Knowledge needs in the non-profit sector: an evidence-based model of organizational practices

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Abstract

Purpose – *This paper aims to present findings from a study of non-profit organizations (NPOs), including a model of knowledge needs that can be applied by practitioners and scholars to further develop the NPO sector.*

Design/methodology/approach – *A survey was conducted with NPOs operating in Canada and Australia. An analysis of survey responses identified the different types of knowledge essential for each organization. Respondents identified the importance of three pre-determined themes (quantitative data) related to knowledge needs, as well as a fourth option, which was a free text box (qualitative data). The quantitative and qualitative data were analyzed using descriptive statistical analyses and a grounded theory approach, respectively.*

Findings – *Analysis of the quantitative data indicates that NPOs' needs are comparable in both countries. Analysis of qualitative data identified five major categories and multiple sub-categories representing the types of knowledge needs of NPOs. Major categories are knowledge about management and organizational practices, knowledge about resources, community knowledge, sectoral knowledge and situated knowledge. The paper discusses the results using semantic proximity and presents an emergent, evidence-based knowledge management (KM)-NPO model.*

Originality/value – *The findings contribute to the growing body of literature in the KM domain, and in the understudied research domain related to the knowledge needs and experiences of NPOs. NPOs will find the identified categories and sub-categories useful to undertake KM initiatives within their individual organizations. The study is also unique, as it includes data from two countries, Canada and Australia.*

Keywords *Knowledge management, Evidence-based, Community, Knowledge needs, Non-profit organizations, Non-government organizations*

Paper type *Research paper*

Introduction

When evaluated empirically, non-profit organizations (NPOs) are considered "important economic actors" (Lyons and Passey, 2006, p. 90), as they make significant contributions to a nation's gross domestic product (GDP) and also provide paid and volunteer employment activities. In Canada, NPOs have contributed $35.6 billion, or 2.5 per cent of the country's GDP in 2007, and these numbers do not include volunteer labor value and other exceptions (Jackson and Clemens, 2014), meaning that the overall contributions to GDP may be higher. In Australia, 3.3 per cent of the GDP was attributed to NPOs in the year 2000 (Lyons and Passey, 2006). Hume *et al.* (2012, p. 84, p. 85) noted that "there are as many as 700,000 non-profit organizations in Australia" and "[a]pproximately 35,000 of these firms employ 604,000 people or 6.8 per cent of Australians employ staff with an income of $33.5 billion, contributed $21 billion, or 3.3 per cent, to GDP". In the USA, around $225.9 billion is contributed annually by NPOs in labor value (Andreasen *et al.*, 2005). Salamon and Anheier (1998, p. 217) estimated that NPOs employed "11.9 million employees in eight countries" (i.e. USA, UK, France, Germany, Italy, Sweden, Hungary and Japan), representing an average of "4.5 per cent of the total labor force". Beyond economic contributions, the value of NPOs is more properly understood through the qualitative social

and cultural contributions these organizations make to their communities (Lettieri *et al.*, 2004; Lyons and Passey, 2006). The wildly diverse range of organizational missions that aim primarily to contribute socially and/or culturally sets NPOs apart, as representatives of a distinct sector with a unique set of principles, goals and knowledge needs.

In total, it is estimated that there are close to 1.41 million NPOs registered with Internal Revenue Services in the USA (McKeever, 2015), and this number could be higher when non-registered NPOs are included in the count. The number of registered (i.e. incorporated) NPOs in Canada is estimated at 164,000, with "83,000 registered charities and 81,000 non-profit organizations that file annual tax and information returns" (Friesen *et al.*, 2010, p. 6). Even with the social and economic contributions noted above, "the NPO sector has not received much attention in the knowledge management literature" (Rathi *et al.*, 2014a, p. 1), with little published research in this area (Ragsdell *et al.*, 2014; Hume *et al.*, 2012). *The Satellite Account of Non-profit Institutions and Volunteering 1997 to 2007* (Statistics Canada, 2009, cat. no. 13-015-X) recommends more research on NPOs as they represent a "significant and growing economic force".

Knowledge needs must be identified, documented and supported to ensure organizational success. Using knowledge management (KM) practices to shape processes for creating, storing and sharing organizational knowledge has a rich history in the for-profit context (Prusak, 2001; Baskerville and Dulipovici, 2006; Ragsdell, 2013). Although strategies to apply KM practices within NPOs are emerging (de Vasconcelos *et al.*, 2006; Lemieux and Dalkir, 2006; Gregory and Rathi, 2008; Huck *et al.*, 2011; Given *et al.*, 2013), KM applications are limited in the not-for-profit sector. This paper presents an evidence-based model of NPOs' knowledge needs, taking into account the people, technologies, communities and other factors that influence NPOs' particular organizational practices. The model has emerged from data gathered in two countries (Canada and Australia), as part of national surveys of the NPO sector. Public libraries, food banks, animal welfare organizations, hospital foundations and other organizational types were examined in this study, resulting in a rich, evidence-based model of organizational knowledge needs across the sector.

Literature review

The KM literature on for-profit organizations (FPOs) provides a foundation for conducting KM-related studies in NPOs (Ragsdell *et al.*, 2014). However, there are many differences between FPOs and NPOs, including management structures, operational guidelines and legal requirements, among others (Hume *et al.*, 2012), which impact KM practices, significantly (Ragsdell *et al.*, 2014). NPOs play significant roles in community services in different sectors, particularly those related to health, education and culture (Lyons and Passey, 2006). Unlike FPOs, the purpose of an NPO is not to maximize financial gains but to create "social value for society" (Lettieri *et al.*, 2004, p. 16). In achieving this goal, NPOs must seek donations, government funding, volunteers, skilled workers and community support, actively (Liu, 2012; Weerawardena *et al.*, 2010; Gregory and Rathi, 2008). And, like FPOs, NPOs must manage their resources effectively and efficiently; the application of appropriate KM practices and strategies is crucial in an evolving and increasingly competitive marketplace and to provide services to communities. For example, King (2005) noted that NPOs serving communities during humanitarian emergencies experience both information overload and information scarcity in areas such as best practices. The majority of management practices (e.g. marketing, human resource management), particularly recent practices (e.g. quality management related), were initially adopted and used by large private organizations (McAdam and Reid, 2000), primarily FPOs, and were later adopted by other organizational types, such as NPOs and government (Cong and Pandya, 2003). For example, Eikenberry and Kluver (2004, p. 138) state that NPOs have "increasingly adopted the values and methods of the market to guide management and service delivery". Cong and Pandya (2003) note that KM follows a similar practice, being

adopted first in the for-profit sector and taken up later by NPOs. However, published examples of the use and adoption of KM in NPOs tend to focus on large organizations, which may be better equipped (in terms of funding, skilled labor and technology) to implement many KM practices (Hume and Hume, 2008). The Annie E. Casey Foundation, for example, partnered with a management-consulting firm to develop their KM strategy, which "streamlined its technology spending and reduced duplication, thereby saving thousands of dollars across the organization" (Capozzi *et al.*, 2003, p. 91). Similarly, Voluntary Services Overseas implemented an intranet project and a content management system as part of its KM strategy (Gilmour and Stancliffe, 2004).

Some recent KM studies have examined the NPO context from various perspectives. For example, Hume and Hume (2015, p. 24, p. 25, p. 42) identified internal marketing (IM) as "one of the key enablers of knowledge management (KM) implementation". The authors argued that for the advancement of KM research in NPOs, "there is a strong need to develop a foundation model that takes into account NFP's [not-for-profit's] unique strategic and operational characteristics and adopts internal marketing (IM) as one of the key building blocks for building KM capability and maturity". The research concluded that for KM to be effective in NPOs, it is important for organizations to "commit to engaging staff/volunteers on either professional or organizational levels or a combination to build trust, personal relevance, and satisfaction to support and drive knowledge". Ragsdell *et al.* (2014) examined knowledge-sharing practices in the context of a UK non-profit festival organization. The study revealed the use of a "master-apprentice" approach, the role of motivation and rewards and the value of trust and organizational structure in knowledge-sharing processes among volunteers. Similarly, Stadler *et al.* (2013) conducted an ethnographic study to understand the KM practices of a festival organizing unit in Australia. Cardoso *et al.* (2012, p. 270) examined "organizational commitment, knowledge-centered culture, and training" and their impact on KM practices in an NPO; they found that knowledge-centered culture and training played important roles in the successful implementation of KM practices. Kong (2014, p. 468) explored the importance of social intelligence in external knowledge acquisition in Australian NPOs. The authors found that "social awareness allows NPOs to become more conscious of the need of external stakeholders and it is this awareness that leads the organizations to continuously renew and transform their strategies for value creation". Corfield *et al.* (2013) conducted a longitudinal study in three medium-sized NPOs operating internationally to explore how KM was adopted and implemented. The authors concluded that NPOs should be selective and realistic in implementing particular KM processes/practices and customize them to meet particular organizational needs, and should consider longer tenure for benefits to be gained from KM.

Other studies in the past decade have explored the NPO context with respect to KM practices. de Vasconcelos *et al.* (2006) conducted a pilot study with NPOs working in humanitarian aid and social development domains and proposed a Web-based collaboration tool which included features such as best practices and forums. Tatham and Spens (2011) proposed a new taxonomy based on Supply-Chain Operations Reference and the UK Defence Lines of Development models, which would be useful in developing a KM system for NPOs providing services and relief efforts in response to disasters. Ebrahim (2002) explored the knowledge relationships between NGOs and funders and noted that the NGOs generated different kinds of reports and material (such as annual report notes) from tours and field observations, while funders generated content related to proposals, publicity, trends, budgets and other topics. Huck *et al.* (2009, p. 287) conducted a study with a non-profit community bicycle workshop and identified three broad categories of knowledge needs: technical (e.g. basic bike repairs like "flat tires or adjusting brakes and gears"); operational (e.g. related to operations of the workshop like "familiarity with the protocols, policies and precedents"); and personal (e.g. "socializing with other cyclists and bicycle experts"). Gregory and Rathi (2008) conducted a pilot study with a small NPO and identified knowledge gaps related to membership details, volunteers and donors, and

details related to past activities and operations such as location and permit information. All of these studies contribute to the research base on KM practices in the NPO sector. However, given the small scale of these projects, and the lack of in-depth analysis of NPO knowledge needs, additional research is needed.

Many scholars recognize the benefits of adopting KM in small and medium-sized NPOs (Gregory and Rathi, 2008; Lemieux and Dalkir, 2006), particularly given the importance of managing knowledge assets to maintain a competitive edge (Goh, 2002; Kong, 2008; de Vasconcelos *et al.*, 2006). Knowledge, in this context, is defined as "an individual's interpretation of information based on personal experiences, skills, and competencies" (Bollinger and Smith, 2001, p. 9). Similarly, Davenport and Prusak (1998, p. 5) define knowledge as "a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information". There are many sources of knowledge in an organization, including databases, documents, repositories, practices, processes and norms (Davenport and Prusak, 1998, p. 5; Grayson and O'Dell, 1998; Alavi and Leidner, 2001). Although researchers have tried to create distinctions between information and knowledge, the distinction between the two remains unclear in much of the KM literature, because "knowledge management practices focus almost exclusively on knowledge *representations*" (Gourlay, 2000, p. 11). Thus, existing typologies of knowledge needs focus, primarily, on the knowledge representation aspects (i.e. signifiers) that help organizations to use and reuse knowledge for putting resources to more effective and efficient use.

One of the most heavily cited discussions of knowledge types presents the dichotomous model of tacit and explicit knowledge (Nonaka, 1994), where all organizational knowledge needs were classified into these two broad categories. In applying this model, Goh (2002) suggested that explicit types of knowledge included manuals, reports, databases, etc., while tacit knowledge types included individuals' expertise and mental models. Other examples of broad categories that present *polytomous* models (in contrast to *dichotomous* models) include tacit, explicit and cultural by Choo (2000); personal, proprietary, public (or textbook) and common sense knowledge by Boisot (1998); situational, conceptual, procedural and strategic by de Jong and Ferguson-Hessler (1996); and declarative, procedural and conditional by Alexander and Judy (1988). Also, four different views of knowledge have emerged in the literature, which Jakubik (2007) identifies as ontological, epistemological, commodity and community views of knowledge. In addition, there are several other KM-related models such as "Binney's KM Spectrum" and "Nonaka and Takeuchi's SECI [Socialization, Externalization, Combination, Internalization] Model" (Hume and Hume, 2015, p. 26), which have emerged from the FPO domain. Hume and Hume (2015, p. 26) note that such "models have assisted organizations to understand potential categories or divisions of knowledge and how knowledge can be managed and matured as an organized process into an organizational asset". The authors argue that these models represent "a strategically 'mature' approach to KM" and can be relatively applied to mature FPOs, but they are not as easily adopted in the not-for-profit context. NPOs need "a more customized and scalable approach to KM . . . ranging from the elementary to the advanced" (Hume and Hume, 2015, p. 27). Similarly, Ragsdell *et al.* (2014, p. 353, p. 354) argue that NPO volunteers working on a project have a different "set of values and motivations" than paid staff, and therefore, "typical project structures, procedures and cultures evident in projects in for profit organisations may not support knowledge management practices in voluntary sector event management". This paper addresses this research gap in the NPO domain by presenting NPOs' specific knowledge needs.

Research design

National surveys were conducted in NPOs in Canada and Australia. The survey was first sent to approximately 16,000 Canadian NPOs, followed by a similar survey administered to approximately 18,000 Australian NPOs. The survey content was edited to suit the particular

context (e.g. spelling conventions) of each country. The NPOs surveyed were involved in different content domains, such as health, education, social services and cultural foundations. A Canadian NPO database, including names and email addresses, was created using the publicly accessible online registry provided by the Canada Revenue Agency (www.cra-arc.gc.ca). The Australian version of the NPO database was created using a publicly available list of NPOs compiled by Connectingup.org directories (www.connectingup.org/).

The survey instrument was developed based on the results of an initial pilot study with 16 NPOs in Canada; the study used a qualitative, exploratory interview technique to understand the KM-NPO landscape. Following a robust grounded theory analysis of interview data, the survey questions and potential response options were created (Given *et al.*, 2013). A review of relevant literature also informed the inclusion of survey questions and question options that built on previous research in KM (e.g., Pan and Scarbrough, 1998; Rus and Lindvall, 2002, Razmerita *et al.*, 2009; Yip *et al.*, 2012). The survey was mounted on SurveyMonkey and the NPOs were invited by email to participate. A unique URL was generated for each invited email address for both countries' NPOs to ensure that only one response was received per invitation. A reminder was sent periodically to encourage NPOs in both countries to participate or to finish a partially completed response. The survey consisted of questions related to KM practices and demographic questions related to the organization itself. No identifying information was collected in the survey, such as individual's name, organization's name or address. Email addresses were retained in an encrypted master list and only used to administer the survey invitations. Participants were identified by a system-generated ID number, which was only used to identify non-respondents for reminder purposes.

As noted earlier, the NPOs surveyed in both countries worked in a range of different areas, such as animal welfare, community (e.g. fraternal societies, service clubs, community leagues), conservation and environment (e.g. protection of natural resources), culture and arts (e.g. libraries and museums, site preservation, cultural activities and arts promotion), education and research (e.g. teaching institutions, support of schools and education), health (e.g. hospital, health services), religion (e.g. congregations, religious groups, missionary organizations), social services (e.g. welfare organizations, organizations providing care other than treatment) and organizations not classified elsewhere. In Canada, 2,700 organizations responded to the survey (i.e. 16.9 per cent response rate); in Australia, 1,356 responses were received (i.e. 7.53 per cent response rate).

The findings presented in the paper are based on the analysis of a specific question that identified different types of knowledge needs of users working in NPOs in two countries. The question was: "How important is each type of knowledge to your organization? (Rate in order of importance. NOTE: This is not a forced ranking; you may assign the same weight/order of importance to more than one option)". This specific question presented three pre-determined broad themes related to knowledge needs of NPOs, as well as a fourth option, "other", which was a free text box. Participants were asked to provide more information if the current set of pre-defined categories did not adequately capture their key knowledge needs. The three broad themes emerged from the preliminary exploratory interviews conducted with 16 NPOs in Canada:

1. "knowledge about our clients/community and their needs" (i.e. community-generated knowledge);
2. "The expert knowledge and experience of our staff and/or volunteers" (i.e. expert knowledge); and
3. "The documented knowledge about processes and procedures essential to the operation of our organization" (i.e. procedural knowledge) (Given *et al.*, 2013).

The "other" category question was, "Are there other types of knowledge important to your organization but not listed above? (please specify)". There were over 200 responses from Canadian NPOs and over 100 responses from Australian NPOs in the "other" category for this question. These 300+ responses created a rich data set that provided in-depth information on the types of knowledge that are important for the responding organizations. We have analyzed these responses to understand the different knowledge needs of NPOs in the two countries.

There are two components to the data analysis:

1. quantitative data related to the three, pre-identified broad categories; and
2. qualitative data from the fourth "other" category.

The quantitative data were analyzed using descriptive statistical analyses to identify which knowledge types are important for NPOs on a relative scale of "not very important", "somewhat important", "very important" and "absolutely essential". The qualitative data captured by "other" were analyzed using a grounded theory approach (Strauss and Corbin, 1990; Charmaz, 2002; Bryant and Charmaz, 2010) to develop thematic categories related to knowledge needs of NPOs. Grounded theory was used because it supports the development and evaluation of categories and emergent theoretical models through the empirical analysis of qualitative data (Strauss and Corbin, 1990).

To analyze the qualitative data, a text file was created for the extracted data from the "other" categories of knowledge types submitted by respondents. The data were coded into categories and sub-categories, which were developed and evaluated by the co-authors in a three-step process. First, we developed labels for types of knowledge at a very broad level using Canadian NPO data (Rathi *et al.*, 2014a); second, we reviewed and consolidated the categories, re-organized and generating additional sub-categories based on Canadian NPO data; third, the Australian NPO data were used to validate the categories and sub-categories. The findings from both the quantitative and qualitative data sets (including labels of categories and sub-categories, with examples) are discussed in the following section. The Canadian NPO respondents' quotes, as used in the Findings section, start with "CA" followed by a number, while Australian NPO respondents' quotes starts with "AU" followed by a number. The current paper reflects our ongoing engagement with this area of research, expanding on earlier work in the study of the knowledge needs of NPOs (Rathi *et al.*, 2014a).

The analysis was further extended in two ways, which are addressed in detail in the Discussion section, later in the paper. First, the knowledge needs of NPOs were analyzed using the notion of semantic distance (Brooks, 1998) as a form of conceptual clustering. In qualitative analysis, the practice of "coding" is defined as the sorting, pairing and classifying of data based on descriptive elements (Given and Olson, 2003; Charmaz, 2014); this analytical practice is a form of conceptual clustering, which identifies groups of similar concepts while highlighting the links and distinctions (which may be of varying strength or weakness) between grouped concepts. Second – relying on people, processes and technology as key elements of KM identified in the literature (Bhatt, 2001; Armistead, 1999; Chen and Popovich, 2003) and using two distinct dichotomous models of knowledge, i.e. explicit and tacit (Nonaka, 1994), and internal and external (Kessler *et al.*, 2000) knowledge – the paper proposes a KM-NPO model based on a metaphorical representation of knowledge needs of NPOs.

Findings

Quantitative data: three broad categories

In all, 1,919 Canadian and 889 Australian NPO respondents (out of 2,700 and 1,356 respondents, respectively) answered the question asking "How important is each type of knowledge to your organization?" (noted above). The analysis of the data (Figures 1 and 2)

Figure 1 Relative importance of three broad knowledge types for Canadian NPOs

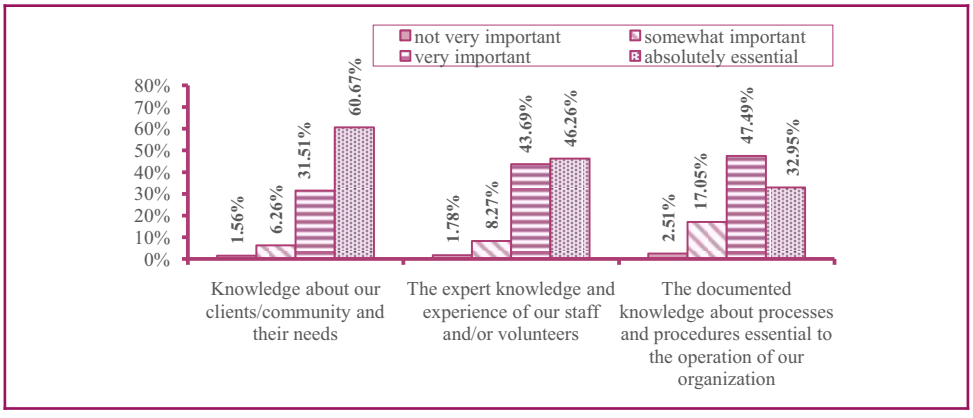
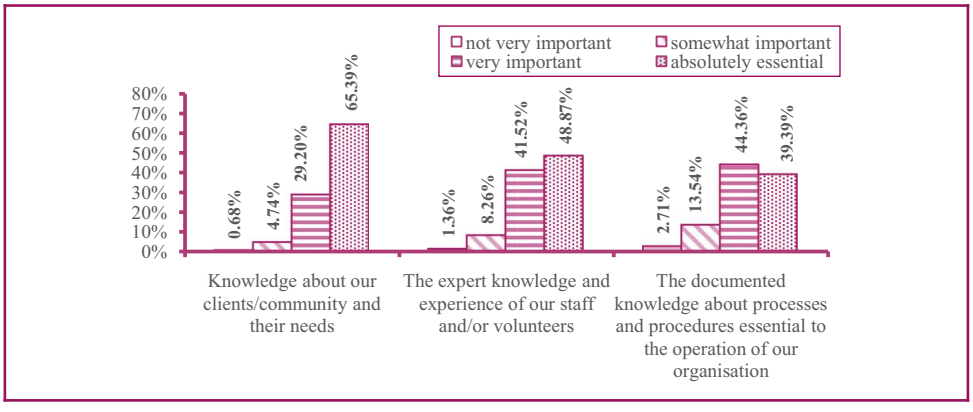


Figure 2 Relative importance of three broad knowledge types for Australian NPOs



indicates that NPOs' needs are comparable in both countries. The majority of the respondents in both countries considered all three broad, pre-determined knowledge categories "very important" or "absolutely essential". Option "a" ("knowledge about our clients/community and their needs") was rated at the highest level, as "absolutely essential", in both countries (Canada – 60.67 per cent; Australia – 65.39 per cent); when combined with "very important", the data represent the overwhelming majority of responses (Canada – 92.18 per cent; Australia – 94.59 per cent) by NPOs in both countries. This was followed by options "b" ("The expert knowledge and experience of our staff and/or volunteers") and "c" (i.e. "The documented knowledge about processes and procedures essential to the operation of our organization"). The overall rating for all three categories was very high. For example, the minimum combined percentage of "very important" and "absolutely essential" was 80.44 per cent for Canadian NPOs and 83.75 per cent for Australian NPOs.

It is not surprising that NPOs rated "knowledge about our clients/community and their needs" as the highest category. Gaining a better understanding of the communities where NPOs operate is critical from both operational and strategic perspectives. Local community knowledge is considered valuable (Ireni-Saban, 2012) and can help NPOs in multiple ways. For example, NPOs can establish better connections with the community and seek their participation (e.g. to recruit volunteers to work for the NPOs and enhance their local residents' involvement in NPO work); this is critical for success of their operational missions, including creating better outreach programs and establishing priorities for communities

(Millar, 2003). Schwartländer *et al.* (2011), in the context of HIV and behavior change, noted that there is no best approach to induce a change in behavior in people but that outreach and communication through NPOs (e.g. faith-based organizations) can play an important role. By gaining a better understanding of their communities, NPOs can create influential networks of individuals and of other NPOs operating in a particular domain, which can play important roles in the development of public policies (van Pletzen *et al.*, 2014). Finally, it is important to have better insight about the community, as it will not only enhance community engagement leading to increased awareness of NPOs' work and higher community support (e.g. financial, membership) (Millar, 2003), but it can also foster community capacity-building for NPOs through involvement of "individuals to take an active role in their communities and contribute to the overall well-being of these communities" (McPhee and Bare, 2001, p. 1). One of the key products of NPOs is the communication of ideas and/or the dissemination of messages (Gregory and Rathi, 2008); for example, NPOs may share the importance of giving polio vaccination to children to different stakeholders (e.g. parents). NPOs adopt different strategies such as "outreach, education, publications and activities to promote their message to the public, the media and the government" (Gregory and Rathi, 2008, p. 288). NPOs need to document knowledge related to both processes and procedures, as well as lessons learned from the activities undertaken to create and disseminate messages. In effect, NPOs must analyze, evaluate and identify those specific strategies that worked (or did not work) for them in particular contexts. The importance of capturing such knowledge has been highlighted in the KM literature. For example, Schindler and Eppler (2003, p. 219) noted that "[t]he systematic retention of project experiences enables a company to compare its various projects more systematically and document its most effective problem solving mechanisms". NPO staff members and volunteers can gain considerably through the use of such documented knowledge, as they do not have to recreate useful strategies from scratch; similarly, this can bring more consistency to an NPO's operations, which is necessary to survive and grow in competitive markets (Ungan, 2006). Interestingly, the statistics in option "c" in Figures 1 and 2 show that more than 19 per cent of Canadian NPOs and over 16 per cent Australian NPOs considered "the documented knowledge about processes and procedures" type of knowledge "not very important" or "somewhat important" (combined). This aspect requires further investigation as to why NPOs did not consider this type of knowledge to be extremely or absolutely important, despite its influence on organizational practices. These results are considered in parallel with the qualitative analysis of survey responses in the next section, as a measure of NPOs' relative priorities in the management of organizational knowledge.

Qualitative data: categorization of knowledge types

The evidence-based model of knowledge types presented in this paper transcends existing models and views of knowledge, given the particular focus on NPO contexts. The model moves beyond high- or broad-level dichotomous and polytomous knowledge models by developing a knowledge representation in the form of categories and sub-categories of knowledge types. These types are specific, yet generic enough to apply to different types of organizations within the NPO sector, allowing knowledge needs to be conceptualized within the broader social contexts that inform the work of these organizations. The model presents five "parent" categories, with each one further subdivided by five to six "child" knowledge types that explore the specific elements that apply within the NPO sector.

The combined survey data from NPOs in Canada and Australia have generated a classification of five essential categories of knowledge types relevant to non-profits and their knowledge needs. These categories are:

1. knowledge about management and organizational practices within the NPO;
2. knowledge about financial, physical, human and intellectual resources;

3. knowledge about the community of individuals that represent the NPO, as members, volunteers, donors, stakeholders and any served by the NPO;
4. knowledge about the sector within which the NPO operates, including any domain or specialist knowledge required to achieve organizational goals; and
5. "situated" or context-based knowledge originating externally (i.e. outside organization, community and sector) that has the potential to impact organizational operations.

Each of these five categories brings together a series of knowledge sub-types that are deemed necessary for the success of the organization (Figure 3).

This categorization represents a refinement and formalization of an initial, emergent model for the knowledge needs of all NPOs based exclusively on data in Canada (Rathi *et al.*, 2014a). Each "parent" knowledge type category is defined in detail below, along with "child" knowledge sub-types illustrated through examples drawn from the studied data. Examples provided by both Australian and Canadian NPOs in survey data are cited and discussed in each section. Following these detailed descriptions is a discussion of the formalized model for the knowledge needs of NPOs, and its impact for these organizations and to the field of KM, generally.

Knowledge about management and organizational practices. A great deal of knowledge is produced within any organization related to goals, regulations, services, processes, procedures and practices. This broad category can be broken down into five types (Figure 4).

Figure 3 Five major categories and their sub-categories of knowledge for non-profit organizations (NPOs)

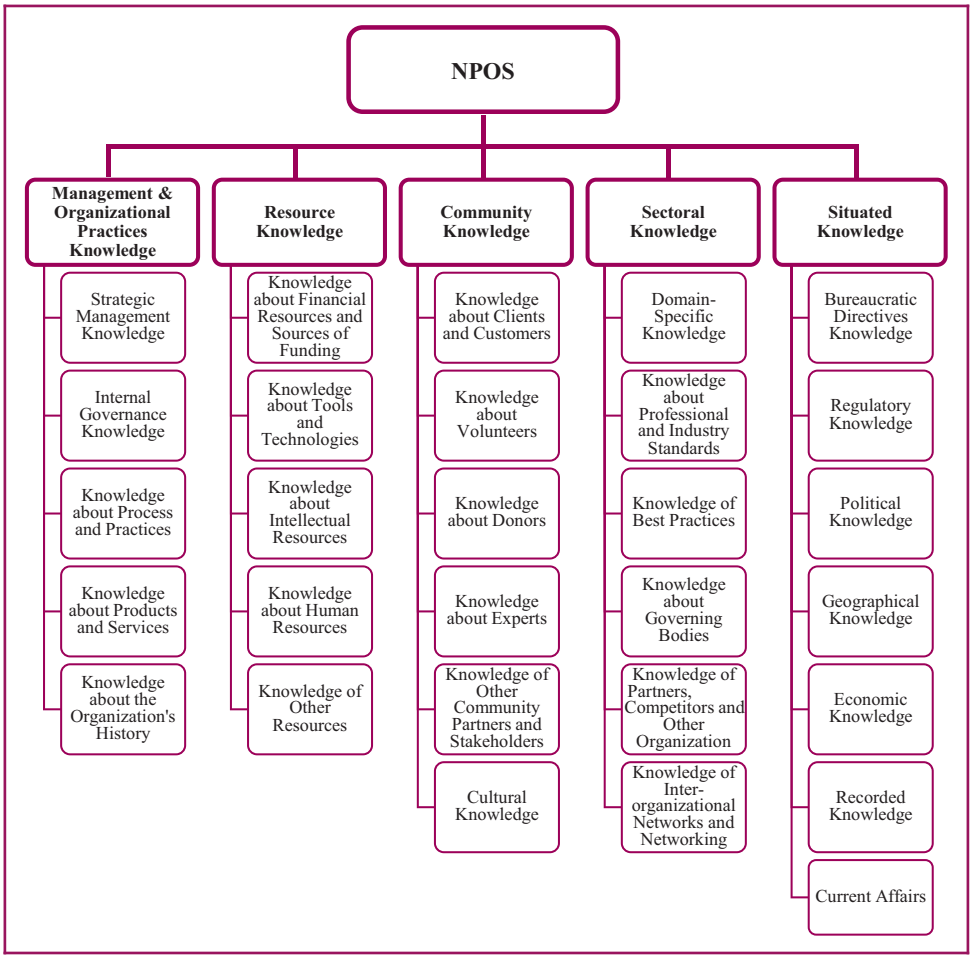
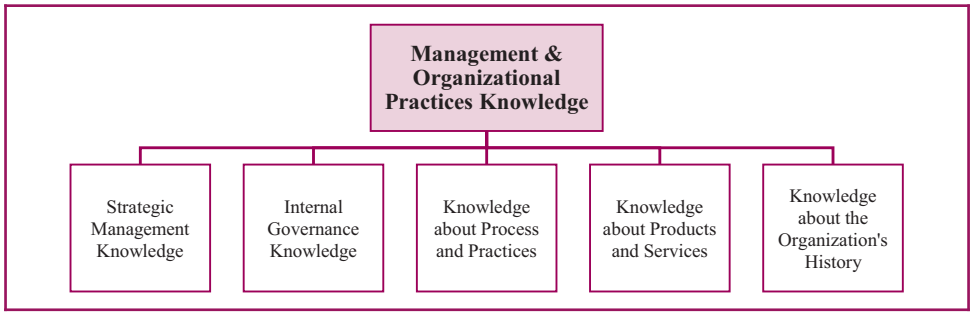


Figure 4 Management and organizational knowledge types



Strategic management knowledge. It represents, fundamentally, an organization's philosophy, mission objectives and goals. As two Canadian respondents put it, "Mission, Vision, Values should be understood to guide all knowledge, policies and procedures" (CA27) and "Knowledge and acceptance of the mission, culture and philosophy of the organization" (CA161). This type of knowledge might deal with measuring the success and effectiveness of "outcomes" (AU88) and "impact" (AU49). It might also relate to formal knowledge of business and management principles that are basic and necessary to operate an NPO: "We're still trying to understand the necessary components of a business plan; how to craft such a document; and how to measure progress against goals" (AU113). In this way, any knowledge directly associated with the strategic direction of the organization might fall within this category.

Internal governance knowledge. It captures all policy-related knowledge, including documentation of standard operating procedures and better understanding of top management. At a basic level, this would also include "knowledge of our funding agreements and obligations" (AU33), in the form of contracts, charters, legal and policy documents, as well as knowledge of "committee governance" (AU35), "board of directors" (AU39) and "non-profit 'owners'" (CA181) more generally. In other words, this category represents the rules and guidelines to follow for executive decision-making within the organization. This type of knowledge might be informed by more broadly defined regulatory or legal guidelines at a sectoral or national level.

Knowledge about process and practices. It represents all information related to the essential technical and administrative processes, work practices and protocols. This knowledge is salient to everyday operations, and might range from information found in manuals or on internal websites to basic processes related to "budgeting" (AU40), filing or internal communications that are not formally documented anywhere. This category would also include protocols around contingencies and knowing "who to call" when an emergency takes place (CA24). This category might also include processes specific to the management of the organization's "supply chain" (AU59); supply chain knowledge is a fascinating knowledge sub-type to study, as it moves across multiple boundaries (e.g. it would be closely linked to resource-, community- and sector-based sources of knowledge, each one a separate category described later in this paper). The quantitative data on the importance of this sub-category suggest it is an important category for NPOs, i.e. the minimum combined percentage of "very important" and "absolutely essential" was 80.44 per cent for Canadian NPOs and 83.75 per cent for Australian NPOs.

Knowledge about products and services. This knowledge is essential for service-based NPOs. For organizations that support communities by providing food, clothing, shelter, medical support, training and employment services, for instance, it is important for their workers and stakeholders to be knowledgeable about the specific services and products they provide, i.e. "[k]nowledge of our products that we lend, books, films, e-books, electronic databases, etc" (CA19). The domain-specific knowledge contributed by subject-matter experts working as paid employees or volunteers plays an integral role in this type of knowledge, and again

demonstrates how knowledge is fluid, moving through one category to the other (see later descriptions for knowledge about community and sector). One Australian NPO wrote the following as one of the most important types of knowledge they encountered: "the willingness of the volunteers for improving their knowledge in order to provide an excellent service. Training is paramount" (AU117).

Knowledge about the organization's history. This is also a common thread encountered through the analysis of survey responses, and represents both the documented historical record of an NPO, and the implicit "institutional memory history" (CA175) passed down in stories and anecdotes among workers. One element of the latter is captured by the following statement, "the honouring of those who have served [in the organization] before" (AU32), while a more pragmatic assertion in favor of organizational historical knowledge was the necessity of "retaining corporate knowledge in succession planning" (AU61) and "[a]rchival history of our 121 years of singing" (CA158).

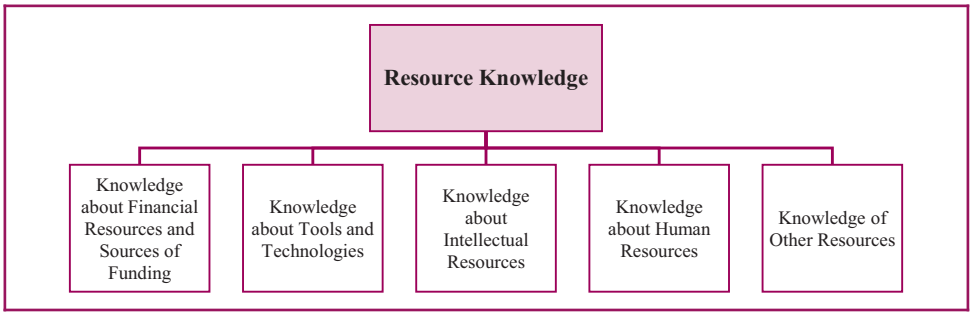
Knowledge about resources (resource knowledge). Resources are defined, broadly and generally, as the raw materials necessary for any kind of undertaking – i.e. the greater and more complex the undertaking, the more resources are required to succeed. For organizations, and for NPOs more specifically, this translates into a need for knowledge about many different kinds of resources; financial, physical, technological, human and intellectual resources are all equally important in achieving organizational goals (Figure 5).

Knowledge about financial resources and sources of funding. This knowledge represented, by far, the most commonly cited type of knowledge by respondents in this category. This is due to the nature of many non-profits as charitable organizations that rely on donors and agencies that are funded through public and government grants. "Knowledge about accessing funding bodies and sources of support" (AU73), "funding opportunities" (CA181) and "the knowledge of the primary source of our funding (CA193) were important for both Australian and Canadian NPOs.

Knowledge about tools and technologies. This type was also common, and manifested in a variety of ways: One respondent sought "knowledge of information systems and managing information privacy requirements" (AU14), while another cited "[t]rends in technology in the area of tools to administer our organization more effectively" (CA196). One respondent expressed the need for their organization to know "how to find what you don't know" (AU91), which, in the context of a survey on KM, might be interpreted as the need for effective KM systems. Technological resources in the form of information technology systems and support are increasingly essential, even for small non-profits with few workers.

Knowledge about intellectual resources. It represents knowledge acquired through organizational publications, reports, statistics and other recorded knowledge directly associated with the organization; this may also include the expertise of subject-matter experts. For example: "Knowledge contained in archived materials, which needs to be extracted and made available to inside and outside audiences. Knowledge in the memories of craftsmen and others, outside of our organization, that needs to be brought inside via oral histories and other

Figure 5 Resource knowledge types



methods" (AU12), and "academic research on migration and settlement of new citizens, human rights, diversity and inclusion, governance of community organization, project management, etc." (CA217). In a few cases, specifically among organizations whose primary purpose is knowledge preservation (i.e. as a museum, library or repository), the knowledge of specific objects or documents of historical or aesthetic significance was also acknowledged as important, and in such instances, we categorized it under the category of intellectual resource.

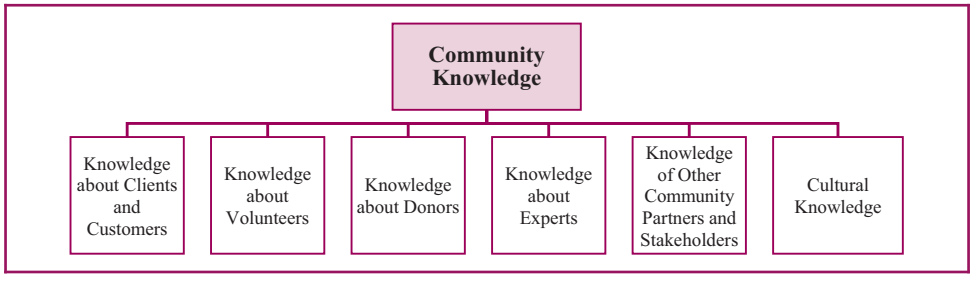
Knowledge about human resources. This knowledge is another important sub-category which includes all organization-specific human resources management information, characterized primarily by knowledge of the skills and abilities of staff and workers. Examples from survey data include "knowledge skills and desired skills of volunteers" (AU118), "the value of team" (AU123), "knowledge on leadership and teamwork" (AU7), "proficiency and expertise levels in all artistic disciplines" (CA78), "[k]nowledge about how to work with volunteers"(CA129) and "[w]e have a requirement of essentially skilled volunteers as well as unskilled volunteers" (CA199).

Knowledge of other resources. It includes infrastructural and physical resources, such as property and equipment. Examples from survey data include "Material (Equipment Knowledge – quite important" (AU108), "Costs of materials essential to our service" (CA29) and "Knowledge of local natural resources and trails" (CA216).

Knowledge about the community (community knowledge). This category represents knowledge originating in the community or communities that NPOs serve. As the primary focus of much research undertaken in the previous phases of this study, the crucial role of "community" in organizational KM, and in particular the tacit knowledge that emerges through social media (Forcier *et al.*, 2013; Given *et al.*, 2013), characterizes the type of knowledge in question. The Australian survey data confirmed earlier findings related to "knowledge about the community" as a delineated category of knowledge types (Rathi *et al.*, 2014a), which defined "community" as a *group (or groups) of people* that share a) an *interest* in a mission or cause, as well as b) a *discourse* related to the achievement of said mission. For NPOs in particular, deeply embedded as they are in local communities through volunteer, fundraising and social interest activities, the knowledge that emerges through the network of interactions with community members is extremely valuable for the achievement of organizational goals (Given *et al.*, 2013). Community, as it is thus defined, can comprise all staff, volunteers, experts, consultants, partners, members, clients, customers, donors and stakeholders of an organization (Figure 6).

Knowledge about clients and customers. This knowledge relates to the clients, customers and/or members that the NPO serves. This might include account data and contact information, as well as demographics or statistics on the areas or communities served. As the study's surveys and interviews have suggested, knowledge about clients would extend to more informal, unstructured and tacit knowledge shared via non-traditional means, such as social media interactions on Facebook, Twitter, YouTube and blogs. An important aspect of this type of knowledge is the value of "community awareness/perception of our organization and its beliefs" (CA153), which suggests that stories and feedback from

Figure 6 Community knowledge types



clients play a key role in management of organizational knowledge. Another respondent representing an education and research organization wrote the following: "changes occur daily. Our work is client-driven – therefore very broad, and work in 'gaps' in services, hence formal documentation tends to be broad and flexible." (AU115). This is an important observation applicable to many NPOs in the non-profit sector that consider themselves "client-driven"; knowledge about clients includes adaptable approaches to service delivery and may, quite likely, affect the nature of the services themselves.

Knowledge about volunteers. It is a type of knowledge that is unique to NPOs, which in many cases are volunteer-based or even volunteer-run organizations. As such, knowledge about "backgrounds of staff and volunteers" (CA131) and their skills, as well as where and how best to recruit volunteers and how and when to retain volunteers, is absolutely essential. In addition to this, notably, several respondents noted the importance of "anecdotal information" (i.e. tacit knowledge in the form of stories) that "volunteers carry in their heads" (AU82). There is a close link to intellectual and human resources knowledge inherent in this example, which problematizes the distinction between knowledge that is "internal" and "external" to the organization.

Knowledge about donors. It is critical for NPOs to raise money to meet their both operational and strategic goals and objectives. NPOs are keen to capture detailed "donor knowledge" (CA45), and this is reflected from other respondents' comments from both countries. For example: "Historical knowledge of donors" (AU67); "Knowledge about our donors and supporters (AU80); and "Knowledge of our donors and their needs for community partnership" (CA181). This knowledge need is similar, in many ways, to knowledge about clients, in that it would include the same type of documentation (contact information, historical data) as well as tacit knowledge through a variety of interactions. Knowledge about how individuals perceive the NPO is just as important among donors as it is among clients, as – in the case of most charitable organizations – the funding generated by donors transfers directly to the products or services offered by the organization.

Knowledge about experts. It relates to subject-matter experts within the community that may not be formally affiliated with the organization [e.g. "expert knowledge outside the organization" (CA120)], but that nonetheless provide unique insight valuable for the organization. For example, one respondent from Australia indicated the importance of "expert knowledge available in the wider academic community particularly in relation to our work" (AU121). During the interview phase of the study, the contribution of community experts as "influencers" interacting with other community members through the NPO's social media was a common thread among participants (Given *et al.*, 2013).

Knowledge about other community partners and stakeholders. This knowledge captures all relevant information related to stakeholders within the community. "Knowledge of affiliations and possible affiliations" (CA1) and "[k]nowledge about requirements and expectations that Stakeholders that either partner with, or support/fund our organization. This ensures alignment and continued support" (CA96), two Canadian respondents wrote, thus emphasizing the importance of linkages and strategic partnerships in the community. These might be agencies within the same sector, or they might represent individuals, groups, businesses or other organizations that participate in the same social arena as the NPO. For example, "[k]nowledge about the 'middleman', the people delivering our programs and products to our clients" (AU 114).

Cultural knowledge. It is an important type of knowledge that was not fully articulated in our research prior to the analysis of the combined Canadian and Australian survey data. It is evident that culture can play an important role in how organizations fare in different communities. This might be as simple as "understanding local values" (AU40). It might be knowledge specific to the culture of a target audience or member-base: "knowledge of the Bible and its influence on our lives" (AU57); "knowledge about student needs, family dynamic" (CA16). For some organizations, cultural awareness or sensitivity is a

requirement: "knowledge of the First Nations [aboriginal] history and culture is essential to our companies [sic] success"(CA212). One respondent indicated: "It is important to note that we are defining multiple communities, only one of which is geographically local" (CA105); this emphasizes the need for NPOs to be culturally aware of the variety of groups that they affect through their work and in the communities that they serve.

It is important never to presume a clean separation between "community" and "organization", a distinction that might seem clearer when discussing for-profit firms. Rather, in the context of NPOs, it is fundamentally the goal of the organization to help define and shape the communities within which it participates (Lettieri *et al.*, 2004; Teegen *et al.*, 2004). The NPO cannot be extricated from these social structures. This category of community knowledge types, therefore, represents the NPO's need to acquire, disseminate and generate knowledge about the communities it belongs to and serves.

Sectoral (or sector-based) knowledge. In reframing findings in terms of semantic proximity, several knowledge types that had been previously associated with NPOs (Rathi *et al.*, 2014a) fall into a category that is at once external to the organization and the communities it might serve, while remaining directly relevant to its mission objectives and goals. This category represents the "sector" – "area", "industry" or "domain" might also be applied in this context – within which the organization operates. A hospital foundation, health agency or health-related charity, for instance, would be considered a part of the health sector, and would regard knowledge about the sector as essential to achieving mission and goals. The examples identified in survey results were as varied as the types of NPOs that responded (Figure 7).

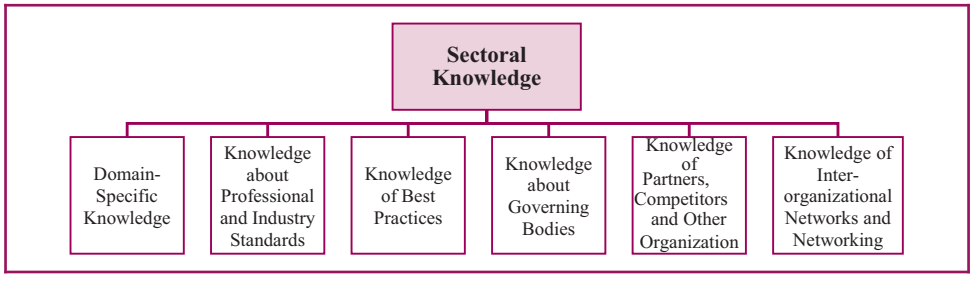
Domain-specific knowledge. It represents specialist knowledge associated with a particular profession, discipline, field or subject matter. For example: "Knowledge related to our arts discipline" (CA184), and "Knowledge of the medical condition Friedreich's Ataxia" (AU98). Subject-matter experts would possess knowledge of this type, and represent an important intellectual resource for NPOs.

Knowledge about professional and industry standards. This knowledge is absolutely essential for NPOs that must operate under specific mandates, policies and legislation directly associated with their particular sector. There are many examples of this type of documented knowledge, such as knowledge of "National Disability Standards" (AU23), "our departmental regulations and compliance requirements" (AU43) and "knowledge about what our type of organization is allowed to do with its funds raised" (CA90).

Knowledge of best practices. It represents the collectively accepted or preferred approaches within a sector or area of operations, i.e. NPOs, like FPOs, are interested in identifying ways to improve their current working practices by learning from organizations. For example: "[K]nowledge of best and promising practices related to the services we offer" (CA169), "Duty of care and ethics for best practice" (AU79), "standards of excellence" (CA89) and "knowledge of best practices within the various human and social services fields our agency represents" (CA146).

Knowledge about governing bodies. This knowledge and "knowledge of government systems" (CA120), i.e. NPOs want to have better understanding on the ways of interacting

Figure 7 Sectoral knowledge types



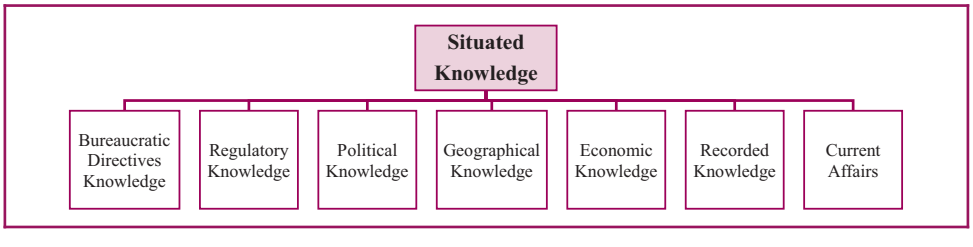
with and practices followed by government bodies at various levels, including local, provincial and national level. For example: "Knowledge of how the Public Service works and does not!" (AU122), and "knowledge of policies/best practices within the various levels of government that we work with in our day-to-day business" (CA 146).

Knowledge about collaborators, competitors and other organizations. This knowledge within the same sector is important to NPOs for a number of reasons (e.g. better insight on competitors, collaborators) that can have implications on success, planning and opportunities. NPOs are interested in understanding about other organizations, i.e. who are the key players including competitors? Which organizations are setting the benchmarks in the sector? "Knowledge/awareness of others also pursuing our interest" (AU75) and "work done by other organizations with which we can (and do) partner or collaborate" (CA138) are valuable because they allow NPOs to strategically plan the direction of their organization, and to develop relationships with prospective partners.

Knowledge of interorganizational networks and networking. It is a valuable commodity when the logical extension to knowing about potential partners and rivals in the sector is to develop networks of exchange. Two respondents noted: "As an animal welfare organisation we also rely on the expert knowledge of our suppliers" (AU112), and "understanding the network of organisations doing similar work to ours" (CA35), suggesting that networks of information exchange, whether formalized through the supply chain or other kinds of affiliations, play a key role in the sharing of domain-related knowledge (see above), including "knowledge of the greater community acquired through networking with other agencies" (CA28). The ability to develop, maintain and foster such connections depends on "formal and informal networking" (AU4). Knowledge related to networking and relationship-building with other organizations and parties within the NPO's sector emerged as an important type of knowledge when study findings were reframed to consider semantic proximity, highlighted by the problematic question of what represents internal and external organizational knowledge. As earlier research findings from interviews with Canadian NPOs have demonstrated, interorganizational networks and partnerships represent a liminal space where knowledge flows into and out of the organization freely and fluidly (Rathi *et al.*, 2014b).

Situated knowledge. This knowledge type is contextual in nature and "reflects knowledge of the environment in which a particular organization is embedded" (Rathi *et al.*, 2014a, p. 6). This knowledge, like "Sectoral Knowledge" (as discussed previously), when evaluated from the semantic proximity perspective reflects more about the types of knowledge that are at a distance from an organization and the communities it serves (Rathi *et al.*, 2014a). This type of knowledge is relevant in context or circumstance to the organization, but is not explicitly stated or mandated in organizational mission and goals, and has lesser implications on the day-to-day operations but may have significant implications from strategic planning perspectives. "Situated Knowledge" primarily reflects what is described as the "General Environment" in management literature (Robbins and Coulter, 1998, p. 99). Examples of general environment include economic, political and global, among others (Robbins and Coulter, 1998) (Figure 8). These elements may "affect the management of organizations

Figure 8 Situated knowledge types



usually do not have as large an impact on an organization's operations as the specific environment [e.g. clients/community, competitors] has, but managers must take them into account" (Robbins and Coulter, 1998, p. 99).

Bureaucratic directive knowledge. This knowledge in a broad sense is about executive governmental decisions, directives, affairs, actions or context as well as "about government polic[ies]" (CA92) and changes in policies that potentially affect both the socioeconomic landscape (e.g. elections) and NPOs. For example: "Knowledge of the trends affecting the sector particularly those originating with decision makers" (CA7); "Knowledge of public policies" (CA54); "Knowledge of government processes/policies on a regional, provincial and national level" (CA101); "Legislation, Government decision making, advocacy and the rights of clients" (AU50); "Knowledge of the political context in which decisions affecting our clients are being made" (AU42); and "Local Government, State Government and Federal Government Grants/policy changes, etc." (AU 19).

Regulatory knowledge. It is about "legislation[s]" (AU24), i.e. the specific "applicable legislation and laws governing the organization" (CA54) , as laws have significant implications for an NPO operating in a particular domain. For example: "[Province Name] Licensing Regulations and Best Practices for Child Care Centres, and the [Province Name] Nursery School's Act, both through [Province Name] Family Services Department" (CA53). NPOs are also keen to have a better understating of regulatory and compliance requirements so that they are fulfilling mandated requirements. Respondents from both countries highlighted these issues. For example, one of the respondents stated, "knowledge of: -the evidence base in our practice/sector and – our departmental regulations and compliance requirements -legal and governance knowledge" (AU43). This knowledge sub-category may have a close link to "Bureaucratic directive knowledge" (discussed above) because bureaucratic or government actions and decisions are drawn from laws and regulations.

Political knowledge. It is about power structures and external environments, i.e. particularly "outside influences, i.e. political" (AU111) and "changes happening at a political level" (CA104), to have a better understanding of "[c]ontext in which we [NPOs] work [especially] cultural and political" (AU58). This understanding is important, as it has implications for long-term planning, particularly strategic planning, as there might be changes, for example, in funding opportunities for NPOs, as noted by two respondents: "knowledge about government funding and political changes" (CA180); and "[p]olitical climate & how it will impact on future funding/delivery of services" (AU124).

Geographical knowledge. It is related to knowing more about physical locations as well as having "[e]cological knowledge" (CA4) [e.g. "our 'clients' are wild fish and their habitats" (CA115)] within which an organization is situated or the type of community it is serving. NPOs want to have enhanced understanding of physical surroundings because "[k]nowledge about local terrain and geography" (CA14) is important to meet their community needs and others' operational imperatives (e.g. emergency support). NPOs will benefit from such knowledge, as noted by two respondents: "As a rescue group, our clients needs are emergencies of life. We cannot do this without knowledge/experience and the P&P or SOG keep us safe. All are equally important. Terrain and geography are important but we can make do, improvise or grab someone who knows more" (CA14); and "We are too small to warrant much paperwork, and our clients are struggling parents who appreciate warm one-to-one & face-to-face relationships & communication. We would benefit from more accurate local knowledge and feedback, but this is not forthcoming" (AU99).

Economic knowledge. It is about local and global (national, international) economies and "economic factors" (AU126). As stated previously, though these are external environment elements, they are important in the long term for NPOs in many ways, such as funding from government and non-government resources. For example, during an economic downturn,

funding opportunities, particularly from private donors and organizations, may dry up. Thus, organizations are interested in having better understanding of economic issues in order, for example, for better planning, i.e. "[k]nowledge of future social and economic trends to inform planning" (AU46). This aspect was highlighted in several responses. For example: "Knowledge of current economic and political influences" (CA54); and "[C]hanges to the economy, demographics, funding agencies and streams" (CA80).

Recorded knowledge. It is about all published knowledge, which may be scientific, journalistic, archival, research records (CA71) or databases [e.g. "Data held by [government] such as demographics; incarceration rates; child protection rates and similar" (AU54)], that may be relevant to an organization (note that "recorded knowledge" is also primarily "derivative knowledge"). This type of knowledge is distinct from "Knowledge about the organization's history", as this is internal to the organization, while recorded knowledge is external to the organization, including external to the community where the NPO operates. A number of respondents stated the need for this knowledge type. For example: "We use the concept of practice wisdom and loosely follow the Personal Practice Model. We also value knowledge of the history of the women's movement and a feminist approach to understanding the conditions affecting women" (AU72); "Documented knowledge as in an archives – recorded history" (CA63); and "[S]cientific research findings, knowledge about global activities outside our own community" (CA116).

Current affairs. This knowledge is about "trends" (CA48, AU86, AU83) in general and specifically in "the non-profit world" (CA104), "current events and initiatives" (CA114) and news items on wide-ranging topics, such as "events happening on a national and international level" (CA104), that have a wide-ranging impact on public perception, society and politics, and that potentially impact the operation of the organization.

Discussion

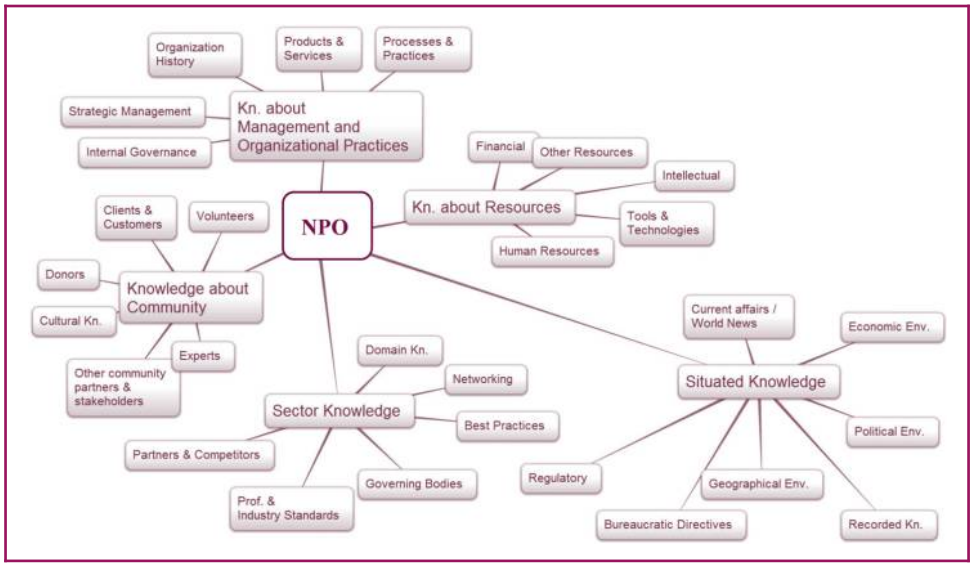
A deeper engagement with the results in the context of current scholarship revealed two key findings essential in contextualizing the identified knowledge types. First is the interpretation of "semantic distance", which is profoundly significant in understanding how knowledge needs are prioritized in NPOs. The analytical process undertaken in this study identified different linkages and grouped concepts that highlight these priorities in the context of the categories listed in the previous section. Second, a comprehensive understanding of the knowledge needs of NPOs is elaborated in the "NPO-KM Model", which examines the interrelationship and practical application of the knowledge types identified in the study. This model proposes a global understanding of KM in NPOs, and represents the primary contribution of this research.

Semantic distance

Identifying and creating categories and sub-categories of different types of knowledge is important to NPOs, not to mention other researchers, as the categories will guide the development of a deeper understanding of the knowledge needs of the NPO sector. Through analysis and comparison of the data collected from Australian NPOs with data drawn from the Canadian NPOs, evidence for a theoretical model of organizational knowledge types led us to re-frame findings using the notion of semantic proximity (Figure 9).

It became evident through the analytical process that the different types of knowledge we identified could be perceived in terms of semantic proximity, an idea discussed by Lwoga *et al.* (2011), wherein the authors identified farmers' information needs and then used semantic distance metaphor to develop the information map and to demonstrate the "perceived importance" of each element in the map (see "Figure 2. Consolidated information maps of the surveyed districts", p. 390). "Semantic distance" is helpful as a spatial metaphor for understanding the "relatedness" or relevance of one concept in relation to another (Brooks, 1998). In the subject classification and indexing of repository holdings, for example, one might test for semantic distance by assessing the similarity

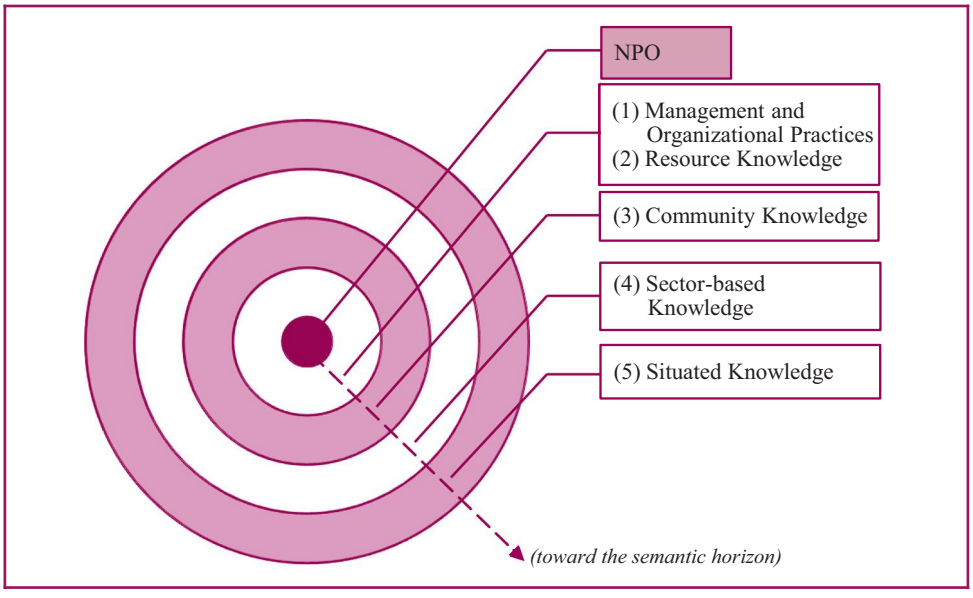
Figure 9 Example of a concept map depicting the conceptual clusters that emerged from a qualitative coding of Australian survey data



between a bibliographic record and a subject descriptor; a descriptor that is a close match to the record would be evaluated as a near-descriptor and be considered most relevant, while a descriptor that is a more distant match to the record would be evaluated as a far-descriptor, and thus less relevant or non-relevant. Brooks (1998) refers to this inverse correlation between distance and relevance as the semantic distance effect. This same principle can be applied to the more generalized concept clustering approach we have undertaken, allowing us to better understand the semantic relationships between knowledge types and sub-types and to re-group them based on this characteristic. Reframing the analysis in this way offers interesting implications for how knowledge can be perceived as internal or external to the organization, and the relative importance for operational and strategic goals and objectives; these implications, among other important insights, are discussed below.

In our model of organizational knowledge needs, relevance is determined by semantic proximity to the organization itself. As in previous iterations of this model, knowledge is always understood in relation to the NPO (Rathi *et al.*, 2014a). Therefore, as demonstrated in Figure 10, each category of knowledge types is perceived along a continuum depicting proximity to the NPO. Relevance, or semantic proximity, in this model, can be analyzed by how closely each category aligns explicitly with operational and strategic goals and objectives including the stated mission and values of a given organization, and as such can range from directly applicable, to contextually relevant, to indirectly affecting operations. For example, strategic assessment of an organization will have "a broader view of the organization" and the objective formulation (Robbins and Coulter, 1998, p. 214) will have a long-term view (e.g. 5-10 years), while operational assessment will include specific steps to meet the strategic objectives within a short-term horizon (e.g. daily, monthly or yearly). Drawing on this framework, such knowledge needs as "Management and Organizational Practices", "Resource Knowledge" and "Community Knowledge" will most likely meet operational requirements on a day-to-day basis, and are metaphorically closer in semantic proximity for a given organization. Bryson (2011, p. 13) noted that "strategic planning is focused on an organization, it is likely that most of the key decision makers will be "insiders" – although considerable relevant information may be gathered from "outsiders", including assessing external environments for threats and opportunities, competitors, government policies and economic environment, among others. These elements identified

Figure 10 Five categories of organizational knowledge types visualized in semantic distance to the NPO



for NPOs are primarily in "Sectoral knowledge" and "Situated Knowledge" and thus metaphorically are farther away in terms of semantic proximity.

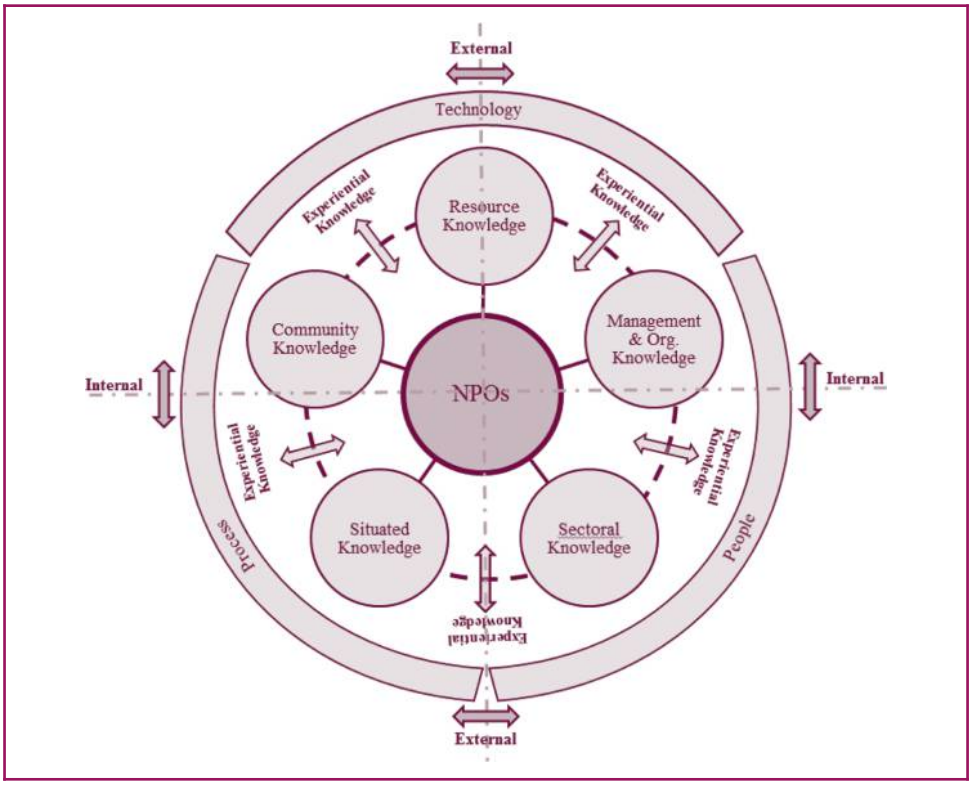
Figures 9 and 10 are not formalized metrics but a metaphorical representation of the perceived needs of NPOs, as they emerged from the analysis relevant to operational needs and strategic needs; future research adopting a statistical approach may permit the development of a more formal measure of semantic distance and relevance assessment of operational and strategic requirements, as well as internal and external knowledge needs of a given organization.

NPO-KM model

Based on the findings and analysis of the KM literature from the FPO domain, we developed an NPO-KM model, which is a metaphorical representation of the knowledge needs of NPOs (Figure 11). This includes the complex interaction between different types of knowledge, whether knowledge is internal or external, and other critical components required for the management of knowledge, such as people, processes and technology, in NPOs.

In the KM literature, researchers have identified people, processes and technology as the three critical elements of KM and discussed the importance of the interplay between these three core elements. For example, Bhatt (2001, p. 68) argued that "the interaction between technology, techniques, and people that allow an organization to manage its knowledge effectively", while the selective focus on one particular element is detrimental to an organization's capacity to manage knowledge and still remain "competitive" (Bhatt, 2001, p. 68). Similarly, Armistead (1999, p. 145) noted that in the area of KM, "it is accepted that processes, people and technology tend to come together to increase organizational effectiveness through learning". Chen and Popovich (2003, p. 672) also highlighted the importance of three elements in their proposed implementation model of customer relationship management and suggested an integration of "people, processes and technology". Technology is an enabler of KM practices; it helps in reducing temporal and spatial barriers (Armistead, 1999; Bhatt, 2001) and in enhancing the exchange and flow of knowledge in an organization by integrating knowledge silos (Lee and Choi, 2003). Thus, technology is an important component of any overall KM framework (Yousuf Al-Aama, 2014; Kushwaha and Rao, 2015; Lee and Lim, 2015). Through these assessments, "it

Figure 11 Model of organizational knowledge needs for NPOs



becomes clear that people, technologies and operational processes are fundamentally interrelated elements" for KM (Rathi *et al.*, 2014a, p. 8). Therefore, all three elements encapsulate other KM elements in our model. Finally, in an organization, overall knowledge can be categorized as either "internal" or "external" (Kessler *et al.*, 2000; De Clercq and Dimov, 2008), and the knowledge types of NPOs can, at a high level, also be studied in relation to these axes (i.e. as "internal" or "external" in relation to the organization).

In the proposed KM model, the NPO is at the center of the framework, with five broad categories (each with multiple sub-categories) of knowledge, including "community knowledge", "resource knowledge", "management and organizational knowledge", "sectoral knowledge" and "situated knowledge", which are represented by "circles" or "satellites" located on a "dash line" ("- - -") and connected to an NPO which is at the core. This is followed by a layer of "experiential knowledge" (i.e. previously classified as "field experience" and "expertise") (Rathi *et al.*, 2014a, p. 8). A deeper thematic analysis of responses from both surveys revealed that experiential knowledge, conceptualized broadly as "tacit" knowledge, informed all knowledge types to a varying degree, and as such represents a meta-level distinct from the categories described above. In this way, experiential knowledge is critical for NPOs to function and for knowledge to be created within these organizations. This representation also reflects a dichotomous model of "tacit" and "explicit" knowledge (Nonaka, 1994). Within these five categories and their sub-categories, certain types of knowledge are tacit in nature [e.g. "proficiency and expertise levels in all artistic disciplines" (CA78) in "human resource" sub-category] and other types are explicit in nature [e.g. "[c]osts of materials (CA29) in "other resource" sub-category]. That is why the different knowledge types are situated on a "dash line" ("- - -") to represent that tacit and explicit knowledge layer distinction metaphorically as well as to highlight the potential permeability of sub-categories into other categories types. The "bi-directional arrows" over the "dash line" represent the exchange between tacit and explicit knowledge. As discussed above, the overall knowledge can be categorized on another dichotomous model of "internal" and "external" knowledge types and examples of such

knowledge types include the following: "National Disability Standards" (AU23) (in sub-category, "professional and industry standards") can be external to the organization; "knowledge of our funding agreements and obligations" (AU33) (in sub-category "Internal governance knowledge") is internal to the organization; and "the knowledge of the primary source of our funding (CA193) (in sub-category "financial resources and sources of funding") can be both internal (e.g. top management is aware of funding opportunities) and external (e.g. learned from other NPOs or government bodies). These knowledge types are represented by "dash axis lines" ("-·-·-·-·"), with each axis serving as internal and external, and "bi-directional arrows" represent the shifting capabilities of these axes to cover proportional representation of internal and external knowledge types in each quadrant.

Summary

In the KM literature, a number of researchers such as Rus and Lindvall (2002); Pan and Scarbrough (1998); Binney (2001) and Nonaka *et al.* (2000) have conducted studies to understand knowledge needs or to develop a KM framework, particularly from the FPOs' perspective. These papers served as an inspiration for this NPO-KM study.

The paper makes significant contributions to the KM literature, particularly to the NPO domain, by identifying the specific knowledge requirements of NPOs. The paper, using a grounded theory approach, identified five broad categories and their multiple sub-categories of types of knowledge that are relevant and important for NPOs. The major categories (and number of sub-categories) are knowledge about management and organizational practices (five sub-categories), knowledge about resources (five sub-categories), community knowledge (six sub-categories), sectoral knowledge (six sub-categories) and situated knowledge (seven sub-categories). These categories were developed based on Canadian NPOs' responses and validated against Australian NPOs' response data. Interestingly, no new major categories emerged during the validation process; over 100 Australian responses were identified in the categories/sub-categories created using the original Canadian data. The paper also discussed the relative closeness of different knowledge types to a given NPO using "semantic distance" analysis and the implications around strategic and operational planning of the organization. Finally, the paper presented an emergent, evidence-based model derived from the analysis of data and a critical review of the KM literature.

Identifying and creating categories and sub-categories of different types of knowledge is important to NPOs, not to mention other researchers, as the categories will guide the development of a deeper understanding of the knowledge needs of the NPO sector. This paper serves as a baseline paper for researchers to further explore the KM-NPO domain in a number of ways, such as identifying additional knowledge types for NPO domain, or further comparing and contrasting KM issues between FPOs and NPOs. In addition, both researchers and practitioners will find this paper useful in developing a comprehensive technological platform for managing knowledge in NPOs based on their identified knowledge needs.

There are several limitations of the study, which have helped us to identify areas for future work. Dalkir (2005) discussed a number of KM models or cycles such as "The Zack KM Cycle" (p. 26) and "The Bukowitz and Williams KM Cycle" (p. 32). Evaluation and extension of these models is important for future research, particularly Dalkir's (2005, p. 43) "Integrated KM Cycle", which highlights the importance of knowledge capture and creation, sharing and dissemination' and acquisition and application. Although our paper discusses the knowledge capture and acquisition aspects of the KM cycle, our future research will focus on examining other elements of the model. Another limitation of the study is that it was conducted with NPOs in developed countries, i.e. Canada and Australia, so the findings cannot necessarily be transferred to NPOs working in developing parts of the world. Thus, our future work will explore NPOs situated and working in developing countries to not only identify their specific

knowledge needs but also to validate the application (or non-applicability) of these findings for NPOs in developing countries.

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