How Organisations Know What They Know: A Survey of Knowledge Identification Methods among Australian Organisations

Abstract

Literature surrounding the Knowledge Management process of identifying what knowledge exists within an organisation is scarce. This research project set out to fill the research gaps surrounding that particular Knowledge Management process called Knowledge Identification. This paper reports on the findings of a survey sent to 973 Australian organisations to investigate their Knowledge Identification practices. The survey findings show that while organisations do perceive Knowledge Identification to be important, the practice of KI has not reached mainstream adoption yet. The reasons why and why not, and the range of methods organisations currently use to establish what knowledge exists within their four walls are identified. The survey findings also reveal two opposing approaches organisations take in practising KI: proactive KI and reactive KI.

Keywords

Knowledge Management, Knowledge Identification, Organisational Science.

INTRODUCTION

An increasing number of empirical studies have demonstrated the positive impact Knowledge Management has on organisational performance (Holsapple and Wu 2011). Yet, effective Knowledge Management still faces "formidable obstacles" (Burrows et al. 2005, p. 73). One key obstacle is that organisations often do not know what they know. In other words, they are often unaware of the knowledge that exists within their organisation already (Alavi and Leidner 2001; Davenport and Prusak 2000; Hinds and Pfeffer 2002; Nevo et al. 2009).

Employees (knowledge-holders) possessing particular skills and knowledge could be invaluable to both colleagues and managers within the same organisation, but it is more likely than not that those people who could make use of this knowledge do not even know these knowledge-holders and their knowledge exist (Nevo et al. 2012). "Talk about a waste!" (Nevo et al. 2009).

The above is one example among many of the ramifications of organisations not knowing what they already know. Surprisingly though, literature surrounding either the practice or the theory of how organisations establish what knowledge exists within their four walls - the Knowledge Management process known as Knowledge Identification - is limited.

This paper addresses this knowledge gap and reports on the findings of a survey sent to 973 Australian organisations to investigate how they identify what knowledge exists within their organisation. The following sections elaborate further on the background to the research, outline the research questions and methodology, and present and discuss the findings of the survey.

BACKGROUND

Explanations for the above Knowledge Management obstacle vary; the most common explanation is the elusive notion of knowledge sharing. To identify who knows what, employers have encouraged their employees to share experience and expertise in knowledge repositories that other employees can tap. Employees however do not find it "natural" to write down what they know (Riege 2005; Thurm 2006), and some knowledge are simply difficult to articulate due to their tacitness (Nonaka and Takeuchi 1995; Polanyi 1966).

Another explanation for why organisations do not know what they know is that contemporary Knowledge Management frameworks are not applied effectively and key Knowledge Management processes are overlooked. According to Hylton (2002, p. 2), the underlying cause of many mistakes of early Knowledge Management initiatives is that organisations skip the very first step by not determining whether they know what they know and what they do not know (Knowledge Identification), which he called "a travesty of justice to Knowledge Management." Where does Knowledge Identification fit in Knowledge Management?

Significance of Knowledge Identification (KI) in Knowledge Management (KM)

A review of the literature on what KM is and how KM has evolved goes beyond the scope of this paper (see Choi and Lee 2002; Desouza and Evaristo 2003; Earl 2001; Richter et al. 2011 for some discussions on KM and KM strategies). KM, for the purpose of this paper, is defined succinctly as managing a flow of knowledge which ideally brings the "right knowledge, at the right time, and in the right form to where it is needed." (Mäki, 2008, p. 53). Knowledge itself refers to "facts, information, and skills, acquired through experience or education" (Oxford, 2012) that are relevant and valuable to the performance of organisations.

KM, as the above definition implies, involves several processes including: identifying what knowledge is needed to attain organisation goals and what knowledge exists within the organisation (i.e., Knowledge Identification), acquiring the knowledge needed (Knowledge Acquisition), creating new knowledge (Knowledge Development), distributing the knowledge acquired (Knowledge Sharing), and applying the knowledge (Knowledge Utilisation). New knowledge is often created as the outcome of these KM processes. Existing and new knowledge is also retained or stored (Knowledge Retention) to add to organisational memory and for later consumption. Figure 1 below depicts these different and inter-connected KM processes; the lines connecting them represent knowledge flows.

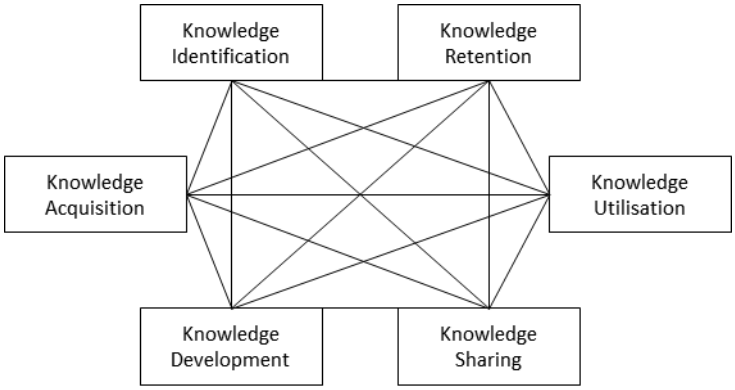

Figure 1: Knowledge Management processes (Adapted from Probst et al. 2000, p. 30).

Emerging from this overview of KM, it is clear that finding out what knowledge is needed and what knowledge exists within the organisation (KI) is one of the first KM processes to undertake. In order to determine what knowledge needs to be acquired, developed, shared, retained, or utilised, organisations should first establish what knowledge exists within their organisation, that is their internal knowledge, and where the knowledge resides (Jennex and Olfman 2004; Probst et al. 2000; Reinhardt 2001).

The outcomes or deliverables of Knowledge Identification (also referred to as Knowledge Audit (Henczel 2000) or Knowledge Mapping (USAID 2003)) not only help determine what knowledge is needed and identify who knows what within the organisation, but also act as an enabler for subsequent KM processes. Effectively, practising Knowledge Identification potentially leads to more effective KM. So, what do we know about KI?

Review of Knowledge Identification (KI) literature

Literature concerning KI is surprisingly scarce compared to other KM processes. In fact, the lack of KI literature suggests that KI has been widely overlooked and is perhaps not well understood. Huber (1991, as cited in Alavi and Leidner 2001, p. 119) for one, pointed out that organisations "have weak systems for locating [KI] and retrieving knowledge that resides in them." Jafari et al. (2009) on the other hand found little to no research undertaken in guiding the choice of knowledge mapping (KI) techniques.

Failure to practise KI causes several problems. Failure to identify internal knowledge means not being able to apply the right knowledge, in the right form, at the right time. It also means acquiring knowledge already existing within the organisation, thereby duplicating projects and wasting resources, thus perpetuating what is widely recognised: organisations often reinvent the wheel (Robertson 2002).

In fact, billions are likely wasted on KM because organisations fail to identify what knowledge they already have and thus poorly manage internal knowledge (Stewart, 2002) - global KM market revenues are projected to exceed US$157 billion by 2012, from an estimated US$34.17 billion in 2007 (Global Industry Analysts Inc. 2008). Emphasising the substantial value of its unidentified knowledge, a former HP CEO stated that, "If HP knew what HP knows, we would be three times as profitable." (Davenport and Prusak 2000). This case at HP is

not an isolated one: CEOs across the world wish they knew what they know already (Robinson and Ensign 2009).

Further, due to an ageing workforce, the risk of losing knowledge itself has become a serious concern (DeLong 2004; Stam 2009). According to Parise et al. (2006, p. 31), "knowledge loss resulting from employee turnover is becoming a critical issue that cannot be ignored." Knowledge Retention practices also start with KI. As Joe et al. (2006) caution, one of the many challenges of retaining knowledge is to determine what valuable knowledge employees have (KI) and thus what knowledge should be retained.

That is to say that knowledge is embedded in technology (knowledge databases), documents, organisational culture, routines, practices and norms (Argote and Ingram 2000; Gourlay 2006; Walsh and Ungson 1991), but the yet-to-be identified and acquired knowledge still remains between the two ears of employees.

How do organisations determine who knows what within their organisation? Davis and Wagner (2003, p. 476) reviewed the literature to isolate effective methods of identifying "local knowledge experts", in other words, effective KI methods. Their review of the literature proved "to be of limited success." They further added that few studies clearly describe the means through which holders of knowledge are identified. Literature surrounding KI methods is reviewed below.

Knowledge Identification (KI) methods

Notable KI methods include: Knowledge Sharing Systems (Hinds and Pfeffer 2002), Expert Finding Systems (Maybury 2006), Organisational Network Analysis (Parise et al. 2005), Knowledge Mapping (Wexler 2001) and Expertise Transfer (or ExTra) (Weber et al. 2007). Each of these KI methods is discussed in turn below.

The advance in computing and telecommunications technologies has prompted organisations to invest in Knowledge Sharing Systems (KSSs) like intranets, wikis or blogs, to facilitate knowledge transfer and sharing (Ipe 2003; Rumizen 1998). KSSs are used as a KI method as well. The logic is that by providing employees with a space where they can share their knowledge and assuming that they do share their knowledge, organisations would by the same token be able to establish what internal knowledge exists.

However, so far, knowledge sharing within organisations has met with little success (see Cross et al. 2001; Hendriks 1999; Hinds and Pfeffer 2002; Thurm 2006) and in a similar fashion, KSSs as a KI method.

Another piece of technology serving a similar purpose of identifying internal knowledge and which has recently gained popularity is the new class of search engines called Expert Finding Systems (EFSs) or Expert Locators (see D'Amore 2005; Shami et al. 2008). To identify who knows what, these systems apply different content analysis techniques to large collections of artefacts created by employees themselves including emails (Balog and De Rijke 2006), instant messages, documents (De Boer 2006) and briefings (Maybury 2006).

Practising KI using those search engines remains a difficult task nevertheless according to Nevo et al. (2009), because the problem with EFSs is that most are centrally managed efforts, thus requiring additional resources to constantly review and update the credentials of often rapidly changing roles of experts, to which few organisations commit. This view was echoed by Maybury (2006, p. vii) who pointed out that "skills and knowledge are rare, expensive, (unevenly) distributed, difficult to qualify, continuously changing, varying in level, and often culturally isolated and oversubscribed."

Another KI method, promoted by Parise et al. (2005), is Organisational Network Analysis (ONA). Central to their argument for adopting ONA is the premise that employees possess not only skills and expertise but also knowledge of relationships among other employees.

In effect, ONA draws relationships among employees and therefore suits organisations which favour collaborative work among employees over individualistic work. Furthermore, ONA only provides a snapshot of the current relationships among employees (Borgatti 2005) and therefore does not address the constant change among employees (Maybury 2006). In other words, ONA is not dynamic.

Another KI method which bears a lot of resemblance to ONA is Knowledge Mapping. A knowledge map is a visual display of captured information and the relationships among individual items, using graphical presentation of text, stories, models, numbers or abstract symbols (Vail 1999; Wexler 2001). Knowledge maps illustrate how knowledge flows throughout an organisation and serve as pointers to sources of knowledge (or who knows what) (Gupta et al. 2012; Kim et al. 2003). How effective those knowledge maps are as a KI method is still unclear.

Other and newer KI methods exist. The ExTra approach, promoted by Weber et al. (2007), starts with identifying holders of knowledge by making use of 'transfer networks' that are implemented in the different business areas. These transfer networks consist of local management representatives, HR representatives and employees of the knowledge management department who meet typically twice a year for compiling a list of

"candidates." (Weber et al. 2007). How exactly the list of candidates is compiled and how effective ExTra is, are not yet known.

Five KI methods have been identified and discussed above, each having its own strengths and weaknesses. However, little is known about whether or to what extent these KI methods are used, whether they are the only KI methods that organisations currently use to practise KI, or how effective those KI methods are.

More importantly, based on the discussion on KI methods, it is clear that there are several factors which influence (and possibly predict) the effectiveness of KI methods. Some of the factors identified in this paper include the organisational culture, the tacitness of knowledge, the degree of collaboration among employees, and the dynamic nature of employees. However, no research has been undertaken to systematically identify the factors influencing the effectiveness of KI methods.

These literature gaps form the basis of the research questions this research project set out to fill. The next section of this paper presents the research questions, outlines the research method and reports on the current status of the research project.

RESEARCH DESIGN

Research Questions

The previous section pointed out the fact that KI literature is scarce and demonstrated that KI methods have weaknesses. If we are to improve our understanding of KI practices and augment the effectiveness of KI methods, we should first understand the problem(s) these methods have, and the experiences KM stakeholders (from management to operational employees) have with respect to those methods. The primary research question for this research is thus:

1. What problems face KM stakeholders with respect to KI?

Secondary research questions are as follows:

2. What KI methods are currently used by organisations?
3. What do KM stakeholders want, like or desire from KI methods?
4. What do KM stakeholders not want, dislike, feel is missing, or perceive is problematic in KI methods?
5. What factors influence the effectiveness of KI methods?

Answering these secondary research questions will answer the primary research question.

Methodology

This research project follows a three-phase research method. At the time of writing, work is under way for phase two. Phase one is described in this section, after which findings are reported and discussed.

The primary research question is 'What problems face KM stakeholders with respect to KI?' Since this research seeks to understand the stakeholders and their problems "in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them" (Denzin and Lincoln 1994, p. 2), the interpretive paradigm was adopted.

Phase one was primarily concerned with the question of what KI methods are currently used by organisations (research question two). The characteristics of a large population were sought - breadth rather than depth. Hence a survey research methodology was adopted and a short questionnaire survey of these organisations was conducted.

The questionnaire also included open-ended questions related to research questions three and four (perceptions of goals and problems with KI methods). The goal in phase one was therefore not only to obtain a list of KI methods but also initial responses to research questions three and four. The questionnaire was pilot-tested for validity and reliability prior to release.

The population target consisted of the Top 1000 organisations in Australia with the greatest number of employees. Such a population was chosen because larger organisations are more likely to have more employees and more likely to adopt KM initiatives (Guthrie et al. 1999; Zhou and Fink 2003). These organisations were identified using a list purchased from a commercial list provider.

Selection of KM stakeholders was informed by Burstein et al. (2010). Their recent survey carried out among Australia's Top 1000 organisations to determine who has authority over KM strategy showed that four in five organisations have a formal role for authority over KM strategy and that senior executives acknowledged that

they have this authority (Burstein et al. 2010). In other words, management is most likely to have overall knowledge of KM (and KI) initiatives in their organisations.

The relevant KM stakeholders addressed in phase one consisted therefore of management, including CIOs, CKOs, Directors of Human Resources and IT managers. The short questionnaire was sent via post mail, with a prepaid return envelope.

Given the need to follow-up with non-respondents of the survey and the need for participants in later phases of the research, a non-anonymous questionnaire was used. Respondents were also asked whether they would be interested in participating in later phases of the research. To improve response rates the survey was personalised (Edwards et al. 2002). Further, to address possible nonresponse bias, the questionnaire was sent again to all non-respondents and second-round responses were compared to first-round responses.

The data collected from the questionnaires from all respondents (including the responses from the follow-up survey) was analysed. Data collected from closed questions was analysed using quantitative data analysis methods, including measures of central tendency (frequencies, percentages, mean, median and mode) and association between variables (for example organisation size, KM maturity, KI method used and organisational role). Data collected from open-ended questions was analysed using qualitative data analysis and basic descriptive statistics.

FINDINGS AND DISCUSSION

In the first round of data collection, 973 surveys were mailed out - 27 organisations had opted out of the list from previous studies. After round one of data collection, which ran for 10 weeks, 24 mails came back marked 'Return to Sender', indicating a problem with the address, and a response rate of nine per cent was observed.

In round two, the same survey was mailed to the 858 non-respondents in round one. After seven weeks of data collection, 36 mails came back marked 'Return to Sender' and a response rate of four per cent was observed. Combined, a response rate of 13.80 per cent was reached, that is a total of 126 responses out of 913 potential respondents.

Out of the 126 responses, five were invalid due to incomplete responses. Of the 121 remaining valid responses, 83 (69%) were from private organisations and 38 (31%) were from public organisations. As there were 736 private organisations and 177 public organisations in the surveyed population, this gives response rates of 11% for private organisations and 21% for public organisations. Geographically, a total of 82% of the responses came from organisations located in the Eastern states of Australia.

While the respondents themselves consisted mostly (98%) of employees holding managerial positions, their titles could be broadly grouped into three different fields: 'ICT, IT or IS related' (71.9%), 'Operations' (14.9%) and 'Knowledge Management' (13.2%). The number of full-time employees working in the responding organisations ranged from 150 to around 30,000.

Knowledge Management maturity and roles

When asked 'How experienced is your organisation with Knowledge Management?', on a five-point scale with one being 'Not at all' and five being 'To a great extent', results showed that the vast majority of responding organisations are experienced with KM - but not very much. 3% of respondents said their organisation had no experience at all with KM, 40% of the respondents chose the second lowest point on the scale and 5% chose 'To a great extent'. The median lay at three and the mean at 2.82.

When asked to whom the responsibility for overall KM practices in their organisations was assigned, results corroborated with those of Burstein et al. (2010). KM responsibilities are either assigned to an employee occupying a managerial position or, spread among several employees, each occupying a managerial position.

19% of respondents indicated that KM responsibility was attached to more than one specific position. One respondent explained that KM practices are spread across more than one function, thus involving more than one employee or involving senior executives who would have an overall view of how the organisation functions as a whole. The most popular combination was the CIO with the Director of Human Resources. The most popular position was the CIO (39%), followed by the IT Manager (21%). The CKO position was not as popular, with only 7% of the responses.

Knowledge Identification practices and methods

When asked 'How important is it to identify what knowledge exists within your organisation?' on the same five-point scale, all responding organisations answered positively. 49% chose 'To a great extent', while another 40% chose the second highest point. The median and mean stood at four and 4.36 respectively.

The open-ended question 'Why does your organisation identify / not identify existing knowledge?' explains the above trend. After analysing and categorising the responses, two main reasons why organisations do practise KI emerged. Firstly, organisations practising KI value knowledge as their raison d'être or as leverage to competitive advantage. They recognise the positive impact of having valuable knowledge in decision-making. Secondly, they practice KI to secure business continuity, ensuring that knowledge of employees leaving or retiring is captured.

On the other hand, the reasons why organisations do not practise KI abound and include (from most often to least often mentioned): the lack of resources (time, effort and tools) to effectively practise KI, the low perceived value of KI, the difficulty or enormity of the task, poor understanding of the issues involved, and lack of a robust KM strategy.

When asked 'To what extent does your organisation identify existing knowledge?', results suggest that KI is not applied extensively. 4% of responding organisations selected 'Not at all', 45% selected the middle point, and 1% chose 'To a great extent'. The median was three. Table 1 below shows the responses obtained from the questions which were asked using the five-point scale, together with their means, medians and modes.

Table 1. Questions and responses surrounding KM and KI.

	Responses								
Questions	Not at all	-	-	-	To a great extent	Don't know	Mean	Median	Mode
How experienced is your organisation with Knowledge Management?	3%	**40%**	32%	19%	5%	0%	2.82	3	2
How important is it to identify what knowledge exists within your organisation?	0%	2%	8%	40%	**49%**	0%	4.36	4	5
To what extent does your organisation identify existing knowledge?	4%	35%	**45%**	16%	1%	0%	2.74	3	3
To what extent has knowledge that exists within your organisation been identified?	4%	**41%**	33%	19%	1%	1%	2.71	3	2
Are the current methods of identifying who knows what within your organisation problematic?	1%	12%	20%	**36%**	28%	1%	3.84	4	4

(Percentages rounded to the nearest whole per cent.)

Not surprisingly, in an almost identical fashion, when asked 'To what extent has knowledge that exists within your organisation been identified?', 4% of respondents selected 'Not at all', 33% selected the middle point, and 1% chose 'To a great extent'. The median also lied at three. These results support the argument that much of the knowledge employees hold is yet-to-be identified and used effectively (McAdam et al. 2007; Nevo et al. 2009).

When asked 'Are the current methods of identifying who knows what within your organisation problematic?' on the five-point scale, 35% chose the second highest point while another 29% chose the highest point. Combined, 64% indicated significant problems.

How are organisations currently practising KI? To identify what KI methods organisations currently use, the questionnaire included an open-ended question - 'If you need to find someone within your organisation with specific knowledge, how would you go about finding that person?', together with a check-list of already identified KI methods which respondents were asked to tick.

The KI methods identified varied from manual and ad-hoc methods such as asking people by phone, to computer-based and organisation-wide systems such as searchable employee-profiles. The KI method used by most of the respondents is a Knowledge Sharing System. 56% of respondents indicated having systems KSSs and Document Management Systems setup in their organisations.

Further, 43% of respondents interviewed their staff, 39% applied different content analysis techniques on existing documents while 30% pointed out that they analysed the relationships among employees to determine who knows whom. Table 2 below lists the KI methods identified.

Table 2. List of KI methods.

- Search HR system records
- Search the Intranet skills register
- Navigate the organisation structure
- Word-of-mouth or peer networking (Asking key personnel including managers and personal assistants)
- Communities of practice or personal network
- Targeted phone calls. Talking to people who may know the right person
- Shadowing a leaving employee to learn his/her job/skills (buddy/partnering techniques)
- Subject-specific discussion boards
- Knowledge brokers (subject matter experts)
- Business unit or group meeting sessions
- Cross-team management collaboration
- Knowledge-services teams
- Talent Management
- Audit processes led by centralised KM team
- Building a data warehouse to extract corporate knowledge, not that of employees

Further analysis of the KI methods above reveals two approaches to the practice of KI: proactive KI and reactive KI. Reactive KI is KI practised on an as-needed basis (including searching within what has already been acquired). Proactive KI on the other hand is KI practised not only when required but consistently and systematically across the entire organisation, and knowledge identified stored for later consumption.

CONCLUSION

Knowledge Identification is an essential activity in effective Knowledge Management. KI involves identifying what knowledge exists within an organisation and where the knowledge resides. In effect, the outcomes of KI enable subsequent KM processes. With many organisations currently experiencing significant proportions of their employees nearing retirement, it is vital that organisations embed KI in their KM strategy.

This paper reported on the survey-phase of a three-phase research project set out to fill the literature gaps surrounding Knowledge Identification practices.

The survey findings revealed that much knowledge that exists within organisations still remains yet-to-be identified. The survey showed that while the practice of KI is perceived to be important, it is not applied extensively. Besides the lack of understanding of the issues involved and the low perceived value of the benefits of KI, the main reason why organisations do not attempt to find out what knowledge exists within their organisation is because they lack the tools or methods to effectively do so.

The survey also found a list of methods organisations currently use to identify who knows what. The methods range from manual and ad-hoc techniques to computer-based and organisation-wide systems.

Analysis of the methods indicated two opposing approaches organisations take in practising KI: proactively and reactively. More importantly, a large proportion of responding organisations (64%) find the KI methods they use to be problematic. Phase two of this research project will investigate the problems that KM stakeholders experience with KI methods.

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