | 3.69*** | 0.180 | 0.021 | 0.051 | 0.41 | 0.023 |
| Partilha formal | → | Recuperação | 0.050 | 0.028 | 1.81 | 0.065 | -0.046 | 0.032 | -1.43 | -0.062 |
| Partilha formal | → | Memória interna | 0.041 | 0.025 | 1.62 | 0.055 | -0.005 | 0.030 | -0.16 | -0.007 |
| Partilha formal | → | Memória externa | -0.098 | 0.038 | -2.61** | -0.119 | -0.159 | 0.042 | -3.75*** | -0.200 |
| Partilha informal | → | Recuperação | 0.171 | 0.026 | 6.45*** | 0.195 | 0.184 | 0.031 | 5.85*** | 0.195 |
| Partilha informal | → | Memória interna | 0.007 | 0.024 | 0.27 | 0.008 | -0.013 | 0.029 | -0.43 | -0.014 |
| Partilha informal | → | Memória externa | 0.240 | 0.036 | 6.76*** | 0.257 | 0.225 | 0.042 | 5.41*** | 0.222 |
| Interpretação | → | Recuperação | 0.356 | 0.032 | 10.98*** | 0.398 | 0.349 | 0.038 | 9.29*** | 0.381 |
| Interpretação | → | Memória interna | 0.340 | 0.030 | 11.50*** | 0.392 | 0.277 | 0.035 | 7.95*** | 0.310 |
| Interpretação | → | Memória externa | 0.132 | 0.044 | 3.04** | 0.139 | 0.268 | 0.050 | 5.39*** | 0.271 |

Elaboração da autora.
Obs.: * $p < .05$, ** $p < .01$ e *** $p < .001$.

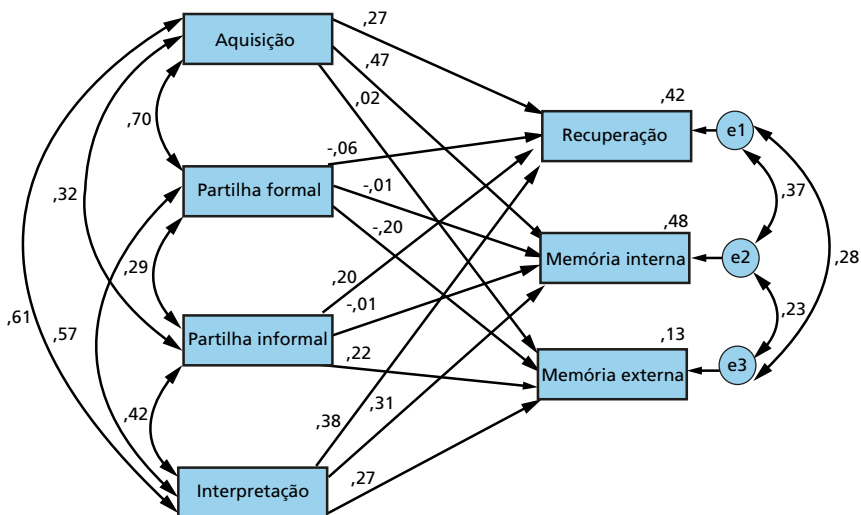
FIGURA 4
Modelo de regressão linear múltipla multivariada dos processos de recuperação
do conhecimento e memória previstos a partir dos processos de aquisição, partilha
e interpretação do conhecimento em autarquias certificadas



Elaboração da autora.

FIGURA 5

Modelo de regressão linear múltipla multivariada dos processos de recuperação do conhecimento e memória previstos a partir dos processos de aquisição, partilha e interpretação do conhecimento em autarquias não certificadas



Elaboração da autora.

Nas autarquias certificadas o modelo ajustado explica um pouco mais da variabilidade dos processos de recuperação, memória interna e memória externa (respectivamente 47%, 53% e 16% nas certificadas e 42%, 48% e 13% nas não certificadas). Também nas CMs certificadas o processo de aquisição influencia a memória externa ($\beta = .18$), enquanto que nas CMs não certificadas este processo não possui qualquer influência na memória externa ($\beta = .02$). Embora a partilha formal em ambos os modelos apresente uma influência nula na memória interna e negativa na memória externa, a influência negativa é maior nas CMs não certificadas ($\beta = -.20$ por contraponto a $\beta = -.12$ nas CMs certificadas). A partilha formal, em ambos os tipos de autarquias, não se mostrou influente na recuperação do conhecimento e na memória interna. Verificamos que em quaisquer delas a memória interna apenas depende da aquisição e da interpretação do conhecimento. Já a memória externa depende da partilha informal e da interpretação do conhecimento. Por último, a recuperação mostra-se em ambos os tipos de CMs dependente da aquisição, da partilha informal e da interpretação do conhecimento.

4.4 Influência da orientação cultural para o conhecimento nos processos de gestão do conhecimento

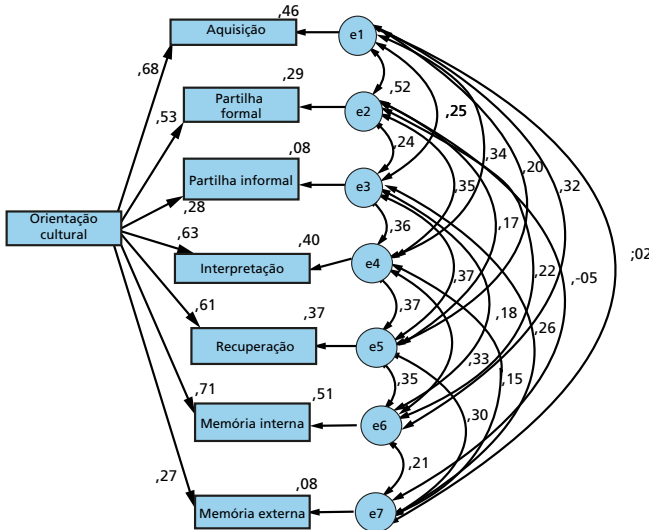
Prendemos finalmente analisar a influência da orientação cultural para o conhecimento nos processos de GC. O modelo de regressão linear múltipla multivariada geral (figura 6) analisa as trajectórias da influência da orientação cultural para o conhecimento nos processos de GC em CMs certificadas e não certificadas (quadro 8).

QUADRO 8
Coefficientes de regressão não estandardizados (b), erros-padrão (EPE), rácios-críticos (RC) e coeficientes de regressão estandardizados (β) dos processos de GC previstos a partir da orientação cultural para o conhecimento

| | | | b | EPE | RC | β |
|---------------------|---|-------------------|-------|-------|----------|---------|
| Orientação cultural | → | Aquisição | 0.690 | 0.020 | 34.22*** | 0.676 |
| Orientação cultural | → | Partilha formal | 0.659 | 0.028 | 23.54*** | 0.534 |
| Orientação cultural | → | Memória externa | 0.271 | 0.026 | 10.63*** | 0.274 |
| Orientação cultural | → | Memória interna | 0.638 | 0.017 | 37.77*** | 0.712 |
| Orientação cultural | → | Partilha informal | 0.282 | 0.026 | 10.71*** | 0.276 |
| Orientação cultural | → | Interpretação | 0.642 | 0.021 | 30.18*** | 0.629 |
| Orientação cultural | → | Recuperação | 0.562 | 0.020 | 28.69*** | 0.610 |

Elaboração da autora.
Obs.: *** $p < .001$.

FIGURA 6
Modelo de regressão linear múltipla multivariada dos processos de GC previstos a partir da orientação cultural para o conhecimento



Elaboração da autora.

Constatamos que a orientação cultural para o conhecimento possui uma influência variável em termos dos processos de GC. Assim, a maior influência ocorre nos processos de memória interna, aquisição e interpretação do conhecimento (51%, 46% e 40% de variabilidade explicada, respectivamente). A partilha informal e a memória externa destacam-se por serem os processos menos afectados pela orientação cultural para o conhecimento (8% de variância explicada), seguindo-se a partilha formal (29%) e a recuperação do conhecimento (37%).

O quadro 9 apresenta as estatísticas decorrentes da regressão linear múltipla multivariada para as autarquias com e sem processo de certificação da qualidade implementado. As estimativas standardizadas dos coeficientes de regressão e dos R^2 dos processos de GC representam-se nas figuras 7 (autarquias certificadas) e 8 (autarquias não certificadas).

QUADRO 9

Coefficientes de regressão não standardizados (b), erros-padrão (EPE), rácios-críticos (RC) e coeficientes de regressão standardizados (β) dos processos de GC previstos a partir da orientação cultural para o conhecimento em autarquias certificadas e não certificadas

| | | | Autarquias certificadas | | | | Autarquias não certificadas | | | |
|---------------------|---|-------------------|-------------------------|-------|----------|---------|-----------------------------|-------|----------|---------|
| | | | b | EPE | RC | β | b | EPE | RC | β |
| Orientação cultural | → | Aquisição | 0.660 | 0.025 | 26.67*** | 0.695 | 0.715 | 0.032 | 22.19*** | 0.660 |
| Orientação cultural | → | Partilha formal | 0.670 | 0.035 | 18.88*** | 0.564 | 0.634 | 0.043 | 14.61*** | 0.501 |
| Orientação cultural | → | Memória externa | 0.315 | 0.033 | 9.40*** | 0.322 | 0.225 | 0.039 | 5.81*** | 0.224 |
| Orientação cultural | → | Memória interna | 0.632 | 0.023 | 27.97*** | 0.712 | 0.643 | 0.025 | 25.42*** | 0.709 |
| Orientação cultural | → | Partilha informal | 0.345 | 0.036 | 9.65*** | 0.330 | 0.204 | 0.038 | 5.33*** | 0.206 |
| Orientação cultural | → | Interpretação | 0.670 | 0.028 | 23.84*** | 0.654 | 0.612 | 0.032 | 19.08*** | 0.603 |
| Orientação cultural | → | Recuperação | 0.570 | 0.026 | 21.91*** | 0.622 | 0.560 | 0.030 | 18.97*** | 0.600 |

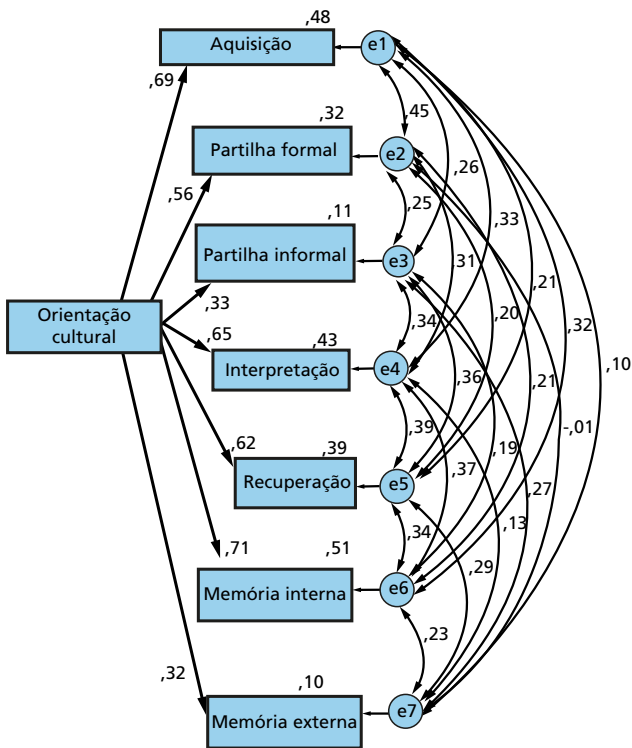
Elaboração da autora.

Obs.: *** $p < .001$.

A observação dos dois modelos de regressão multivariada mostra-nos que em todos os processos de GC a orientação cultural possui maiores aptidões preditivas nas autarquias onde o processo de certificação da qualidade está implementado. Esta superioridade é particularmente evidente nos processos de partilha formal e informal (respectivamente, 32% e 11% nas CMs certificadas por contraponto a 25% e 4% nas não certificadas) e de interpretação do conhecimento (43% nas CMs certificadas e 36% nas não certificadas). Em ambos os tipos de autarquias a memória interna é o processo mais explicado pela orientação cultural para o conhecimento (51% nas CMs certificadas e 50% nas não certificadas), seguindo-se a aquisição (48% nas CMs certificadas e 44% nas não certificadas), a interpretação (43% nas CMs certificadas e 36% nas não certificadas), a recuperação (39% nas CMs certificadas e 36% nas não certificadas) e a partilha formal (32% nas

CMs certificadas e 25% nas não certificadas). Em ambos os tipos de autarquias a partilha informal e a memória externa são previstas pela orientação cultural para o conhecimento em magnitudes semelhantes e baixas (respectivamente, 11% e 10% nas CMs certificadas e 4% e 5% nas não certificadas).

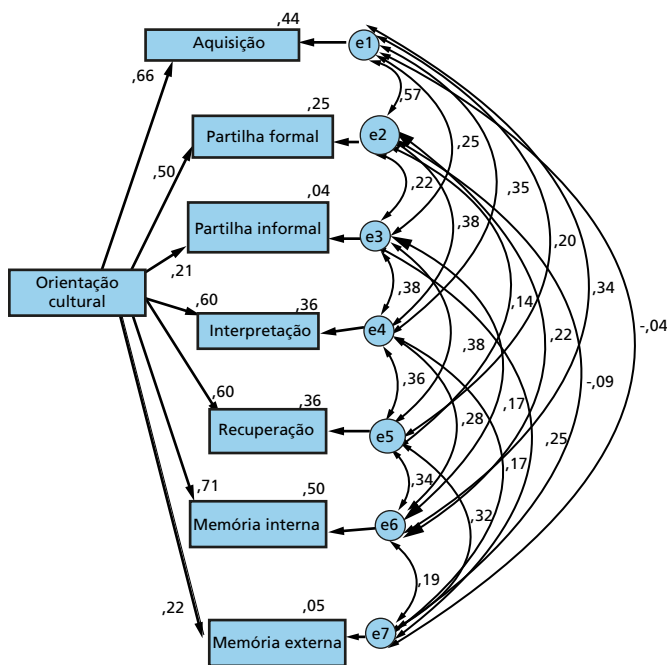
FIGURA 7
Modelo de regressão linear múltipla multivariada dos processos de GC previstos a partir da orientação cultural para o conhecimento em autarquias certificadas



Elaboração da autora.

FIGURA 8

Modelo de regressão linear múltipla multivariada dos processos de GC previstos a partir da orientação cultural para o conhecimento em autarquias não certificadas



Elaboração da autora.

5 CONCLUSÃO

Tal como foi referido anteriormente, o presente estudo realizou-se em 84 organizações da administração pública local portuguesa que dizem não possuir nenhuma iniciativa formal ou institucional de implementação da GC. Apesar disto, os dados recolhidos junto de 1.391 dos seus colaboradores permitem-nos concluir que, tal como havíamos previsto, a inexistência de iniciativas formalmente instituídas não corresponde à inexistência de acções que podemos considerar serem acções organizacionais de GC (lição aprendida). De facto, fundamentados em cinco processos básicos de GC – aquisição, partilha (formal e informal), interpretação, memória organizacional (interna e externa) e recuperação do conhecimento –, verificou-se que, globalmente, todos eles estavam actuantes nas CMs estudadas. A constatação de que são os processos formais de partilha do conhecimento os que nelas menos operam não surpreende já que, tal como a própria designação indica, se trata de acções organizacionais mais dependentes de “orientações superiores”, de explicitação institucional, que é algo que realmente escasseia nestas organizações. Por outro lado, é relevante destacar os processos de memória externa

e recuperação do conhecimento pela sua aplicação tendencialmente mais elevada. Enfatizamos, sobretudo, os últimos porque remetem para a efectiva utilização do conhecimento detido, objectivo último da GC. De facto, afigura-se-nos estéril deter conhecimento, mas não o “pôr em prática”, pois este só é realmente instrumental quando utilizado e colocado ao serviço das organizações e dos seus clientes. Considerando a cultura organizacional, mais especificamente a orientação cultural para o conhecimento, verificámos que esta é vista como actuante pelos colaboradores das CMs estudadas. Neste âmbito, destacamos a preocupação tida nestas organizações de constantemente procurar toda a informação/conhecimento susceptível de melhorar a qualidade dos serviços prestados.

Integrando nesta análise a variável relativa à Certificação da Qualidade, constata-se que os processos de aquisição do conhecimento e os processos formais relativos à sua partilha são mais actuantes nas organizações cujos serviços são certificados (lição aprendida). Este resultado suscita uma possível recomendação que passa por sensibilizar as organizações para o contributo singular e diferenciador destes processos para a qualidade do serviço prestado. Verificou-se, ainda, que é nas CMs não certificadas que a memória organizacional externa é mais operante.

Os resultados obtidos permitem ainda concluir pela interdependência dos processos de GC estudados, integrando-se, aqui, a orientação cultural para o conhecimento (lição aprendida). A este nível destacam-se as elevadas associações entre a aquisição e a partilha formal e entre a aquisição e a memória interna diante da orientação cultural para o conhecimento. As associações mais fracas verificam-se entre a memória externa e a partilha formal, a aquisição do conhecimento e a orientação cultural para o conhecimento. Este resultado, e aquele já referido de serem as organizações não certificadas a pontuarem mais na memória externa e as certificadas na aquisição e partilha formal do conhecimento, conduz-nos à consideração de que é necessário compreender melhor o papel da memória externa no conjunto dos processos de GC (lição aprendida). Uma hipótese que consideramos é a de que o sentido atribuído aos itens desta subescala possa não ser muito positivo ou conduzir a uma avaliação menos positiva. Isto é, pode ser-lhes atribuída uma conotação menos favorável, mais associada ao fraco desempenho geralmente atribuído ao serviço público existindo, assim, uma preocupação acrescida com estes aspectos por parte das CMs não certificadas. As demais, as certificadas, possivelmente, têm a expectativa de que os serviços que prestam e que possuem o selo da qualidade se traduzam numa opinião/memória externa mais favorável e por isso este processo ser menos mobilizador da sua atenção.

Na sequência do que vimos dizendo, não nos surpreendeu que, quando avaliámos as relações de dependência dos processos de GC, a memória externa se apresente como menos dependente dos processos de aquisição, partilha e interpretação e a memória interna como sendo deles mais dependente. É como

se nestas organizações não existisse qualquer ligação entre os processos “internos” de GC e aquele que remete para o exterior da organização, para a memória que a respeito dela se vai aí construindo. Por outro lado, a relação entre os processos de GC que acontecem no interior da organização e as memórias (internas) que nela se vão construindo parece ser evidente para os diversos actores organizacionais que a expressam através das suas percepções. A relação de mais elevada dependência é a da memória interna diante da aquisição de conhecimento, evidenciando quanto a primeira é dependente da segunda (lição aprendida). Queremos ainda destacar o facto de as práticas formais terem um impacto negativo na memória externa, sendo este impacto positivo quando se trata da memória interna. Parece-nos, de novo, que no referente à memória externa se trata de processos com um foco antagónico (dicotomia exterior-interior). Isto é, quanto mais operam os processos formais de partilha do conhecimento, menos se verifica a memória externa. Não podemos deixar de raciocinar na linha do que antes fizemos e sugerir a possibilidade de nestas organizações a memória externa possuir uma conotação negativa. Só desta forma se compreende um pouco melhor que uma maior formalização, teoricamente presente nas práticas formais de partilha do conhecimento e presença distintiva nas organizações certificadas, conduza a uma diminuição da memória externa.

Para uma maior compreensão destas relações de dependência, importa entrar em linha de conta com as diferenças entre CMs certificadas e não certificadas. Verificou-se que nas organizações certificadas é maior a variabilidade explicada pelo modelo, indiciando que as relações de dependência nele consideradas encontram na realidade destas organizações um maior ajustamento (lição aprendida). Comparando os resultados obtidos verifica-se que apenas nas organizações certificadas a aquisição do conhecimento tem impacto na memória externa e que a influência negativa das práticas formais de partilha do conhecimento na memória externa é maior nas organizações não certificadas. Nestas organizações (certificadas ou não) os processos de partilha do conhecimento parecem não influenciar a memória interna que depende, apenas, da aquisição e interpretação do conhecimento. Já a memória externa é nelas dependente da partilha informal e da interpretação. Salienta-se o facto de a recuperação do conhecimento ser dependente da aquisição, da partilha informal e da interpretação. Esta conclusão conduz-nos à consideração de que as interações informais e as oportunidades de construção de um sentido colectivo para a realidade organizacional, associadas à interpretação do conhecimento, são de apoiar e estimular dada a sua relevância para a recuperação e utilização do conhecimento (lição aprendida).

Importa ainda referir o papel diferentemente exercido pela orientação cultural para o conhecimento nos processos de GC estudados. Os resultados obtidos alertam-nos para a importância de uma orientação da cultura para as questões do conhecimento e da aprendizagem (lição aprendida). Efetivamente,

esta é particularmente relevante quando se visa à aquisição de conhecimento, a sua compreensão e interpretação, assim como a sua retenção, preservação e memorização interna. Menos afectados por esta orientação parecem ser os processos de partilha informal do conhecimento e a memória organizacional externa.

Considerando nesta análise a distinção entre organizações certificadas e não certificadas, verifica-se que a orientação cultural para o conhecimento evidencia maiores capacidades preditivas nas CMs certificadas, sendo a sua influência particularmente evidente nos processos de partilha do conhecimento (formal e informal) e interpretação (lição aprendida). Este resultado reforça a relevância de se criarem condições organizacionais ao desenvolvimento de uma cultura que sinalize a importância da aprendizagem e do conhecimento, bem como dos processos que com ele se relacionam.

Para terminar, gostaríamos de destacar que no actual contexto socio político as perspectivas de profissionalização e institucionalização da GC na administração pública local portuguesa não são animadoras. No entanto, consideramos relevante sensibilizar estas organizações para o que já fazem e sabem fazer (e que emergiu no estudo realizado). No nosso entender, é mais fácil e mais mobilizador construir algo a partir de uma visão positiva e construtiva do que já fazemos do que da consideração de que de tudo precisamos aprender a fazer.

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DRIVERS AND PROCESSES: EXPERIENCES OF IMPLEMENTATION OF KNOWLEDGE MANAGEMENT IN PUBLIC ADMINISTRATION IN MEXICO

Francisco Javier Carrillo¹

1 INTRODUCTION

This chapter aims at providing an overview of the interplay between the institutional drivers and the technical processes involved in Knowledge Management initiatives in the public sector in Mexico. While largely focusing at the organizational level of analysis corresponding to Knowledge Management (KM), it will also venture into some implications at the wider social level of Knowledge-based Development (KBD). In doing so, the chapter addresses the two major concerns of this book: “1) the implementation of KM practices in organizations and entities of public administration; and 2) the degree of explicitness and formalization of KM in these organizations”.²

Besides providing a retrospective of KM in public administration in Mexico, the chapter concludes by discussing the evolution of KBD at large and how the evolution of the discipline may become more significant for public administration in Mexico and elsewhere. This general overview is framed within the following coordinates: *i)* the emergence and general evolution of KM worldwide, *ii)* the transformation of public management in Latin-America, particularly in Mexico and *iii)* the evolution of the development paradigm from an industrial to a knowledge-based one.

This overview covers a wide perspective through a longitudinal (a span of 25 years) and transversal accounts (50 projects over three levels of government, and cross-sector). As much as this study is referred to public information, it relies also on the experience and perspective of the Center for Knowledge Systems (CKS) at Tecnológico de Monterrey. Being an early player in the field, the CKS started

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2. Project: BRL1060 – Ipea Research Program – Contract # 21/2014. Appendix C – Context of the project, p. 9.

as a satellite broadcast knowledge transfer system in 1990 (*Programa Sinapsis*)³ and signed its first major KM contract with a Mexican Government agency back in 1992. Since then, over 80 projects have been contracted to CKS by different public sector organizations in Mexico and abroad: from ministries and large state companies, to cities and municipal programs, from federal agencies to de-centralized organisms. Such experience has endowed CKS with a wealth of data and an insider perspective to be vested into this chapter.

This insider perspective together with a close contact with key agents over a quarter of a century make this study particularly amenable to a Critical Realism and Pragmatism epistemological stands (Johnson and Duberley, 2000). Such perspective entails an objectivist ontology that sustains realism and tempers a subjectivist epistemology that provides room to all relevant voices for sense-making of concrete experiences (Johnson and Duberley, op. cit., p. 185).

Besides a literature review on KM and KBD in Mexican public administration, this study incorporates a number of unique sources beyond regular public information data bases and official publications. These include internal reports, reserved dissertations, technical databases⁴ and, above all, the CKS own organizational memory that documents each project carried out over the last 25 years. Even if much of this information has to remain reserved and client-specific data will be kept anonymous, comparable data provide a sound empirical grounding for the kind of general account pursued here.

Simultaneously, an effort is undertaken to portray general trends of KM applications to the public sector worldwide. By framing the conclusions drawn from the applications in Mexico within the global state-of-the-art, some conclusions will also be drawn on the implications of KM and KBD for the future of government.

The chapter is organized in six sections. After this Introduction, Section 2 aims at illustrating KM applications in the public sector in Mexico through a selection of 50 KM implementations during the period 1990-2014. Such an account may help the reader contextualize not only the technical evolution but also some key political and organizational circumstances surrounding KM in public administration in the country.

3. See Carrillo, (1994a) for an overview. The *Programa Sinapsis*, running from 1990 through 1994 was the first electronic distant education program in Latin-America and the foundation of the Tecnológico de Monterrey *Virtual University*. The latter has provided extensive training to public administration entities, such as the Municipal Administration Seminar offered throughout Latin-America in collaboration with the World Bank in the late 1990s. The relevance of distributed learning systems for continuous training in public administration remains evident today (Filatro and Da Mota, 2013).

4. The author thanks Lázaro Castillo, currently working on the 'Gestión del Conocimiento en Empresas Públicas y Privadas' study at *Facultad de Comercio y Administración of Universidad Autónoma de Tamaulipas* for a fruitful exchange of documentary sources of KM in Mexico.

Section 3 provides an assessment of the degree of implementation and explicitness of the KM applications selection above. This is followed in Section 4 by a mapping of processes vs. initiatives in order to illustrate the degree of technical proficiency of KM implementations.

In Section 5, a discussion of the tensions between technical proficiency and political drivers sets the ground to draw some learnings from these experiences. Finally, the conclusions (Section 6) provide some insights into the challenges and opportunities for furthering KM and KBD into the Public Sector.

2 KNOWLEDGE MANAGEMENT IN THE PUBLIC SECTOR IN MEXICO (1990-2014)

The section will be contextualized on the emergence of the KM field and its applications to the public sector worldwide. Next, a more detailed review of KM applications in public administration in Mexico is conducted, including public sources, as well as an insider account on government programs and internal reports. Having participated in a significant number of projects over the quarter of a century covered by this study, the author has access to a number of databases, reports, instruments and results from which a number of valuable insights can be drawn for the purpose of this chapter. However, the use of such resources shall be limited to that where permit of use exists and therefore no proprietary data or classified information out of these sources will be disclosed throughout the study.

With regard to KM presence in the Public Sector worldwide, it can be traced back to early KM literature. The landmark *Public Administration Review* 35 (6) covered the proceedings of the 1975 Symposium on Knowledge Management provoked by Henry's paper a year earlier, where he explores the governmental implications of the leveraging power of knowledge and the advent of knowledge societies (Henry, 1974). In a way, it was more of a forecast on the advent of KM and its implication for government and development, since at the time there were no formal KM techniques – and none is actually discussed in that PAR issue – but it was certainly prescient of concerns that are raised in the discussion and concluding remarks of this chapter. Such are the works therein by Caldwell (567-572), Henry (572-578), Carroll (578- 581), Goerl (581-588) and Gates (589-593) to name a few. Actually, KM in Government seems to have bridged the way towards KBD. Since the early years of KM, a number of development agendas were proposed based on the potential of KM (Machlup, 1972; Sakaya, 1991; Drucker, 1994; Conceição, *et al.*, 1997; Carrillo, 1983a, 1983b, 2001a; Amidon, 1998), and efforts have been made to articulate national KM agendas (Suurla, Markkula and Mustajärvi, 2002; Randy, 2004; CTAC, 2006; Bennet and Bennet, 2007; Batista, 2012).

A number of reviews of KM in government and public administration have been conducted (Milner, 2000; Motsenigos and Young, 2002; Cong and Pandya, 2003; Arostegi, 2004; Butler and Ciaran, 2007; McNabb, 2007; Yuen, 2007; Dalkir, 2010; Arora, 2011; Talisayon, 2013). Attempts have been made to characterize KM in public *vs* private organizations (Unpan, 2004; Román-Velázquez, 2002; Peluffo and Contreras, 2002). A major concern of organizations worldwide has been to manage succession planning and government has been no exception (Liebowitz, 2003). Intellectual capital in public administration has also been addressed (Bueno, 1999, 2004). The connection between KM and e-Government has been widely studied (FIS, 2001; Lenk, Traunmüller and Wimmer, 2002; Wimmer, 2003; Traunmüller and Wimmer, 2003; Wimmer, 2004).

Regarding KM applications in the public sector in México, some partial reviews exist (Villarreal, 2002; Carrillo, 2003; Castillo, 2010; Parrilla, 2013; Castillo, Lavin and Pedraza, in preparation). Available literature covers KM applications in Public Education and Research Centers (Segura, 2003; Arroyo and Martínez, 2009; Minakata, 2009; Corral, *et al.*, 2010; Solleiro, 2010; Barroso, 2011; Rodríguez, P., *s/f*), the interplay of private and public KM (Carrillo, 1996c; Fera and Hidalgo, 2012), agriculture (IICA, 2012), health (Machorro, 2008), distance education (Carrillo, 1994a; Carrillo, Shapiro and Velázquez, 2000; García, 2010), and e-government (Gil, Mariscal and Ramírez, 2008), including an attempt to draw general guidelines for KM in the public sector (CTAC, 2006). KBD applications to municipal and regional development are prominent (Gómez, 2011; González, Zúñiga and Gutiérrez, 2012; Hernández and Pérez, 2012; Pomar and Rendón, 2013; Aguiñaga, in progress).

For the more distinctive element of this section, i.e. the overview of practices, a selection of KM applications in public administration in Mexico have been compiled from 1990 through 2014. This includes 50 cases from three levels of government: federal, state and municipal. It also includes several sectors – notably energy and education –, and instances of government offices as well as government-owned companies. Finally, it includes examples from other public organizations such as public universities, de-centralized organisms, etc.

Table 1 contains the selection of 50 initiatives over the period 1990-2014. All of these were contracted to CKS and a technical memory of each exists in printed and/or digital form.

TABLE 1
KM in Mexican public sector project selection (1990-2014)

| N | Year | % | Project description | Area | Contracting entity | Category | Sector | Level |
|----|------|-----|---|------------|---|--------------------------------|------------------------|----------|
| 01 | 1990 | 100 | Satellite broadcast knowledge transfer | HC | Several through open program enlistment | Several | Several | National |
| 02 | 1992 | 100 | Knowledge System for Training Needs | HC | Pemex Exploración y Producción, Subdir de Tecnología y Desarrollo Profesional | State-owned Company | Energy | Regional |
| 03 | 1994 | 100 | Human Capital in Mexico in the light of Nafta agreement | HC | Academia Mexicana de Ciencias/(US) National Science Foundation/Conacyt | De-centralized National Agency | Science & Technology | National |
| 04 | 1994 | 100 | Professional Development System | HC | Pemex Exploración y Producción, Subdirección de Tecnología y Desarrollo Profesional | State-owned Company | Energy | Regional |
| 05 | 1996 | 100 | Technical Guidelines for National Competency System | SC, HC | Consejo Normalización y Certificación de Competencia Laboral – Conocer | De-centralized National Agency | Tri-Partite | National |
| 06 | 1997 | 100 | Intra-preneurship competencies | HC | Pemex Exploración y Producción, Región Marina Suroeste, Gerencia Nacional de Recursos Humanos | State-owned Company | Energy | National |
| 07 | 1997 | 100 | Reengineering of SEP-Conacyt National Research Centers System | SC, HC, IC | The World Bank & Consejo Nacional de Ciencia y Tecnología – Conacyt | Federal Agency | Science and Technology | Federal |
| 08 | 1997 | 100 | Careers Plan and Professional Development | HC | Pemex Exploración y Producción, Región Marina Suroeste, Subdirección Regional | State-owned Company | Energy | Regional |
| 09 | 1997 | 100 | Corporate HR Strategy | HC | Pemex Exploración y Producción, Región Marina Suroeste, Gerencia Nacional de Recursos Humanos | State-owned Company | Energy | National |
| 10 | 1998 | 100 | Integrated Information System Design | HC | Consejo Normalización y Certificación de Competencia Laboral – Conocer | De-centralized National Agency | Tri-Partite | National |
| 11 | 1998 | 100 | Work Climate Study | HC | Pemex Exploración y Producción, Región Marina Suroeste | State-owned Company | Energy | Regional |
| 12 | 1997 | 100 | Career Planning and Quality Culture | HC | Pemex Exploración y Producción, Región Marina Suroeste | State-owned Company | Energy | Regional |
| 13 | 1997 | 100 | Function Analysis and Labor Competency Norms | HC | Consejo Normalización y Certificación de Competencia Laboral – Conocer | De-centralized National Agency | Tri-Partite | National |
| 14 | 1998 | 100 | Training Needs Facilitation | HC | Pemex Exploración y Producción, Región Marina Suroeste | State-owned Company | Energy | Regional |

(Continues)

(Continuation)

| N | Year | % | Project description | Area | Contracting entity | Category | Sector | Level |
|----|------|-----|---|------------|--|--|---------------------------------|---------------|
| 15 | 1998 | 100 | Security and Contingency Procedures Competency System | HC | Centros Federales de Readaptación Social – Cefresos | Federal Office | Law Enforcement | Federal |
| 16 | 1999 | 100 | Enterprise Architecture | SC | Pemex Exploración y Producción, General Directorate | State-owned Company | Energy | National |
| 17 | 2001 | 50 | Human Capital Diagnose | HC | Comisión Estatal de Sanidad Animal de NL | Federal representation | Sanitary | State |
| 18 | 2000 | 100 | Training and Career Plans | HC | Pemex Exploración y Producción, Dirección General | State-owned Company | Energy | National |
| 19 | 2000 | 100 | Integrated Curriculum for the High School System | HC | Secretaría de Educación del Gobierno de Guanajuato | State Secretary | Education | State |
| 20 | 2001 | 100 | Human Resources Leadership Development | HC | Pemex Exploración y Producción, Gerencia Nacional de Recursos Humanos | State-owned Company | Energy | National |
| 21 | 2001 | 100 | Learning-to-learn competencies in Basic Education | HC | Secretaría de Educación del Gobierno de Guanajuato | State Secretary | Education | State |
| 22 | 2001 | 100 | Knowledge Management in Mexico: A Survey | SC, HC, IC | Consorcio para la Administración de Conocimiento | Professional Association | Economic & Social Development | National |
| 23 | 2002 | 100 | Knowledge Management Competencies | SC, HC, IC | Pemex Exploración y Producción, Dirección General | State-owned Company | Energy | National |
| 24 | 2002 | 40 | Corporate KM Strategy | SC | Pemex Corporativo | State-owned Company | Energy | National |
| 25 | 2004 | 100 | Technology Management Value Practices | SC, HC | Conacy/Adiat | Federal Agency & Professional Association | Technology & Innovation | National |
| 26 | 2004 | 100 | KBD Reference Framework: Special Summit of The Americas | SC | Organization of American States/Secretaría de Relaciones Exteriores | International Organization & National Ministry | International Cooperation | International |
| 27 | 2005 | 100 | Innovation Value Practices for SMEs | SC, IC | Dirección General de Soporte a PyMEs, Secretaría de Economía | Federal Ministry | Economic Development | Federal |
| 28 | 2005 | 90 | KBD Strategy for Nuevo León | SC | Instituto de Innovación y Transferencia de Tecnología y Fórum Universal de las Culturas. Gobierno del Estado de NL | State Agency | Economic and Social Development | State |
| 29 | 2006 | 50 | Knowledge Management System | SC, HC, IC | Consejo Técnico en Administración del Conocimiento, Secretaría de Educación | National Ministry | Education | Federal |
| 30 | 2006 | 100 | KM Capabilities and Strategic Development Plan | SC, HC, IC | Comisión Federal de Electricidad, Subdirección Técnica | State-owned Company | Energy | National |

(Continues)

(Continuation)

| N | Year | % | Project description | Area | Contracting entity | Category | Sector | Level |
|----|------|-----|--|------------|---|---|----------------------------------|----------|
| 31 | 2006 | 100 | The Capitals System of The City of Monterrey | SC | World Capital Institute | International Organization | Development Policy | State |
| 32 | 2006 | 100 | North Region KM Strategy | SC, HC, IC | Pemex Exploración y Producción, Región Norte, Subdirección General | State-owned Company | Energy | National |
| 33 | 2006 | 50 | KM Strategy | SC, HC, IC | Secretaría de Economía, Dirección General de Informática | National Ministry | Economic Policy | Federal |
| 34 | 2007 | 100 | KM Competencies for Managers | SC, HC, IC | Pemex Exploración y Producción, Dirección General | State-owned Company | Energy | National |
| 35 | 2007 | 100 | General KM Plan | SC, HC, IC | Comisión Federal de Electricidad, Subdirección Técnica | State-owned Company | Energy | National |
| 36 | 2007 | 100 | Geosciences Experience Retrieval System | HC, IC | Pemex Exploración y Producción, Dirección General | State-owned Company | Energy | National |
| 37 | 2007 | 100 | Human Capital Development Strategy | HC | Comisión Federal de Electricidad, Gerencia de Distribución Centro-Oriente | State-owned Company | Energy | Regional |
| 38 | 2008 | 100 | Organizational Memory for Pemex Geosciences Network | IC | Pemex Exploración y Producción, Dirección General | State-owned Company | Energy | National |
| 39 | 2008 | 100 | Diagnose of Monterrey as a Knowledge City | SC | Inter-American Development Bank, Gobierno del Estado de Nuevo León | International Agency & State Government | Development Policy | State |
| 40 | 2010 | 70 | Technological Development with reference to Business Plan | SC | Pemex Corporate Office | State-owned Company | Energy | National |
| 41 | 2011 | 50 | Regional KBD Strategy | SC | Fondo de Fomento Regional de Desarrollo de Actividades de Ciencia, Tecnología e Innovación – Fordecyt | Regional Agency | Science, Technology & Innovation | Regional |
| 42 | 2011 | 100 | Knowledge Transfer and Virtual Plants for Industrial Processes | SC, HC, IC | Pemex – Refinación, Dirección General | State-owned Company | Energy | National |
| 43 | 2011 | 40 | KM Strategy and Processes | SC, HC, IC | Dirección General de Profesionalización de la Asistencia Social, Desarrollo Integral de la Familia | Federal Agency | Social, Development | Federal |
| 44 | 2013 | 40 | Strategic Competencies System | SC, HC | Centro de Investigación y Asistencia Técnica del Estado de Querétaro – Ciateq | State R&D Center | Technical Development | State |
| 45 | 2013 | 100 | KM Model Transfer | SC | Gerencia de Administración de Conocimiento, PEP | State-owned Company | Energy | Regional |
| 46 | 2013 | 80 | Capitals System Assessment for the State of Querétaro | SC | Consejo Estatal de Ciencia y Tecnología de Querétaro y World Capital Institute | State Agency | Development Policy | State |

(Continues)

(Continuation)

| N | Year | % | Project description | Area | Contracting entity | Category | Sector | Level |
|----|------|-----|--|------|---|---------------------|----------------------------------|----------|
| 47 | 2013 | 40 | KM Strategy in the Mexican Space Ecosystem | SC | Agencia Espacial Mexicana – Dirección General | Federal Agency | Aerospace | Federal |
| 48 | 2014 | 80 | Capitals Assessment in Public Pawn-broking | SC | Monte de Piedad del Estado de Oaxaca – Dirección General | State Agency | Social welfare | State |
| 49 | 2014 | 100 | Institutional Capabilities for Innovation: The State of Nuevo León | SC | Consejo Nacional de Ciencia y Tecnología / Tecnológico de Monterrey | Federal Agency | Science, Technology & Innovation | State |
| 50 | 2014 | 10 | Corporate KM Strategy | SC | Gerencia Corporativa de Innovación, Pemex | State-owned Company | Energy | National |

Author's elaboration.

The selection starts back in 1990 when the *Sinapsis Program* took off. This initiative emerged from the intention to capitalize the satellite broadcast installed capacity at Itesm – a network of 32 campuses throughout the country – that provided permanent online communication before videoconferencing was economically and technically feasible through Internet.⁵ By offering “on-the-job master programs” *Sinapsis* aimed to provide two-way knowledge exchange and integration experience between graduate programs and the field of application. While this was not exclusive for the public sector and several private corporations became customers, soon several public offices engaged a large number of participants in custom-designed programs such as public schools teachers development, municipal management competencies, public officers certification, etc. This program grew into the Tecnológico de Monterrey *Virtual University*, that spans most of Latin-America and became a fully Internet-based distant education system.

However, it is the formalization of the first contract with Pemex what properly inaugurates the CKS series of KM engagement with public entities in Mexico and abroad. Emerging as a *Sinapsis Program* spin-off, the 1992 “Knowledge System for Training Needs” project was solicited by the *Región Marina Suroeste* from *Pemex-Exploración y Producción*. Aiming at systematizing the allocation of individual training activities to key competency development needs, this program was the first in a long series of KM-related requests. It is worth noting that the *Exploración y Producción* subsidiary company of Pemex (PEP) is on its own the largest company in Mexico. Being the major branch of the State Corporation, it has the largest share of the around 150,000 Pemex employees.⁶

5. Tecnológico de Monterrey was the ground for the first Bitnet connection in Ibero-America back in 1986, and the first Internet node in 1989 (Wikipedia).

6. Solicitud SISI número: 1857200083808. <<http://goo.gl/zdJ1Tm>>.

Of specific relevance to this study, Pemex stands out as the single most prominent sponsor of KM initiatives across the public sector in Mexico. From the 50 projects listed in the current selection, 20 were contracted by some Pemex unit. The polarization of KM projects in this large state company is by no means exclusive to CKS. The *Instituto Mexicano del Petróleo*, for example, has run its Aceite (“OIL”) program⁷ along several other KM initiatives (Herrera, 2004). Due to the fact that KM was in its early years accessible mostly to large corporations with the technical and financial muscle to leverage this new technology, it is not surprising that oil companies were amongst the first to try out KM initiatives worldwide and that the oil industry was arguably the first sector to hold a specialized KM conference (Leavitt, 2002; Grant, 2013).

Hence, KM initiatives in Pemex have spanned a number of entities within the corporation, notably *Exploración y Producción*, *Refinación*, and the Corporate Offices. Most of the early projects addressed Human Capital and Instrumental Capital issues, while more strategic Capital Systems started to unfold only in recent years.

Despite the continuity and scale of KM initiatives at Pemex, it is hard to establish the extent to which these have been institutionalized into permanent functions and processes or evolved into corporate guidelines and standards. The continuous re-drawing of the organizational structure over the past two decades makes it difficult to follow-up initiatives. As far as we have been able to document, most projects, once its goals were fulfilled or its deliverables accomplished, were administratively concluded as stand-alone initiatives. Yet, the diversity and frequency of KM projects has created a KM-educated employee base across some areas of the corporation and at least one dedicated institutionalized unit: the *Gerencia de Gestión de Conocimiento* within PEP. Attempts to integrate a Corporate KM Policy have so far failed to deliver and institutionalized program, but a recent initiative by the *Dirección Corporativa de Tecnologías de Información y Procesos de Negocio* (DTCIPN) might accomplish that.

Besides Pemex prominence with regard to KM implementations amongst public sector in Mexico, another energy sector also stands out, albeit in a distant second place: the *Comisión Federal de Electricidad*-CFE. Lead by its *Subdirección Técnica*, the CFE is also prominent in its technology-intensive processes and the width of its technical staff. Through 2006 and 2007 it commissioned the design and pilot test of a corporate KM. Along a training program, a KM processes design exercise was conducted with the participation of all major technical areas.

7. Programa Aceite (Administración del Conocimiento e Inteligencia Tecnológica) later became Programa de Administración del Conocimiento y Patrimonio Intelectual (ACPI). See also Segura (2003).

On a different front, a number of studies on KM issues of national scope have also been conducted, including the *Estudio sobre Capital Humano en México* carried out in 1994 in the advent of the Nafta agreement, in order to identify the challenges and opportunities regarding North-American integration of technical human resources (Carrillo, 1994b); the 2001 *Administración del Conocimiento en México* Survey sponsored by the KM Consortium of companies interested in furthering the field (Carrillo, 2001b); and the *Prácticas de Valor de Gestión Tecnológica Study* jointly sponsored by Conacyt and Adiat, aiming at establishing large and small-size model companies in terms of successful technology management processes in Mexico (Carrillo, 2005). Other regional studies have had a more specialized focus, such as the Capitals Systems assessments for The State of Nuevo León on the one hand (Carrillo, 2008) and the State of Querétaro on the other (Aguíñaga, in progress).

Some of the KM initiatives selected for this study involved the participation of international organizations along their Mexican government counterparts. Such is the case of the KM re-engineering of several of the national R&D centers within the *Red de Centros SEP-Conacyt* engaging the Ministry Education – SEP and Conacyt on the one hand and the World Bank on the other. This program aimed at identifying the most advanced national Science and Technology centers in terms of their managerial maturity and self-sufficiency in order to help them evolve into autonomous research and innovation national centers. Selected centers included regional centers on the states of Jalisco (Ciatej) and Querétaro (Ciateq), as well as the national center of applied Chemistry (Ciqua) and the national center of applied economics (Cide). The transformation of the national R&D centers system took off from there, until it evolved, based on a new legislation, on a more connected network of science and technology capabilities supporting regional innovation at most states. Later on, the national *Instituto de Investigaciones Eléctricas* followed suit with its *Sistema de Gestión del Conocimiento para Centros de Investigación* (Solleiro *et al.*, 2010).

From the Federal Ministries that engaged in KM initiatives the *Secretaría de Gobernación*, *Secretaría de Educación Pública* and the *Secretaría de Economía* stand out. These were mostly initiatives sponsored by these ministries to be applied on some area within their field of competence, rather than as programs for improving public administration capabilities within themselves.

3 DEGREE OF IMPLEMENTATION AND EXPLICITATION

The Assessment of the degree of formalization will be based on a collation of experiences from 50 projects plus interviews with some key figures in the application

of KM programs. For this, the implementation stages and degree of explicitation categories from the suggested questionnaire⁸ will be used.

With regard to the *Implementation Stage*, the following five items have been used as qualitative categories:

- [0] There are no plans for implementation.
- [1] There are plans for the future.
- [2] They are in the process of being implemented.
- [3] They have already been implemented.
- [4] They have already been implemented and are presenting results that are important, relevant and measurable.
- [5] They have already been implemented and present qualitative results that are important and relevant.

In order to grade each of the projects, the technical reports, project log book and CKS physical and digital archives were consulted. Discussion with some of the consultants and key internal players helped to determine some assessments, in particular the degree of institutionalization and continuity of the initiative after the project conclusion.

Table 2 compiles the assessment of these categories for each of the 50 projects, according to the respective implementation stage.

TABLE 2
Degree of implementation in selection of 50 KM Projects per questionnaire categories

| N | Project description | Contracting entity | No plans 0 | Future plans 1 | In process 2 | Implemented 3 | Results 4 | Relevant 5 |
|----|---------------------------------|--------------------------------|---------------|-------------------|-----------------|------------------|--------------|---------------|
| 01 | Knowledge System for Training | PEP-STDP | | | | █ | | |
| 02 | Human Capital in Mexico – NAFTA | AMC/NSF/Conacyt | | █ | | | | |
| 03 | Professional Developm. System | PEP-STDP | | | | | █ | |
| 04 | National Competency System | Conocer | | | | | █ | |
| 05 | Intrapreneurship | PEP-RMSO-GNRH | | | | █ | | |
| 06 | SEP-Conacyt System | World Bank/Conacyt | | | | | | █ |
| 07 | Careers Plan | PEP-RMSO-Subdirección Regional | | | | | █ | |
| 08 | Corporate HR Strategy | PEP-RMSO-GNRH | | | | █ | | |

(Continues)

8. Batista, F., Research: Knowledge Management in Public Administration. Questionnaire. Part II – Knowledge Management Practices Used by Agencies and Entities of The Executive, Legislative and Judiciary Branches. Section (a): Your Implementation Stage. Ipea, 2014.

(Continuation)

| N | Project description | Contracting entity | No plans 0 | Future plans 1 | In process 2 | Implemented 3 | Results 4 | Relevant 5 |
|----|---------------------------------|--------------------------------|---------------|-------------------|-----------------|------------------|--------------|---------------|
| 09 | Integrated IS Design | Conocer | | | | | ■ | |
| 10 | Work Climate | PEP-RMSO | | | | ■ | | |
| 11 | Career Planning and Quality | PEP-RMSO-GNRH | | | | | ■ | |
| 12 | Labor Competency Norms | Conocer | | | | | ■ | |
| 13 | Training Needs Facilitation | PEP-RMSO | | | | ■ | | |
| 14 | Security Competency System | CEFRESOS | | | | ■ | | |
| 15 | Enterprise Architecture | PEP-Dirección General | | | | ■ | | |
| 16 | Human Capital Diagnose | Cesa-NL | | | ■ | | | |
| 17 | Training and Career Plans | PEP-Dirección General | | | | ■ | | |
| 18 | Integrated HS Curriculum | Secretaría de Educación - GTO | | | | ■ | | |
| 19 | Human Resources Leadership | PEP-RMSO-GNRH | | | | ■ | | |
| 20 | Learning-to-learn competencies | Secretaría de Educación - GTO | | | | ■ | | |
| 21 | KM in Mexico Survey | KM Consorcio | | | | | ■ | ■ |
| 22 | KM Competencies | PEP-Dirección General | | | | ■ | | |
| 23 | Corporate KM Strategy | Pemex Corporativo | ■ | | | | | |
| 24 | MoT Value Practices | Conacy/Adiat | | | | | | ■ |
| 25 | KBD Reference Framework | OEA/SRE | | ■ | | | | |
| 26 | Innovation Value Practices SMEs | DGS-PyMEs, Secretaría Economía | | | | | | ■ |
| 27 | KBD Strategy for Nuevo León | I2T2/Fórum Culturas NL | | | | | ■ | |
| 28 | Knowledge Management System | CTAC, Secretaría de Educación | | ■ | | | | |
| 29 | KM Capabilities and Plan | CFE, Subdirección Técnica | | | | ■ | | |
| 30 | Capitals System of Monterrey | World Capital Institute | | | ■ | | | |
| 31 | North Region KM Strategy | PEP-RN, Subdirección General | | | | ■ | | |
| 32 | KM Strategy | Secretaría de Economía, DGI | | ■ | | | | |
| 33 | KM Competencies for Managers | PEP-Dirección General | | | | ■ | | |
| 34 | General KM Plan | CFE, Subdirección Técnica | | ■ | | | | |
| 35 | Geosciences Retrieval System | PEP-Dirección General | | | | | | ■ |
| 36 | Human Capital Strategy | CFE, GDCO | | | | ■ | | |
| 37 | Geosciences Network Memory | PEP-Dirección General | | | | | | ■ |
| 38 | Diagnose of Monterrey as a KC | BID, Gobierno de Nuevo León | | | | | | ■ |
| 39 | Geosciences Experts Network | PEP-GGTT | | | | | ■ | |
| 40 | Technological Development Plan | Pemex Corporate Office | ■ | | | | | |
| 41 | Regional KBD Strategy | Fordecyt | ■ | | | | | |
| 42 | K Transfer and Virtual Plants | Pemex-Refinación, DG | | | | | ■ | |
| 43 | KM Strategy and Processes | DGPAS-DIF | ■ | | | | | |
| 44 | Strategic Competencies System | Ciateq | | | ■ | | | |

(Continues)

(Continuation)

| N | Project description | Contracting entity | No plans 0 | Future plans 1 | In process 2 | Implemented 3 | Results 4 | Relevant 5 |
|----|---------------------------------|-------------------------------|---------------|-------------------|-----------------|------------------|--------------|---------------|
| 45 | KM Model Transfer | PEP-Gerencia de KM | | | | | | |
| 46 | Capitals System for Querétaro | Coecyt Querétaro/WCI | | | | | | |
| 47 | KM in Mexican Space Ecosystem | AEM-Dirección General | | | | | | |
| 48 | Capitals in Public Pawn-broking | Monte de Piedad de Oaxaca-DG | | | | | | |
| 49 | Capabilities for Innovation: NL | Conacyt/Itesm | | | | | | |
| 50 | Corporate KM Strategy | Gerencia de Innovación, Pemex | | | | | | |

Author's elaboration.

With regard to the *Degree of Formalization*, the categories from section 1.e of Part III of the Questionnaire⁹ have been used:

- i. It is an abstract concept, discussed by small, informal groups.
- ii. There is a formal work group that discusses the concepts, practices and tools of KM. This group, however, has no authority or well-defined objectives.
- iii. There is an area/group of people with defined objectives and responsibilities in terms of KM.
- iv. There are very specific metrics (indicators) in order to evaluate the results obtained with formal Knowledge Management initiatives.

Table 3 compiles the assessment of these categories for each of the 50 projects, according to the respective technical reports, project log book and CKS archives. The assessment was done with the same procedure as described for table 2.

TABLE 3
Degree of formalization in selection of 50 KM projects

| N | Project description | Contracting entity | Abstract 0 | No authority 1 | Objectives 2 | Metrics 3 |
|----|---------------------------------|---------------------------|---------------|-------------------|-----------------|--------------|
| 01 | Knowledge System for Training | PEP-STDP | | | | |
| 02 | Human Capital in Mexico -NAFTA | AMC/NSF/Conacyt | | | | |
| 03 | Professional Development System | PEP-STDP | | | | |
| 04 | National Competency System | Conocer | | | | |
| 05 | Intrapreneurship | PEP-RMSO-GNRH | | | | |
| 06 | SEP-Conacyt System | World Bank/Conacyt | | | | |
| 07 | Careers Plan | PEP-RMSO-Subdir. Regional | | | | |

(Continues)

9. Ibid, Part III – Degree of Explicitness and Formalization of KM In Agencies and Entities of the Executive, Legislative And Judiciary Branches of (Country). Section 1: Strategic Intent. Subsection 1.e: Degree of Formalization of KM in the Organization.

(Continuation)

| N | Project description | Contracting entity | Abstract 0 | No authority 1 | Objectives 2 | Metrics 3 |
|----|--------------------------------|--------------------------------|---------------|-------------------|-----------------|--------------|
| 08 | Corporate HR Strategy | PEP-RMSO-GNRH | | | ■ | |
| 09 | Integrated IS Design | Conocer | | | ■ | |
| 10 | Work Climate | PEP-RMSO | | ■ | | |
| 11 | Career Planning and Quality | PEP-RMSO-GNRH | | | ■ | |
| 12 | Labor Competency Norms | Conocer | | ■ | | |
| 13 | Training Needs Facilitation | PEP-RMSO | | | ■ | |
| 14 | Security Competency System | Cefresos | | ■ | | |
| 15 | Enterprise Architecture | PEP-Dirección General | | | ■ | |
| 16 | Human Capital Diagnose | Cesa-NL | ■ | | | |
| 17 | Training and Career Plans | PEP-Dirección General | | | ■ | |
| 18 | Integrated HS Curriculum f | Secretaría de Educación-GTO | | ■ | | |
| 19 | Human Resources Leadership | PEP-RMSO-GNRH | | | ■ | |
| 20 | Learning-to-learn competencies | Secretaría de Educación-GTO | ■ | | | |
| 21 | KM in Mexico Survey | KM Consorcio | | | | ■ |
| 22 | KM Competencies | PEP-Dirección General | | | ■ | |
| 23 | Corporate KM Strategy | Pemex Corporativo | ■ | | | |
| 24 | MoT Value Practices | Conacy/Adiat | | | | ■ |
| 25 | KBD Reference Framework | OEA/SRE | ■ | | | |
| 26 | Innovation Value Pratices SMEs | DGS-PyMEs, Secretaría Economía | | | | ■ |
| 27 | KBD Strategy for Nuevo León | I2T2/Fórum Culturas NL | | | ■ | |
| 28 | Knowledge Management System | CTAC, Secretaría de Educación | ■ | | | |
| 29 | KM Capabilities and Plan | CFE, Subdirección Técnica | | | ■ | |
| 30 | Capitals System of Monterrey | World Capital Institute | | ■ | | |
| 31 | North Region KM Strategy | PEP-RN, Subdirección General | | | ■ | |
| 32 | KM Strategy | Secretaría de Economía, DGI | | ■ | | |
| 33 | KM Competencies for Managers | PEP-Dirección General | | | ■ | |
| 34 | General KM Plan | CFE, Subdirección Técnica | | ■ | | |
| 35 | Geosciences Retrieval System | PEP-Dirección General | | | | ■ |
| 36 | Human Capital Strategy | CFE, GDCO | | | ■ | |
| 37 | Geosciences Network Memory | PEP-Dirección General | | | | ■ |
| 38 | Diagnose of Monterrey as a KC | BID, Gobierno de Nuevo León | | | | ■ |
| 39 | Geosciences Experts Network | PEP-GGTT | | | | ■ |
| 40 | Technological Development Plan | Pemex Corporate Office | ■ | | | |
| 41 | Regional KBD Strategy | Fordecyt | ■ | | | |
| 42 | K Transfer and Virtual Plants | Pemex-Refinación, DG | | | ■ | |
| 43 | KM Strategy and Processes | DGPAS-DIF | ■ | | | |
| 44 | Strategic Competencies System | Ciateq | | ■ | | |

(Continues)

(Continuation)

| N | Project description | Contracting entity | Abstract 0 | No authority 1 | Objectives 2 | Metrics 3 |
|----|---------------------------------|-------------------------------|---------------|-------------------|-----------------|--------------|
| 45 | KM Model Transfer | PEP-Gerencia de KM | | | | █ |
| 46 | Capitals System for Querétaro | Coecyt Querétaro/WCI | █ | | | |
| 47 | KM in Mexican Space Ecosystem | AEM-Dirección General | | █ | | |
| 48 | Capitals in Public Pawn-broking | Monte de Piedad de Oaxaca-DG | | | █ | |
| 49 | Capabilities for Innovation: NL | Conacyt/Itesm | | | █ | |
| 50 | Corporate KM Strategy | Gerencia de Innovación, Pemex | █ | | | |

Author's elaboration.

4 KM PROCESSES EXPLICITATION

KM becomes instrumental when operationalized into definitions amenable to measurement. The vast diversity of KM processes have been documented on a number of reviews (Kucza, 2001; Gold, Malhotra and Segars (2001); Kakabadse, Kakabadse and Kouzim (2003); Holsapple and Jones (2004); Han and Zhong (2006); Lin, Yen and Tarn (2007); León, Ponjuan and Rodríguez (2006); León, Castañeda and Sánchez (2007); Chen and Mohamed (2007); McAdam and McCreedy (1999); Heisig (2009); Hsieh, Lin and Lin (2009); Barragán (2009); Santos and Dante (2011).

However, when attempting to draw a set of processes as operational definitions, few stand the test. The KM Model and Processes developed at CKS are grounded on a Pragmatist Epistemology, a Systems perspective and a confluence of the Sciences of Knowledge (Carrillo, 1983a, 1983b, 2001a). Integrating state-of-the-art inputs from evolutionary biology, neurology, behavioral and social sciences, knowledge can be understood as an emerging property arising from three necessary and sufficient conditions: an object, an agent and a context (Carrillo, 1998, 2001a, 2002, 2014a). Hence, for a knowledge event to occur, these three elements must satisfy the following attributes: objects should be perceptible, subjects should be responsive and contexts should be distinctive. It follows that KM has to deal with identifying the key elements in an expected knowledge outcome and in creating the conditions for these to connect. Accordingly, three generations in the evolution of KM and KBD can be traced back to the literature, depending on the knowledge component they focus on, the management action they undertake and consequently, the way the KM concept is constructed (Carrillo, 1996a, b, 1998; Firestone and McElroy, 2002; Laszlo and Laszlo, 2002; Skyrme, 2002; Rowley, 2003; López, Cuesta and Joyanes, 2008; Vásquez and Gabalán, 2009). Table 4 summarized the key understandings about knowledge and management leading to the respective KM concepts of 1st, 2nd and 3rd Generation.

TABLE 4
Three KM Generations

| | | Generation | |
|------------|--|--|---|
| Concept | 1 st Generation: Object – centered | 2 nd Generation: Agent – centered | 3 rd Generation: Context – centered |
| Knowledge | Information content | Flow capacity | Value alignment |
| Management | Accumulate and retain stock | Facilitate and increase circulation | Dynamically adjust to sustainable balance |
| KM | KM is an <i>technique</i> to secure knowledge possession | KM is a <i>platform</i> to maximize knowledge flow | KM is a <i>strategy</i> to facilitate value alignment and balance |

Source: Carrillo (1996a, 1996b).

The Knowledge-based Value Systems approach (Carrillo, 1996a, 1996b, 1998, 2001a, 2002; Martínez, 2001; Chaparro, 2006; Bennet and Bennet, 2014; Carrillo and Galvis-Vista, 2014), a deliberate Third-Generation KM and KBD paradigm, is particularly amenable to process operationalization insofar it is explicitly based on the three elements of a knowledge event. Hence, it is based on three major blocks of processes dealing with objects (Instrumental Capital), agents (Human Capital) and context (Capital Systems). Table 5 describes the core KM processes following from this model.

TABLE 5
Third-Generation KM Processes

| Process group | Process | Capital | Dominant dimension |
|---------------------------------|---------------------------|----------------------|--------------------|
| | KM Sstrategy | All | All |
| Capital Systems Management | Reference Capital | Identity Capital | Context |
| | | Intelligence Capital | |
| | Articulating Capital | Financial Capital | |
| | | Relational Capital | |
| Human Capital Management | Competencies Sistem | Agent Capital | Subjet |
| | Value Practices | | |
| | Organizational Learning | | |
| Instrumental Capital Management | Organizational Memory | Instrumental Capital | Object |
| | ITC Tools for KM | | |
| | KM Methods and Techniques | | |

Source: Carrillo and Galvis - Vista (2014); Carrillo, *et al.* (2014); Carrillo (2001a, 2002); CSC (2003); and Martinez (2001);

This model has been applied in a number of international contexts, beyond private companies in Mexico and the series of public administration organizations covered in this paper. Predominantly, it has been used as benchmark resource for urban KBD. The MAKCi Awards (Most Admired Knowledge Cities), carried out annually since 2007, are based on this model (Carrillo, 2005; WCI and Telos, 2007). Hence, applications to over 100 cities worldwide have been conducted. Also, a number of

direct applications to regional development and policy analysis at urban and municipal level have been documented in Brazil (Fachinelli, Giacomello and Larentis, 2014; D’Arisbo, 2014, Fachinelli, Carrillo and D’Arisbo, 2014), Chile (Ramírez, 2007), Colombia (Chaparro, 2006; López, Cuesta y Joyanes, 2008; Vásquez and Galalán, 2009; Zuluaga, 2013), El Salvador (Pleitez and Flamenco, 2009), India (Batra, 2012; Batra, Payal and Carrillo, 2013), Great Britain (García, 2004, 2006), Peru (Lara, 2000), Spain (Casado, 2007; Lasheras, 2006, 2007) and other countries.

Over the next paragraphs, each of the three major processes will be described in terms of the expected outcomes. This level of operationalization has proved useful in KM process instrumentation, such as it is required for integrating KM into Software Development Standards (Carrillo and Galvis-Vista, 2014) or applying KM to Knowledge Cities Benchmarking (García, 2012, 2014). Each of the following tables summarizes the outcomes for one of the three major set of processes.

The Capital System Management group of processes provides value alignment assurance to an organization (Martínez, 2011). This implies identifying, systematizing and furthering the organization’s capital universe (Carrillo, 2002, 2012). Processes in this group focus on three aspects: the knowledge-based development strategy, the referential capitals and the articulating capitals. An organization effectively implementing this group of processes should obtain the outcomes listed in table 6.

TABLE 6
Outcomes of Capital Systems Management Processes

| Process | Outcomes |
|-----------------------|---|
| KBD strategy | <ol style="list-style-type: none"> 1) A set of variables and strategic indicators to determine the state of each capital in the capital system is defined and calculated. 2) An Integrated Value Report -IVR- to understand and visualize the relationships between all capitals in the organization is built from the former set of variables and indicators. 3) Capital development gaps are identified through the IVR. 4) Objectives and actions to diminish or close those gaps are defined and implemented. 5) The KBD implementation strategy is evaluated and adjusted. |
| Referential capitals | <ol style="list-style-type: none"> 1) Endogenous referents (distinctiveness, congruence, continuity, affiliation, resilience and renewal) that constitute identity capital are identified and measured. 2) Exogenous referents (relevant objects and events in the environment) that constitute intelligence capital are identified and measured. 3) The organization value alignment framework is built based on endogenous and exogenous referents. 4) Criteria to assess value elements in the organization identity and intelligence capitals regarding the reference framework, are defined. 5) The value alignment framework is evaluated and adjusted through improvement actions or radical transformations. |
| Articulating capitals | <ol style="list-style-type: none"> 1) Monetary representations of value elements in the capital systems are defined. 2) The structure of relationships with significant agents in the environment is identified in the capital system. 3) The reference framework for capital system value exchanges is built upon monetary representations and structure of relationships. 4) Criteria to assess value elements in the organization financial and relational capitals regarding the reference framework, are defined. 5) The value alignment framework is evaluated and adjusted through improvement actions or radical transformations. |

Source: Based on Carrillo and Galvis-Vista (2014).

The second group includes those processes through which agent capital is managed. According to Martínez (2011), human capital management processes focus upon the development of learning capabilities at three levels: individual, team and organization. Design and implementation of individual learning strategies is achieved mainly through competency systems. At the team level, value practices management becomes fundamental. Regarding the organization as a whole, the management of organizational learning is involved (Martínez, 2011). An organization effectively implementing processes in this group, should obtain the outcomes specified in table 7.

TABLE 7
Outcomes from Human Capital Management Processes

| Process | Outcomes |
|-------------------------|--|
| Competency systems | <ol style="list-style-type: none"> 1) Necessary competencies for adding value within the organization capital system framework are identified. 2) Identified competencies are functionally mapped and documented under an organizational norm or standard establishing the competency profiles of roles undertaken by employees. 3) The individuals competency level is diagnosed using as a reference the competency profiles and the organizational standard. 4) Learnign programs for individual competency development are designed and implemented. 5) Individual competencies are evaluated and certified using as a reference the competency profiles and the organizational standard. |
| Value practices | <ol style="list-style-type: none"> 1) The universe of organizational practices adding value to the capital system is identified and categorized. 2) Value practices are specified in terms of operational action attributes and their correspondence with the organization value framweork. 3) Specified value practices are benchmarked against external and internal referents to identify gaps, decide improvements and determine their strategic value. 4) Value practices are optimized and standardized to be replicated across organizational units. 5) New businesses are developed throughout the replication of value practices in other contexts. |
| Organizational learning | <ol style="list-style-type: none"> 1) Learnign culture and paradigms in the organization are identified and characterized. 2) Organizational learning processes are assessed in both value allignement and implementation terms. 3) Organizational learning processes are re-designed to ensure value allignment and effective implementation. 4) Learning motivation and incentive elements are identified and leveraged. 5) Laerning facilitation elements are deployed. |

Source: Based on Carrillo and Galvis-Vista (2014).

The third group includes processes to manage the means of knowledge-based value production. These involve organizational memory management processes, TI tools for KM and the management of tools and techniques for KM (Valerio, 2014). An organization effectively implementing processes in this group, should obtain the outcomes specified in table 8.

TABLE 8
Outcomes from Instrumental Capital Management Processes

| Process | Outcome |
|---------------------------|---|
| Organizational memory | <ol style="list-style-type: none"> 1) Knowledge to be integrated into the organizational memory is selected according to relative value criteria in the organization's capital system. 2) Selected knowledge is codified using appropriate collection and elicitation methods, as well as adequate representation and documentation techniques. 3) Codified knowledge is organized, classified and stored in organizational repositories. 4) Knowledge is accessed in an ubiquitous organizational memory through agile and appealing search and retrieval tools. 5) Knowledge stored in organizational memory is evaluated to determine its value for the capital system. |
| TI tools for KM | <ol style="list-style-type: none"> 1) IT support needs for KM model processes are identified. 2) Functional and non-functional characteristics of IT tools are specified. 3) IT tools satisfying former specs are acquired or developed. 4) IT tools are deployed within the organization digital infrastructure and are used to perform KM processes. 5) IT tools are evaluated to determine their effectiveness and value regarding the capital system and to undertake improvement actions. |
| KM methods and techniques | <ol style="list-style-type: none"> 1) Needs for methods and techniques for furthering KM processes are identified. 2) Methods and techniques satisfying the former needs are selected. 3) Selected methods and techniques are documented and stored as part of the organizational memory. 4) Methods and techniques are applied in performing KM processes. 5) Methods and techniques are evaluated to determine their effectiveness and value regarding the capital system and to undertake improvement actions. |

Source: Based on Carrillo and Galvis-Vista (2014).

Based on these three sets of processes and outcomes, a general KM intervention strategy can be conceived. Figure 1 provides a mental map of the rationale and main actions undertaken to implement a full-fledged Knowledge-based Value System strategy.

Next, this KM strategy rationale is exemplified with a case of public sector organization in Mexico. Tables 9 and 10 provide specimens of the calculation and visualization matrix to determine Process Maturity Level.

(Continuation)

| | | Processos de KM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|----|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| | | Processo 1 | | | | | | Processo 2 | | | | | | Processo 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Processo 1.1 | Processo 1.2 | Processo 1.3 | Processo 2.1 | Processo 2.2 | Processo 2.3 | Processo 3.1 | Processo 3.2 | Processo 3.3 | Processo 1.1 | Processo 1.2 | Processo 1.3 | Processo 2.1 | Processo 2.2 | Processo 2.3 | Processo 3.1 | Processo 3.2 | Processo 3.3 | | | | | | | | | | | | | | | | | | | |
| Proyecto 1.6 | 10 | 4 | 10 | 1 | 6 | 1 | 9 | 9 | 6 | 3 | 7 | 3 | 6 | 2 | 2 | 1 | 5 | 7 | 6 | 4 | 1 | 1 | 4 | 1 | 6 | 4 | 8 | 1 | 8 | 3 | 6 | 155 | | | | | | |
| Proyecto 1.5 | 10 | 4 | 10 | 1 | 6 | 1 | 9 | 9 | 2 | 6 | 3 | 7 | 1 | 6 | 2 | 4 | 1 | 5 | 2 | 2 | 7 | 6 | 2 | 2 | 1 | 1 | 4 | 1 | 6 | 4 | 8 | 1 | 8 | 2 | 2 | 6 | 171 | |
| Proyecto 1.4 | 10 | 10 | 10 | 10 | 10 | 10 | 9 | 9 | 2 | 6 | 3 | 7 | 6 | 6 | 2 | 3 | 3 | 1 | 5 | 1 | 7 | 6 | 1 | 1 | 1 | 3 | 1 | 6 | 3 | 8 | 1 | 8 | 1 | 6 | 178 | | | |
| Proyecto 1.3 | 10 | 7 | 9 | 9 | 1 | 9 | 9 | 2 | 6 | 3 | 7 | 4 | 6 | 2 | 3 | 3 | 1 | 5 | 1 | 6 | 1 | 1 | 1 | 1 | 3 | 1 | 6 | 3 | 8 | 1 | 8 | 1 | 6 | 158 | | | | |
| Proyecto 1.2 | 10 | 8 | 10 | 5 | 1 | 9 | 9 | 6 | 3 | 7 | 1 | 6 | 2 | 2 | 2 | 1 | 5 | 6 | 6 | 1 | 6 | 1 | 1 | 4 | 1 | 6 | 4 | 8 | 1 | 8 | 1 | 6 | 142 | | | | | |
| Proyecto 1.1 | 10 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 397 | | | |
| Programa B.5 | 10 | 4 | 7 | 5 | 3 | 8 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 2 | 2 | 2 | 5 | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 5 | 5 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 6 | 96 | | | |
| Programa B.4 | 10 | 4 | 9 | 10 | 3 | 8 | 5 | 3 | 3 | 3 | 3 | 8 | 8 | 1 | 1 | 8 | 2 | 5 | 5 | 5 | 1 | 5 | 1 | 1 | 5 | 7 | 5 | 1 | 1 | 5 | 1 | 5 | 1 | 8 | 6 | 122 | | |
| Programa B.3 | 10 | 4 | 9 | 10 | 2 | 2 | 1 | 1 | 5 | 3 | 3 | 1 | 5 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 5 | 2 | 2 | 2 | 5 | 1 | 2 | 2 | 5 | 2 | 2 | 7 | 134 | |
| Programa B.2 | 10 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 225 | | |
| Programa B.1 | 10 | 4 | 5 | 5 | 3 | 3 | 3 | 5 | 3 | 3 | 5 | 5 | 5 | 1 | 1 | 1 | 1 | 5 | 5 | 1 | 1 | 1 | 1 | 1 | 5 | 5 | 5 | 1 | 1 | 5 | 1 | 5 | 1 | 5 | 1 | 4 | 76 | |
| Programa A.6 | 10 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 140 | | |
| Programa A.5 | 10 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 182 | |
| Programa A.4 | 10 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 354 | |
| Programa A.3 | 10 | 4 | 7 | 3 | 8 | 8 | 1 | 1 | 7 | 5 | 1 | 2 | 2 | 5 | 1 | 2 | 2 | 5 | 1 | 7 | 7 | 5 | 1 | 8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 154 |
| Programa A.2 | 10 | 4 | 7 | 3 | 8 | 8 | 3 | 3 | 3 | 5 | 3 | 7 | 4 | 3 | 1 | 2 | 2 | 5 | 4 | 7 | 7 | 5 | 4 | 4 | 4 | 5 | 4 | 4 | 5 | 2 | 2 | 2 | 1 | 5 | 4 | 4 | 6 | 187 |
| Programa A.1 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 440 |

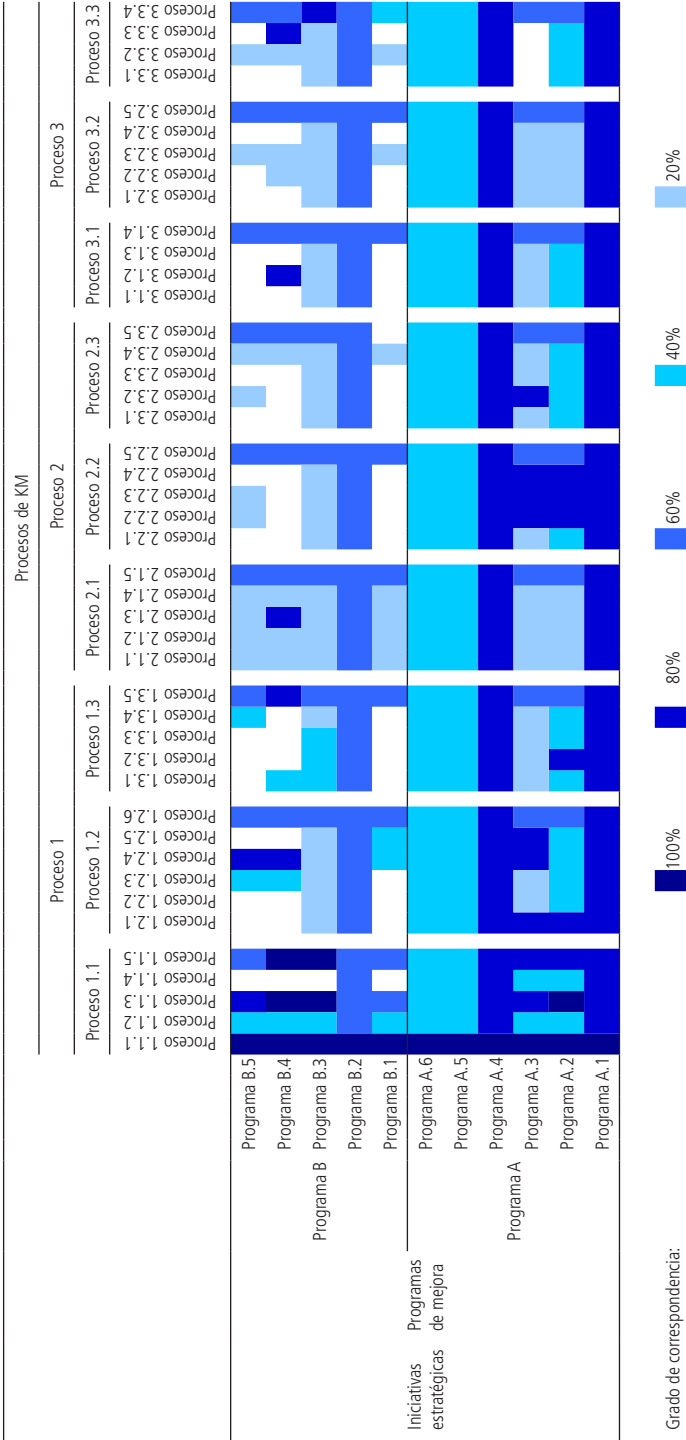
Author's elaboration.

TABLE 10
KM Process/Strategic Initiatives Matrix (Visualization Specimen)

| | Procesos de KM | | | | | | | | | | | | |
|--------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Proceso 1 | | | | Proceso 2 | | | | Proceso 3 | | | | |
| | Proceso 1.1 | Proceso 1.2 | Proceso 1.3 | Proceso 2.1 | Proceso 2.2 | Proceso 2.3 | Proceso 3.1 | Proceso 3.2 | Proceso 3.3 | Proceso 3.4 | Proceso 3.3 | Proceso 3.2 | Proceso 3.1 |
| Proyecto 4.6 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 4.5 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 4.4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 4.3 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 4.2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 4.1 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.7 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.6 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.5 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.3 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 3.1 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 2.6 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 2.5 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 2.4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 2.3 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 2.2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 2.1 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 1.6 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 1.5 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 1.4 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 1.3 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 1.2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Proyecto 1.1 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

(Continues)

(Continuation)



Grado de correspondencia:
Author's elaboration.

5 KM DRIVERS

Besides recollecting how KM has been applied to public administration in Mexico, this chapter also aims at exploring why such results are observed, i.e., the drivers behind. Although an analysis of the relationships between the extent of application of KM to government organizations and the political and institutional context goes beyond the scope of this chapter, an attempt will be made to point out some key issues. These are prompted by the assumption that there is a degree of mutual determination between the technical evolution of public management and the democratic development of government institutions in Mexico as much as in other countries (Chávez, 2013; López and Corona, 2010).

In order to understand the circumstances and evolution of KM and KBD in the Mexican public sector, it is important to frame it within the history of the reform and modernization of public administration in the country. Since the emergence of the *Estados Unidos Mexicanos* as an independent state, three different modalities of transformation of the federal public administration have been differentiated: reform, modernization and innovation (Sánchez, 2009, p. 10).

Successive federal governments over the quarter of a century covered by this study have failed to understand the potential of KM in public administration and capitalize on it. The Federal Government of 2001-2006 engaged on a widespread quality program implying a number of basic yet generalized KM actions, it did so on a technically weak basis (OPIG, 2001; Muñoz, 2004; Sánchez, 2009). Later on, the *Programa Nacional de Innovación Modelo estratégico de innovación gubernamental from the SECSI model without reference, however, to public administration*. Whilón (CII, 2011) managed to directly address KM issues (e.g., p. 12, 58, 71 and 85) albeit only rhetorically¹⁰ insofar no distinctive action followed.

Indeed, to our knowledge there has been no successful effort to articulate and implement a unified KM policy across all federal government agencies. The 2006 attempt by the *Comisión Intersecretarial para el Desarrollo del Gobierno Electrónico* to lay out a set of general KM guidelines following the development of a federal policy on e-Government (CTAC, 2006) failed to become the public policy instrument it aimed at being. Following the *Acuerdo Presidencial de la Comisión Intersecretarial para el Desarrollo del Gobierno Electrónico*, an Executive Committee was appointed to carry it through. Stemming from it, a Knowledge Management Technical Board was formed that issued a number of analyses and recommendations, mainly on instrumental capital issues. However, the whole inter-ministerial program did not survive into the next administration.

10. The glossary includes a KM concept and model clearly copied from the SECSI model without reference, however, to Nonaka's seminal work (ibid, p. 84).

A case that deserves special mention is the national effort to build a country-wise labor competency system. While in its origins, official support and reliance on international best practices allowed it to gather momentum and gain international presence, its further development has been irregular, with successive ups and downs. The National Competencies System lead by Conocer (*Consejo Nacional de Normalización y Certificación de Competencias Laborales*), was created in August 1995, as a tripartite body of public entities as well as entrepreneurs and unions representatives. Originally focused in leveraging competitiveness, it established the legal, institutional and technical framework for the normalization, development and certification of labor competencies. After establishing a substantial catalog of sector competencies, it built significant articulating capital amongst stakeholders and soon became a regional reference in the Latin world (Cinterfor, 1997; Mertens, 1996). This is also an example of successful knowledge transfer from company level to public service (Carrillo, 1996c). However, political disagreements derailed this effort that nearly vanished for a while. In April 2005 a Public Trust was created for the joint *Sistemas Normalizado de Competencia Laboral (SNCL) and of Certificación de Competencia Laboral (SCCL) Conocer*. In November 2009, new rules for the integration and operation of the National Competencies System were issued. Conocer has now regained some presence, but it constitutes an example of a substantial effort that reached world-class level but failed to deliver in the long run.

While there is a national agenda on related fields such as Science, Technology and Innovation (OECD, 2009; Conacyt, 2014), Human Capital (OECD, 2013), Transparency (Peschard, 2013), E-Government and Information (Castillo, 2010), a proper and explicit Knowledge-Based Development national agenda is still waiting to be developed (Alvarez, 2009). Although the current *Plan Nacional de Desarrollo 2013-2018* (Gobierno de la República, 2013) makes a number of explicit references to the Knowledge Society (p. 17, 44, 59, 104) and the Knowledge Economy (p. 19, 60), it involves no specific program or distinctive policy to that end. Even longer term foresights into the national science and technology base (FCCT, 2006) revolve around an industrial culture and, hence, on an instrumental as opposed to a disruptive view of Knowledge-based Development (Carrillo, 2014b).

The current sector policy on Science, Technology and Innovation as expressed on the document *Hacia una Agenda Nacional en Ciencia, Tecnología e Innovación*,¹¹ while including a number of rhetorical references to a wider concept of development, has an unmistakable instrumental tone in taking science, technology and innovation primordially as a means to economic development. The disconnect with the everyday issues that concern most citizens has been pointed out (Krotz, 2012).

11. Foro Consultivo Científico y Tecnológico. Ciudad Universitaria, México, D.F., Septiembre de 2012.

There is no reference to the need of radically changing or even questioning the current paradigm of economic growth based on technology-intensive industries. Actually, the prevalence of a “linear model of innovation” as a basis for science and technology policy has been pointed out in the cases of both Mexico and Brazil (Carrillo, 1999; Crisanto, 2010).

While this is in tune with innovation policies widely promoted by international agencies (OEA, 2004, p. 7; Laporte, 2007; OCDE, 2009; The World Bank, 2010) it lags behind more forward-looking perspectives on Knowledge-based Development (Carrillo, *et al.* 2014; Carrillo, 2014a). Indeed, the dominant view of KBD, labeled as “instrumental” or transitional”, is prevalent in current political discourse. The basic rationale of instrumental KBD stems from the intention to leverage aggregate production through k-intensive factors (science & technology, education, innovation). It follows that a KBD policy aims at improving global competitiveness of a given community (city, region, nation) through the attraction, retention, multiplication and capitalization of k-intensive resources (Robles, 2014; Carrillo, 2014b).

A major concern with such instrumental view is that, while it acknowledges the leveraging potential of knowledge, it does so basically to maintain the received economic culture. An culture aimed at relentless growth, monetary primacy, capital accumulation and the associated production and consumption patterns. Sustainability may be included as a mitigation, rather than as a radical departure from the current paradigm of progress (Broad and Cavanagh, 1009).

So far as the current states of affairs is regarded as satisfactory, the instrumental view of KBD might be convenient. But when growing social inequality, systemic economic stagnation, environmental degradation, natural resource depletion, and cultural homogenization are regarded as untenable, then KBD makes sense only as a transformative paradigm. Not anymore a quantitative accelerator of the current capital system, but rather a qualitative catalyst of cultural evolution.

In contrast, a “disruptive” or “holistic” view of KBD holds that that once knowledge is entered as the main element in social value dynamics, new functional realities emerge that radically transform the space of possibilities. It relies on the distinctive value-creating properties of intellectual or knowledge-based capital, such as non-rivalry, non-excludability and many other scarcely understood counterexamples to received economic wisdom.¹² Hence, the knowledge-based attribute refers to an economic, political and cultural order, placing as much emphasis on intangible values as it has so far done on material and monetary ones. Under this perspective, KBD aims at a dynamic identification, measurement and balance of major value elements shared by a community.

12. See Carrillo, *et al.* (2014, Chapter 1, p. 3-35) for a discussion of the borderline properties of knowledge-based phenomena.

From the later perspective, new roles for all major agents in knowledge societies can be envisaged. For example, distinctive competencies have been suggested for knowledge citizens (Martínez, 2010), k-workers (Drucker, 1999; Rifkin, 2004), and k-innovators and entrepreneurs (Steyaert and Katz, 2004; Mair and Martí, 2004; Hallal, 1996). It is not surprising that a re-invention of public administration and government at large becomes a prerequisite for the emergence of knowledge societies (United Nations, 2007; Ruíz and Martínez, 2007; Carrillo, 2014b).

The earlier realizations of the innovation potential of KBD came from e-Government and e-Participation (Kolsaker and Lee-Kelley, 2004). Further developments opened the door to expand the possibilities for families, education and institutions at large including Open-Government (Beck-Gernsheim, 2002; Garretson, 2014; Sandlin, Schultz and Burdick, 2010; OGP, 2011). Knowledge cities and knowledge markets have become arenas not only for economic transformation, but also for experimenting unprecedented forms of human coexistence around new value sets (Carrillo, *et al.* 2014). Some of the most innovative developments for knowledge-based social organization are happening around social knowledge markets such as experiments on “direct”, “liquid” or “delegative” democracy (Daraktchiev, 2014) or more participative form of public accountability (Bohórquez and Etxanitz, 2014). The recent opening of Estonia -the e-Government sandbox of the European Union- to virtual citizenship heralds a new era of social organization and political institutions: more distributed, more engaging, more transparent (McKenzie, 2014).

6 CONCLUSION

This chapter provides an overview of KM in public administration in México over a period of 25 years. Looking at a selection of 50 projects at different types of public organizations, it allows the identification of some general trends. To begin with, it is evident that public companies, predominantly in the energy sector, have been the leading entities in applying KM. This makes sense considering the scale of operation and the availability of resources for funding internal initiatives or hiring external consultants. Applications in government organizations is otherwise distributed though sectors, levels of government and country regions.

The degree of implementation and explicitness is basically sound. The mapping of KM processes has provided an extensive diagnose, planning and assessment tool. On the whole, technical quality of KM implementations have met professional standards (Espinosa and Carrillo, 2001). However, the Achilles heel of KM implementations has been political discontinuity and the associated personnel mobility, program disruption and work climate anxiety. Hence, successive initiatives have failed to connect in ever increasing levels of institutional KM competencies.

However, technical proficiency at the individual level and to some extent a basis of KM literacy have steadily grown over the years.

The historical context for the conditions that have facilitated or hindered KM applications in the public sector has been briefly discussed. It became obvious that KM development runs parallel to the evolution and general level of democracy and government in the country. Not surprisingly, KM applications exhibit the same erratic pattern that characterizes the development of the public sector and the country at large. Avant-garde and well-leveraged technical initiatives alternate with political discontinuity and the not-invented-here syndrome. Advanced and sound policies succumb to weak regulatory and institutional capacities.

Lastly, and probably most important, the knowledge-intensive sectors in the country (education, science and technology, innovation and entrepreneurship, culture and media) are still largely shackled by an obsolete KBD vision that is unlikely to propel Mexico – or any other country – into the playground where the best opportunities to leverage human potential through knowledge will unfold. That might be also the field where the viability of human civilization will be sorted out.

To sum up, while there have been numerous cases of successful KM application into specific areas of public administration, particularly within public companies in the energy sector, the capitalization and continuity of such experiences has been constrained by structural weaknesses in institutional capabilities. In particular, the failure to articulate sustained and extensive KM programs – even within those same public companies – seems endemic. Hence, the limited reach and benefit so far of KM in public administration in México may be due, amongst other possible causes, to the lack of:

- 1) A political framework that provides a basic policy continuity for development institutional KM capabilities within the public sector.
- 2) A system of public career service professionalizing technical staff.
- 3) The social conscience and civic thrust to shift towards a new knowledge-based development culture.

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KNOWLEDGE MANAGEMENT IN PUBLIC ADMINISTRATION IN FOUR EUROPEAN COUNTRIES: EXAMPLES FROM AUSTRIA, GERMANY, SWITZERLAND AND THE UNITED KINGDOM¹

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1 INTRODUCTION

In the Mid 90ies, Knowledge Management (KM) emerged in the private sector, triggered by new information and communication technologies (ICTs) and pushed by its vendors and consultants (Martin, 2008). Knowledge was regarded as an important resource within the emerging knowledge society and knowledge economy (Powell and Snellman, 2004, Rooney, Hearn and Kastle, 2005). Therefore, more attention should be focused on the systematic management of knowledge in government and other public sector organisations (Saussois, 2003) as suggested much earlier (Henry, 1974).

In the context of the so-called knowledge society, the public sector is confronted with two challenges. First, the public sector has to promote the generation of new knowledge by improving the educational system, the national system for science and research and the infrastructure to support the knowledge economy (e.g. information and communication technology). Second, organisations in the public sector have to improve their own strategies and instruments to handle knowledge (Thom and Harasymowicz-Birnback, 2005).

Following the application of new ICTs in the private sector under the umbrella of e-business, the public sector embarked to exploit these technologies for initiatives under the concept of e-government with KM as an integral part (Åke, 2002; Bertucci, 2007). Recently, the potential of new web technologies for e-government 2.0 has been described to enhance KM and citizen engagement (Dixon, 2010). In Europe, these activities are regarded as part of the wider initiative of a Digital Agenda for Europe (<http://ec.europa.eu/digital-agenda/en>) (European Commission, 2010).

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A second important context factor is the demographic challenge in the European societies with the aging of the workforce and the loss of expertise due to retirement of employees in the private and the public sector. The challenge is intensified by the tighter public budgets at all governmental levels in all four countries.

This chapter will report selected KM initiatives and KM projects in the public sector of four European countries with examples from Austria, Germany, Switzerland and the United Kingdom.

2 METHODOLOGICAL APPROACH

The selection of the four countries is based on the access to sources and resources by the author. For the data gathering, the author pursued two approaches in parallel: First, he identified potential contact persons in each of the four countries who are involved in KM activities in the public administration at the national or local level. These potential informants were contacted by email and phone in order to explain the research project and inquire if they would be interested to participate or help to identify potential informants. He also contacted government agencies directly in order to ask for background information and participation in the study. Secondly, the author undertook searches on the internet to identify governmental, survey study reports and case studies (e.g. National award competitions, etc.) as well as literature databases (e.g. Scopus) for relevant academic journal articles. This approach also served to identify additional resource persons who authored reports and studies.

After agreeing to participate in this research, the questionnaire provided by Ipea was forwarded to the contact persons for their consideration. Due to the length of the questionnaire and the language (English) some informants declined to fill-out the questionnaire. In such cases, the author suggested to gather data by phone. Some informants provided additional documentation about KM activities (e.g. KM strategy, annual reports, presentations, etc.).

Based on the information gathered from documents and interviews, the author compiled case studies for each country. These cases were forwarded to the informants for validation and further comments. The final version was drafted by the author taking into account the suggestions received. Still, the responsibility for entire chapter remains with the author.

3 AUSTRIA

The Republic of Austria is a federal republic (population: 8.5m) in Central Europe with nine states which are further divided into districts and statutory cities and municipalities. The Federal states legislate in areas such as culture, social care, youth and nature protection and building. The lower chamber, the Nationalrat,

is the dominant chamber is the legislative system. Economically Austria belongs to the high income countries (2013: GDP = € 307bn; GDP *per capita*: €36,430).

3.1 First evaluations of KM initiatives in Austrian Federal Government

In 2010, the General Accounting Office of Austria (RH) (Rechnungshof, 2011/8) undertook an audit about KM within the Federal Ministry of Internal Affairs (BMI, 2010: Budget: €2.3 bn., 32.868 employees, including police forces from Federal Police to Local agencies) and Federal Ministry for Defence and Sport (BMLVS, 2010: Budget: €2.1 bn., 23.926 employees including 14.431 army personnel) with the aim to assess:

- strategic concept and organisation of knowledge management;
- “fitness-for-purpose” of selected KM instruments;
- benefits of selected information systems; and
- use of performance indicators for KM.

The RH identified some positive developments on the operative level within the BMI and on strategic-conceptual level within the BMLVS. The need for improvement was seen by the RH in the following areas:

- Need to define a KM strategy with KM objectives. The “KM strategy for the Austrian Army” was as a positive step, but requires more operational aims and more practical approach.
- Despite dedicated KM and IM functions in the BMLVS, their organisational positioning at a low hierarchical level limited their ability to influence and coordinate the different KM efforts. The BMI did not have any central coordination KM function at the time of the audit.
- Both ministries were lacking an overview of planned, ongoing and closed projects which limited the ability of capitalise the knowledge generated in projects with the risk of parallel projects or double efforts.
- The lack of structure of knowledge domains and limited search capabilities hindered an efficient retrieval of knowledge and information in both ministries. A general centralised inventory for all internal rules and regulations was missing or incomplete. The exchange of knowledge within communities of practice (German: *Wissensgemeinschaften*) in the Federal Police Force was recognised by the RH as a promising KM approach in the BMI. Knowledge transfer from standard cases was addressed by internal training courses and eLearning facilities. Lessons learned exercises from operations are practiced for large events (e.g. Uefa Euro 2008) and the use of weapons by the police in the BMI. The insights were used to improve

the current training procedures and operations. The RH recognised these approaches which could be applied to a broader scope and disseminated more widely. The operations of the Austrian Military are evaluated by different departments and the results distributed to relevant departments. The RH suggested establishing more coherent organisation-wide learning processes. Both ministries were promoting employee suggestion schemes and the BMLVS piloted an idea management approach to systematically generate knowledge and improve efficiency. Figures about the economic benefits of awarded suggestions were not available from both organisations.

- The RH estimate the daily search time per employee between 20 to 50 minutes. A reduction of the daily search times for 80% of the workforce by an average of 10 minutes would provide about one million annual working hours for the BMI and 760.000 hours for the BMLVS. The BMLVS disputed this estimate by the RH.
- The BMI and the BMLVS were lacking knowledge-related performance indicators and did not systematically gathered data. Both ministries were planning to define and implement knowledge-related KPIs.

The evaluation of the KM activities with the two Austrian ministries (BMI and BMLVS) by the Austrian Accounting Office (RH) showed a broad spectrum of KM instruments and methodologies used. Due to the lack of an overall KM strategy which is underpinned by explicit KM objectives and supported by adequate operational resources, these KM activities are hardly linked nor coordinated throughout the different units and departments.

3.2 KM strategy in the Austrian Federal Government

In 2010, the Federal Chancellery commission a study of KM activities within all 13 Austrian Federal Ministries (Krabina and Prorok, 2011) with four aims *i)* to understand where KM is integrated in the organisation; *ii)* which KM understanding is practised; *iii)* how selected topics (Intellectual Capital Statements - ICS/Knowledge Assessment [German: *Wissensbilanz*], implicit knowledge, knowledge retention and knowledge databases) are regarded; and *iv)* to identify international Best-Practices. The results can be summarized as follows (Krabina and Prorok, 2011).

- 1) An organisational KM unit was found in 9 out of 13 Ministries which could be categorized in:
 - a) holistic KM approaches in two (BMF Ministry of Finances and BMLVS);
 - b) KM with a specific focus in seven ministries; and
 - c) no explicit KM approaches in four ministries.

- 2) The specific Austrian type of IC-Statements [“Wissensbilanz”] (Heisig, 2005) is broadly known (70%) but only used in the Higher Education Sector since the new University Law (2002) introduced the obligatory reporting of the results with a standardised “Wissensbilanz”. Only the RH is using the ICS as internal management and external reporting instrument since 2006-2007. Other ministries were testing this instrument.
- 3) Implicit knowledge (Polanyi, 1985) has not yet been systematically addressed in Austrian Ministries.
- 4) Knowledge retention in relation to planned retirement or leaving of staff is seen by 50% as problematic which are addressed with classical HR instruments (e.g. job descriptions, training, regular exchange of experiences and meetings, job rotation and training-on-the-job). The former Federal Ministry of Economy, Family and Youth (BMWFJ until March 2014) employed structured exit interviews [German: *strukturierte Abgangsgespräche*] and the Federal Ministry of Finances undertakes exit analysis [German: *Abgangsanalysen*].
- 5) Knowledge databases: All ministries provide access to internal content via an intranet which are centrally maintained and up-dated. Eight ministries regard the “electronic file” [Elak = Electronic Akt] as a useful KM instrument while all criticise the search capabilities. Yellow pages [German: *Kompetenzdatenbanken*] are in four ministries established but only accessible by the HR-Department. Seven ministries have implemented specific knowledge bases. Web2.0 is not applied in any of the Austrian Ministries as their usage was not well known at the time of the study (Summer 2010).

The study recommended *i*) to develop an inter-ministerial Federal KM strategy; *ii*) to establish a coordination function including a KM working group; *iii*) to use HR-management as starting point for a cross-functional KM approach; *iv*) to conduct KM assessments in subordinate agencies; *v*) to analyse the KM potentials of the “electronic file”; *vi*) of the potential of Web2.0 for KM in Austrian Ministries; and *vii*) to integrate KM indicators into the new impact-oriented budgeting approach.

A KM working group coordinated by the Federal Chancellery was formed with 29 representatives from 17 Austrian public administrations including 12 ministries, the Parliament, the Constitutional Court, the Austrian Ombudsman Board and the RH. The group met between autumn 2011 and autumn 2012 to discuss KM activities in the Austrian Federal Government and concluded with the publication of the *Federal Strategy Knowledge Management* (Kallinger, 2012). The “Bundesstrategie Wissensmanagement” provides a shared vision and

a methodological framework for the different KM activities undertaken in the federal ministry's and higher institutions in Austria (Kallinger, 2012; Heisig, 2009).

The KM vision postulates that an “efficient KM guarantees the preservation and improvement of the quality of the Austrian Federal Administration and increases its effectiveness” (Kallinger, 2012). The vision suggests that knowledge is regarded as a key resource by staff and particularly by management which requires careful handling. KM is an inherent part of public administration and integrated into processes. KM instruments are known and adequately used. KM is established on all organisational levels and specialised KM experts further improve the KM methods and instruments.

Nine strategic objectives are specified with implementation measures. The core recommendations were directed towards the further development of the federal intranet (e.g. Web2.0/Social Intranet) and knowledge preservation from leaving employees as 36% of staff will retire at the Federal level between 2012 and 2023. The following actions should be undertaken:

- Upgrading/development of the Federal Intranet with the incorporation of new technological possibilities by Web 2.0/Social Intranet (e.g. Comment-Function, discussion forum, social networking).
- Requirements for the implementation of KM based on the RH recommendations are integrated in each organisation and specific customised guidelines are to be designed.
- A “KM Toolbox” as a collection of KM instruments which are employed at the Federal level is created in order to share experiences.
- A “knowledge report” [German: *Wissensbericht*] should describe the implemented measures and developments structured in Human, Structural and Relationship Capital with adequate indicators.
- Knowledge retention from staff changes with a standardised employee leaving process including the following steps: *i*) identification of core knowledge carriers (criteria: complexity of knowledge, high degree of implicit/tacit knowledge); *ii*) selection of recipients (e.g. successor, colleagues, managers); *iii*) selection of appropriate KM method; *iv*) implementation; and *v*) debriefing, exit interview.
- Knowledge capture in project management to combine KM with the standardised project process from (a) project start by consideration of learning from other projects, ongoing processes, reports and RH-assessments, (b) at project milestones and project closure by capturing lessons learned and (c) transfer of project learnings into the ongoing processes.

- Knowledge databases and Wikis represent an important role with examples such as the public domain Legal Information System (RIS), Finance documentation (Findok) and the internal BKA-Wiki. The Wiki applications should provide more interactive functions to enable knowledge creation by commenting, discussion and joint authoring.
- Support for the implementation of complex KM instruments or organisational changes should be provided by engaging external consultants by coaching, advice and audits.
- The “electronic file” (Elac system) as the basis for administrative work in the Federal Government agencies. Some functionality, such as search, is not easy to use as most users are used to easy search engines in the internet. Therefore access rights, file structures, and search functions should be analysed and further developed.

3.3 KM in the Austrian tax and customs administration

The Austrian Tax and Customs Administration with 40 local offices in five regions employing about 10.000 members of staff is part to the Austrian Federal Ministry of Finances (BMF; about 800 employees). Following the reform of the Tax and Customs administration in 2004 and given the demographic challenges, a KM project was started. The project team was staffed with 10 members from different units. The project lasted for five years and team continues as a CoP on KM. About 700 members of staff were interviewed to gather their requirements, taking stock of on-going activities and to raise awareness of knowledge-related challenges in the future. As benchmarking is an established instrument, knowledge benchmarking were undertaken among the 40 tax and customs offices between 2008 and 2010. The benchmarking provided feedback about the performance of KM-related activities and identified good practices to share among the offices. In 2011, an evaluation of the fulfilment of improvement actions defined either by each office itself or the benchmarking teams was carried out. The results showed that 2/3 of the actions were implemented (Mandl, 2014a).

In 2011, the first “Wissensbericht” (Knowledge Report) about the main KM activities was (BMF, 2011; BMF, 2012; Mandl, 2014a) published:

- The most popular KM instrument is the Austrian-wide Newsletter with short information and links to laws, decrees, statutory notices and court decisions as well as information about appeals, literature and events.
- Communities of Practice as meetings of knowledge networkers (German: *WIN for Wissensnetzwerker-Treffen*) are highly accepted and in demand.

The strong practice-orientation of these meetings is seen as key factor for the establishment of more than 10 thematic groups.

- One example is that almost all offices undertake regular networking meetings, mainly on local level but also on regional and international. More than half of offices organise an annual KM-Day to promote sharing of knowledge and experiences within the office. The topics addressed range from training requirement analysis towards the clarification of job roles of staff groups. More than half of the offices organised a “Learning-Week/-Day” within another team from their own location or with another office from a different location.
- Over 50% of offices undertake specific Knowledge-Mentoring activities to prevent the loss of knowledge with particular focus on specialist knowledge which cannot be taught in seminars.
- Other KM instruments which have increased over the last years are job-rotation and the knowledge platform “Tax and Custom” as well as the BRIS system (Economic Sector Information System – German: *Brancheninformationssystem*).

The critical success factors for the KM activities at the BMF/Tax & Customs Administration could be summarised with the following lessons learned (Mandl, 2014b): *i*) support from the top; *ii*) create a wide basis and include the users; *iii*) IT is not knowledge management; *iv*) establish and agree objectives; and *v*) internal marketing (newsletter, give away, etc.).

4 GERMANY

The Federal Republic of Germany is a federal parliamentary republic with 16 states (Länder) and a population of about 80.6m inhabitants since its unification in 1990. The larger territorial states are sub-divided into 22 Governmental Districts (Regierungsbezirke). Furthermore, Germany is divided into 403 districts with 301 rural and 202 urban districts. In this regard, Germany has three relevant levels of public administration: Federal level with the Government and Ministries in Berlin, the Länder level with its own governments in each of the 16 states capitals and the Municipal level at district level including cities and towns.

4.1 KM in the German Federal Government

KM in the public administration in Germany has to be regarded in the context of improvement activities as part of reforming the public administration (German: *Verwaltungsreform*) in general aimed at improving the efficiency and reducing the costs while maintaining the quality of the services. A second important element are activities to modernise the administration which are triggered by the implementation

of information technologies and the digitalization of administrative work in the public sector in Germany and Europe. These activities are labelled as e-Government.

In September 2014, the Federal Government (Bundesregierung, 2014) has approved the government program for the “Digital Administration 2020” which sets the framework for the digitalization of public administration in Germany. In order to achieve integrated solutions throughout the different administrative federal levels and enable synergies, the 2nd Federal Reform established the Art 91c of the German Constitution (German: *Grundgesetz*). The Art 91c supports the cooperation of the Federal Government and the State Governments with the planning, implementation and delivery of information systems. This constitutional regulation aims to overcome the historical fragmentation of IT architectures and IT services in the public administration in Germany. The E-Government-Law (2013) establishes time frames for the digitalization of business processes in the public administration and aims to avoid isolated solutions and redundant projects.

The “Digital Administration 2020” establishes that a „central information and knowledge management enables all participants to access the experiences from other projects to identify re-usable solutions” (Bundesregierung, 2014). The program aims to support knowledge sharing and learning of the public administration by using communities, networks and best practices. The KM system should establish three platforms: (a) a public internet platform “Transparency and participation” to inform about the program and enable the participation of users and research and (b) an internal one (Federal Intranet) “Synergies and Innovation” to support the sharing of information about re-usable solutions and innovative ideas, and (c) a program specific platform to support the management and delivery of the program. The program is coordinated by the BMI which currently specifies the government decision made on September 17, 2014 (Tsintsifa, 2014).

4.2 KM in the German public sector

The overall situation of KM in the public administration in Germany was evaluated by a recent survey (Hochschule Harz and Materna GmbH, 2013) among 148 out of 580 public authorities in Germany from Federal (6 = 4%), Länder (46 = 31%) and Local government (96 = 65%) (cities with inhabitants > 30000) suggest the following:

- Public authorities are facing similar challenges in regards to an ageing work force (45% expect to lose 11-20% of the work force within next five years) and further demands to save costs and consolidate the personnel.
- KM still remains in its infancy with some exceptions. The dominant perception of KM is to counterbalance the loss of knowledge from leaving experts as a unilateral activity to capture and transfer accumulated

experience. Nevertheless, 59% of Länder-Administrations have a nominated person in charge of KM, while on 31% of local governments. But only 4% of the authorities have a dedicated Knowledge Manager. The rest is assigned to the HR (42%), central services (33%), IT (21%) or other posts (37%).

- All respondents regard KM as very important for the public administration in general as well as for their own organisation across all three types of public administration. 25% assess the implementation of KM as urgently required, 51% as required and only 5% see no need for KM in their organisation.
- The three main reasons for KM are to ensure the quality of services, to improve horizontal and inter-departmental networking as well as the implementation of process management approaches in the public administration.
- 39% of authorities have started KM activities such as Intranet (32%), KM working group (32%), structured knowledge transfer staff changes (21%), general implementation concepts (18%) and staff training (11%). The KM tools and KM techniques applied are in organisational area instruments such as job profiles (67%) and regular meetings (62%), in the human resource area training courses (80%) and in the IT area are internet, intranet and content management systems (88%), Databases (including external) (32%), libraries and Wiki (30%), Management information systems (8%) and Social Media (7%) used.
- Public authorities require more information about and training in KM as well as a more structured support to conceptualise, design and implement KM.
- The main barriers to KM in public administration are seen as increased workload, lack of material resources and staff time.

4.3 KM at the Federal Office of Administration (BVA)

The Federal Office of Administration (BVA)³ is the central service agency of the German Federal Government, headquartered in Cologne, employs about 4,400 members of staff at 19 sites across Germany. Established in 1960 as an independent superior federal authority, it performs more than 150 specific tasks today, which includes the following main areas.

Applying the shared services principle, the Central Service Center (Dienstleistungszentrum, DLZ) provides administrative services for cross-sectional tasks for more than 90 federal institutions. These services include personnel recruitment,

3. Available at: <http://www.bva.bund.de/EN/Home/home_node.html>.

travel management and processing of remunerations. By centralizing tasks, client authorities are relieved of routine work and can concentrate on their core tasks, while decision-making always remains with the client. Besides, the Central Agency for German Schools Abroad (Zentralstelle für das Auslandsschulwesen, ZfA) supports over 1,200 schools worldwide. In addition, the BVA manages various databases in the field of public security, including the Central Register of Foreigners, the visa warning file and a part of the data records from the Schengen Information System (SIS), and assists the Federal Foreign Office and the German missions abroad in visa procedures. In 2014, the BVA managed budgets with revenues and expenditures amounting to approx. € 20.5 billion euros, including its own total budget of about € 226.5 million Euros.

All KM activities should be regarded in the context of different government programs to reform and to modernise (*Moderner Staat – modern Verwaltung*), today to digitalise (*Digitale Verwaltung 2020*), the public administration since the mid-90s. At the BVA, the first KM initiatives at the BVA started in 1999 when the “Project Group Information and Knowledge Management” was established within the Department Organisation (German: *Organisationsreferat*). The project group formulated a comprehensive “eStrategy Information and Knowledge Management” with the central motto “Communicate information and knowledge successfully” (Bundesverwaltungsamt, 2001). Four years later, the group became an independent unit which was assigned as a staff function to the President of the BVA in 2011. KM is an autonomous function linked to the communication function which is different to other arrangements where KM is either part of the IT or HR function. Given the importance of communication within change management activities in general and KM change management in particular, the combination of KM and communication can be regarded as mutually supportive. KM cannot be prescribed. Continuous communication can help to achieve the commitment required for KM. The central KM team is supported by members of staff who act as knowledge managers in their departments. These knowledge managers are responsible for the implement of KM according to the KM strategy.

KM is regarded as a, “future capability of the administration and all employees within the overall strategy and should not be reduced to the classical technological administration of knowledge” (Zuber, 2014). As the public administration is continuously confronted with new challenges (e.g. shrinking budgets), new approaches (e.g. quality management, new public management) and new opportunities (e.g. new technologies), KM is understood as a mean to navigate and cope with the changes and adjustments of a “modern” administration. KM is the basis for constant innovation within the public administration.

The eStrategy IKM was based on the overall strategy and comprises two core elements with the communication to all members of staff including managers and the employee portal OfficeNet. OfficeNet provides personalised information and working environment supporting core KM processes such as knowledge use, communication, creation and monitoring. It also includes social software components such as discussion forum and Wikis.

The implementation approach also addressed the organisational and human dimensions. This included the definition of pull and push principles for information and knowledge for all employees and the organisation as part of the knowledge culture. The employees received training regarding their duties to provide and to obtain information following the pull and push principles. This includes information about when and which system to use to communicate and share information and knowledge. These BVA provides the supportive electronic infrastructure like forum, chats, personalised or group blogs, etc. Information needs were analysed and evaluated including the definition of quality dimensions for information such as “current, error-free and correct/objective”, “fast accessible at all times, user-friendly”, “economic”, “relevant and valid”, etc. This will be measured by an information scorecard which is currently under development. The transformation towards KM required a new understanding of leadership within the organisation. Furthermore, skills profiles and competence development of staff are addressed as part of the implementation of the eStrategy.

KM tools and KM instrument deployed within the BVA reflecting the different task and choices by each department or division. One department uses a Wiki to capture the experiences regarding from internal organisational development projects, another one maintains a “Department Handbook” with the most important information regarding the work in the department, another one implemented a database with details about “legal regulations and court decisions”. Finally, one department has created an Online-Handbook within the OfficeNet system with all relevant regulations for their tasks. This is linked to an alert system to inform all their staff members. Important changes can be sent out as notifications requiring obligatory sign-off by the recipients in order to ensure that everybody who should know about this has seen the change of regulation.

In 2004, the BVA was nominated as finalist out of 41 candidates from across Europe with the Århus Council (Winner of the Carl-Bertelsmann Prize 2004), the Regulation Office for Telecommunication and Post (RegTP) and the UK Passport Service (UKPS) by the Bertelsmann Stiftung supported by Booz Allen & Hamilton as “Modern Administration”. In 2010, the BVA received the 1st prize in the category “Modern Administration” among the Federal and State Public Administrations in Germany.

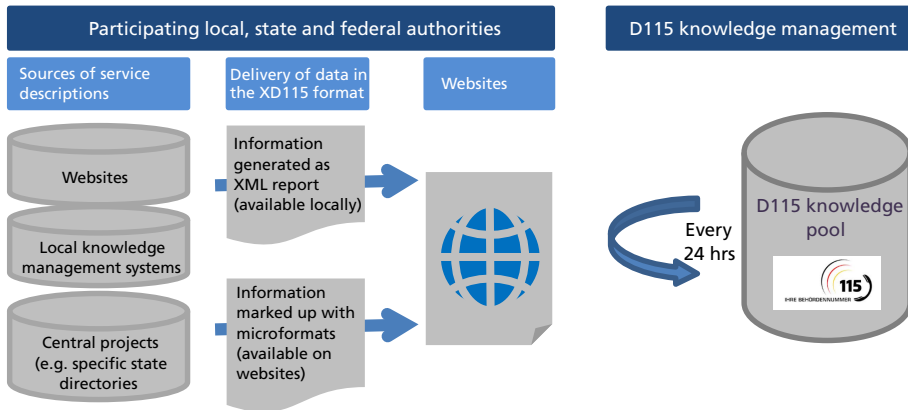
Since 2006, the BVA organises bi-annual “Practice Days Knowledge and Innovation Management” for top and line managers as well as project managers from other organisations of the Federal and State public administration. These events serve as a market place to share and exchange information and experiences with KM, eGovernment, Web2.0 and Social Media. The topic for 2015 was about “Digital Transformation and the Workplace of the Future: How much collaboration and social media do we want, should we have? – The relevance of KM” attended by 130 delegates responsible for KM in about 70 public bodies.

4.4 D115 – Knowledge Management System for Citizen

Personal Service Numbers (PSN) such as the D-115 are established in 13 EU countries with the pioneering countries Belgium (systems in 1989 Wallonia and 1999 Flanders), Malta (1998) and the Netherlands (1995-2005), followed in 2001 by Luxembourg (2001), in 2002 Ireland, Greece, and subsequent France (2005), Spain (2006) and in 2007 by Denmark, Slovenia. Germany, Italy and Hungary which joined in 2009 were regarded as latecomers (Schuppan *et al.*, 2010; Böllhoff and Schuppan, 2012).

The PSN offers the citizen of a country, region or city a single access number to enquire about public services or apply for them. Citizens do not need to know which level of government (Federal, state or local) is responsible or which department provides which service and they do not need to spend time to find the correct telephone number. The implementation of PSN requires the harmonisation of terms used for public services and the standardization of processes in the public administration. These requirements triggered the need for the creation of a knowledge pool for each local administration which wants to become a member of the D-115 service in Germany (BMI, March 2010; Stadt Halle, 2013). The information and communication infrastructure is provided by the State and supported by regional service centers providing the first and second service level support except for the Federal Government offices in Berlin. The service descriptions are adapted from the service catalogue (German: LeiKa = *Leistungskatalog*) of public services in Germany. This source was used for the compilation of synonyms from all over Germany to facilitate an efficient D115 search. Furthermore the description of the services would require a certain standard for the general public and the business sector which triggered further harmonisation and improves the quality of the information provided by the public sector.

FIGURE 1
D115 information provision and retrieval



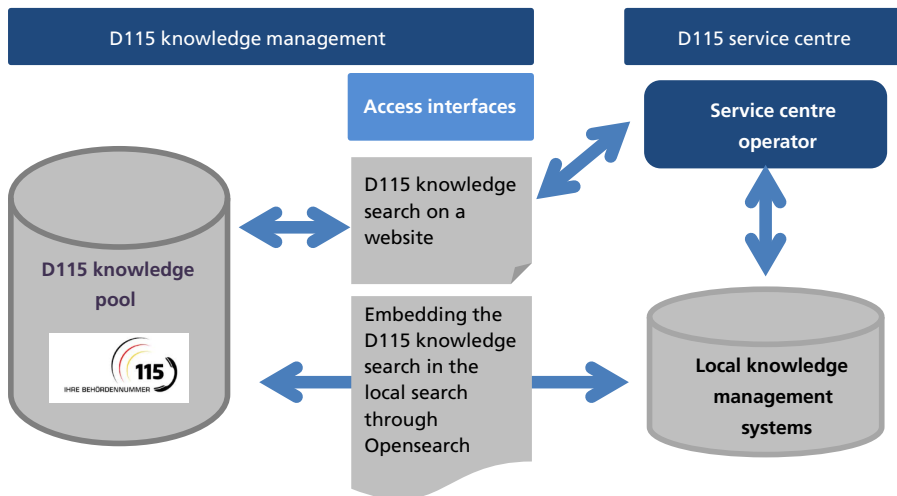
Source: BMI (2010).

The analysis of enquiries showed a certain pattern of information needs emerged which are directed to similar services. Therefore the D115 service initial knowledge base started with Frequently Asked Questions (FAQ). A minimum standard was research by integrating the most frequently requested services into a top-100 list of local services. State and Federal authorities provided their own list of top services. Every public administration participating in the D115 service is responsible for providing accurate and up-to-date information. Enquiries directed to these top services should be resolved at the first service level irrespective at which government level the service provided. To deliver this service in an efficient response, the D115 KM system was designed to link a search in the D115 knowledge pool with local knowledge sources. Given that each participant at federal, state and local level uses different systems (e.g. content management system, specific databases or own websites) to provide information and different search applications, the KM system must be independent and open by standardised interfaced to be integrated into service centre KM platforms.

The pilot phase started in March 2009 within six month in the pilot phase, the cross-level D115 project was awarded the first prize in the 2009 eGovernment competition⁴ in the category "Innovation". The first evaluations showed that 90% of calls are related to local services. The service level during the pilot was that 75% of calls should be answered within 30 seconds with the aim to reach 80% in 20 seconds. The service depth was set at 55% resolved enquiries at the first level during the pilot with the aim of 75%.

4. Available at: <<http://egovernment-wettbewerb.de/gewinner/gewinner-2009.html>>.

FIGURE 2
D115 information search



Source: BMI (2010).

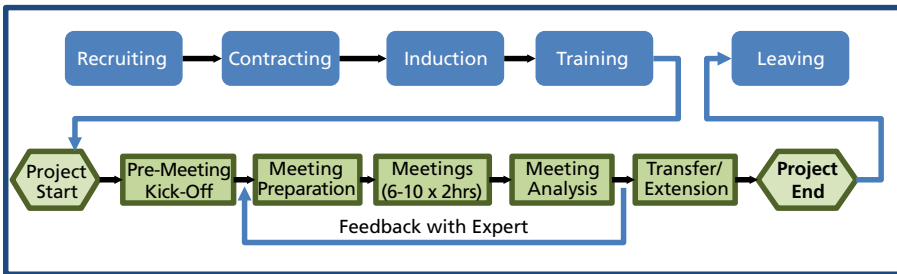
The D115 project required to provide on a country-wide effort to harmonise and integrate the technological infrastructure with different databases and search facilities. Furthermore from a knowledge perspective, it requires a harmonisation of terms used for public services and service descriptions provided which is unprecedented in a country with strong local identities and administrative cultures.

4.5 City of Erlangen: knowledge retention from leaving experts

The city of Erlangen (106,000 habitants, located in the Federal State of Bavaria) has implemented a knowledge retention approach to prevent that “the knowledge retires” (Kaiser, 2014). KM is part of the modernisation activities of the public administration and the first discussions related to KM were initiated in 1999. Since 2005 about 21 projects have been carried out to capture the specific knowledge of internal experts starting with the Head of Human Resources and Organisational Development up to the Lord Mayor of Erlangen and other Heads of Departments, managers of project (e.g. eGovernment, Geodata) and other roles (Kaiser, 2012).

The knowledge retention and transfer approach is linked to the overall HR and personnel development processes of the local government and will be activated when a senior member or expert will leave the organisation or current role or approach the retirement age. Different criteria are used to identify and assess if the knowledge is critical for the organisation such as relevance, tacitness, exclusivity, difficulty, dynamic, effort for re-creation, potential for future use, etc.

FIGURE 3
Knowledge retention process from leaving experts at the city of Erlangen



Source: Kaiser and Müller (2007).

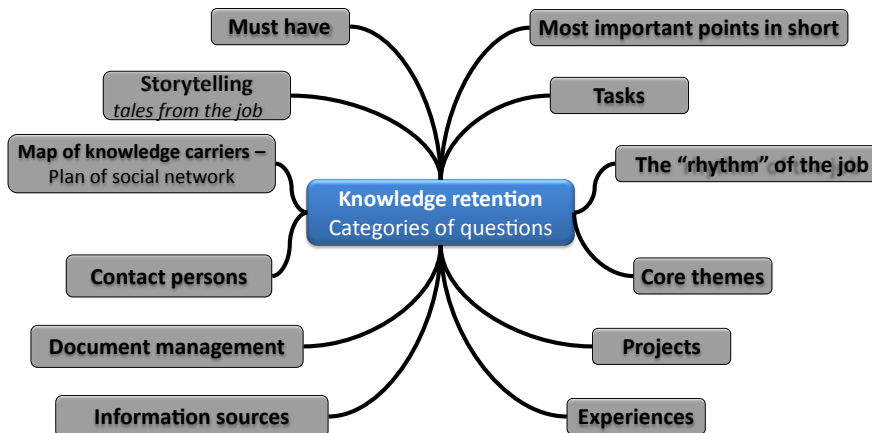
If the expert agrees to take part, about 4-6 meeting sessions will be arranged. The process will be supported by an external local consultant who prepares, facilitates and documents the knowledge retention sessions. The process starts with a kick-off meeting to identify the main areas of interest to focus the sessions. These areas are “the most important”: tasks & processes (including the “rhythm of the job”), projects, experiences & lessons learned, information sources (documents and repositories), contact people (internal & external, network), stories (important events, successes & catastrophes, metaphors) and “Must have”. The format and range of the knowledge transfer must be planned before the retention sessions has started in order to be able to consider the internets and needs of potential recipients. Different methods are available ranging from documentation in the Wiki-system, checklists, integration into processes towards joint retention sessions with the successor (exception). The costs per knowledge retention and transfer project have been between €2.500 and €4.000.

Thee critical success factors for the implementation of this knowledge retention and transfer approach are as follows (Kaiser, 2014):

- support from Senior Management who actively participate in knowledge retention (role models);
- encourage staff members to share knowledge;
- integrated and participative approach;
- supportive change management;
- internal marketing;
- cost-efficient implementation;
- acceptable time effort for employees including adjustment to needs and possibilities;
- achieve short-term and direct benefits.

FIGURE 4

Core categories to be addressed during knowledge retention sessions with leaving experts



Source: Kaiser (2014).

The benefits achieved from the knowledge retention and transfer approach at the city of Erlangen was a distribution of critical knowledge and a reduction of hand-over and “ramp-up” time required by the successor.

Other Knowledge-related activities undertaken by the city of Erlangen are job shadowing days or “internships” at other local governments in the region as well as using of Wiki’s and DMS systems to document and share knowledge as well as intranet (in the 2nd generation).

5 SWITZERLAND

Switzerland is formally a Confederation of 26 cantons which is similar to the structure of a federal republic with about 8m inhabitants and its Government and parliament, the National Council, located in the capital Bern. The 26 cantons are mainly either German-speaking or French-speaking with one Italian-speaking and in one canton German, Italian and Rumantsch is spoken. The cantons vary in size and in population considerably. Each canton has its own constitution, government, parliament, courts and laws, but they must be compatible with those of the Confederation. Finally, the cantons are divided into communes. Swiss citizen are first and foremost members of a commune from where the citizenship is derived. Still today, in the vast majority of the communes, the citizens gather at least once a year in an assembly where each individual votes on important subjects.

5.1 KM strategy of the Swiss Federal Government

In 2012, the Eidgenössisches Personalamt (EPA; Federal Human Resource Office) which is responsible for the human resources policy of the Federal Government of Switzerland (37.000 employees) was commissioned to develop a concept for the “Personnel Strategy Knowledge Management for the Federal administration 2011-2015” (Eidgenössisches Personalamt, 2012). The aims were as follows:

- describe concepts and definitions of Knowledge Management;
- make the KM instruments and methods transparent to enable self-help; and
- point out concrete recommendations for action in the area of Knowledge Management.

The process involved discussions with about 20 members of staff responsible for Knowledge Management in all seven Government departments (“Departementen”) and administrative units mainly associated with the Personal Development & Organisational Development units.

The concept refers to definitions of core terms “knowledge”, “knowledge management”, “implicit knowledge” and “explicit knowledge” and suggests the definition of KM for the Federal Government:

knowledge management is a process to acquire and recognise knowledge and skills (Können) which involves all actors in the organisation. Knowledge management requires that all employees share their knowledge (Kenntnisse) and eventually apply them in an organisational process (Eidgenössisches Personalamt, 2012, p. 5).

The KM strategy further lists the KM instruments and KM methods used in the Federal Government. The list of 60 tools should to raise the awareness and provide a pool of ideas to extend KM in a public organisation. The list structured into three top categories (People & culture; Technologies; Organisation & Processes) and groups the methods into ten sub-sections: Networks (8), Events (5), IT (12), Infrastructure (1), Organisation (15), Human Resource Planning (1), Leadership (3), Personal and Organisational Development (2) and Personal exit (2). The strategy notes that KM has been anchored in different ways in the Federal Government. Different measures have been implemented and are working successfully, while not always labelled as KM. The document concludes with recommendations for action on the departments as well as the Federal level. These recommendations for the federal level have been approved and the implementation planning commissioned.

The central staff function “EPA Grundlagen und Systeme” presented the KM strategy to the Human-Resource Conference which represents all central government departments which discussed and approved the strategy. The KM strategy is a recommendation to support KM in the different ministries and

administrative units and was communicated via the HR-Managers to each unit and their employees. There is no nominated Chief Knowledge Officer within the central government. Some departments which have particular knowledge needs such as the *Swiss Agency for Development and Cooperation* (SDC) and the *Federal Department of Defence Civil Protection and Sport* (DDPS) have established KM units. The staff function “EPA Grundlagen und Systeme” runs a intranet side about KM and has initiated a network “Knowledge Federal Administration” (German: *Wissen BV*) with Federal employees interested in KM. About 2-3 annual meetings are organised to share knowledge about projects and current topics. Finally the unit provides training (e.g. Seminar about “KM: promote sharing & exploit knowledge”, “Knowledge Transfer & Retention”) aimed to middle and higher management and HR managers in the Federal Administration.

5.2 Swiss Agency for Development and Cooperation (SDC)

The Swiss Agency for Development and Cooperation (SDC) is Switzerland’s international cooperation agency within the Federal Department of Foreign Affairs (FDFA). The agency employs about 1,600 members of staff with around 400 in Switzerland and about 1,000 locally around the world. The SDC strategy 2013-2016 (Art. 1.6.3.) places KM in the continuously changing context of international cooperation which requires that “we have to continuously refine our competencies and to enhance our innovation capacity. For that to happen Switzerland relies on an encompassing knowledge management and on a systematic capitalization of experiences.”

In 2008 SDC adopted a new organisational structure:⁵

- SDC collaborators working in sectorial (technical) operations or policy dialogue on focus themes are linked through thematic learning networks.
- The responsibilities for the technical quality of operations and policy dialogue are rooted in the operational/geographic line.
- The responsibilities for sectorial (technical) policy work and for the learning networks on focus themes have been decentralised. Most regional operational divisions are responsible for one of SDC’s focus themes.

6 UNITED KINGDOM

The United Kingdom of Great Britain and Northern Ireland is composed of England, Scotland, Wales and Northern Ireland with about 63m inhabitants most of them living in England. The UK is a constitutional monarchy without a “written constitution”. Over the last decades, the devolution has granted more

5. Available at: <http://www.sdc-learningandnetworking.ch/en/Home/SDC_Networks>.

rights to Scotland, Wales and Northern Ireland forming their own parliaments and assemblies. Still the Parliament at Westminster legislates for the UK as a whole. The local government is exercised by local authorities comprise over 300 districts in England.

6.1 KM strategy of the UK Government

In a recent study which examined the organisational learning in the UK Government sector, (Gilson, Dunleavy and Tinkler, 2009) concluded that the UK political system is “set up to quickly convert organizational unlearning into prominent policy crises, which have been very frequent and very powerful stimuli for organizational learning in UK central government.” Knowledge and information management activities are in particular aimed to ensure proper and skilful handling of knowledge and information across all government institutions (Woolf, 2010).

In 2007, the Knowledge Council (KC) was formed to provide a forum across government for knowledge and information management. In November 2008, the Knowledge Council published *Information matters* which described a strategy for knowledge and information management (KIM) in the UK government, and recognizes KIM as a formal function of government on par with finance and communications. The KC was supported by the Government Knowledge and Information Management Network (GKIMN) which formed the secretariat for the council and the KIM Function in the UK government. The key actions set out by this strategy are to (HM Government, 2008):

- Enhance the method in which departments handle information as a valuable resource, ensuring information managed is appropriately utilized, made available where appropriate, with maximum added value.
- Build a knowledge-sharing culture, which creates and encourages the capability to manage and share expertise appropriately across government.
- Delivering this through developing the professionalism of knowledge and information management and through supporting governance, processes and technology.

The strategy was detailed by a delivery plan (HM Government, 2009) which set out twelve KIM activities led by different government departments.

BOX 1

Enhancing the value of information and knowledge held by government

1. Knowing what information we have – The National Archives
2. Deciding what to keep – The National Archives

Building a knowledge-sharing culture

3. Finding someone who knows – Head of Knowledge and Information (KIM) Profession
4. Developing a collaborative culture – Department for International Development

Building capability

5. Government KIM professionalism programme – Ministry of Defence
6. Maintaining a strong KIM audit and improvement mechanism – The National Archives
7. Aligning the KIM and Information Assurance maturity models – The National Archives and Information Security and Assurance

Using common standards and secure processes

8. Commissioning, influencing and promoting guidance – Department for Business, Innovation and Skills

Strengthening leadership

9. Measuring and demonstrating the value of KIM – Government Knowledge and Information Management Network and Ministry of Justice

Improving our infrastructure

10. Mitigating risk through Digital Continuity – The National Archives
11. Engaging with suppliers – ensuring future systems are fit for purpose – Cabinet Office and Department for International Development

Building our evidence base to inform our strategies for the future

12. Horizon scanning – Department for International Development

Source: HM Government (2009).

In 2014 the Knowledge Council was replaced by two groups – the KIM Leaders' Network and the KIM Profession Group.

6.2 Yellow pages for the public sector: civil pages

The action “Finding someone who knows” was delivered by the CivilMedia Suite which comprises the Civil Pages, Civil Talk, Civil Blogs and Civil Wiki tools. The Civil Pages is a directory and networking system for the Civil Service that allows people to find contacts in other departments, share and comment on documents, network, and create communities of interest. In August 2011, the CivilMedia Suite had 21.000 registered users (Stewart, 2011; Civil Service North East, 2010). The Civil Pages were replaced by a knowledge sharing service called Collaborate.

6.3 Information Management Assessments (IMA) Programme

The National Archives (The National Archives, 2010, 2012) runs the Information Management Assessments (IMA) Programme, which includes aspects of KM. The IMA programme focuses on the 25 core government departments. The IMA assesses five key areas: the value of information, the technology environment, information policies and performance monitoring, management of risk and records review, selection and transfer. Knowledge management policy, knowledge capture and knowledge transfer and KM more generally as it touches on related areas and are assessed under the programme.

6.4 KM activities at a Government Department

KM activities are carried out by several Government Departments such as the Department of Work and Pensions (DWP), Her Majesty's Revenue and Customs (HMRC), Department for Education, the Department for Environment, Food and Rural Affairs (Defra). While detailed information about these activities is scarce, the following describes the knowledge capturing activities during a major organizational change effort within Defra.

During 2012 the Department for Environment, Food and Rural Affairs went through a substantial organisational change programme. Key drivers were:

- need to respond to new Government policy and delivery priorities; and
- need to operate within a smaller budget and reduced staff numbers.

As part of this 15% of staff either moved teams within Defra or left the organisation on 1st September 2012. This meant there was a high risk of loss of organisational knowledge and capability and a Knowledge Capture initiative was undertaken to address this. The key elements of this were:

- knowledge transfer briefing notes were developed setting out what staff should do before moving on or leaving the organisation;
- series of expert seminars where experts leaving the organisation presented on key elements of their knowledge and experience within Defra;
- moving on interviews formally capturing key elements of knowledge;
- one to one handovers between departing and incoming incumbents;
- updating or developing job role “desk instructions”; and
- support with electronic information storage to teams that were re-structuring.

There were a number of communications and engagement activities supporting these activities. An internal communications campaign highlighting the importance of knowledge capture targeted at senior managers. A visible named central KM team member was established to provide support. People were encouraged by managers to ensure that the corporate directory and their personal profiles were up-to-date. Finally, a representative from the central Knowledge Management team sat on Change Project Board.

Overall the exercise was judged successful as 96% of teams undertook knowledge transfer activities resulting in the development of a range of tangible assets including desk instructions and knowledge capture notes. Overall a positive feedback was received from the participants.

6.5 Knowledge and Information Management professionals in the UK Civil Service

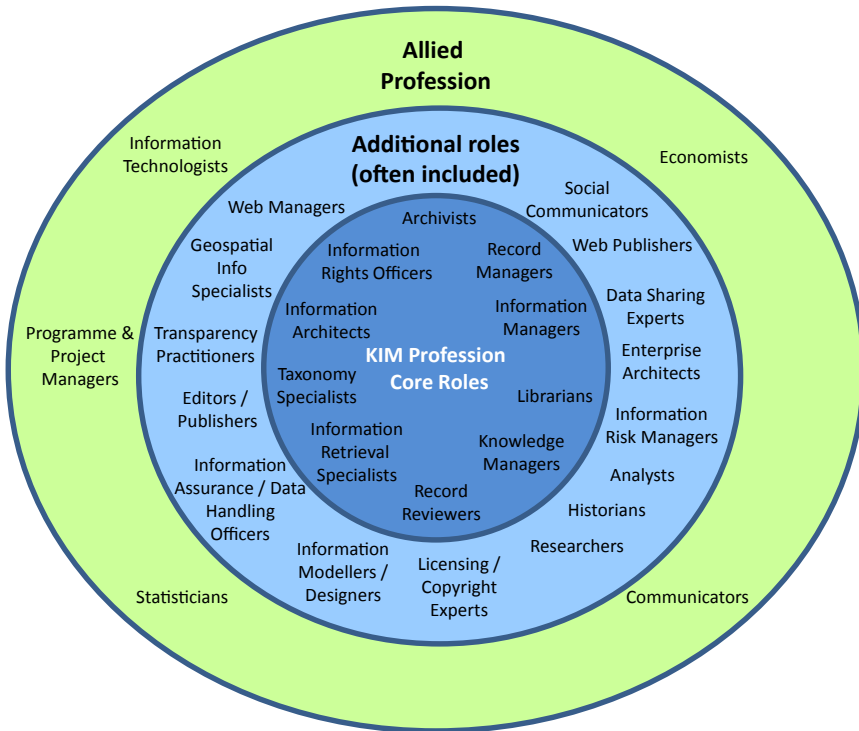
The UK Civil Service comprises the employees working for the central government except the Foreign Service, non-governmental bodies, the Armed Forces and the National Health Service. In 2014, Civil Service employment about 440,000 people, while the total public sector employment was about 5.4 million in the UK.

Currently, the Civil Service recognises about 25 different professional roles including economists, finance and tax professionals, engineers and lawyers, occupational psychologists, statisticians, planners and project managers, social researchers, IT professionals, medical doctors and veterinarians. Knowledge and Information Management (KIM) professionals have been recently recognised as an established profession within the civil service. The number of staff in KIM roles in the main central Government organisations was assessed during 2013 as around 1100 which are “made up of qualified civil servants who look after knowledge storage and information management systems - assets that critically underpin the work of government” (KIM Homepage).⁶

The KIM professional roles have and are still undergoing a transformation triggered by new information technologies (e.g. web technologies, social media, cloud computing and mobile technologies), new approaches towards information and knowledge (e.g. information architecture, Big Data) and new political demands (e.g. Transparency, Open Data, information rights) or legal regulations (e.g. Freedom of Information Act). The figure 5 depicts the core roles of the KIM profession as well as emerging new additional roles, KIM professionals could fulfil in government.

6. Available at: <<https://www.gov.uk/government/organisations/civil-service-government-knowledge-information-management-profession>>.

FIGURE 5
Government Knowledge and Information Management (KIM) profession



Source: <www.civilservice.gov.uk>. Access: May 22nd 2014.

6.6 Knowledge and Information Management professional skills framework

The KIM professionals in the UK Civil Service have developed the Government Knowledge and Information Management Professional Skills Framework which defines KIM-specific skills for staff in KIM roles in the UK (Knowledge Council, 2009).⁷

The framework should be used for (a) career development, (b) recruitment and selection, (c) performance management and (d) identification of training needs. The framework differentiates between four levels from the senior level as *strategist*, a core KIM team *leader*, *manager* of a small team delivering KIM services and the *practitioner* who will be responsible for the daily operational delivery of KIM tasks. These skills are built on the traditional skills of the Library and Information Scientists which should be adapted to the use in the wider KIM environment.

7. See Annex for examples.

BOX 2

UK Government Knowledge and Information Management Professional Skills Framework (April 2009)

- 1. Strategic planning for knowledge and information management**
 - 1.1 Organisational planning for knowledge and information management
 - 1.1.1 Understanding the government, organisational and wider knowledge and information environments
 - 1.1.2 Strategic planning for knowledge and information management
 - 1.1.3 Inter- and intra-organisational collaboration
 - 1.2 Demonstrating the value of knowledge and information management
 - 1.3 Strategic development of knowledge and information management capability
 - 1.3.1 Professional development of the knowledge and information management community
 - 1.3.2 Building wider knowledge and information management capability
 - 1.4 Selection and procurement of knowledge and information management resources
- 2. Using and exploiting knowledge and information**
 - 2.1 Knowledge sharing and collaboration
 - 2.1.1 Supporting collaboration and promotion of a knowledge-sharing culture
 - 2.1.2 Facilitating knowledge capture
 - 2.1.3 Facilitating knowledge transfer and organisational learning
 - 2.2 Information re-use and information sharing
 - 2.2.1 Information re-use and sharing
 - 2.2.2 Web / new media publishing
 - 2.2.3 Electronic information resource delivery to the desktop
 - 2.3 Information analysis
 - 2.3.1 Decision support / decision analysis
 - 2.3.2 Search / information retrieval
 - 2.3.3 Analysis and exploiting research
 - 2.4 Integrating knowledge and information management capabilities into the business process
 - 2.4.1 Understanding information needs and behaviour
 - 2.4.2 Education and training
- 3. Managing and organising information**
 - 3.1 Information architecture and information control
 - 3.1.1 Collection / repository management: the ability to design and maintain structures for information storage and access to support business information needs
 - 3.1.2 Organising and labelling information
 - 3.2 Creation and maintenance of information and records
 - 3.2.1 Content creation and maintenance
 - 3.2.2 Business continuity
 - 3.2.3 Lifecycle management
- 4. Information governance**
 - 4.1 Information risk management
 - 4.1.1 Information ownership and accountability
 - 4.1.2 Information risk analysis and mitigation
 - 4.2 Compliance with information legislation, regulation and corporate standards
 - 4.2.1 Ensuring compliance with the legal framework
 - 4.2.2 Information rights
 - 4.3 Ethics

Source: HM Government (2009).

6.7 Knowledge sharing among local governments in the UK

Local governments in the United Kingdom comprises more than 400 local authorities which deliver parallel public services for their residents such as education, housing, libraries, planning, police and fire, social services, transport, waste collection and consumer protection. The provision of similar services will most likely confront the local authorities and their staff with similar challenges and problems. These

similarities, with the solutions adopted by each council, represents a broad pool of potential solutions other authorities might be able to learn from.

The Improvement and Development Agency (IDeA) merged with the Local Government Association in 2011 and was established to support improvement in local governments. The agency utilizes KM and other tools to facilitate councils to acquire new knowledge, spread and evaluate good practice. Within the UK local government, the IDeA ran a number of programmes to promote knowledge sharing. One of these programmes includes the Beacon Scheme (Rashman, 2008, Gilson, Dunleavy and Tinker 2009), originally called the Beacon Council Scheme. The Beacon Scheme from its inception in 1999 till mid-2005 aimed to (a) disseminate knowledge and apply good practice across all local government councils; and (b) provide national recognition through a competitive application and awards scheme.

Authorities demonstrating an excellent overall performance and in providing services within particular policy areas, are awarded beacon status. Once awarded, the beacon status is held for a year. During this period, The IDeA provides guidance and support to Beacons to facilitate the sharing of good practice. The four main methods used to promote good practice sharing are:

- National/regional learning exchange conferences.
- Open days visits hosted by Beacon councils.
- Resource packs and web based materials.
- Beacon peer support and mentoring. Visitors may request one-to-one knowledge exchange with a Beacon authority.

IDeA also promoted knowledge sharing using communities of practices (CoP) as they were considered ideal for helping staff within local government to maximise their own capacity and ultimately, the sector's. The CoP's were supported by an internet platform and partly facilitated by members of the IDeA KM Team. The platform was built on the e-government National Knowledge project and established as part of the IDeA's KM Strategy 2006 with the following objectives:

- Obtain or develop a technology that will enable and promote learning, sharing and collaboration through people to people connections, such as Communities of Practice.
- Pilot communities of practice that facilitate "*people to people connections*" as well as "*people to information connections*" which was delivered via the IDeA-Knowledge website.
- Create a Community of Practice toolkit.
- Develop and deliver trainings for Community of Practice.

After the KM strategy and the associated business case was supported by management, intensive work with stakeholders was undertaken to develop a KM team structure in 2005. When the suggested KM structure was approved by management, training for KM facilitators was developed and implemented in parallel with the technology specification for the online platform. While the first pilot failed (2006), the KM team assisted to run focus groups with potential members of pilot communities and a platform to support collaboration was introduced in late 2006. The official launch took place in December 2007 and the IDeA team continued to support selected communities. An application process was established to set up communities. In November 2008, over 19,000 people had registered and 550 communities established, with about 100 CoPs having IDeA involvement. In May 2009 over 29,000 people were registered and the Phase 3 was launched with new functionalities which enables tagging and social bookmarking of themes. Phase 4 was launched in February 2010 with over 49,000 people registered and further functionalities were upgraded such as a CoP landing page, update profile area, most commented and most viewed items, search engine and text editor. In October 2011 about 100,000 people were registered on the CoP platform which was replaced in April 2012, when the Knowledge Hub was launched by the Local Government Association and in September 2013 ownership of the Knowledge Hub was passed over to Capacity Grid.

Today, the Knowledge Hub,⁸ is

the place where members exchange knowledge to improve public services and produce social value. As the UK's largest platform for public service collaboration Knowledge Hub helps members and communities to freely connect, share knowledge, develop initiatives and share expertise in a secure environment.

In July 2014, an upgraded version of the Hub was launched. The Knowledge Hub supports over 1,500 groups with their 180,000 members. The next steps are to move towards open source software for cheaper implementation, reduce costs and allow multiple suppliers to develop applications for the system.

An on-line survey of users is to assess effectiveness of the CoP platform in delivering business and user benefits. The most recent data is available from end of 2010 (n = 1,144). Over 50% visit the website weekly and 21% are from non-local government sectors; 69% of respondents stated that they were from local authorities and 82% were employed at officer level; 43% of users confirm that CoP helps to save them time to do their jobs as a result of 60% of all users sharing good practice hint, tips and information for others to benefit from. Two thirds hold that it enhances knowledge and expertise for their own organisation. Over a quarter indicate that CoP helps to drive efficiencies and reduce costs for their employers. CoPs helps

8. Available at: <www.knowledgehub.local.gov.uk>.

63% of it's users to become more confident in online learning and has helped 53% of users to solve work related issues or problems with 77% being kept up to date with current thinking on relevant topics. A third of users confirm that the CoP helps them to engage and develop relationships with colleagues across the wider public services sector, proving one benefit of the system that in these times of collaborative working, managers should drive it's take-up and usage. About a third (35%) of users stating they don't get time to visit the CoP enough, which is possibly a prompt to senior and line management to find ways to integrate CoPs into the organisation's business processes. The following examples from the survey should illustrate the benefits of the CoPs:

I researched Total Place innovations and where this has already been implemented. This meant we were able to give actual examples to colleagues within community planning. The net result is Total Place is now being considered as a viable alternative (Officer, Council of the Voluntary Service, Scotland).

The most useful CoP has been the Regional Portal Network where it has been useful to discuss issues/problems, whether others are experiencing similar problems and how they may have resolved these (Officer, Unitary authority, North East).

The following learnings could be derived from the experiences with the Idea CoP platform and the current Knowledge Hub (Norton, 2014):

- The purpose is still key to a community's success.
- The CoP format is not for all communities as some are event groups, others are project group etc. Each group requires a different way of working and operating.
- Focus needs to be placed on the people in the community rather than the technology.
- IT (e.g. access rights) is still a barrier within organisation to allow collaboration.
- There is a broad range of users from basic to advance users of digital technology and all need to be supported.
- Participating in a community is still seen as an add-on to the 'normal' work.
- There still much more take than give.
- Perceived time to participate is still seen as the biggest barrier.

Finally, beside the work on facilitating knowledge sharing, the IDeA KM Strategy Team (Leask *et al.*, 2008) compiled a booklet with KM tools and techniques to support local government improvement projects and knowledge management. These KM tools and techniques encompasses of case study, rapid evidence review

(RER), knowledge banks, communities of practice, peer assist, knowledge café, knowledge marketplace, gone well/not gone well, after action review (AAR), retrospective review and knowledge exchange.

7 SUMMARY AND CONCLUSIONS

The KM initiatives described in the previous sections from Austria, Germany, Switzerland and the United Kingdom provide evidence that the effective use of information and knowledge in the public sector is a relevant topic. KM is relevant at every levels of public administration from local to the federal level and horizontally in all resorts from finance to defence. The cases show that similar factors have triggered the initiatives with different emphasis in each country.

In all countries, the potential of new information technologies have pushed pilot initiatives related to information and knowledge management and these technologies are still a main enabler. The potential savings derived from economies of scale based on the delivery of the same public services or projects across different departments, regions or localities is one major driver in the context of shrinking public budgets. Recently, the security dimension regarding potential threats has become another major driver for KM initiatives.

A difference at the level of the central government (UK) or federal governments (AU, CH, DE) is the development of strategies to provide guidance to the different initiatives and exploit the experiences from across the public sector. The Austrian and Swiss cases show that KM initiatives were already “mushrooming” across different departments and ministries. The strategies developed were aimed to capitalise and harmonise the different conceptual approaches and understandings in order to enable sharing and learning across the different governmental resorts. Furthermore, the strategy effort included the definition of a KM toolbox with suitable KM methods and KM tools for the public administration (Austria) or the provision of KM training to public service managers and employees (Switzerland). The UK strategies are led by the community of information and knowledge managers which have their origin in the civil servants from the library and information profession. The recognition of the KIM skill framework in the UK which defines the skills required to efficiently handling information and knowledge and which recognises about 25 different roles. This approach is different approach towards KM than in the other three countries. In Germany, earlier KM initiatives within the Federal government have not been published with the exception of the BVA case. Currently, KM is strongly linked to the e-government initiative of the ‘digital administration’ and work on a strategy and concept has just started.

Knowledge retention from leaving experts due to retirement, promotion, job rotation or down-sizing of administrative units, is a cross-governmental KM

activity from the local government (DE: City of Erlangen) towards the Federal (AU: BMF) or Central Government agencies (UK: DEFRA).

On a local level, the UK has a long tradition of knowledge sharing activities starting in the 90s Beacon scheme promoted by a central government agency and currently supported by the online platform Knowledge Hub which hosts hundreds of communities related to many different topics relevant for the public service.

These examples of KM activities within the public administration in four different European countries demonstrated that public actors are recognising the importance of information and knowledge for the public sector and the conscientious and systematic management of these resources, processes and enabling factors. KM will become a core dimension of the management of public services and government in the future.

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ANNEX

Extract from the government knowledge and information management professionals skills framework (April 2009)

| 1.2. Demonstrating the value of knowledge and information management | | | | |
|---|---|--|--|-------------|
| Practitioner | Manager | Leader | Strategist | |
| 1.2.1 Demonstrating the value of knowledge and information management | <ul style="list-style-type: none"> Identifies specific measures and mechanisms by which benefits can be measured within their relevant team or service. Monitors, reviews and validates performance measures in consultation with stakeholders and aligned to best practice. Takes remedial action where necessary. | <ul style="list-style-type: none"> Establishes and communicates financial and operational returns on knowledge and information management. Benchmark the performance of own organisation against other comparable organisations and takes action based on the findings. Assesses the future of low impact services and plans accordingly. Maintains and articulates the business case for investment in process improvement and the dangers of lack of investment. | <p>As for Leader, plus:</p> <ul style="list-style-type: none"> Takes overall ownership for the identification and demonstration of benefits to users, organisational business performance and for public service improvement, works with key stakeholders to ensure agreement targets that result from successful process that those benefits are realised. Sets key performance indicators (KPIs) embedded within and aligned to the broader corporate objectives. Reports regularly to the board on performance, value and impact of knowledge and information management, including performance against budget, to maintain awareness at corporate leadership level. | |
| 2. 1. Knowledge sharing and collaboration | | | | |
| Practitioner | Manager | Leader | Strategist | |
| 2.1.2 Facilitating knowledge capture | <ul style="list-style-type: none"> Identifies where critical knowledge is being created and developed. Identifies the key barriers and enablers to knowledge capture. Establishes tools, templates and guidelines for capturing knowledge developed by individuals in the course of their work (e.g. supporting the recording of stories and evidence; harvesting toolkits, lessons learnt, peer assists, after actions reviews, etc). | <ul style="list-style-type: none"> Champions and communicates the benefits of knowledge capture and transfer processes. Establishes processes to build knowledge capture into the organisation's business processes so that knowledge capture is an ongoing activity. Highlights areas where the organisation is at risk from not developing or capturing knowledge so that it can be re-used. Maintains an awareness of current techniques and good practice in approaches to developing and capturing knowledge. Makes the business case for employing knowledge capture processes and techniques and the priority areas for their use. | <p>As for Leader plus:</p> <ul style="list-style-type: none"> Works closely with senior management and with all areas of the organisation (e.g. social researchers, policy teams) to secure widespread buy-in and understanding of the importance of capturing and re-using knowledge and professional experience to support the effectiveness and efficiency of the organisation. | (Continues) |

(Continuation)

| 2.2 Information re-use and information sharing | | | | |
|--|--|--|---|--|
| | Practitioner | Manager | Leader | Strategist |
| 2.2.2 Web/new media publishing | <ul style="list-style-type: none"> Creates web pages/web sites that conform to accessibility legislation and best practice in content, retrievability and navigation. Uses appropriate authoring packages effectively in the design of electronic information delivery mechanisms. Understands that online sources (e.g. web, intranet) may hold vital records not published or held elsewhere within the organisation. | <ul style="list-style-type: none"> Identifies the business applications of different publishing channels. Ensures that there is an effective content management system in place to manage the currency of the website, support records management processes and avoid uncontrolled deletion of data and broken/lost URLs. Ensures compliance with web management policies and relevant legislation. | <ul style="list-style-type: none"> Demonstrates the importance of application of knowledge and information principles to departmental web/portal design and content management and liaises with web publishing teams outside the KIM function as appropriate. Ensures that web content is included in KIM policies, and digital preservation and business continuity processes. | <p>As for Leader, plus:</p> <ul style="list-style-type: none"> Determines the strategy for internal and external publication. |

Source: HM Government (2009).

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