



Converting Consultants' Tacit Knowledge to Organisational Explicit Knowledge: Case Studies of Management Consulting Firms

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ABSTRACT

This paper explores the conversion of individuals' tacit knowledge to organisational explicit knowledge in management consulting firms focusing on how organisation structure and culture, and information technologies support the conversion process. Nonaka and Takeuchi's (1995) spiral evolution knowledge conversion model was used in this study. Three case studies of management consulting firms in Australia were conducted. All cases indicated the importance of tacit knowledge for competitive advantage but the absence of effective guidelines on how to convert individual tacit knowledge into explicit organisational knowledge. Although the organisational structures and reward systems were found to be supportive of the conversion process, information technologies was regarded more as a tool to accelerate the activities of consulting practice than as a means to enhance the knowledge conversion process.

INTRODUCTION

Today's economies are increasingly focused on knowledge, which is recognised as the key driver of economic performance. As expressed by Drucker (1993, p. 42), "knowledge is the only meaningful resource today; the traditional 'factors of production' have not disappeared, but they have become secondary." In other words knowledge assets are a further resource on top of traditional factors of labour, capital, and land. Knowledge is a meaningful resource in the present and inevitably in the future. One way to improve economic performance is to treat knowledge as providing a competitive advantage through the conversion of tacit individual knowledge into explicit organisational knowledge. In this way people do not reinvent the wheel for each project carried out by the organisation (Devlin, 1999; Drucker, 1993; Nonaka & Takeuchi, 1995; Stewart, 1997).

In a management consulting firm, consultants are the holders of the individual knowledge that generates revenue. The tacit knowledge of a consultant is critical to the success of a project but it can be even more beneficial to a firm if it can be converted to explicit knowledge. By doing this, the firm is able to prevent the reinvention of the same methods to solve problems that have already been solved in the past. Moreover, other consultants can apply these methods even when the person who was originally involved is no longer employed by the firm.

According to Nonaka and Takeuchi (1995) knowledge conversion is a process of interaction between tacit and explicit knowledge. This interaction ensures a continuous interplay between the two entities, i.e. the individual and the firm (Inkpen, 1996). However, the process is dependent other inherent variables such as organisational structure and culture, and information technology (Dilnutt, 1999). In this paper we therefore aimed:

- To observe the conversion processes of consultants' tacit knowledge to organisational explicit knowledge, and
- To evaluate how organisational structure and culture, and information technology support this conversion process.

KNOWLEDGE CONVERSION MODEL

Our study is based on the spiral evolution model of knowledge conversion developed by Nonaka and Takeuchi (1995). According to this model there are two stages that need to be completed in order to convert consultant tacit knowledge to explicit organisational knowledge. They are the socialisation process and the externalisation process.

The Socialisation Process

The socialisation process involves the sharing of tacit knowledge between consultants. Tacit knowledge is subjective; it is experience

based knowledge which cannot always be expressed in words, sentences, numbers or formulae, often because it is context specific (Nonaka & Takeuchi, 1995). Consultants can share this knowledge by working in the same environment, or simply by spending time in a same place. This can be a formal type situation such as a meeting or conference room or it can be informal such as at a restaurant, in a café, or in an office corridor.

In this process, the sharing of experience is not conducted through written or verbal instructions. It is conducted through self-transcendence, that is, the self is freed in order to become a larger self that includes tacit knowledge of others (Nonaka & Konno, 1998). A consultant needs to be receptive to the new knowledge and to use it in order for this process to work. According to Nonaka and Takeuchi (1995), socialisation is most effective if done orally and/or through the dialogue of a meeting.

Externalisation Process

The second process is externalisation which is comprised of two important phases. First, it requires the expression of consultants' tacit knowledge in the form of words and concepts. They are expressed as metaphors, analogies, and narratives.

- Metaphor is an attempt to understand one element of experience in terms of another (Morgan, 1997).
- Analogy refers to the commonality of the relational structure of attributes between concepts (Dawson, 2000).
- Narrative is a story and the main vehicle for transmitting knowledge from one generation to another throughout the world (Remenyi, Williams, Money, & Swartz, 1998).

The second phase ensures the translation of consultants' tacit knowledge into readily understandable or explicit forms (i.e. in documentation and/or databases). Explicit knowledge is objective and rational and can be expressed in words, sentences, numbers or formulae and is context free (Nonaka & Takeuchi, 1995).

The individual-to-organisation knowledge conversion model used in our study, as indicated earlier, is based on Nonaka and Takeuchi (1995). The model incorporates inherent variables that support knowledge conversion, namely organisational structure, organisational culture, and information technology (IT). The model is outlined in Figure 1 below.

The moderating influences comprise organisational structure and culture, and IT that will be discussed in the following section.

Organisation Structure

The structure of an organisation is defined as "the formal relationships and allocation of activities and resources among people"

Figure 1: Individual-to-organisational knowledge conversion research model



(McKenna, 1999, p. 300). These determined how an organisation runs its business. The business can be run by using different management levels (Buzan, Dottino, & Israel, 1999). In other words, in many consulting firms there are three levels of management: top (i.e. senior executives), middle (i.e. middle managers) and low (i.e. junior consultants), which constitute the structure.

The structure of an organisation is also characterised by three types of knowledge conversion (Lessem & Palsule, 1997):

1. Hierarchical: where top level management have a leadership role and command what their subordinates need to do. The senior executives are therefore the creators of the managerial concepts of decision-making. In this type of organisation, knowledge is created explicitly (i.e. it is documented or computerised).
2. Flat: Where low and middle management levels operate as entrepreneurs. They contribute their opinions and are sponsored by the senior executives. In this type of organisation, the senior executives support rather than command and therefore knowledge is created tacitly within low and middle management.
3. Hybrid: Where management levels are important actors who work together in an organisation. The senior executives articulate the dreams (visions) of the organisation and the junior members deal with the reality. Middle management, managers synthesise both tacit knowledge from senior executives and junior members, and make the aims explicit and realised in new products and services. In this type of organisation, knowledge is created tacitly and explicitly, and shared between all levels of management.

Our research aimed to first, establish which organisation structure was operating in the management consulting firms involved in the study and second, what effect organisational structure may have on the individual-to-organisation knowledge conversion process as shown in Figure 1.

Organisational Culture

Culture in an organisation is defined as an aggregate of the shared understandings of individuals which influence the collective behaviour of the organisation (Lyles & Schwenk, 1992). An organisation is made up of individuals who have their own unique norms, values and behaviours (Prusak, 1996). The collective behaviours, norms and values of individuals within an organisation create its culture (Dilnutt, 1999). Therefore organisational culture holds an organisation together (Dawson, 2000).

Management consulting firms are typical examples of highly knowledge-intensive companies as they depend on the knowledge and expertise of their consultants (Apostolou & Mentzas, 1999). Consultants treat their knowledge and expertise as wealth. It is therefore desirable that consultants are willing to share their knowledge and expertise. Motivation to do this can come from rewards such as promotion and salary increases that are based on employees' performances rather than being based on seniority and favouritism (Robbins & Barnwell, 1994). Rewards can also be in the form of praise, recognition, time off, empowerment, bonuses, work selection, advancement, and professional development.

Our study examined whether reward, as part of organisational culture, motivates consultants to convert their tacit knowledge to explicit organisational knowledge.

Information Technology

IT in an organisation is defined as the means by which it acquires, stores, and distributes information with computerisation that can be done quickly and easily (Maglitta, 1996). IT includes electronic mail, groupware, data warehouses, videoconferences, and network bulletin boards. The Internet, intranet, and extranet are also the technologies that make the above possible, since they have eliminated global boundaries so that people around the world can access data sources.

Although these technologies look promising for knowledge conversion processes, poor implementation or over-emphasis on these technologies can inhibit their effectiveness (Leonard-Barton, 1995). Therefore advances in IT do not guarantee support for the process of knowledge conversion. Furthermore knowledge is continuously recreated and re-constituted through dynamic, interactive social networking activity (Brooking, 1999), and IT can play a role in the development of knowledge (Swan & Newell, 2000). IT can enhance knowledge development because it disregards physical location and removes barriers to collaborative teamwork and knowledge sharing (Chesbrough & Teece, 1998).

Many multinational management consulting firms use appropriate technologies (e.g. email and groupware) for knowledge sharing (Chaudhry & Ng, 2001). Our study examined to what extent the Internet and associated technologies supported the socialisation and externalisation knowledge conversion processes in these firms.

FINDINGS

Three case studies were conducted in December 2000 of three Australian management consulting firms. Two are internationally recognised and one is a national consulting firm. Two senior management personnel (i.e. the chief executive officer and director) from each firm were interviewed in their offices in Melbourne and Perth. One middle management person (i.e. manager) was interviewed in the office in Melbourne. Each interview lasted 45 to 60 minutes. The three interviews (i.e. one on each firm) were tape-recorded and transcribed afterwards. Qualitative data analysis software, Nud*ist, was used to assist the analysis of the transcriptions.

A semi-structure interview technique was used to enable natural and spontaneous communication with the interviewees (Gorman & Clayton, 1997). This technique provides participants 'room' to think and express their opinions. Thus the interviewees found it more natural and easier to respond to the interviewer.

The interview questions focussed on the knowledge conversion process. This approach adopted an organisational view of how knowledge conversion was supported. During interviews data were gathered in relation to the following propositions:

- Formal meetings encourage individuals to share tacit knowledge with others through a socialisation process.
- In externalising tacit knowledge, metaphors, narratives and analogies are important as they assist individuals to articulate tacit knowledge.
- Hybrid organisational structure can support knowledge conversion processes.
- Reward systems, as part of a supportive organisational culture, will encourage knowledge conversion activities.
- Information technologies will not support, facilitate and enable knowledge conversion activities.

In the following section the Cases 1, 2, and 3 represent the management consulting firms in Melbourne, Perth, and Melbourne.

Socialisation

This section looks at the importance of meetings in encouraging the socialisation process. The study found that meetings were the most joint common activities that the consultants do. They meet

weekly, fortnightly, and monthly to discuss a range of consulting practice activities which are described in Table 1.

Table 1: Meetings in the socialisation process

		Case 1	Case 2	Case 3
Formal weekly meeting	Attendees	Directors, managers, consultants	Directors and partners	Directors and partners
	Discuss about	- the projects' prospects	- who does what in a project - new opportunities	- allocation of consultants in a project - new opportunities
Formal fortnightly meeting	Attendees	Directors	N/A	Managers, senior consultants, and consultants
	Discuss about	- the progress of consultants' work in a project - whether chargeable hours have been met	N/A	- the projects that are going on - the progress and problems
Formal monthly meeting	Attendees	N/A	Consultants, senior consultants, managers, directors, partners	N/A
	Discuss about	N/A	- specific issues that include the solution teams	N/A

All firms held meetings to discuss their business situations on weekly, fortnightly and monthly bases where case 1 and 3 did not hold formal monthly meetings, and case 2 did not hold a formal fortnightly meeting as shown in Table 1.

They met to initialise a project, to check and obtain reports from consultants on progress. None of the meetings of these firms were held especially to share knowledge. Furthermore, being together in a formal meeting did not guarantee that tacit knowledge would be shared among the attendees. However, they sometimes indicated that they would share knowledge but not necessarily in a formal meeting.

Externalisation

The articulation of an individual's ideas or images, which can be in the form of metaphors, analogies and narratives, and the translation of them into explicit forms were described to the interviewees. However all interviewees had only limited understanding of the externalisation process of knowledge conversion. In due course the use of the three forms and the translation of them into documents should be encouraged in order to externalise tacit knowledge.

To convert tacit knowledge into explicit knowledge, all firms used induction programs. These focus on case studies. A case study within a training session that corresponds with the use of metaphors, narratives, and analogies was indicated in the externalisation process. Another methods found in the interviews were explicit presentations and mentoring. These two methods of conversion processes emerged during the study, which were not indicated earlier in the literature review.

The translation of these expressions of tacit knowledge was part of the process. However there was no indication that the attendees in the training sessions, who are present at explicit presentations and who are mentored, actually translate their new tacit knowledge into explicit forms (i.e. documentation, databases). In other words, they did not create written documentation for their knowledge development so that it can be accessible by others in the firm as described in Table 2.

Table 2: Expression and documentation in the externalisation process

		Case 1	Case 2	Case 3
Expression of Tacit Knowledge	Metaphor, Narratives, Analogies	Case Study in a training session, *Mentoring, Explicit Presentation	Case Study in a training session, *Mentoring, Explicit Presentation	Case Study in a training session, *Mentoring, Explicit Presentation
Documentation of Tacit Knowledge	Written Documents, Databases	Have intention to be documented but never accomplished	Have intention to be documented but never accomplished	Have intention to be documented but never accomplished

*Mentoring and explicit presentations emerged in the interviews

All three firms held training sessions, gave explicit presentations, and provided mentoring to transfer consultants' tacit knowledge to the juniors, but none converted this knowledge into explicit organisational knowledge. It appears that individual consultants do not have the time to do this as they need to work on their client commitments. Nonetheless, the tacit knowledge of senior staff members was highly valued and needs to be transferred via induction programs and captured in written documents or databases. This would minimise the loss of knowledge from specialists.

Organisation Structure

Each interviewed firm indicated a different organisation structure. Case 1 had a group of account managers that looked after clients and particular existing projects. Each project had an account manager and consultants who reported to the principal consultants. Managers did not direct but rather supported consultants in their work. Therefore this firm had implemented what it called a 'network' organisation structure. This structure used an arbitrator to allocate people to projects. Top management would approach this arbitrator to establish available consultants for an urgent task. They would not approach the consultant directly but would ask the arbitrator whether or not this person could be allocated to the task. Once the person was available, the arbitrator would then authorise the allocation of this person. This showed that top management did not control the allocation of tasks in the firm. Consultants were also able to acquire advice and to provide other consultants with advice to accomplish a job. Thus, within this firm there was considerable cooperation in the way consultants' gave and received advice from each other.

Case 2 claimed to use a 'loose' hierarchical structure that operates in a matrix environment. Partners and staff were placed in different pools which were categorised along three dimensions: (1) post implementation services and office administration; (2) industry groups such as financial services, technology and media communication, energy and utilities, products, and healthcare; (3) staff hierarchies such as partner, director, manager, experienced consultant, consultant, administrator and secretary. These dimensions operated globally and a consultant in a pool could work across dimensions and the world. For example when a project commences, all levels of consultants were pulled out of the pool and allocated in an hierarchical fashion (i.e. a partner, a director, a manager, a senior consultant, a junior consultant) in terms of delegating tasks and reporting. A consultant would need to report to his/her senior consultant who would then report to the manager of the project, and so forth. When the project is completed all consultants are placed back into the pool. Thus the loose structure operated semi hierarchically, that is, the hierarchy operates only for the duration of the project.

Case 3 used divisions such as tax services, assurance and advisory, business process management, and work solutions. This firm also claimed to use a 'network' organisational structure where consultants across divisions would share knowledge when working on a same project. For example, a consultant in the assurance and advisory division would work with a consultant from business process management. They would work share their knowledge while working together. Each consultant

was encouraged to give advice and take suggestions for better service and clients' satisfaction.

The evidence of the 'loose' and 'network' organisation structure strengthens the process of knowledge conversion in different ways. In one case a 'loose' organisation structure can turn into a hierarchical structure when a project commences and loose again when the project is completed. In the other cases the use of 'network' organisation structures allows equal treatment of every employee to give and take advice from others. These structures are believed to enhance knowledge conversion processes as they encourage consultants to share knowledge.

Organisational Culture

Reward systems as part of organisation culture are seen to encourage knowledge sharing since people will share knowledge if they can get something in return. This might be in the form of recognition, praises, advancement, time off, or money. Case 1 implemented a professional development session and encouraged employees to attend. Staff were rewarded for attending sessions. Staff were encouraged to present their knowledge explicitly during the professional development as long as it was relevant to the firm's objectives and on-going development. Reward was to be provided based on the attendance and effectiveness of the topic.

Case 2 used a competency-based performance model to evaluate staff members' performances and career development. The model evaluated them based on their contributions to the knowledge-based system of the firm. An employee would be recognised with a reward if he/she made significant contribution; however no reward would be provided if an attempt to share knowledge was not of evidence. The competency-based performance model was introduced to improve consultants' knowledge, skills and attitudes towards their work.

Case 3 used an incentive program that provides a monthly 'best performance' and 'best practice' reward. This firm also provided rewards for a bi-monthly business achievement, that is, staff members who contributed or had expressed a knowledge sharing attitude. Every Friday staff members gathered in the lounge to witness the rewardees receiving a reward.

The case studies found that rewards are given to staff members based on several criteria. First, participation in professional development sessions and the effectiveness of the topic relating to the firm's objectives and on-going development. Second, evaluation of consultants' improvement in knowledge, skills, and attitudes based on a competency model. Third, showing an attitude of knowledge sharing to colleagues in the firm. These criteria appear to encourage consultants to share knowledge.

Information Technology

Case 1 used IT in several areas. A local area network (LAN) was implemented to link clusters of computers and to map a network drive which staff were able to access. 'Microsoft Outlook' was used to facilitate communication among employees and with clients via the Internet. At the time of the interview, this firm was developing a technology that would provide information as quickly as possible with a web-enabled user interface. This would also enable staff members to use the products off site. For example, if staff needed information about work to be done for a certain client, then a list of clients that correlates with the work is shown on screen.

Case 2 used IT to communicate among staff members via an intranet with clients, and via the Internet. 'Lotus Notes', a groupware application, was used for email and provided a client database to create, store, and modify documents accessed by other staff on and off site. Users were able to share explicit knowledge by storing lessons learnt from a project in a knowledge database which was accessible globally by other users provided they had passwords. Employees from around the world were encouraged to share their experiences on the intranet.

Case 3 also implemented a LAN and wide area network for communication among employees and with clients. The same groupware

application was used (i.e. 'Lotus Notes') for email clients and for the clients database that served users globally. This technology assisted the activities of the consulting practice, for example, proposals could be prepared faster with information that can be collated effectively and efficiently.

All three firms however, indicated that technology was not the first priority of the consulting practice when considering knowledge conversion. The most important issue was to develop an effective organisation structure and culture to assist the conversion processes. Although technology was not the first priority, it played a significant role in the knowledge conversion process and provided knowledge in a form the others were able to view and benefit from. Therefore the conversion process was partially supported by IT.

CONCLUSION

Since only three case studies were conducted, the findings of this study are tentative. Our conclusions at this stage of our research are briefly as follows.

During our investigation the firms realised the importance of their tacit and explicit knowledge; however they lacked information on how to convert individual tacit to explicit organisational knowledge. Formal meetings did not necessarily support knowledge sharing among consultants while informal meetings did encourage it as part of the socialisation process. Metaphors, narratives, and analogies assisted the expression of tacit knowledge; however time constraint were problematic in the documentation or the externalisation process.

The hybrid structure that was proposed to support the conversion process did not appear as a supporting element. However, a loose structure and a network organisation structure emerged during the study and supported the knowledge conversion processes in management consulting firms. Reward systems, as part of a supportive organisational culture, encouraged the conversion process; however IT facilitated the process only partially because it was regarded as a tool to accelerate the activities of consulting practice rather than as a means to support the conversion process.

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