The extent and effectiveness of knowledge management in Australian community service organisations

Trevor Downes and Teresa Marchant

Trevor Downes is an independent Business Consultant and Researcher.
Teresa Marchant is Senior Lecturer at the Department of Employment Relations and Human Resources, Griffith University, Gold Coast, Australia.

Abstract

Purpose – *The purpose of this study is to evaluate the extent and effectiveness of knowledge management (KM) in community service organisations (CSOs) in Australia. CSOs are focussed on support, care and encouragement, thereby improving the quality of life of many in the community. This study contributes to a wider acceptance and management of knowledge, from a national perspective, and assists CSOs to improve practice.*

Design/methodology/approach – *KM theory and practice is expanded through a national online survey from 89 Australian CSOs, represented by 538 employees. CSOs, as a subset of not-for-profit organisations, were selected because they contribute significantly to the economy. Existing research generally relies on case studies, offering scope for wider quantitative research to address the gap.*

Findings – *The extent and effectiveness of KM were moderate. KM was more extensive in CSOs with a formal KM policy. Face-to-face exchange of knowledge was the major transfer method. Recognition or other incentives are needed to encourage learning and disseminating new ideas.*

Research limitations/implications – *Other CSOs and other countries could be included, along with very small CSOs.*

Practical implications – *Shortfalls in practice were discovered. Recommendations should improve client service by enhancing the appropriateness, consistency, quality and timely delivery of assistance. This will aid CSO sustainability by maximising limited resources. The challenge is to harness informal learning for organisation-wide learning and for hard outcomes, such as reducing costs and competing for government funding.*

Originality/value – *A synthesised large-scale survey integrates more elements of KM practice. Existing KM ideas are combined in new ways, applied in a fresh context, indicating elements of KM that are more significant in not-for-profit CSOs.*

Keywords *Australia, Knowledge management, Nonprofit organisations, Community service organisations*

Paper type *Research paper*

Introduction

The purpose of this research is to evaluate the extent and effectiveness of knowledge management (KM) in Australian community service organisations (CSOs). KM has evolved as a significant process for managing and exploiting knowledge that must be identified, acquired, evaluated, transferred and used (Davenport and Völpel, 2001). In Australia, only 28 per cent of the organisations report that they are very successful in leveraging knowledge to optimise performance, and 76 per cent do not have a dedicated KM budget (CSC, 2009). The community service sector consists of a range of for-profit and not-for-profit organisations (NPOs), including government agencies, private businesses, charitable and faith-related agencies and community managed organisations. CSOs are defined as not-for-profit and non-governmental organisations focussed on social services (ABS, 2014), including those for children, youth, families, individuals with a disability, the elderly and refugees, where these services involve providing material assistance, such as income support, housing, job placement and vocational training.

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CSOs have limited resources to meet client demand and maintain operational capacity (ACOSS, 2013). In particular, volunteers are critical to the success of some CSOs. All three of these particularities of CSOs (welfare service mission, limited resources and use of volunteers) have different implications for KM in CSOs, including that time, money and other resources may not be directed to KM. Volunteers may not be available or able to learn and subscribe to KM processes, being focussed instead on service delivery. Consequently, CSOs should ensure that their operating processes are geared towards maximising the value of their resources by continually reshaping functions and activities to achieve their mission. KM can aid the management of scarce resources with increased efficiency and effectiveness, and equip employees and volunteers with knowledge and skills to deliver high-quality services. CSO sustainability relies on effective use of knowledge resources. KM therefore has a major role in assisting CSOs to achieve performance excellence (Gill, 2009; Kong, 2008). However, the relatively limited literature suggests that CSOs have not fully embraced the advantages of KM. There are some commentators who contend that they lack the critical processes and knowledge needed to help them develop, evaluate, document and share successful KM (Hurley and Green, 2005).

There are gaps in the extent of related research referring to KM in NPOs generally and CSOs in particular. Although the application of KM in NPOs is of interest, the research is somewhat limited (Hurley and Green, 2005; Greenaway and Vuong, 2010). International and Australian research is based mainly on case studies or literature reviews. Australian studies comment on limited aspects of KM in CSOs, and do not address KM practice in its entirety or establish the extent to which Australian CSOs have embraced KM. Extant research generally relies on case studies, offering scope for wider quantitative research. The following is organised to first review the extent of KM in terms of the four processes of creation, representation, transfer and application. This is followed by analysis of KM effectiveness measures. Research into KM in NPOs and CSOs is reviewed next, narrowing down to focus on KM in Australian CSOs, thus setting the scene for the research questions about the extent and effectiveness of KM in Australian CSOs.

Literature review

KM processes of creation, representation, transfer and application

The objective of KM is to identify and harness the collective knowledge of organisations gained from experience and competencies, by capturing the know-how and know-what, through four key processes of knowledge creation, representation, transfer and application (Bollinger and Smith, 2001). There is an ongoing lively debate about KM processes (Schiuma *et al.*, 2012), and addressing them can assist with understanding the extent of KM.

Knowledge creation consists of generating new ideas, recognising previously unseen patterns, synthesising separate disciplines and developing new processes (Bhatt, 2001; Davenport and Prusak, 2000). In addition to identifying explicit knowledge, creation includes grasping employees' tacit knowledge (Nonaka, 1994). It also concerns identifying gaps between what is known and what needs to be known, and drawing together informed knowledge sources (Debowski, 2006). *Knowledge representation* incorporates codification, storage and retrieval. Codification transforms knowledge into common formats that are organised, explicit, portable and easy to understand. Effective codification depends on determining the business goals to be supported, identifying existing knowledge, evaluating its usefulness and determining methods for representation and delivery (Davenport and Prusak, 2000). Storage includes repositories, such as databases, manuals, archives and individuals' minds, while retrieval is accessing and sharing codified knowledge through efficient and user-friendly methods (Lettieri *et al.*, 2004; Vitari *et al.*, 2007). *Knowledge transfer* is the diffusion of knowledge, which needs to be distributed and shared before it can be exploited (Bhatt, 2001). Transfer will be successful when

knowledge is absorbed and applied. Absorption depends on the source being respected, a trustworthy environment, relevance of the knowledge and its insight into better ways of performing (Holste and Fields, 2010; Lichtenstein and Hunter, 2006). Research conducted by Cruz *et al.* (2009) found that intrinsic motivation is more effective than extrinsic motivation in facilitating knowledge transfer in NPOs. Finally, *knowledge application* means creating value by making knowledge more active and relevant. Knowledge is transformed into action by embedding, using and exploiting it in organisations' processes, products and services (Chong and Choi, 2005).

Management of KM processes is essential in creating and communicating the vision of a knowledge-based organisation, building an organisational culture that supports that vision, promoting knowledge sharing and creation and motivating workers to achieve KM objectives. Support of management includes conveying messages that KM is critical to the organisation's success, giving direction, setting goals and objectives, clarifying the types of knowledge important to the organisation and providing funding and other resources (Chang *et al.*, 2012; Jennex *et al.*, 2009; Vitari *et al.*, 2007; Zyngier, 2011).

KM effectiveness on process and outcome measures

The second question of interest is KM effectiveness, which may be viewed on process measures, leveraging resources for knowledge to efficiently achieve organisational goals. It may also be viewed on outcome measures, including enhanced product and service quality, productivity, innovation ability, market competitiveness and customer and employee satisfaction (Anantatmula, 2005; 2007; Anantatmula and Kanungo, 2006). A third view of KM effectiveness combines process and outcome measures (Jennex *et al.*, 2009). However, assessing effectiveness is difficult, due to the inherently intangible characteristics of knowledge (Anantatmula, 2007). Traditionally, organisation performance refers to financial measures (Yeo, 2003). A study of 108 US organisations found no correlation between KM and bottom line financial performance (Lucier and Torsilieri, 2001). However, a relationship does exist between KM and non-financial performance measures, such as service quality, innovation, responsiveness and client satisfaction (Zack *et al.*, 2009). KM effectiveness measures include: enhanced collaboration, improved communication, improved learning and adaptation ability, enhanced service quality, improved employee skills and improved productivity. KM effectiveness is reflected in soft measures, and focussing efforts on them may ultimately lead to gains in other outcomes, such as productivity and innovation (Anantatmula and Stankosky, 2008). Soft measures of KM outcomes are more appropriate to CSOs.

Research on KM in CSOs

Two international examples of KM research in CSOs are prominent. The first addressed processes and entailed case studies of four large Italian CSOs. Semi-structured interviews identified a taxonomy of six work clusters which varied in the extent to which they implemented the four processes of creation, representation, transfer and application. Both accounting/administration and operational clusters achieved all four; teaching/training achieved the first three; managerial/organisational and fund raising/public relations achieved only the first two; and volunteers achieved only the first, that is, creation. Knowledge that could be acquired from volunteers was not highly valued, and commonly did not proceed beyond creation (Lettieri *et al.*, 2004). Huck *et al.* (2011) have proposed specific KM solutions tailored to volunteers that take into account their passion for mission and personal knowledge needs. Clearly, if volunteers are important in knowledge creation, then involving them in the subsequent three KM processes of representation, transfer and application should be encouraged. The second international example was a survey of 106 Peruvian social development programs in CSOs, government agencies and private organisations. It explored how KM could create more efficient organisations despite their lack of human and financial resources, and found that knowledge transfer in the form of sharing procedures was present in 75 per cent of CSOs (Matzkin, 2008).

Australian research

On the Australian scene, a case study of one CSO called for an expansion of research into the limited strategic human resources management practices of multi-national NPOs, referring briefly to KM in the context of employee turnover, which limits representation of knowledge through formalisation and transfer (Fenwick, 2005). Three case studies of information and communication technology (ICT) concluded that CSOs have not adapted to the benefits of ICT, and suggested a KM agenda to develop more effective ICT (Stillman *et al.*, 2001; 2009).

Other studies of the strategic role of KM in NPOs proposed KM planning models for small, medium and large organisations (Hume and Hume, 2008; Hume *et al.*, 2012). Research with a small number of Australian CSOs found that knowledge was not a major focus in their operations. Rather, their key issues concerned managing stakeholder relations, delivering services and recruiting and developing employees within tight resource constraints. Although not identifying KM as a clear concept, results referred to KM-related activities, such as professional development, policies and procedures, infrastructure and research (Reilly, 2009).

A critique of CSO practice on the four KM processes, based on the literature, secondary data and documentation in the public domain, concluded that KM is needed in CSOs to create internal efficiencies and compete with for-profit organisations for funding (Considine, 2003). Government funding arrangements have impeded the maximisation of benefits from KM. A multi-partisan approach by government, businesses and CSOs is necessary to minimise resource restraints, enabling KM to prosper (Renshaw and Krishnaswamy, 2009).

The strategic importance, development and utilisation of intellectual capital (IC) in CSOs has been explored extensively (Kong, 2007a; 2009), including a qualitative analysis of 22 large Australian CSOs (Kong and Thomson, 2006). While KM is concerned with knowledge creation, representation, transfer and application, IC focuses on the value perspective from harnessing organisations' intellectual capacity (Zhou and Fink, 2003). Kong's (2007a; 2009) research found that IC provides a conceptual framework assisting CSOs to reconcile conflict between commercial and social objectives, aligning their primary objectives with their social mission, through learning, gaining knowledge and focussing their resources on people and social concerns rather than profit. However, Kong (2007b) also found that IC was not effectively utilised, as it was not fully understood. The application of IC for competitive advantage (Kong and Prior, 2008) was based on a literature review. Another case study of one Australian CSO used an IC approach to mapping stakeholder perceptions (Fletcher *et al.*, 2003). Although there is a relationship between IC and KM, none of this research directly addressed KM processes and effectiveness across a broad range of Australian CSOs with a quantitative survey.

The non-profit sector is a neglected setting for KM research (Greenaway and Vuong, 2010). International and Australian research on KM in CSOs is based mainly on case studies or reviews of the literature. Australian studies comment on partial aspects of KM in CSOs, but do not establish the extent to which Australian CSOs have embraced KM.

Australian CSO context

There are 56,894 NPOs in Australia playing an important role in providing welfare, social and other services. They accounted for $54.8 billion or 3.9 per cent of total gross value added. NPOs received income of $107.5 billion, and held $176 billion worth of assets. NPOs contributed significantly to employment, accounting for 1,081,900 employees and over 2 million volunteers. Within this group of NPOs, approximately 7,400 CSOs provide social services (ABS, 2014). The size and scope of CSOs vary from large multi-national organisations with thousands of employees, as for example World Vision

International (referred to in Fenwick, 2005), to small, independent, local associations managed by a few volunteers. In 2013, Australian CSOs employed 297,000 people, representing 27 per cent of all NPO employees, assisted by over a million volunteers. CSOs received $11,700 million of government funding and expended $19,194 million in the delivery of services, often fulfilling the role of quasi-government agencies (ABS, 2014).

There are particularities of CSO employees in Australia which may have implications for the extent and effectiveness of KM. In 2011, 75 per cent of Australian CSO employees were women, as compared to 45 per cent of female workers in all industries. In all, 54 per cent of CSO workers were aged 45 years and over, with 25 per cent aged 55 years and over, as compared to 38 and 17 per cent of workers in the respective age groups across all industries. The proportion of CSO workers employed part time was 58 per cent, as compared to a part-time proportion of 30 per cent in all industries (ABS, 2011). Given these differences between the profile of employees in CSOs as compared to those working across all industries in Australia, it is possible that the implementation of KM may vary in CSOs possibly due to an older workforce (who may be less proficient in technology), as compared to a female workforce who may prefer more expressive and relational forms of working and as compared to a full-time workforce who may have more time for training in and implementing KM.

CSOs are generally driven by a mission centred on their purpose, where employees and volunteers are guided by strong values and gain satisfaction and intrinsic reward from their work (Greenaway and Vuong, 2010; Kosny and Eakin, 2008). For KM to be accorded a priority in these organisations, it would need to be made clear how KM can support this mission and the intrinsic rewards.

Quasi-marketisation pressures have exacerbated problems with CSO sustainability. Organisation fragility is being experienced in terms of their financial viability, management committees' capability and capacity to meet compliance requirements, such as quality accreditation and performance accountability. CSOs are under strain trying to meet client needs. Nearly 85 per cent report that the cost of service delivery exceeds funding, and 64 per cent have difficulty in attracting and retaining qualified employees. A lack of resources has led to more than 12 per cent of individuals attempting to access some services being turned away (ACOSS, 2013). Case-based funding has shifted the focus of service decisions from people outcomes to revenue outcomes. Employees in CSOs are frustrated with their increased marginalisation from service policy-making domains now dominated by government (Rawsthorne and Shaver, 2008). CSOs are being challenged to become more innovative and entrepreneurial to maintain a balance between carrying out their mission and maintaining financial health (Dart, 2004; Greenaway and Vuong, 2010). Interestingly, KM, as practised in for-profit organisations, who by definition are already subject to marketisation, compliance and accountability pressures, may serve to alleviate some of these problems as non-profit CSOs are increasingly required to "act like" for-profits. Knowledge is a key asset in addressing these challenges. KM therefore has a major role in assisting CSOs to achieve sustainability and performance excellence (Gill, 2009). The sustainability of CSOs depends on acknowledging that substantial changes are necessary for their survival in a new environment, which may require rationalising existing functions and enhancing the extent and effectiveness of KM. The central research questions were thus:

RQ1. How extensive are KM activities and processes in knowledge creation, representation, transfer and application in Australian CSOs?

RQ2. How effective is KM practice in Australian CSOs in collaboration, communication, learning and performance?

RQ3. How can KM in CSOs be improved?

Method

A post-positivism paradigm was utilised, as it holds that reality is only imperfectly apprehensible because it is affected by the limitations of human intellect (Lincoln *et al.*, 2011). This paradigm readily accommodates the capture, quantification and assessment of employee views to identify processes and outcomes of KM.

Research methods may be summarised under at least 12 categories:

1. experiment;
2. survey;
3. archival analysis;
4. history;
5. historical comparative;
6. case study;
7. in-depth interview;
8. focus group;
9. panel;
10. cohort;
11. observation; and
12. secondary data (Yin, 2009).

Each category was examined in light of this research where the aim was to undertake a broad-based study across a wide representation of CSOs. Experimental research was not practical or desirable. It was not practical to conduct an archival analysis across many CSOs in a reasonable timeframe. History was not relevant to this research, and the complexity and time scale for historical comparative study was again beyond the scope of this research. The practicality, time and cost associated with individual in-depth interviewing made it unsuitable. Focus groups would require multiple groups to be assembled and conducted, making them logistically impractical. As longitudinal studies, panels were not appropriate, and cohort categories were not pertinent. The demands of observational studies in gaining access to multiple sites made this method unsuitable. Secondary data were gathered during the literature review from government statistics and previous studies. As this research sought a broad representation of CSOs, the case study method was rejected. Surveys use questionnaires or formal interviews to gather information on the backgrounds, behaviours, beliefs, attitudes or opinions of a large number of people.

After considering the suitability, relevance and practicability of these methods, a quantitative survey was deemed to be the most appropriate vehicle. Previous research has generally been confined to case studies (Fenwick, 2005; Reilly, 2009; Stillman *et al.*, 2001; 2009), and an aim of this research was to extend the body of knowledge by undertaking a broad-based study across a wide representation of CSOs. This did not necessarily require hypothesis testing. The online survey was developed specifically for this research. The intent was to reach a large number of employees from a wide range of CSOs, at low cost, with a fast response, enabling automated data collection, participant anonymity and exclusion of interviewer bias (Miller, 2006).

Survey development

The survey was generated from an extensive literature review resulting in 92 items, although only results for the extent and effectiveness of KM are reported here. The survey identified the extent of KM by assessing process management (8 items) and the 4 processes of creation, representation, transfer and application (30 items). These 38 items

were developed from the studies conducted by Debowski (2006); Fahey and Prusak (1998); Lim (2007); Marsick and Watkins (2003); Riege (2005) and Singh and Kant (2008). KM effectiveness in collaboration, communication, learning and performance was measured with 19 items, and was found relevant to NPOs in prior research (Anantatmula, 2005; Anantatmula and Stankosky, 2008). All items had five-point Likert scales. Demographic data were collected on size, activities and other CSO-specific information, along with employee details such as age, gender and role.

Sampling details

The sampling frame was a list of Australian CSOs generated from online public directories, where CSOs were chosen if they had a website, were not a government organisation or for-profit, had activities that were consistent with CSO services and where the chief executive officer (CEO) could be readily identified with an email contact. The final sampling frame included 694 CSOs.

CEOs were invited to participate by email. If the CEO (or delegate) agreed, they then emailed the survey link to employees. Confidentiality was maintained. Responses were received from 538 employees representing 89 CSOs across all Australian states, which approaches acceptable sampling guidelines given the population (Bartlett *et al.*, 2001). Employee responses per CSO ranged from 1 to 49. As online surveys are self-administered and lack human contact, participants tend to "drop out" before completion (Zhang, 2000). Of the 538 participants, 420 reached the end of the survey, although not all completed every question. Missing data were randomly distributed and treated with median substitution where valid (Tabachnick and Fidell, 2007). Respondents who indicated that KM was not evident in their organisation were screened out from the survey items on KM effectiveness.

Demographics

In terms of demographics, the range of services provided by the CSOs was consistent with Australian social service activities (ABS, 2014). A picture emerged of a typical CSO, operating as a part of a state network (35.2 per cent), delivering services to adults, youth and children (45.0 per cent), with fewer than 50 employees (77.0 per cent), an annual budget of less than $5 million (37.1 per cent) and funded by governments (80.0 per cent). A further picture emerged of CSO employees who were typically female (76.9 per cent), aged in their mid-forties (22.4 per cent), who had been with the CSO for around five years (42.3 per cent), having joined from another CSO. They were not in management positions (49.4 per cent), but held undergraduate university degrees (47.0 per cent) appropriate to their duties in personally delivering services to clients (45.3 per cent). This picture is similar to the ABS (2011) profile of CSO employees.

Results

Extent of KM in CSOs on process management and processes

The research question addressing the extent of KM practice in CSOs was examined under five criteria: management of KM processes and the four KM processes of creation, representation (storage and retrieval), transfer and application of knowledge. Results are shown in Table I, which indicates mean scores. All items attracted relatively positive responses with means above the midpoint (3.0) on a scale of 1-5. However, there were variations in the results indicating a lack of uniformity in the extent of KM processes. In terms of management of KM processes, three main results were evident: exchange of ideas and knowledge (4.13) and learning as an ongoing process (3.99) were very positive; management responsibility (3.56), task allocation (3.55) and standard processes (3.52) were intermediate; and rewards for sharing knowledge (3.25) and ideas (3.20) rated relatively low. The latter may be due to the wording of the question in that "rewards" could

Table I Extent of KM in terms of processes and process management

Extent of KM item	*Mean*	*SD*
Management of KM process		
My organisation		
. . . rewards employees for new ideas	3.20	1.08
. . . rewards employees for sharing their knowledge	3.25	1.07
. . . has standard processes for the exchange of ideas and knowledge between individuals and groups	3.52	1.09
Individuals are specially tasked to keep stored information current and up to date	3.55	0.96
My organisation has a designated manager for administering KM processes	3.56	1.12
Managers are active in communicating the benefits of knowledge sharing and learning opportunities	3.65	0.99
Learning or generating new ideas and new ways to do things is seen as an ongoing process	3.99	0.86
My organisation encourages the exchange of ideas and knowledge between individuals and groups	4.13	0.94
Knowledge creation		
My organisation has methods to critically analyse information for future use	3.38	0.98
Little attention is paid to the role and importance of knowledge held by individuals	3.42	1.16
My organisation		
. . . has mechanisms for creating or acquiring knowledge from different sources such as volunteers, clients, donors or competitors	3.50	0.98
. . . has policies in place to allow employees to present new ideas without fear and ridicule	3.54	1.03
Representation (storage and retrieval)		
My organisation		
. . . has a register or database of skills, expertise and knowledge sources	3.29	1.02
. . . has mechanisms for collating sources and types of knowledge	3.42	0.95
. . . has a standard process for retrieving information	3.49	0.96
. . . has information in a form that is readily accessible to employees	3.64	0.97
. . . utilises various written documents, such as newsletters or manuals, to store information captured from employees and others	3.75	0.95
. . . utilises databases or information technology to store reference material	3.91	0.92
. . . has a standard process for storing reference material, such as policies, procedure manuals, standards, ideas, notable successes or other practical information	4.01	0.92
Transfer		
My organisation		
. . . showcases new ideas or practices from employees to other staff	3.33	1.04
. . . has libraries, resource centres or other forums to disseminate information or expertise	3.41	1.05
It is easy to find out who knows what in the organisation	3.43	1.08
My organisation has regular symposiums, lectures, conferences or training sessions to share knowledge and ideas	3.44	1.11
Key experts in the organisation are readily identified and contacted	3.77	1.00
Staff access others in the organisation for help and guidance	4.15	0.74
Application		
Information held in facilities, such as databases, other information technology applications, manuals or resource centres, is never challenged	3.25	0.90
My organisation		
. . . has mechanisms for converting knowledge into action plans	3.38	0.95
. . . has a policy to review information on a regular basis	3.46	0.99
. . . has mechanisms for developing new ideas or ways of doing things from existing practices	3.51	0.93
. . . uses lessons learnt or best practices from projects or tasks to improve successive projects or tasks	3.80	0.92

be replaced by recognition. Participants may have interpreted this question to mean financial rewards, which are limited in CSOs.

Knowledge creation items indicated high levels of activity associated with knowledge creation, particularly an absence of fear and ridicule for new ideas (3.54), which reflects the high value placed on respect for people that would be expected from CSOs. Although appropriate recognition was given to knowledge held by individuals (3.42), it was less likely that information was being critically analysed for further use (3.38). Knowledge representation (storage and retrieval) responses indicated that knowledge storing and retrieving facilities in the form of written documents, policies, procedures and manuals were generally prevalent (4.01). There was a relatively low mean for a register or database of skills, expertise and knowledge sources (3.29). For knowledge transfer, a remarkably high mean was found for the item that employees accessed others for help and guidance (4.15).

However, the result was relatively low for showcasing new ideas (3.33). For knowledge application, the highest mean was for lessons learnt being applied to improve further practice (3.80), with the lowest for stored information being challenged (3.25).

Principal components analyses (PCAs) were conducted under each criteria to reduce their respective sets of items to underlying factors. Composite measures have been widely applied in KM to provide research insights (Matzkin, 2008). Cronbach's alpha values above the minimum criterion of 0.70 confirmed the reliability of the composite measures (Hair *et al.*, 2010; Tabachnick and Fidell, 2007). The results are shown in Table II, which indicates mean and median scores.

As with the individual items, the factors indicated relatively positive responses with means and medians above the midpoint (3.0) on a scale of 1-5. In each instance, the median score was slightly above the mean score, indicating that the distributions were negatively skewed. A broad interpretation ranked scores between 3.20 and 3.80 as moderate, with those above 3.80 rated as high. However, there were variations in the results, indicating a lack of uniformity in the extent of KM. The means for process management and knowledge representation were above those of knowledge creation, application and transfer. Over 25 per cent of process management and knowledge representation items were rated highly, whereas no knowledge creation or application items achieved that rating.

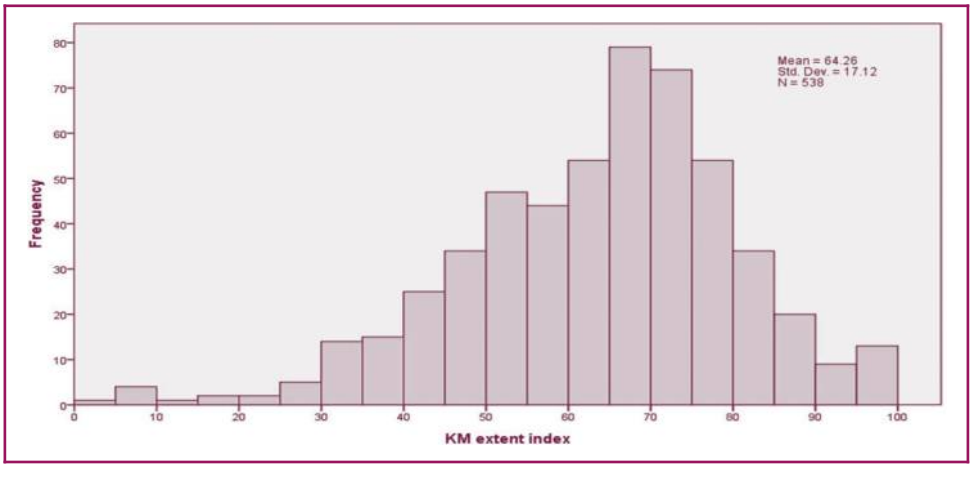
The extent of KM practice was further measured by creating an index from composite measures of KM process items. The KM extent index range was 0 to 100, with higher scores indicating more extensive KM practice. A broad interpretation of the index ranked CSOs as follows: 0-20, very low; 21-40, low; 41-60, intermediate; 61-80, moderate; and 81-100, high. The distribution of CSO employees on the KM extent index is shown in Figure 1. Scores of 40 or less were reported by 8.2 per cent and above 80 by 15.4 per cent. The mean was 64.26, indicating a moderate KM extent.

The survey asked CSOs to indicate whether they had no KM policy or activities (13.5 per cent), informal KM activities (62.9 per cent) or formal KM policy (23.6 per cent). In other

Table II Extent of KM composite measures

Composite measure (n = *538*)	*Mean*	*SD*	*Median*	*Cronbach's alpha* (α)
Process management	3.60	0.745	3.75	0.88
Creation	3.48	0.833	3.67	0.74
Representation (storage and retrieval)	3.64	0.722	3.71	0.88
Transfer	3.58	0.734	3.67	0.82
Application	3.54	0.791	3.75	0.79

Figure 1 Distribution of CSO employees on the KM extent index



words, 86.5 per cent of CSOs indicated formal or informal KM. As the KM extent index was not normally distributed, a Kruskal–Wallis test (rather than a one-way ANOVA) was conducted to compare the three groups of CSOs as the independent variable and KM extent index as the dependent. The test indicated significant differences in KM extent between CSOs with a formal policy ($M = 74.05$), with informal activities ($M = 65.80$) and no policy or activities ($M = 45.31$) ($\chi^2 = 151.71$, df = 2, $p < 0.05$). Mann–Whitney U tests (rather than one-way ANOVAs) were conducted to compare pairs of groups. Post hoc paired comparisons were all significant ($p < 0.017$). CSOs with formal and informal KM were both in the moderate range, but those with formal KM policy were towards the higher end. Interestingly, KM extent did not vary by CSO size.

KM effectiveness

Mean scores for the 19 items measuring effectiveness of KM are shown in Table III. As with the extent of KM, all items attracted relatively positive responses with means above the midpoint (3.0).

Higher means for KM effectiveness were evident for quality client service (3.96), better overall functioning of the organisation (3.95), improvements in processes (3.88), increased awareness of critical information (3.87), staff more knowledgeable (3.87), experienced (3.84) with improved learning (3.83) and more skilled (3.80). Managers also became more knowledgeable (3.81). However, this individual learning and knowledge did not extensively translate into organisation-wide availability (3.55). Also, at the lower end were "hard" outcomes, such as competing for funding (3.69) and financial savings (3.01).

Effectiveness of KM was assessed across four concepts:

1. enhanced collaboration;
2. improved communication;
3. improved learning and adaptation capability; and
4. improved performance.

Subsets of the KM effectiveness items were used to assess the four concepts, adapting the model developed by Anantatmula and Stankosky (2008). PCAs were conducted under these effectiveness measures, and Cronbach's alpha values were again above the

Table III Effectiveness of KM in collaboration, communication, learning and performance

Effectiveness of KM item	*Mean*	*SD*
The proportion of operating costs, relative to income, has been reduced	3.01	0.64
Knowledge of individuals has become available to the whole organisation	3.55	0.86
Managers are more innovative	3.65	0.81
We are better placed to meet competition for funding	3.69	0.79
Managers are making better decisions	3.70	0.75
We are better placed to meet competition in tendering for services	3.70	0.80
Staff are more innovative	3.72	0.76
Staff are making better decisions	3.75	0.70
Teamwork has improved	3.76	0.80
Staff are more skilled	3.80	0.73
Managers are more knowledgeable	3.81	0.75
Learning by individuals has improved	3.83	0.68
Staff have gained more experience	3.84	0.70
Operating systems have improved	3.85	0.72
Staff are more knowledgeable	3.87	0.68
There is increased awareness of information critical to achieving the organisation's mission	3.87	0.71
Operational processes have improved	3.88	0.67
Overall, the organisation is functioning better	3.95	0.76
We are delivering a higher quality of service to our clients	3.96	0.76

minimum criterion. The results are shown in Table IV, which indicates mean and median scores.

Improved performance achieved a high rating, due mainly to identified improvements in processes, the quality of client service and the overall functioning of the CSO.

Similar to the KM extent index, a KM effectiveness index was created. The index range was 0 to 100, and the distribution of results on the index is shown in Figure 2. Scores of 40 or less (signifying low levels of KM effectiveness) were reported for 1.6 per cent. Scores above 80 (representing high levels of KM effectiveness) were noted for 19.3 per cent. The mean was 69.81, suggesting a moderate level of KM effectiveness. Mean effectiveness for CSOs with a formal KM policy ($M = 72.91$) was significantly higher than those with informal KM activities ($M = 68.12$) ($U = 13{,}569.50$, $p < 0.05$).

Discussion

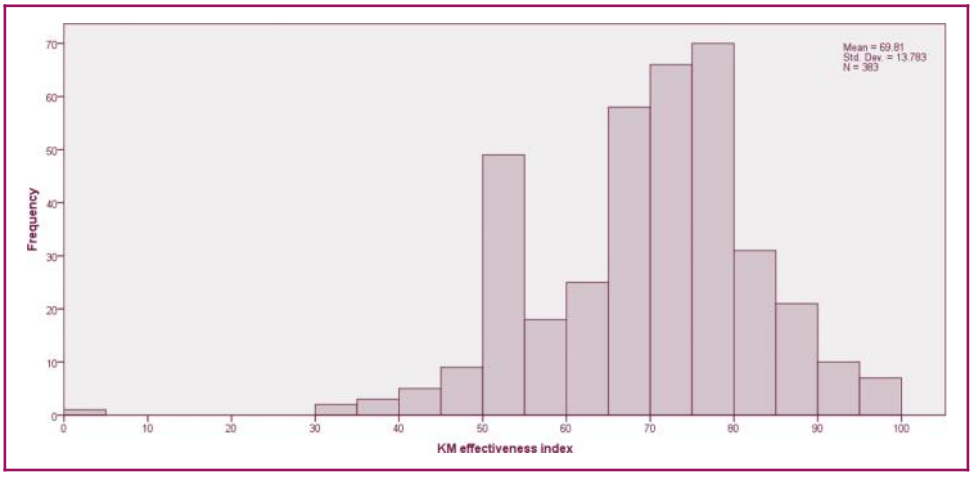
The research reveals a picture of CSOs committed to individual learning, knowledge creation and informal knowledge transfer for improving client services. CSOs need to adopt more formal KM policy and processes, and translate individual knowledge into organisation-wide, formal knowledge to contribute to more substantial performance outcomes, including cost reduction and competitive tendering. Australian CSOs need to confront the potential for KM to facilitate their client-driven mission.

The large majority of CSOs either had a formal KM policy or were engaged in KM informally. This measure of KM extent exceeds previous research which identified some form of knowledge-sharing practice in three-quarters of CSOs (Matzkin, 2008). However, the extent of KM was moderate, concurring with Renshaw and Krishnaswamy (2009) that opportunities exist to improve KM practice in Australian CSOs. In essence, this observation summarises the comparison between KM practice in Australian CSOs and criteria for KM described in the literature: there is room for improvement.

Table IV Effectiveness of KM composite measures

Composite measure (n = *383*)	*Mean*	*SD*	*Median*	*Cronbach's alpha* (α)
Enhanced collaboration	3.79	0.583	3.91	0.94
Improved communication	3.80	0.574	3.80	0.84
Improved learning and adaptation capability	3.76	0.580	3.83	0.87
Improved performance	3.83	0.661	4.00	0.87

Figure 2 Distribution of CSO employees on the KM effectiveness index



Management of KM processes

Managers actively communicated the benefits of KM, but with the exception of knowledge transfer in exchanges between individuals, the approach to process management in CSOs was not vigorous. Despite recommendations to appoint a designated manager to promote and administer KM (Zyngier, 2011) and to allocate responsibility for the regular scrutiny of stored information to ensure that it is current (Debowski, 2006; Fahey and Prusak, 1998), this was not prevalent in the CSOs. This situation reflects the scarcity of resources, where the separate appointment of a designated manager is not financially practical and not warranted, given low employee numbers. Allocating resources to such a position would be seen as diverting funds away from the core activity of service delivery. This stance concurs with the challenges of KM in small- and medium-sized enterprises (SMEs). SMEs also have scarce human resources, time and finance. KM practices in SMEs relate to daily working activities, and are mainly *ad hoc* and informal (Kipley *et al.*, 2008; Supyuenyong and Swierczek, 2011). Differences in motivation to undertake KM and aims for improving organisational performance through KM are to be expected between multi-nationals and SMEs in the private sector, public sector enterprises, CSOs and other types of NPOs (Anantatmula and Stankosky, 2008). Nonetheless, size did not feature in the results, and therefore, small size itself is not an "excuse" for CSOs not to engage in extensive and effective KM.

Knowledge creation

High activity levels in knowledge creation were found. CSOs had methods for acquiring knowledge from different sources, such as volunteers, clients, donors or competitors and, therefore, concurred with Debowski (2006) and Lettieri *et al.* (2004) and with those who call for the evaluation, refinement, standardisation and categorisation of acquired knowledge (Bhatt, 2001). The findings also conformed to literature that recognises the value of tacit knowledge, insight and intuition held by individuals (Debowski, 2006; Nonaka, 1994) and maintaining an environment that accepts new ideas (Debowski, 2006). This tendency for informal rather than explicit and formal codification of knowledge in NPOs has been noted elsewhere (Ragsdell, 2009a). Nonetheless, knowledge creation was conducted at a pedestrian level. The outcome was not greater than that which could reasonably be expected from any organisation where people work closely together. Exploration beyond the day-to-day tasks and responsibilities would widen the scope of knowledge creation. Ultimately, this would benefit CSOs' clients, as employees would be equipped with additional knowledge, broadening their capacity to address clients' issues.

Knowledge representation

Intranets are widely used for storing knowledge and making it available to all employees. They would be particularly useful in CSOs with multiple operational sites, where information can be made available across all sites. Wiki technology offers opportunities for knowledge creation and sharing (Raman *et al.*, 2005; Wagner, 2006). Social media also fosters collaboration and cooperation. Shared information can become knowledge through e-learning, which takes collected knowledge and structures it to focus on a particular topic or issue. It makes knowledge practical and relevant by applying it to employees' actual situations (Islam *et al.*, 2011; Kane *et al.*, 2010). However, these online tools may be beyond the technological capacity of some CSOs. In addition, CSOs rely on volunteers, who may not be experienced in using technology, or management may not grant them free access to sensitive, confidential records. In these circumstances, CSOs must find a balance between technology, the provision of hard-copy sources and the value of face-to-face knowledge exchange.

Knowledge transfer

Contrasting findings were noted in that learning and generating new ideas and new ways of doing things were commonly accepted as an ongoing process. However, there was a low incidence of knowledge-sharing incentives. Motivation for knowledge transfer arises from both intrinsic and extrinsic rewards (Singh and Kant, 2008). The low incidence contradicted previous research that promotes reward and recognition as the means of encouraging knowledge sharing (Debowski, 2006; Vitari *et al.*, 2007). However, CSOs' mission-oriented environment is unique, where individuals are intrinsically motivated to share their knowledge. The results support the study conducted by Cruz *et al.* (2009). This contrasts with for-profit organisations, where individuals may hoard their knowledge and operate in silos to maintain their resource base in a competitive internal environment. Volunteers, unlike employees, are not obliged to share their knowledge, do not receive rewards for doing so, but do share to ensure a job well done (Ragsdell *et al.*, 2014). In this regard, the CSO employees shared similar characteristics with these volunteers, with intrinsic motivation for knowledge sharing.

Transfer of knowledge was only moderate through resources other than face-to-face exchange. Employees accessed others in their CSO for help and guidance, recognising that knowledge needs to be distributed and shared before it can be exploited (Bhatt, 2001), and can also be spread through social interaction and relationships (Connell *et al.*, 2003; Debowski, 2006). This finding conformed to Nonaka's (1994) theory that conversion of tacit knowledge is achieved through the socialisation and externalisation modes of knowledge creation. CSOs did not place high reliance on other transfer resources, such as technology.

Knowledge application

Application of knowledge is the ultimate objective of KM; yet in CSOs, it was moderate. CSOs had mechanisms for converting knowledge into action plans, developing new ideas or methods from existing practices and using lessons learnt to improve later tasks. Thus, there was strong evidence of learning (Garvin *et al.*, 2008; Pemberton and Stonehouse, 2000). The challenge is to harness informal learning through KM, translate it into organisation learning and achieve hard outcomes, such as cost reduction and competitive tendering for government funding.

KM effectiveness

In terms of the effectiveness of KM practice, KM activities were evident in the majority of CSOs, and as a result, operational processes and operating systems have improved. Employees had become more knowledgeable, skilled and experienced. There was less evidence that individual knowledge was converted to organisational knowledge. CSOs were delivering a higher quality of service to their clients. However, it did not appear that KM had achieved a reduction in operating costs.

The findings conformed to the literature establishing a set of criteria to assess the effectiveness of KM for NPOs. KM resources contribute to key aspects of organisation performance, such as improved communication, enhanced collaboration, better decision-making and innovativeness, improved employee skills and individual productivity (Anantatmula and Kanungo, 2006; Anantatmula and Stankosky, 2008). These benefits are largely intangible. While most tangible measures are not applicable to CSOs, reduction in costs due to KM could be assessed over time. More attention by managers in identifying and taking remedial action where improvements in collaboration, communication, learning and organisation performance were not being achieved, such as the conversion of individual knowledge to organisational knowledge, would increase the effectiveness of KM. Given that different KM processes are more effective depending on the tasks undertaken by organisation subunits (Chang *et al.*, 2012), it seems likely that CSOs with different tasks and values may also vary in effectiveness of KM.

Implications for practice: overcoming the challenges of KM in CSOs

There are several implications for how CSOs can improve KM practice:

Management of KM. CSOs should develop and exploit their knowledge by taking a holistic approach across all KM processes. In addition to openly supporting and encouraging KM, managers should take affirmative action by allocating responsibility for promoting, administering and monitoring KM and recognising contributions to knowledge made by employees or volunteers. Rewards need not be in monetary terms. Recognition of contributions, such as an "idea of the month" published in a newsletter or online, may encourage wider participation. The attitude towards knowledge creation in CSOs may be described as *laissez-faire* in that it is generally confined to routine activities. The stock of knowledge would increase by taking a proactive approach, exploring for knowledge beyond day-to-day tasks. For example, showcasing novel employee approaches, networking with employees from other CSOs, regularly perusing industry periodicals, recruiting experienced employees and engaging guest speakers. Maintaining a database or register of individuals with skills and expertise, who act as sources of knowledge, would enhance practice, as would embracing online technology. Connections are emerging between KM, online communities of practice and volunteers (Huck *et al.*, 2011), and this would suit the social connection orientation of CSOs.

KM processes. Knowledge transfer could also be improved by increasing the distribution of knowledge through formal communication media, training sessions, meetings, conferences and other forums, all of which could be facilitated online. Knowledge application would be improved by taking a proactive approach in converting knowledge into practical actions, developing new ideas and methods and regularly reviewing and challenging existing information. Brainstorming, discussion groups or external advisors could be specifically tasked to assess how knowledge is being used and how it could be better applied. CSOs could do more to evaluate and improve the effectiveness of KM. Employee surveys, seeking views on improvements in collaboration, communication, learning and organisation performance, conducted over yearly intervals, would indicate what benefits had been achieved as a result of KM, and identify areas which require remedial action. Similarly, monitoring costs over a reasonable timeframe could reveal financial benefits that justify KM.

Other stakeholders. KM practice is not confined to CSOs' internal functions and operations. Other stakeholders participate in, or benefit from, effective KM. The principal purpose of CSOs is to deliver services to meet client needs. CSOs are aware of their clients' circumstances, their environment, the problems they face, solutions found and failures experienced. *Clients* are, therefore, participants in KM, and are important contributors to KM processes. Each client has the right to obtain the best possible service (Considine, 2003). KM leads to better quality service and new ideas. Consistent advice is also important, as it is frustrating for clients to receive an answer via email that is different than one received on the phone. KM ensures that clients with the same question receive the same response, regardless of the employee or volunteer contacted or the contact channel. They are more likely to receive the right answers faster, with no need to be put on hold or transferred to another employee or volunteer. KM can assist the production of websites that address the major issues of clients or provide them with information. This facility is convenient for clients, and can improve CSO performance by removing time spent in answering repetitive questions which only require a simple response.

Ultimately, the *raison d'être* of CSOs is to deliver services to clients, and an objective of KM in CSOs is to improve service delivery by identifying and harnessing the collective knowledge of the organisation. Regular client satisfaction surveys would provide feedback to CSOs, identifying shortfalls in service delivery and areas that could be improved through more extensive and effective KM. Individual interviews or focus groups of clients with similar life experiences could highlight services, methods and approaches that resulted in

successful or unsuccessful outcomes. This created knowledge could be added to the CSO's knowledge base, to be transferred, applied and regularly reviewed.

Most CSOs receive funding from *governments*. Many Australian CSOs depend upon government funding to finance their activities, and the growth in CSOs has largely been an outcome of governments preferring services to be delivered by CSOs, rather than through government agencies (Sheppard *et al.*, 2001). Governments and CSOs have, therefore, become interdependent, with governments relying on CSOs to deliver services and CSOs relying heavily on government funding (Herman and Renz, 2004). Compared to for-profit organisations, this may make it more difficult to invest in processes such as KM which may not appear to have an immediate benefit or to be immediately relevant to the welfare or service delivery outcomes for which they are contracted by governments. While the requirements and demands of government reporting may adversely affect the time available for service delivery, governments are concerned that funded services are delivered to a required standard. Overarching government demands for accountability require micromanaging for compliance with funding requirements (Wallace and Pollock, 2008). Government recognition of CSOs' reliable performance, as an outcome of KM, positions CSOs for success in tendering for future funding. Discussions with government department representatives and feedback from government reporting can also add to CSOs' stock of knowledge and assist with knowledge creation.

Peak bodies support particular CSO service areas, such as children and youth, aged and community care, homelessness and neighbourhood centres. A major peak body for the community services sector in Australia supports CSOs, often taking an advocating role between CSOs and governments. Peak bodies lead initiatives within the sector, consult widely and draw on the wisdom and expertise of member CSOs. CSOs with extensive and effective KM are well placed to contribute their knowledge, thereby enhancing their own reputation and effectiveness along with that of the peak bodies.

Conclusion

This research has identified the extent and effectiveness pertaining specifically to KM in Australian CSOs, thereby contributing to the KM literature. KM was found to be moderately extensive and effective in Australian CSOs. Very few CSOs returned a high rating for their KM practice, while the remainder were rated moderate to intermediate.

A further contribution of this research relates to the method of data collection. Previous studies of KM in CSOs were generally based on case studies. This research developed an instrument derived from the literature, combining several previous but disparate measures and customised for CSOs, for collecting data through an online survey from a large sample of CSOs. This instrument may be useful in future research, and could be re-tested, adapted or applied in individual organisations, in other countries or in other contexts.

The research was limited to not-for-profit CSOs in Australia. Private sector (for-profit) community service providers were not included. The research could be replicated in other countries to determine generalisability.

The research has several implications for practitioners and researchers. Given that CSOs with formal KM policy and practice were more effective in KM, more formal KM policy for CSOs seems indicated. More affirmative action by managers, a more proactive approach to the creation and application of knowledge and more attention to knowledge repositories and knowledge distribution resources would improve the extent of KM practice, ultimately leading to a more efficient and effective delivery of services to clients. CSOs are highly committed to individual learning, skills development and knowledge sharing informally, with a view to improved client service. Making knowledge of individuals available to the whole organisation could assist with innovation, cost reduction, tendering for services and competing for government funding.

CSOs have yet to reach levels of KM maturity displayed in for-profit organisations. The full potential of CSO knowledge resources must be realised through the key KM processes to improve not only KM effectiveness, but also the ultimate goal of sustainability and improved client services in increasingly scarce funding environments. Willingness to learn and share knowledge and people-focussed values provide the ideal environment to exploit technology for greater knowledge transfer within CSOs and, more importantly, with clients. The opportunity exists to leap-frog cumbersome and difficult ICT to user-friendly, new generation applications.

CSOs have been called on to be more business-like (Dart, 2004), and this research could be conducted with for-profit CSOs, where a useful range of comparisons could be made. For example, would KM be more formal in for-profit organisations and would technology be more advanced? Identification of differences between not-for-profit and for-profit organisations could assist CSOs. On the other hand, the comparisons may identify areas where for-profit CSOs could also improve their practices.

The online survey utilised in this research focused on capturing and managing explicit knowledge, yet tacit knowledge is a significant element of KM. Possible areas for future research include ethnography (Kane *et al.*, 2006) and participatory action research (Ragsdell, 2009b), which have been identified as appropriate methods to research tacit knowledge. They would offer fruitful follow-up to the quantitative analysis provided here, particularly regarding the effectiveness of KM in CSOs. An embedded researcher could track the generation of new ideas through to implementation in client services and in achieving "hard" outcomes.

Applying a method that specifically compared and contrasted KM in Australian CSOs with other kinds of organisations would add to our knowledge about how KM is different in Australian CSOs. It would also be interesting to investigate further approaches for involving CSO clients as participants in the KM process and how to include their insights.

The research seems justified as one of few national investigations into KM and CSOs. It is significant for several reasons. CSOs simply cannot afford to avoid the potential benefits of more sophisticated and formal KM, particularly in the face of government pressure on funding and client demand for services exceeding supply. Despite moderately extensive and effective KM, some aspects of implementation were patchy. Therefore, KM in some CSOs could be taken to heart more, particularly CSOs who are doing less than they could. If excellence is the goal, then there is significant scope for gains. CSOs have people-driven values and a client-focussed mission. Recognising that advanced KM could support these values and mission, CSOs could be more forward thinking and innovative, deploying more advanced KM.

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About the authors

Trevor Downes holds a DBA from Southern Cross University, Australia. He held a range of managerial positions in a major Australian financial services group, including project manager assignments in New Zealand, Fiji, China and Vietnam. He was later employed as Business and Finance Manager in a number of non-profit community services organisations. He is Fellow of CPA Australia. Trevor Downes is the corresponding author and can be contacted at: tvdownes@hotmail.com

Teresa Marchant holds a PhD from the University of Southern Queensland, Australia. She was Lecturer at Southern Cross University, Australia, prior to her appointment as Senior Lecturer in the Department of Employment Relations and Human Resources, Griffith Business School, Griffith University, Australia. She specialises in training and development and conducts research in gender, learning and career development.