KNOWLEDGE SHARING IN INTERNATIONAL JOINT VENTURES

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ABSTRACT

Knowledge sharing (KS) is an essential element of any effort for organisations and individuals to learn and develop. It is not surprising that KS has become a key component of knowledge management programmes. This paper examines KS in the context of construction projects executed as international joint ventures. This issue is important as many countries and organisations expect to acquire new knowledge when embarking on joint ventures with other international companies. The paper focuses on the socio-technical perspective to develop a clear understanding of how knowledge can be shared. A model of knowledge sharing has been used to analyse the state of knowledge sharing in foreign-local joint ventures operating in Singapore. The case study showed weaknesses on all levels of the model. The main reason seems to be the lack of clear intent to create an environment that is conducive to knowledge sharing.

Keywords: Knowledge management, knowledge sharing, joint ventures, culture.

1. INTRODUCTION

Knowledge sharing (KS) is an essential element of any effort for organisations and individuals to learn and develop. Therefore, it is not surprising that KS has become a key component of knowledge management programmes (Alavi and Leidner, 2001; Earl, 2001; Nahapiet and Ghoshal, 1998; Nonaka, 1994). This increased interest in KS is due to the fact that knowledge is increasingly recognised as a major source of competitive advantage (Grant, 1997; Meso & Smith, 2000) and in its ability to help create the competitive edge in today’s global environment’ (McCampbell et. al. 1999).

The literature offers several different definitions of knowledge that reflects the different perspectives on this issue. Brooking (1996), for example, refers to organisational knowledge as an intangible asset representing the collective sum of human centred assets, intellectual property assets, infrastructure assets and market assets. Davenport and Prusak (1998) provided a definition that reveals the complex nature of organisational knowledge. Here knowledge is defined as a “fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and applied in the minds of knower. In organisations, it often becomes embedded not only in document or repositories but also in organisational routines, processes, practice and norms”.

Equally there are several definitions of Knowledge Management (KM) reflecting the different perspectives and interests. Gartner group for example defines KM as “it is a discipline with new processes and technologies that differentiate it from information
management. New technologies are required to capture knowledge that was previously tacit-embodied in the minds and expertise of individuals. Once captured, knowledge must be shared to leverage its value-reused in similar situations and contexts” (Wilderman, 1999). KM is also seen as the process of capturing a company’s collective expertise wherever it resides – in databases, on paper, or in peoples heads – and distributing it to wherever it can help produce the biggest payoff (Hibbard, 1997).

This highlights the challenge to business organisations that although they can develop and own tangible assets individuals maintain the ownership of their knowledge. This knowledge will very quickly become outdated without the acquisition of new knowledge and will be lost when this individual leaves the company. Indeed, sharing “tacit knowledge among multiple individuals with different backgrounds, perspectives, and motivations becomes a critical step for organisational knowledge creation to take place” (Nonaka and Takeuchi, 1995, p. 85).

Meso and Smith (2000) have stressed the importance of a knowledge friendly organizational culture to facilitate collaboration and knowledge sharing. Davenport and Prusak (1998) suggest that knowledge project managers and chief knowledge officers should possess technical, psychological and business skills in order to succeed in their roles.

The literature reviewed by this research showed greater interest in how knowledge is created and transferred cross cultural barriers, whether between different companies or different national cultures (Gupta and Govindarajan, 2000; Inkpen and Dinur, 1998; Kogut and Zander, 1993; Mowery et al., 1996; Simonin, 1999). A number of recent studies have concentrated on the influence of cultural factors KM and KS (Chow et al., 2000; Ford and Chan, 2003; Holden, 2001; Hutchings and Michailova, 2004).

The focus of this paper is on KS in the context of construction projects executed as international joint ventures. This issue is important as many countries and organisations expect to acquire new knowledge when embarking on joint ventures with other international companies.

2. A SOCIO-TECHNICAL PERSPECTIVES OF THE KS PROCESS

In order to have an effective KS strategy the organization needs to combine technology with people. Riege (2005) argues that the successful sharing of knowledge depends on
- motivating individual employees to “purposefully capture, disseminate, transfer, and apply existing and newly generated useful knowledge, especially tacit knowledge”;
- organisational structures that facilitate transparent knowledge flows,
- continuous learning organisational culture,
- clarity of goals and strategy linked to KS,
- modern technology that provides a suitable sharing platform accessible to all those in need of knowledge from diverse internal and external sources.
The importance of an integrated approach to understanding how technology impacts organizations was apparent in the earlier study by Trist and Bamforth (1951) who used the term socio-technical to emphasize the social and technological subsystem of an organization. Later the work Pasmore et al. (1982) viewed that the organization as made up of people that produce products or services using some technology and that affects the operation and appropriateness of the technology as well as the actions of people who operate it.

More recent work of Pan and Scarbrough (1998) extended such arguments to embrace the socially constructed aspects of knowledge within organization, which stresses upon the interplay between technology and organization. This perspective has been summarized in terms of three major layers of knowledge management systems. The first is the “Infrastructure” which refers to the hardware/software, which enables the physical/communicational contact between network members. The second, is the “Infostructure”. This is the formal rules that govern the exchange between the actors on the network providing a set of cognitive resources (metaphors, common languages) whereby people make sense of events on the network. “Infoculture” is the third system referring to the stock of background knowledge, which actors take for, granted and which is embedded in the social relations surrounding work group processes.

Pan and Scarbrough model draws attention to the role of management in developing and linking these constituent elements and modulating organizational processes in the way they interact with each other. Hence, the dynamic evolution and the complex interaction between the different elements are crucial in understanding KS in organisations.

3. JOINT VENTURES AND KS IN CONSTRUCTION

JVs are often projected as a strategic tool to exploit foreign market opportunities and to overcome lack of local knowledge for international construction firms. Researchers have described how most construction companies use overseas contracts to bring some stability to the cyclical nature of the industry and act as a bolster for home country earnings (Briscoe, 1988; Strassmann and Wells 1988; Hillebrandt and Cannon, 1989). Construction JVs have been identified as a vehicle for technology transfer between foreign and local companies, which may either be project specific or of a longer term nature (Ofori, 1990).

However, JV is not seen to be a universally successful transfer vehicle because it is difficult sometimes to match the foreign partner’s commitment to technology transfer with its suitability for the project (Andrews, 1984; Chow, 1985). KS in construction JVs is viewed from the aspect of local firms receiving valuable knowledge from its foreign partners. However, past experience shows local firms failing to acquire specific knowledge because the foreign partner tend to take separate responsibility for their portion of work with local partners playing a minor role in the operation of the JV (Ofori, 1994). Because of this they tend to finish their part of work in separate work environment rather than collaborative work environment and, hence, hinder the effectiveness of the KS process.
4. METHODOLOGY

This research has used the case study approach to examine the effectiveness of KS in construction JVs operating in Singapore. The three elements of infrastructure, infostructure and infoculture, discussed earlier, will be operationalised to support the data collection and analysis of KS in the selected case study.

Knowledge Infrastructure
Knowledge Infrastructure is defined as the physical system of knowledge architecture, which consists of means and repositories that helps the storing and disseminating knowledge. Pan and Scarborough (1998) explain that the main architectural elements of the knowledge infrastructure are humans, organisational entities, documents, books, other knowledge repositories and operating entities’. The means of transaction therefore can be meetings, emails, faxes etc.

The JV’s knowledge architecture, and its elements, is judged to be “structured” based on the following criteria.
- Employees know where and in what form a particular expertise exist in the JV, and
- The knowledge repository in the JV organisation, with all pertinent knowledge, is well organised.

However, the knowledge infrastructure is judged to be “Flexible” if
- Employees are able to reach the required expertise without much restrictions, or overcomplicated formal routes, and through any suitable technology, as and when its needed, and
- The knowledge repository can be accessed directly without being restricted by hierarchy and with ease.

Knowledge Infostructure
Knowledge Infostructure is defined as the practices adopted for knowledge exchange by employers in the existing physical system of knowledge infrastructure. Knowledge exchange among JV members, for instance, is governed by the organizational structure of that JV and adopted practices such as meetings and training programs.

This research analyses the formal and informal rules of knowledge exchange in a JV organisation based on the following criteria.
- When the JV’s partners agree to adopt either the partner’s way of working, or form a new set of rules of knowledge exchange, or “combine” the practices of the JV. Such knowledge infostructure is classified as “Organised”.
- When the employees at all levels are well informed with knowledge access rules (like job profiles and updates), trained (by the partners) and the knowledge exchange in the JV is governed by a set of formal procedures (such as a technology transfer agreement) then the knowledge infostructure can be classified as “Explicit”.

Knowledge Infoculture
An important aspect of KM in an organisation is the open and trust based culture that is conducive for knowledge sharing among people. Bob Buckman stated “for knowledge-sharing to become a reality, you have to create a climate of trust in your
organisation. You cannot empower someone that you do not trust and who does not trust you” (quoted in Pan and Scarborough, 1999).

This analysis of the nature of sharing culture in a JV is based on the following criteria.

- When joint venture partners have acknowledged and expressed the desire to share knowledge, especially when the foreign partner has agreed to let the local partner learn from him. Then the knowledge infoculture can be classified as “Open”.
- When the knowledge sharing process implementation is has not been crippled by lack of learning ability of receiving partner. Then the knowledge infoculture can be classified as “Compatible”.

5. THE STUDY

The case study approach was adopted by the research to allow more in-depth data collection and analysis needed in this type of study. The study was conducted in Singapore. The data collection involved a number of structured interviews with key informants (general managers and project managers) from the partner firms, and series of meetings with project members as well. Four JVs from one major project were selected. This major project, to be referred to as NAL, was awarded in thirteen separate contracts packages by of the main public authorities in Singapore (the client). The NAL JVs were on going contracts, at the time of the research, from which current and dynamic process and product details could be obtained. However, due to limited nature of this paper only one case study will be examined.

During the structured interviews with key informants, they were briefed on the background of the topic of the research. Informants were asked to express their views, in own words with the examples from their experience of working on the current project. Each interview lasted for forty five minutes to one hour.

Assessment of KS is viewed from socio-technical perspective, using the elements identified in the previous section.

The Case Study
This JV involved three partner firms; a Japanese firm (C1), with 45% share (the leader of this JV), a local firm (C2) with 45% share and another Japanese firm (C3) with 10% share. C3 was not involved in the construction work and did not have staff on site. The project is a two 2-level civil defense stations, together with a 2.5 km of cut and cover tunnel. The contract sum is S$ 216 million. The stated objectives of the JV were to

- Combine the resources of the members of the JV in order to win the contract,
- Use the expertise of each other partner,
- Get specialized technology like tunneling
- Share the commercial risk.

C1 is one of the largest firms in Japan with major activities ranging from engineering and general construction to real estate and housing. C2 is one of the largest Singaporean design-and-build engineering and construction service provider. Its core capabilities encompass building and heavy civil engineering, industrial and process engineering and have a distinct in house multi–disciplinary design office.
Analysis of Knowledge Infrastructure

Knowledge infrastructure consists of the knowledge, in the form of documents (method statements), drawings and experienced people. Knowledge architecture in this project seems to be designed with a clear information exchange network consisting of a comprehensive document control system and clear distribution list. Information Technology (IT) were used to facilitate interaction among members with a networked system that has encouraged more than 50% of the employees to use emails. The computer network system is structured in the way that all the members of the project are aware of the location of knowledge, which enabled them to act quickly to reach the knowledge repository, when it is needed. For example the special technical know-how on tunnelling can be shared with specialists in Japan when this particular knowledge is not available on site.

The members of the JV are aware of the location of knowledge and its form, which would encourage better knowledge sharing. However, information flow system exposed a horizontal split between the production section and the immediate management. ‘They know how to get the necessary information, but for particular section of people. If you see it is split in construction section and supervisory staff section’ (Engineering manager C1). At the same time infrastructure evidences a blend of expertise from both the partners at higher levels. ‘No split between C1 and C2. The Project Director is from C1 and Deputy Project Director is from C2’ and ‘Supervisory board has member from each of the partners’ (Engineering Manager C1). The Knowledge Infrastructure is judged to be “structured”.

Although the IT network of the JV has no web-based system project members were connected to the JV database (see figure 1). However, the IT system restricted access to the C1’s server in Japan to its subsidiary in Singapore and not by the other partners. Similarly local firm’s server is accessible only to their employees. This was due to the fact that there was no central database where JV partners can share their knowledge.

This hierarchical network would restrain access and obstruct the flow of useful knowledge between partners and creates an inflexible knowledge infrastructure and weakens the KS process. The division of work among the partners into independent packages creates further inflexibility where inter-organisational collaboration is low. “From the practical point of view, C1 provided engineering staffs for the execution of tunnel works. C2 provided commercial staffs to buy services” (Engineering Manager-C1). The Knowledge Infrastructure is judged to be “inflexible”.

![IT Infrastructure of Joint venture](image-url)
Analysis of Knowledge Infostructure

The formal rules which guide the interaction between project team members and the practices adopted by the project team are highly influenced by the leading team that is Japanese firm. ‘… the practice here in civil construction is instructed completely by C1, no input from C2’. (Engineering Manager, C1). Usually in joint ventures the strong party would be the leader. ‘Japanese are taking the lead because of their knowledge and expertise in tunnelling’ (Deputy Project Manager-C2). The Japanese firm’s leading team therefore has a dominant role in shaping up the work on site, especially how information is being shared among members. In this Design and Build (D&B) contract the Japanese team would provide the project team ‘with method statement, for a particular work, to be reviewed by the construction manager and myself, Safety department, then all make comments in terms of design, contractual, construction requirements’[Engineering manager C1]. The Knowledge Infostructure is judged “organised”.

The JV has employed a mix of local and foreign staff for this specific project. The foreign staff were recruited from several European and Asian countries. New recruits were offered training courses on safety, first aid and the use of scaffolding. The general staff and labourers were recruited from Thailand and the Philippine, Engineers from UK, and the supervisors were locals. Additional, experienced construction supervisors and machine operators were supplied by the labour-only-subcontractors.

Apart from the above training programs, learning is stimulated in the work environment as on job training. There was evidence that KS is made explicit by feedback programs though it was not a regular practice. One example was two members of staff have written a paper based on their experience on the project and presented the paper in an international conference. This same presentation was give to JV staff allowing more explicit and organised KS. Further, the foreign contractor decided to retain the local staff who were recruited specifically for this project and later relocated them to another project to benefit from the knowledge gained on this particular project. The knowledge infostructure here is judged explicit.

Analysis of Knowledge Infoculture

The local partner has referred to the Japanese firm’s organisational culture as a “closed culture”. This is not surprising as the Japanese contractor was using the Japanese language rather than English in their communications, other than any formal communication with the partners. This was disappointing to the local contractor as one of their managers stated that “…because it is a joint venture we stated clearly that we wanted to learn from them. Whatever we ask, they have to be open. We stated this clearly at first”.

The Engineering Manager (C1) who works with the Japanese contractor further reinforced this view by expressing his dissatisfaction of the Japanese contractor lack of willingness to share their knowledge. It could be that the Japanese firm lack of willingness to share their technical knowledge due to the commercial sensitivity of the technology. If that is the case then the JV agreement should have clarified this issue. Therefore, the Knowledge Infoculture is judged to be stifled and “not open”.

In terms of existing learning culture in partner firms, Japanese firm has apprenticeship learning culture where young and less experienced staff are assigned to supervisors
who are older and more experienced. It was described by one of the interviewees as a seniority-based culture where very few would question their seniors. A project manager with the local contractor observed that “they start from low level and go to the top. They don’t have formal degree; [their] project managers don’t have formal degrees”. The local contractor has a different learning culture as explained by the local project manager “in Singapore, we have formal degrees. We put people in that place from where they have to proceed themselves”. It can be inferred that there in incompatibility between the two learning cultures. The lack of significant and determined effort to bridge learning culture makes the infoculture incompatible.

6. CONCLUSION

The expectation of a local firm to share knowledge and learn from an international firm has to be one of the key building blocks of a fruitful alliance. At the same time it should not be very surprising to find that foreign firms do not share this urgency to share their knowledge with local firms. Hence, there is a need to motivate and enable effective knowledge sharing through purposefully designing the JV and project organisational structure, working practices and systems with that objective in mind. The evidence from this case study shows that the JV has serious problems in all three layers of the KS identified by the research. The organisational structure, IT system and the different practices adopted by the JV were more focused on organising the work with little regard of sharing the expertise and knowledge. Equally, there was no evidence that the local and foreign partners initiated any effort to address this issue leading the research to conclude the individuals, at least, were not concerned about the lack of KS. Although, the local partners stated that their desire to learn form their partner there is no evidence from the case of any concrete steps to achieve this objective. A more positive approach to KS requires a clear commitment and leadership from top management of the individual firms and, more importantly, the JV to clearly set the JV’s objectives and monitor progress.

7. REFERENCES