Knowledge Brokering in the Web 2.0 era: Empirical Evidence of Emerging Strategies in Government Agencies

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ABSTRACT: *Knowledge Brokering is emerging as an important domain in knowledge management. As web is emerging as a good platform in the knowledge society, web based knowledge brokering has come up with many models and techniques. In this paper we propose a knowledge brokering design and arrived with interesting findings and conclusions.*

Keywords: Knowledge Brokering, Knowledge Sharing, Knowledge Transfer, Web 2.0, Digital Economy, E-learning, Canada

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1. Introduction

Over the last five years, knowledge brokering, a set of activities aimed at connecting producers and end users of knowledge, has emerged as one of the most influential good practices in knowledge use and innovation (1-2-3). As a learning organization, many public administrations and government agencies in Canada, as well as in other Western countries, have promoted knowledge brokering in order to reinforce knowledge utilization. In a similar vein, smart digital technologies, mainly Web 2.0 platforms, become increasingly a new user-friendly vehicle to identify, acquire, transform and exploit new knowledge and information. Despite the presence of more research stressing the importance of knowledge brokering, mainly in the public health sector [1-2], little is still known about knowledge brokers, their profession or their day-to-day activities, particularly in regard to their use of Web 2.0 technologies. This article goes beyond rhetoric and hermeneutic analyses on this subject to draw an empirical and factual overview of emerging practices and strategies in knowledge brokering, within government agencies. In this vein, our investigation is based on a survey developed for this purpose and carried out among a representative sampling of knowledge brokers (n =106) operating within Québec government agencies, well known for their widespread use of Web 2.0 platforms and digital innovation.

Following Ward, House and Harmer [4], we are concerned about "*the lack of evidence about how knowledge brokering works, the contextual factors that influence it and its effectiveness*" (p.9). Or paper aims to advance knowledge by responding to the question raised by Ward et al. [4] and Dobbins et al. [3] that can be summarized as follows: i) what are the contributing profiles and practices in this framework?, ii) how does knowledge brokering work in the digital era?, and iii) what is the perceived effectiveness of knowledge brokering?

The remainder of the paper is divided into three parts: Firstly, a theoretical foundation is presented, highlighting concepts underlying knowledge brokering. Secondly, our methodology is presented (data, model, and variables). Finally the findings are presented and commented. In conclusion, the findings and implications are summarized.

2. Theoretical Foundations

Knowledge brokering is defined as being an intermediation activity carried out by "*brokers*" (individual, organization, networks, etc.) acting as "*connectors*" to link producers and end users of new knowledge [3]. Knowledge brokers disseminate and exchange knowledge in new ways that are directly focused on linking stakeholders interested as a supplier or demander of new knowledge. Murray et al. (2011) describe knowledge brokers as intermediaries: "*They are individuals who provide a specialised interface between the internal system and external knowledge sources. They can also span boundaries within the organisation. They monitor the environment and translate external information into a form understandable by the organisation. The gatekeeping function may be a structured centralised capacity or be diffused across many individuals*" (Murray et al., 2011, p. 921). Similarly, knowledge brokering structures are defined as "*a variety of resources (human, material and technological, etc.) devoted to gathering, analysis, management and dissemination of the knowledge in a way that is focused on improving knowledge and anticipating strategic subjects for a given groups*" [13] (p.9). Knowledge brokering, which has received considerable attention in the literature, is grounded in three theoretical streams dealing with knowledge and its influences on organizational performance. The first and most widely known paradigm is *knowledge management.* This paradigm considers knowledge as a strategic resource improving best management practices and adequate funding to reinforce its identification, acquisition, assimilation and exploitation [14, 15]. In this paradigm, the knowledge broker assumes a role of manager who enables organizations to mobilize knowledge (tacit, codified, formal, informal, etc.) in a structured way that is anchored to meet organizational challenge (performance, profitability, innovation, sustainability, etc.). The second paradigm deals with *social knowledge networks.* Here, the knowledge broker behaves as a "*connector*" having sufficient social skills and credibility to "*network*" and mobilize stakeholders interested in the production and utilization of new knowledge [1, 17, 16]. The third paradigm deals with *capacity building* through knowledge, know-how and long-life learning [18]. Knowledge brokers act as facilitators of development to "*educate*" and disseminate and explain complex useful knowledge in order to influence decision making of users of new evidence [19]. These paradigms do not require the same competencies for knowledge brokers, rendering their mandates multidimensional, specific and sometimes discordant. These different situations make the knowledge broker's work more complex, rendering it a new kind of hybrid job that is difficult to define conventionally and unanimously.

Related to this is the fact that public service organizations are subject to pressures for learning and promoting "*evidence-based policy making*". The sharing of knowledge has become a central challenge to improvement in public administrations; the aim is to add value to public policies and the government decision-making process. Consequently, new knowledge, innovation and best practices are watched and investigated in order to be shared and transferred between agencies, services and levels of government.

A primary objective of this paper is to elucidate the contributing profiles and practices in knowledge brokering and the workings of knowledge brokering in the digital era within government agencies. It must be remembered that it is in response to research conducted by Canadian researchers involved in the translation and exchange of knowledge [1, 3, 7-8] that knowledge-brokering structures using the Internet rapidly increased in Canada, notably since 2006, taking advantage of the development of platforms and applications resulting, first, from Web 1.0, then Web 2.0 [9]. Knowledge brokering has been greatly enhanced through the use of Web platforms (Websites, Facebook, blog, Twitter, newsletters, Wikis, You Tube, Linkln, podcasts, chatting, RSS feeds, etc.) [10]. In this context, new jobs and professions devoted to knowledge brokering 2.0 came into being. In learning by doing, knowledge brokering has become more structured and professional, resulting in the actors involved being more and more recognized as knowledge brokers [3, 11].

3. Method, model and data

Obviously, smart digital technologies strengthen scientific knowledge brokering through, among other things, diversifying sources, fostering exchanges and increasing the amount of new online knowledge and information. This evolution and

development have put a strain on the absorptive capacity not only of knowledge users, but also of knowledge brokers. This is why the concept of knowledge absorptive capacity is used as the analytical reference to decipher the "black box" of the knowledge-brokering process. Lane, Koka et Pathak [20] describe knowledge absorptive capacity as "one of the most important constructs to emerge in organizational research over the past decades." This concept is defined by Cohen and Levinthal [21] as the ability to recognize the value of new knowledge and to assimilate and apply this knowledge in order to acquire a competitive advantage for individuals or organizations. This concept has been refined by other empirical research [21-23] that mapped the absorptive capacity model's constructs to better operationalize it in empirical investigations dealing with the following knowledge translation and exchange activities: recognition, acquisition, assimilation, transformation and exploitation of new knowledge (see Figure 1).

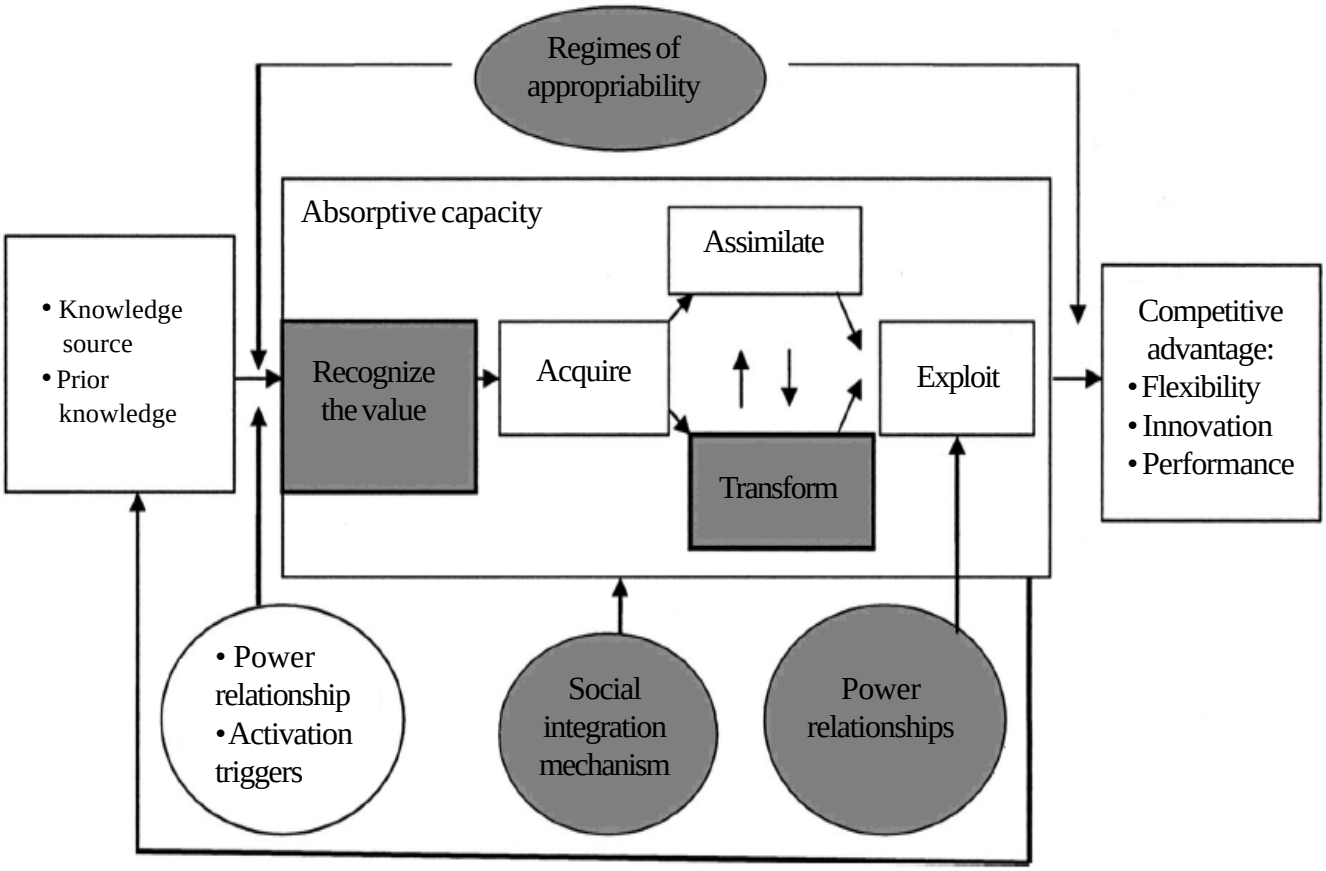

Figure 1. Absorptive Capacity Model by Todorova and Durisin [22]

Obviously, the model includes contextual elements dealing with the sources, previous knowledge, broker interactions and effects of the implementation of new knowledge. This model was used as the theoretical reference for designing our survey questionnaire to measure empirically the constructs linked to the stages of the knowledge-brokering process1 [5, 22]. The key theoretical constructs considered in the questionnaire dealt with: i) the recognition of the value of knowledge, ii) the acquisition of knowledge, iii) its assimilation, iv) its transformation and v) its exploitation. Each construct is operationalized by several survey questions resulting in a questionnaire with a total of 33 questions, most of which are open-closed and measured quantitatively (Likert, binary or continuous scales). On the average, it takes 20 minutes to respond to the questionnaire. The questionnaire was tested on three (3) volunteer knowledge brokers to validate understanding, coherence of measures and responsiveness to questions. For purposes of discussion and improvement, the research project was presented to the principal knowledge brokers targeted on several occasions. The research underwent ethical validation and obtained ethical certification from the university research ethics committee, under whose authority comes our research team.

To identify the sample of knowledge brokers to be questioned within the framework of the survey, the government network of

knowledge brokers dealing with public policies: "*Réseau intégrée de veille sur les politiques au Québec* - RIVPP". The RIVPP has produced an exhaustive census of all knowledge brokers using Web 2.0 and operating within the 22 government departments in the Province of Quebec. This exhaustive inventory identifies 235 knowledge brokers (email addresses, policy sector, ministries, etc.), coming from all the government agencies in Quebec. These brokers were invited to complete this questionnaire on a voluntary basis. A reminder was also sent out to favor a high rate of response. We have used a Web survey using the "*Openfield Sondage 3.0*" software. A total of 106 knowledge brokers completed the questionnaire. In the end, the rate of response was 45%. This rate is judged acceptable by experts and researchers who have examined web survey statistics and validity of the rate of response.

The data were gathered in the fall of 2010, then compiled using SPSS Statistics Software and analyzed with much emphasis on confidentiality. Different statistical analyses were conducted: univariate descriptive analyses and multivariate's factor analyses. The descriptive analyses permitted to characterize the profiles and the knowledge-processing practices in the different stages of knowledge brokering, targeted client bases, network links, etc. The factor analyses were used to group together key items around structured latent variables into factors explaining the variance in behavior, practices, facts and perceptions described by the survey's data.

4. Findings

4.1 Knowledge brokers

Who are they and what do they do? The survey's data reveal the attributes of public servants and government agencies involved in knowledge brokering and of digital technologies used. The government agencies having implemented knowledge-brokering structures are widely varied: almost all the agencies have created their own structure of knowledge brokering. This diversity indicates that the development of knowledge brokering in the government agencies operating in Quebec-Canada is of interest to decisions makers and public servants. In these agencies, knowledge brokers spend on average 35 hours per month in knowledge brokering: identification, acquisition, assimilation and dissemination of new knowledge. Our survey identifies the main socio-demographic characteristics of knowledge brokers. Of the 106 respondents, 60% are male (40% are female) and the broker's average age is approximately 47 years. About 40% of brokers are over 50 years of age, followed by 26 to 40 years old (35%), and then by 40 to 50 years old (25%). A majority of brokers are highly educated. More than 80% have a post-graduate university degree and more than 90% are relatively high ranking professionals in the Quebec public administration. Almost 85% of brokers were educated in social science and public administration. In addition, the average professional experience in knowledge brokering is close to 4.5 years. These findings indicate that brokers were employed in other activities before their commitment to knowledge brokering. Also, the survey tells us that the structure in charge of knowledge brokering, within the ministerial department, employed on average more than four brokers. In general, our survey reveals that knowledge brokers use, with varying intensity, various digital knowledge sharing and exchange supports. Table 1 gives the inventory of the medium used.

Knowledge translation and exchange supports	% of brokers using them
1- Websites	86%
2- e-thematic synthesis newsletter (listserv)	52,8%
3- Monthly digital regular strategic-intelligence e-bulletin	42%
4- Quarterly digital regular strategic-intelligence e-bulletin	35%
5- RSS feeds (Rich Site Summary)	17,3
6- Social media (Facebook, Twitter, Blogs, Wiki, YouTube, podcasts, etc.)	11%
7- Web of Science (WoS): full-text and articles (proquest, science direct, Willey, etc.)	12%
8- Internet forum (online discussion)	8,7%

Table 1. Knowledge-brokering and Digital Supports Used in Government Agencies

Our survey tells us that Websites are the most used support for the knowledge brokers (86%): The sending of a periodic e-

bulletin (by email, listserv, etc.) to a list of subscribers seems to be a dominant practice (52.8%); 78% of brokers are inclined to use electronic bulletins. Similarly, RSS feeds were used by 17% of brokers, followed by social media platforms (11%), WoS (12%) and Internet forums (8.7%). Our data reveal that the majority of knowledge brokers questioned still use Web 1.0 platforms (traditional communication method: one to many) and only one out of ten brokers values social media. Individual interviews were conducted to explain this situation, and brokers maintain that, for many government agencies, access to new Web 2.0 platforms is still in its infancy because of delays in updating equipment and training with regard to expertise and related procedures in public administration.

Now, let's go further to investigate the knowledge brokering process. As pointed out by Todorova and Dursin [22], knowledge brokering is structured in successive stages comprised of: recognizing the value, acquiring knowledge, assimilating knowledge, transforming and exploiting this new evidence.

4.2 Recognizing the value of knowledge

Cohen and Levinthal [21] suggest that the recognition of value-added knowledge is a crucial starting point for every knowledge-brokering activity. Successful, knowledge brokers must have a keen eye to be able to effectively "*separate the wheat from the chaff* ". They must be able to distinguish and spot quickly the most useful knowledge for organizations and public decisions. Our survey tells us that knowledge brokers spend more than 33% of their time recognizing useful, value-added knowledge. To decode the logic guiding knowledge brokers in their recognition activities, knowledge-selection criteria were examined [2]. Table 2 shows the criteria affecting brokers' preferences in their quest for the most interesting and innovative knowledge. A factor analysis enabled the classification of these preferences into factors (latentvariables) having a significant impact on the variance of brokers' preferences. Two explanatory factors were identified; one of them is dealing with methodology and the second with relevance of the new knowledge and new evidence selected.

The methodology attributes of the research providing the knowledge to be disseminated are the biggest concern for brokers.		
The quality of new knowledge depends on…(% rather or completely agree) and - factor loadings-		**% explained variance**
F2: Methodology Eigen value = 2.14	•The qualitative nature of the analyses (60.6%), - 0.725 - •The theoretical nature of the analyses (55.8%), - 0.678 - •The consensual nature of the evidence (73.1%), - 0.594 - •The quantitative nature of the analyses (59.6%), - 0.807 -	26.9%
F1: Relevance Eigen values = 1.97	• The relevant, realistic nature for users (83.7%), -0.733- Applicability of evidence (78.9%), - 0.667 - •The competence of knowledge brokers (69.2%), - 0.672 - •The credibility and prestige of the source (93.2%), - 0.561 -	23.7%

Table 2. Recognizing the Value of New Knowledge: Factor Analysis

They explain the largest portion of the variance in preferences and criteria for recognizing the value of knowledge (26.9%). The majority of these brokers maintain that recognition is explained mostly by the methodological attributes. Nonetheless, it seems that these different attributes were considered as complementing each other, guaranteeing the validity of knowledge, without necessarily constituting an important source of discrimination. Here qualitative and qualitative attributes have almost the same weight and attractiveness for public servant operating as knowledge brokers. Above all, our data suggest that brokers show

more favorable preferences for knowledge with a clear and solid methodological base [24].

On the other hand, the factor analysis suggests that the knowledge relevance (responding to needs of potential users) is an important determinant. This factor explains 23% of the variance in preferences and criteria for recognizing the value of knowledge. Our results suggest that relevance is highly correlated to the applicability of evidence, the realistic nature of evidence, the credibility of the source and the competence of knowledge brokers. Obviously, new knowledge reported by credible sources has a greater chance of attracting attention than knowledge coming from barely credible sources that do not have a serious review process run by peers and recognized experts. Therefore, two determinants are taken into account when recognizing the value of knowledge: a valid methodology and solid relevance.

4.3 Acquiring New Knowledge

Our research also examined the nature of the external documents most sought-after by knowledge brokers in their hunt for new knowledge. With regard to this, a factor analysis was carried out to group together these sources into coherent factors to explain the variance in the sources coveted by the brokers. Knowledge brokers demonstrate an obvious preference for diversifying their sources. Our survey tells us that knowledge brokers in government agencies acquired about 45% of their new knowledge and evidence from international sources, 20% from provincial sources (written mainly in French) and 35% from Canadian sources (other provinces).

A factor analysis allows us to identify the main factors associated with acquiring knowledge. Table 3 suggests two factors explaining the acquisition activities. The most important is related to Web documents and government Intranet (explained variance equals 34.19%). The Web sources provide statistical data and scientific articles and reports. On the other hand, government documents are also a determinant factor, explaining 29.2% of the variance. These documents are acquired from government libraries, archives, Intranet, professional reports, etc. They are written in French; Quebec is the only Francophone jurisdiction in the Canadian federation. But, paradoxically, the most sought-after knowledge sources are in English. About 51% of brokers state they are loyal to French-language sources (50.6%), as opposed to 46% who limit themselves to English-language sources, and 3% who also consult sources in other languages (other than French or English). Québec is a mainly French-speaking province in the middle of an English-speaking continent and highly committed to scientific research. Language competency is an important determinant in acquiring new knowledge.

4.4 Assimilating Knowledge

Zahra and George [18] characterize assimilation as routines and comprehensive tasks that allow the new information to be understood and interpreted. To be able to distinguish between useful and futile knowledge, knowledge brokers must obviously understand the selected articles and texts well enough to understand the useful knowledge. Our data suggest that knowledge assimilation requires on average 28% of the brokers' time. In this critical cognitive process, it can be supposed that only articles and texts immediately judged to be interesting will be given all the time necessary to read them. Our survey's data reveal that two out of five brokers (39.5%) admit to reading pre-selected scientific articles, studies or reports in their entirety. This finding suggests that certain potentially new knowledge-enabling articles are only scanned.

Sources Consulted (% stating they consult often or always) and - factor loaded -		**% variance**
F1: Web documents and Web data-bases Eigen value = 2, 1	Web data: statistical data, survey, census, etc. (63.5%), - 0,831 - Web of Science: articles (ProQuest, Sciencedirect, Cochrane, Medline, etc.), e-book, e-reports, etc. (52.3%), - 0,614 -	34.19%
F2: government documents Eigen value = 1,8	Government documentation (evaluation, analysis, etc.) (63,2%) - 0.56 - Professional reports, bulletins and journals, (70.2%), - 0,676 - Library and archives within government agencies, (67.3%), - 0,851 - Employer Intranet (66.2%), — 0.894 - Government press reviews (52%), - 0,544 -	29.2%

Table 3. Factor Analysis: Sources Coveted and Consulted for Knowledge Acquisition

These articles have not been able to garner the complete attention of knowledge brokers for various reasons: length, methodological complexity, scientific validity, etc. Similarly, only two out of five brokers (40.4%) state they understand all the findings conveyed in the articles and documents read. The articles and documents that are not quickly and easily understood have less chance of making it to the knowledge broker's remaining stages and activities. At the same time, our data suggest that one out of three brokers (33.7%) admits discussing the content of new identified knowledge with colleagues and partners during this assimilation process. These findings confirm the complexity of knowledge-brokering activities, in particular, with regard to difficulties related to the assimilation of new knowledge that often contains methodologies or empirical findings that break new ground. For brokering organizations that do not have seasoned, experienced brokers who are aware of the methodologies and well-enough trained to assimilate the knowledge, there is a real risk that new, useful, strategic knowledge will go unnoticed in the knowledge-brokering process because of a lack of time and competence on the part of knowledge brokers. Having said this, we can now look at what comes next and the transformations made to the new, assimilated knowledge by the knowledge brokers.

4.5 Transforming Knowledge

Once new knowledge and evidence have been spotted, scanned, read, understood and judged to be innovative, they must be adapted and transformed before being communicated to partners and end users. Among other things, transformation facilitates the combination of the newly acquired knowledge with previous knowledge; it also facilitates adapting the new knowledge to users' needs and to the organizational reality [18]. Knowledge brokers declare they almost systematically synthesize texts introducing new knowledge judged to be meaningful. Synthesizing each text and document identified as useful and conveying useful, innovative knowledge has become an almost indispensable practice. The brokers insist on the importance of transferring knowledge from the viewpoint of the needs and specificities of the end users of this new knowledge. This would be the most time-consuming stage compared to all the other brokering stages (recognition, assimilation and exploitation).

Position	Knowledge Brokers' Client Base	Proportion estimated by brokers
1	Colleagues from the same department or administration unit	22%
2	Users from provincial or federal agencies and departments	10.6%
3	Users from the ministry or department	9.6%
4	Decision makers and managers	6%

Table 4. Knowledge Brokering Client Base

Surprisingly, our survey tells us that knowledge brokers spend only 20.3% (on the average) synthesizing knowledge identified as meaningful for decision making. By doing this, knowledge brokers generally devote themselves to ensuring the accessibility of the language used to communicate and market new knowledge. Our findings indicate that about 69% of brokers systematically simplify knowledge to be disseminated in order to express it in readable, understandable language that is adapted to the users' reality. More than 67% of brokers state that they make use of content summaries of articles and texts showing strong evidence before putting them online for their subscribers. Only three out of five brokers adapt the knowledge selected to the Quebec context. In addition, the readability and understanding of disseminated evidence is a concern of 73% of knowledge brokers. On the other hand, our research reveals that the validation of the scientific value of knowledge to be disseminated is not a widespread practice. Only one-fourth (24%) of knowledge brokering structures have implemented a formal peer-review process to validate the documentary material conveyed by knowledge brokers. This does not seem to bother knowledge brokers to any great extent; they consider they are not running any risk of altering the content of reports and articles they refer to. They assert that the main reference articles and documents used are available as attachments in their brokering newsletters and on their Website. The majority of knowledge brokers (63.4%) emphasize the importance of comprehensive access to the reference documents (originals) they have referred to. Yet numerous databases of scientific articles remain difficult to access (because of costs and access restrictions), which greatly reduces the extent of this referencing, thus depriving numerous users of "f*irst-hand*" documents. But, what becomes of this knowledge once it has been disseminated and delivered to potential users?

4.6 Exploiting Mobilized Knowledge

The exploitation stage of new knowledge is the ultimate purpose of any knowledge-brokering process. Zahra and George [18] define the exploitation of knowledge as being the ability to adopt, adapt and implement new knowledge to create new competences and routines enhancing the performance of public interventions and ultimately to create innovative products and/or processes. Our evidence suggests that brokers consider the exploitation of new knowledge as an outcome providing added value for both

public policies and for organizations involved in the delivery of public services. Considering knowledge brokers' competencies (highlighted above), we postulate that knowledge brokers can reasonably and credibly appreciate the added value of their knowledge-brokering efforts for the recipients of these efforts. But, before going any further, let us consider who the potential knowledge-broker users and partners are. Table 4 shows the organizations and principal recipients of knowledge brokering. We can see that colleagues employed in the same organization are the principal users of this new knowledge (22%). Knowledge brokers are generally employed by services and administrations in charge of policy analysis and policy making. Next, there are users from departments and administration from the two levels of government (federal and provincial) with a 10.6% case occurrence. Users from the government ministry (or department) come in third at 9.6%, right before decision makers and managers (6%).

When asked about the impact of new knowledge on the decision-making process of users of this knowledge, brokers ranked the perceived impacts in two categories. The first category of impacts deals with organizational performance, and the second with impacts that open up leeway and options for decision-makers. As seen in Table 5, factor analysis was conducted to classify and group the items measuring the perceived impact of knowledge brokering. The analysis revealed that knowledge brokers: i) stated in a proportion of 49% that the beneficiary clientele considers knowledge brokering credible; ii) are, in a proportion of 60%, inclined to believe that knowledge brokering provides answers to questions raised by end users of knowledge; iii) in a proportion of two out of five (42%), declared that knowledge brokering influences public policies and government decisions; v) in a proportion of one out of five, affirmed that knowledge brokering reduces government expenditure and cost of public policies, and vi) in a proportion of 38.5% acknowledged that knowledge brokering improves coherence of public policies. These items make up a first factor (F1) gauging the performance of knowledge brokering, and account for 42% of the variance in the perceptions of impact of knowledge brokering. A second set of items belong to another factor (F2) measuring the impact of knowledge brokering in decision-making latitude. The second factor explains 30% of the variance in perceived impacts and purports that knowledge brokers believe that knowledge brokering: i) promotes innovation in public interventions (in 54.8% of cases); ii) allows the identification of new options for public decisions (in 55% of cases).

The impacts of brokering (% rather or completely agree) and - factor loadings -		% explained variance
F1: Performance Eigen value = 2.2	• Users deem knowledge brokering to be credible (49%), - 0.803 - • Users deem knowledge brokering to be useful (60%)- 0.839 - • Knowledge brokering influences decision making (42%), - 0.711 - • Knowledge brokering reduces public expenditure (24%), - 0.628 - • Knowledge brokering improves policy coherence (38.5%), - 0.753 -	42.1%
F2: Innovation Eigen value = 1.9	• Knowledge brokering promotes organizational innovation (54.8%), - 0.874 - • Knowledge brokering provides new decisional options (55%), - 0.628 -	30.1%

Table 5. Factor Analysis of Perceived Impacts of Knowledge Brokering

5. Conclusion and implications

Our article examines knowledge brokering in the digital era. Our investigations are fundamentally empirical and focused on the public administration sector. The data used is based on a survey conducted among knowledge brokers who intensively use Web 2.0 platforms. To measure and characterize knowledge-brokering activities and implications, we relied on the concepts and empirical constructs developed by Cohen and Levinthal's [21] theory of "*the absorptive capacity of knowledge*". This theory models knowledge-brokering stages in successive segments (recognition of the value, acquisition, assimilation, transformation, exploitation). Our analyses further knowledge by responding to current issues [1, 3-4, 6] dealing with knowledge brokering and

attempting to characterize i) knowledge brokers' attributes (educational background, age, gender, preferences, commitment, etc.), ii) the attributes of the different activities, procedures and interactions linked to knowledge brokering (recognition, assimilation, transformation, etc.), and iii) the attributes of the supports and mechanisms deployed (Web supports, interactions, networking, etc.). The findings offer valuable insights and open new perspectives for enhancing knowledge brokering and augmenting its positive impact on the performance of public policies. The findings corroborate the importance of using Internet platforms for knowledge brokering. Knowledge brokers, mostly men and highly educated professionals, are exposed to complex challenges demanding skills and precision "to separate the wheat from the chaff." The preferences expressed by knowledge brokers tend to highlight three selection criteria: the relevance of knowledge and the methodology used to show it. Recognizing the value of knowledge demands niche expertise that is required for assimilation. Our research reveals that knowledge brokers do not read all the identified documents completely and are not all equipped to always understand the complexity of the methodologies used by knowledge producers. Obviously, training is required to support brokers in their quest and commitment to find new innovative, value-added knowledge. To support knowledge brokers, researchers and government agencies should show greater interest and effort in producing summaries of research findings. Synthesizing knowledge appears to be a key staple in facilitating the work of knowledge brokers and the effectiveness of knowledge. The transferability of good references and sources of new knowledge is also seen as a guarantee for the translation of new knowledge. Having said this, our research also demonstrates the complexity and diversity of the tasks given to brokers and highlights the importance of the training and support required to strengthen brokers' competencies and of the infrastructures required by the digital media coverage of knowledge and information useful for strengthening decision making and public policies.

Finally, our findings corroborate the importance of knowledge brokering conveyed by Internet platforms. Knowledge brokering takes advantage of Web technologies to disseminate digital watch newsletters, create and maintain Web sites, blogs, Facebook, Internet forum, RSS feeds, etc. Knowledge brokering appears to be a crucial tool for improving public- policy performance and effectiveness.

References

[1] Lomas, J. (2007). The in-between world of knowledge brokering. *BMJ*. 334 (7585) 129-132.

[2] Pentland, D., et al. (2011). Key characteristic of knowledge transfer and exchange in healthcare : integrative literature review. *Journal of Advanced Nursing*. 67 (7) 1408-1425.

[3] Dobbins, M. et al. (2009). A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation strategies. *Implementation Science*, 2009. 4: p. 1-9.

[4] Ward, V., House, A., Hamer, S. (2009). Knowledge brokering: Exploring the process of transferring knowledge into action. *BMC Health Services Research*, 9 (1) 12.

[5] Ziam, S. (2010). Knowledge brokers and how to communicate knowledge in 2010. *Allergy, Asthma & Clinical Immunology*. 6 (4) A3.

[6] Ward, V., House, A., Hamer, S. (2009). Developing a framework for transferring knowledge into action : a thematic analysis of the literature *Journal of Health Services Research & Policy*, 14 (3) 156-164.

[7] Lavis, J. N. (2006). Research, public policy making, and knowledge translation processes: Canadian efforts to build bridges. *Journal of Continuing Education in the Health Professions*, 26 (1) 37-45.

[8] Landry, R., Lamari, M., Amara, N. (2003). The Extent and Determinants of the Utilization of University Research in Governement Agencie *Public Administration Review*. 63 (2) 192-205.

[9] O'Reilly, T. (2005) What is Web 2.0,. O'Reilly, DOI: http://oreilly.com/web2/archive/what-is-web-20.html.

[10] Chiang I. P., Huang, C. Y., Huang, C. W. (2009). *Characterizing Web users degree of Web 2.0-ness. Journal of the American Society for Information, Science and Technology*. 60 (7) 1349-1357.

[11] Robeson, P., Dobbins, M., DeCorby, K. (2008). Life as a knowledge broker. *Journal of the Canadian Health Libraries Association*, 2008. 29: p. 79-82.

[12] Ward, V. et al. (2010). Planning for knowledge translation: a researcher's guide. *Evidence & Policy*, 6 (4) 527-541.

[13] Khénissi, M.G., Gharbi, J.-E. (2010). La veille stratégiaue, bilan de la culture numérique, la veille du 2.0. Les Cahiers du Numérique 6 (1) 135-156.

[14] Liebowittz, J. (2005). Linking social network analysis with the analytical hierarchy process for knowledge mapping in organizations. *Journal of Knowledge Management*, 9 (1) 76-86.

[15] Lamari, M. (2010). Le transfert intergénérationnel des connaissances tacites: Les conceptes utilisés et les évidences empiriques démontrées. Télescope, 16 (1) 39-65.

[16] Clark, G., Kelly, L. (2005). New D*ir*ections for Knowledge Transfer and Knowledge Brokerage in Scotland, *In*: Transfer Team, O.o.C. Researcher, Editor. Scottish Executive Social Research: Edinburgh.

[17] Kramer, D., Cole, D. (2003). Sustained intensive engagement to promote health and safety knowledge transfer to and utilization by workplaces *Science Communication*, 25 (1) 56-82.

[18] Zahra, S., A., George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. Academy of Management. *The Academy of Management Review*, 27 (2) 185.

[19] Morley, M. (2006). Knowledge for regional NRM : Connecting researchers & practitioners. 2006, Land and Water Australia: Canberra.

[20] Lane, P. J., Koka, B., Pathak, S. (2002). A thematic analysis and critical assesment of absorptive capacity research. *Academy of Management Proceedings BPS*, p. M1-M6.

[21] Cohen, W. M., Levinthal, D.A. (1990). *A*bsorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35 (1) 128-152.

[22] Todorova, G., Durisin, B. (2007). Absorptive Capacity: Valuing a Reconceptualization. Academy of Management. *The Academy of Management Review*. 32 (3) 774.

[23] Flatten, T. et al. (2009). A Measure of Absorptive Capacity: Development and Validation. *Academy of Management Proceedings*, p. 1-6.

[24] Ouimet, M., Bédard, P-O., G. F. (2011) Are the h-index and some of its alternatives discriminatory of epistemological beliefs and methodological preferences of faculty members? The case of social scientists in Quebec. *Scientometrics*, 88, 91-106.