ENABLING KNOWLEDGE CREATION AND SHARING IN TRANSNATIONAL PROJECTS

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Abstract

In this study, we link the discussion of knowledge management enablers to research on transnational projects. A transnational project is a cross-border organizational unit composed of members of different nationalities, working in dispersed business units and functions, thereby possessing knowledge for solving strategic tasks in the MNC. Understanding of knowledge creation and sharing processes is essential; hence the purpose of this article is to investigate how different enablers support these processes within transnational projects. Using case-study data to explore the theoretical arguments, interesting implications emerge. First, organizational culture is the most prominent enabler, and is encouraged by the composition of project members. Secondly, impact and importance of enablers vary over time. Thirdly, the enablers are interrelated.

Keywords: transnational projects, enablers, knowledge, ERP systems
Suggested track: N:The importance of knowledge management in IT design, implementation and use.

INTRODUCTION

The importance of leveraging knowledge in multinational corporations (MNCs) for gaining competitive advantage is widely accepted (Birkinshaw, 2001; Grant, 1996). The strategic management field is currently developing new mechanisms and means for guiding corporations in their efforts to ride the waves of the so-called global knowledge economy. Still, there are challenges for MNCs striving to handle the processes of knowledge creation and sharing (von Krogh et al. 2001). How can these processes be organized and how can knowledge management support them?

In MNCs today, transnational projects are used increasingly for developing and implementing important new products, processes and systems solutions (Snell et al. 1998; Snow et al. 1996). New communication technology – allowing for communication and transfer of information across business units worldwide – has made possible the use of transnational projects to collaborate on new ventures (Eppler & Sukowski, 2000; Govindarajan & Gupta, 2001). The transnational project constitutes an important organizational mechanism in a world of increasingly dispersed human resources where corporations need to wisely leverage their knowledge (Osterloh & Frey, 2000).

The creation and sharing of knowledge by means of transnational projects is associated with challenges due to, for example, the characteristics of business units, their context and the knowledge, as well as various motivational factors (Szulanski, 1996). Prior research has focused to a large extent on the barriers present that complicate or even hinder leveraging of knowledge. Despite these barriers, studies show that knowledge is being created and shared in corporations through the use of various organizational mechanisms such as transnational projects, so what is it that enables knowledge processes?

The purpose of this paper is to study how different enablers support the processes of knowledge creation and sharing within transnational projects. By unfolding a case study of a transnational project, established for the development and implementation of an enterprise resource planning (ERP) system in an MNC, the management of knowledge processes has been investigated.

The paper begins with a discussion of transnational projects followed by delineating the foundations of knowledge creation and sharing and various means for enabling management of these processes. Thereafter, the methodology of collecting and analysing the data from the study is presented. The case study is further elaborated by

focusing on how knowledge creation and sharing is enabled within the transnational project. The paper concludes by presenting overall findings and implications.

Transnational Projects within MNCs

In the global environment of this century, MNCs across practically all industries consider the pursuit of managing knowledge across geographically dispersed business units as the dominant source of competitive advantage (Cohendet et al., 1999; Kuratko et al., 2001; Lee & Choi, 2003). Given the heterogeneity of markets, business units develop specific knowledge when collaborating with counterparts (Forsgren et al., 2000), which may be of great importance to other units (Bartlett et al., 1990). The leveraging of knowledge is achieved through adopting different organizational mechanisms that support knowledge creation and sharing, and the transnational project mechanism has become more and more imperative in the last decade (Eppler & Sukowski, 2000; Govindarajan & Gupta, 2001; Lagerström & Andersson, 2003).

The transnational project is a cross-border organizational unit composed of individuals of different nationalities, working in different cultures, business units, and functions, thereby possessing specialised knowledge for solving a common strategic task in the MNC (Marmer Solomon, 1998; Schweiger, 1998). The transnational project is founded upon the principle of leveraging knowledge of dispersed units to a temporary unit to enable creation of new knowledge needed for the development of products, processes, and systems for multiple markets (Demarets, 1997; Osterloh & Frey, 2000). Beyond contributing to the knowledge necessary for solving the task, the project members have knowledge of differences between markets. This market-specific knowledge may have bearing on the acceptance and utilisation of the project outcome worldwide (Subramaniam & Venkatraman, 2001). The implications of this are that the structure, the composition of project members and the availability of communication systems are crucial if the transnational project is going to achieve its agenda.

Knowledge Creation and Sharing

When discussing knowledge creation and sharing, one confronts the characteristics of knowledge, such as it being more or less explicit, i.e., possible to articulate and put into print in various degrees (Penrose, 1980). Knowledge that resides within individuals is often referred to as tacit knowledge. Being inferred from the action of individuals, and being hard to verbalise and codify, tacit knowledge is acquired through imitation and practices. In contrast, explicit knowledge can be expressed in codified form and can

therefore be diffused throughout the corporation in the form of rules and guidelines (Nonaka, 1991; Nonaka 1994). Knowledge is also stored within the corporations in the form of common organizational practices and routines.

Knowledge creation rests upon individuals performing activities in which their existing tacit and explicit knowledge is shared and combined for refinement of activities and for development of new knowledge. The creation of knowledge therefore requires cooperation among individuals and units (Meso & Smith, 2000). Acknowledging the value of particular knowledge – often emanating from collaboration with external counterparts – is important, especially knowledge of individuals from different units.

The importance of managing the creation and sharing of knowledge among corporations has gradually compelled them with mixed success, to implement various mechanisms and means. Initially, knowledge management was primarily considered to be a communication technology issue, with networks of computers and groupware being the keys to an efficient leveraging of knowledge among business units (Bollinger & Smith, 2001; Hansen & Oetinger, 2001). An increased understanding of the principles of knowledge creation and sharing – in particular the characteristics of the knowledge – has led to new insights for the management of knowledge within organizations [Birkinshaw, 2001: Hansen et al., 1999; Soo et al., 2002). Consequently, corporations have recognized the need to use various organizational mechanisms that facilitate and support interaction among individuals [Birkinshaw, 2001; Forsgren et al., 2000; Meso & Smith, 2000). However, the leverage of knowledge still presents major challenges to the corporations, leading them to explore enabling factors or conditions that allow it to take place. In recent research, a variety of knowledge enablers have been discussed as means to consider when establishing an infrastructure that supports the creation and sharing of knowledge [Ichijo et al. 2000; von Krogh et al., 2001).

Enabling knowledge creation and sharing

Lee and Choi (2003) divide the enablers into two perspectives, a social and a technical. The most important enablers from a social perspective are: organizational culture, structure and people. Communication technology and support encompass the technical perspective. The organizational culture-enabling factor is built on the establishment of an appropriate culture that encourages individuals to create and share knowledge as well as defining what knowledge is valuable for the corporation. The basis of organizational culture is care and it is discussed in terms of collaboration, trust and

learning (von Krogh, 1998). The second enabler, structure, is conceptualised in this paper in the form of the two key structural variables; centralization and formalization (Lee & Choi, 2003). The main reason for this is that prior studies have shown that these two factors have considerable influence on coordination within corporations, and as such, on knowledge creation and sharing (Martinez & Jarillo, 1991; Davenport et al. 1998). The third social knowledge management enabler is the collection of individuals in the corporation. Individuals who possess both correct and complimentary knowledge are often mentioned as the keys to the creation and sharing of knowledge [Osterloh & Frey, 2000; Snow et al. 1996; Subramaniam & Venkatraman, 2001).

Communication technology and support, encompassed by the technical perspective, is widely accepted as an important contributor for corporations' capacity to manage knowledge (Hansen et al., 2001; Birkinshaw, 2001]. Thus, communication technology is not only important to help individuals communicate and share knowledge, but it is also a means to collect, store and retrieve knowledge.

To summarize the theoretical discussion, transnational projects represent a way by which MNCs can leverage knowledge. They are increasingly being used for developing new products, processes and systems. However, there are challenges associated with managing the creation and sharing of knowledge within transnational projects due to their basic organizing principles and how they relate to the creation and sharing of knowledge. Consequently, understanding how these processes are facilitated by the enablers (organizational culture, structure, individuals and communication technology) becomes important.

Method

To study how different enablers support knowledge creation and sharing in transnational projects, a case study approach was chosen. For the corporation[1] studied, the use of transnational projects is a recent phenomenon, albeit important, for it is recognised as supporting knowledge processes. The transnational project chosen for the case study encompasses units and members from several countries, and the project outcome is to be used at multiple units. Furthermore, in order to investigate the

[1]The corporation is anonymous at its own request.

creation and sharing of knowledge, it was decisive that the project be in the phase of developing knowledge for use in several countries when the study was initiated.

Case study research can make use of several means of data collection. In the present study, the most important means were semi-structured, open-ended interviews. The interviews lasted for two to three hours, following an interview guide coherent with the theoretical framework. There were a total of seventeen interviews; thirteen were held in the development phase and four in the implementation phase of the project. Other means of data collection were written material concerning the corporation, the task and management of the transnational project.

For the analysis, the interviewees were classified into four groups, based on role and responsibilities in the transnational project. The groups were top management, project managers and project members. The group project members were divided into two subgroups, based on the criteria geographical location. Central project members were situated at the headquarters of the unit responsible for information technology (IT), whereas local project members were located at units associated with subsidiaries worldwide. The case study, although presented as a coherent whole, includes measures taken to enable discretion of views held by the groups of interviewees or specific interviewees. Any view expressed by two or more individuals in a group is presented with the group name e.g., *"top management"*. Any opinion of importance raised by a single individual is presented as *"one of the local project members",* for example. Quotations are used to emphasise important points and issues that shed light on the research question.

THE CASE STUDY

Initiation of the transnational project

The starting point of the case study was the request to the information technology support unit (ITD) in MNC Lindt Ltd. from the business area Hord to develop and implement a common ERP system[2] at its largest subsidiaries. The systems currently in use shared a common core in an ITD developed system, but over the last fifteen years they have been subjected to rather extensive local adaptations to meet demands from users and customers, resulting in divergences of the systems. Hord's aspiration to unite its subsidiaries around a common system stemmed from an eagerness to increase integration and knowledge utilization between units within the business area, even if other reasons such as high cost for, and lack of support of, the existing hardware and software were also given.

Within Lindt, an international high-technology engineering MNC, the role of information technology is especially important, since progression within the industry is not achievable without continuous IT development and support. Recently, there has been an overall demand on business areas to take advantage of global synergies through different means. Common IT systems are viewed as one means by which to use competence across borders and thus to achieve synergies in different activities.

To develop a viable and usable system within Hord, the headquarters of the ITD unit[3] recognised a need to gather and use the knowledge of the existing local systems and the users' demands. The means by which to realize the leveraging of knowledge of local business units would be to establish a transnational project. This solution's most important advantage, as seen by the ITD's top management, was the possibility of involving employees from the geographically dispersed ITD units who could convey their knowledge of the existing local systems and what would be necessary to include in the new system to meet the local market demands. In the past, ITD have been largely decentralized with units worldwide and closely associated with subsidiaries in different countries, having handled support and development activities locally. Until now, the ITD unit's prime role has been the responsibility for developing IT systems

[2] Hereafter referred to as 'the system'.

[3] Hereafter referred to as 'the main ITD unit'.

adapted to the specific demands of the business areas, or even the specific subsidiaries. To organize by transnational project is thus a new phenomenon for the main ITD unit, and the crucial issues to consider were how the transnational project should be organised and what means were needed to enable the creation and sharing of knowledge necessary to develop one common system.

The design of the transnational project

The transnational project at the main ITD unit consisted of members from seven countries. The majority of the members were from the main ITD unit, i.e. central project members. The project members, who were appointed by local ITD managements, i.e. local project members, were from ITD units, associated with the subsidiaries affected by the new system. The main ITD unit did not take part in the appointment of individual employees, but it specified what knowledge the project as a whole needed. Upon establishment of the project, the local members belonged organizationally to the main ITD unit although they remain located at the local ITD units. According to top and project management at the main ITD unit, the organizational arrangement of having local project members was to better the benefit from IT competence of ITD units worldwide. During the development and implementation of the system, they contributed the necessary local knowledge to the project.

The main ITD unit managed the development and implementation of the system. They were also responsible together with Hord for conducting the pre-study , which identified what each unit needed from the new system. The pre-study was concluded with a meeting at which all units concerned with the new system attended and agreed upon the requirements for the new system. The role as a coordinator of the transnational project was described by top management at the main ITD unit as, "*all coordination and decisions regarding possible alterations to the system are decided at and by the main ITD unit*".

The development of the system was performed by turning the requirement specifications into system specifications, a job done by central project members. They, in turn, distributed the system specifications to the local project members, who, in turn, developed a defined part of the system. The standardization of the system specifications was both a detriment and a benefit, as one of the central project members said, *"The way in which the system specifications is written does not allow for giving background information or what the end-result will be. Often the local project*

members returned with these kinds of questions, which I had to answer. Albeit time-consuming at the time, responding to the questions has considerably improved my understanding of the whole system as well as my way of working."

The members of the transnational project

The project group as a whole needed to possess extensive technical and business related knowledge. The extensive technical knowledge of the central project members appointed from the main ITD unit was concerned with the hardware and the programming language, as well as the old core system. The business knowledge was mainly related to the users and customer demands of the system. This knowledge is important in the development of a common solution that will be accepted and used at all business units. The local project members – appointed from local ITD units - possessed extensive business knowledge, acquired from doing support and development work on local systems. The business knowledge of the central project members was of a more general kind, obtained foremost from developing IT systems for other projects. Several of the project managers and members acknowledged the importance of the combination of technical and business knowledge for developing and implementing a common system. One of the central project members said:

> *"At the main ITD unit, our strength resides in having technical knowledge but we do not know enough about the business. The local project members make a large contribution in that sense as they have in-depth knowledge of their respective business processes."*

Other than business and technical knowledge, proficiency in English is imperative. The project members must be able to cooperate and communicate with each other across borders. The corporate language is English, and therefore all employees are expected to know English. Unfortunately, and rather unexpectedly, the language issue turned out to be associated with problems. The intensive work on the project with assignments and the demand to use English for communication soon led to both central and local project members improving their language skills. Some of the project members also said that they learnt to know each other's particular ways of speaking and writing in English as expressed by one of the local project members:

> *"The Swedes speak their English, the English theirs, and we ours, and so on. Even if everyone is pretty good, we had, and still have misunderstandings. But we have improved and it is much easier to cooperate now."*

Building an organizational culture

The transnational project team first gathered during a two-week meeting at the main ITD unit. The central project members at the main ITD unit were responsible for the program during the meeting and social and educational activities were on the agenda. The local project members, having limited technical knowledge, were educated on the functionality of the hardware, the programming language, and the core system on which the new system is based.

The central project members provided a major part of the training, which they consider valuable, for it provided them with an idea of the extent of the local project members' technical knowledge. As a matter of fact, the meeting gave all project members a comprehensive notion of each other's competencies. This was invaluable, in particular for the local project members, as they needed to know who could help them, and to what problems they could address their skills. The local project members also saw the training as an opportunity to share their understanding of the demands made by users and customers in their markets. The following quote exemplifies this:

> *"The meeting was important as we got training on the core system and the programming language, and we got a chance to talk about what needs to be incorporated into the system to satisfy the users. The meeting was also a chance for us to get to know one another personally."*

One can conclude that by bringing the project members together, they obtained the opportunity to get to know one another both professionally and socially. Moreover, all project members said that knowing each other in a personal way facilitated cooperation.

The local project members began to work actively on the project upon their return to their units, and all members agreed that experiences gained in working on the system are the ultimate source of knowledge development. As the training received during the two-week meeting was rather limited, project management arranged for continued on-site training, either internally or from external counterparts, for the local project members. Training on the core system was also realized by temporarily relocating local project members at one ITD unit. The contact established between the project members during the two-week meeting was decisive for realising this exchange of knowledge. An important consequence of such education at local units is that the project members involved experienced a further deepening of their relationships, which led them to contact each other directly, in case they needed help in accomplishing their

assignments. Even so, when in need of assistance, the local project members most often contacted the central project members at the main ITD unit, who had the most extensive technical knowledge. One of the local project members said:

> *"We asked the main ITD unit if an experienced programmer could come and work with us for a week or so, or if we could visit the main ITD unit. It took some time before our request was sorted out and a person came to visit us, but it was worth waiting for as it made a great difference in our continuous work in developing the system. We also need more support, and more information about who at the main ITD unit can help us, and with what problems. Eighty percent of our time is spent searching for information and help."*

From the outset, the project management was prepared for such imperfections experienced by the project members, especially from the local members, who were most likely to experience feelings of seclusion and lack of assistance. One way of overcoming this obstacle was, according to some of the local project members, to arrange project meetings on a regular basis. Meetings would be an opportunity to discuss and to share experiences, but moreover, to build a team spirit. Project management, granting all travels and meetings within the project, acknowledged the need to meet more often, but said that it was difficult to fulfill, due to lack of time and financial resources, and referred to the importance of communication technology as a means to solve these issues.

The use of communication technology

Upon establishing the transnational project, the project members could access the Lotus –note-based intranet, which covered a wide range of topics related to the on-going project, such as memos from meetings of the steering committee, of the project management team and the whole project team, project plans, and technical documentation. The intranet functioned as a means of sharing information among the local and central project members within the transnational project. All project members accessed the information on the intranet and all members were supposed to document their work as well as solutions to problems they encountered. One of the project managers said:

> *"I would like to say that in international projects, well-developed intranets are absolute necessities if one is to be able to cooperate and share*

information and knowledge. However, you have to use the databases selectively, otherwise you drown in information."

The project members thus found it hard to know which information was relevant for their job and how to locate it, as there was so much information. However, the intranet was perceived as important to the performance of their part of the work and to keeping current with the work being done, as well as having access to written documentation. A general problem pointed out by the local project members was the time lag between activities occurring and information being posted. Local project members, who did not participate at project meetings, perceived that they had no chance to influence the direction of the work in the project and the suggested solutions to the problems, as all the decisions had already been made by the time the information was distributed on the intranet. They also thought that knowing who was working with what, instead of only knowing when the assignment had been performed, hindered useful collaboration between members who were working on similar assignments. The lack of information about what the other project members were working on was manifested in the daily work. In daily activity, the project members most often communicated via e-mail, but occasionally the telephone was used. However, the project members experienced some difficulties and lack of trust in these two communication tools, since they often resulted in misunderstandings, uncertainty as to whether the right person had been contacted, and time delays.

DISCUSSION

The transnational project served as a means by which people of different nationalities and with different competencies were linked together to develop a common ERP system for Hord. To develop the system, and because of the different knowledge bases within the transnational project, the creation and sharing of knowledge was a necessity. The issue addressed in this study is how different social and technical enablers support the creation and sharing of knowledge within a transnational project.

The first and most obvious point to make about the case concerns the novelty of the main ITD unit, of organising activities in transnational projects. The inexperience was manifested in the structure of the transnational project, with a high degree of centralization and formalization, and in the lack of understanding of the local project members' needs in performing their work. Coordination of information flow and decision-making were made from and by project management, encouraging

communication to occur vertically at the expense of lateral communication. The structure thus hampered collaboration and learning among the local project members; issues that are important for transnational projects. The system-specifications, essential for developing the system, were formulated in the beginning on the assumption that people knew the standard procedures and manner of working. It thus disregarded the fact that some of the project members had never worked together before, and in addition, were from different countries with different working norms. Although a lacking enabler at first, initiatives and enquires from the local project members resulted in considerable improvements to the working processes. These also supported learning and fostered interaction among project members.

The transnational project members were a mix of skills required to develop the system. From the start, this composition gave incentives for cross-border learning. English was the common language for all project members, which enabled collaboration, but at the same time functioned as a lacking enabler. The way to overcome the lacking enabler was to learn each others' way of communicating. These types of language skills, with social and cultural connotations, emerged over time as members collaborated and thereby understood the nuances and the particular means of expressing themselves in, what was for the majority of the project members, a foreign language. This point is related to the establishment of an organizational culture within the transnational project, which voluntarily or involuntarily paved the way for creation of knowledge, technical, business and cultural, for both local- and central project members.

The transnational project started with a two-week-long meeting, focusing on training and possibilities for the project members to get to know each other. After the meeting, additional collocating of project members, mainly for the purpose of training, was accomplished. The general opinion expressed was that these types of initiatives are important and serve multiple purposes: actual knowledge creation, familiarity with each other both professionally and socially, and facilitation of further contact. Even though the project members had met and knew of each other, there was a lack of enablers to continue to build an organizational culture among project members. The project members pointed out the importance of meeting on a regular basis, to make it possible to follow up on developments within the project as well as with each individual. Project management recognised these demands, albeit after repeated requests of project members, by arranging for temporary collocation of some of the local project members. The sparse modification had positive effects on the motivation of the project members

and it increased knowledge creation. However, the sluggishness of project management caused the local project members to mistrust project management.

There was a general agreement within the project that communication technology functioned as an enabler. Intranet and other form of communication technology made it possible to access explicit knowledge concerning the process of the project. However, both project management and the project members pointed out the abundance of information and the difficulties to locating and to retrieving information to serve the requirements of specific cases. It was also possible to identify a pattern that communication technology replaced face-to-face interaction instead of serving as a complement.

CONCLUSIONS

The main contribution of this study is enhanced understanding about knowledge management enablers. By studying the enablers of the creation and sharing of knowledge within a transnational project context, interesting implications emerged. There are three main findings of this study.

Of the four knowledge management enablers studied in this paper, organizational culture was the most important, but also the trickiest one to realize, a finding in line with several other studies [Lee & Choi, 2003; Demarets, 1997; Davenport et al., 1998; Gold et al., 2001). The essence of organizational culture is to encourage individuals to create and share knowledge as well as to define what knowledge is valuable. Based on our study, we conclude that in a transnational project, as a temporary unit, the individuals are invaluable as they are the organizational culture. Moreover, those who are appointed, communicate what knowledge is valued and what knowledge must be kept inside the organization for innovativeness not only to the individuals within the transnational project, but also to the permanent organization.

The second finding is how the impact and the importance of the enablers varied over time. The enabler structure remained constant throughout the development of the system, and thus hampered the development of a self-managed group. In line with project management literature, possibilities to meet in the initial phase of projects are essential in order to establish a common organizational culture. Equally so, the transition to rely more over time on communication technology is common, due to limited resources.

The third finding is the interdependence between the different enablers for management of knowledge within transnational projects. A structure that is characterized by a high degree of centralization and formalization hampers knowledge creation, which is in line with earlier studies (Graham & Pizzo, 1996). In our study, we also came to the conclusion that structure impacts on the enabler organizational culture in terms of restricting collaboration, learning and trust.

We propose two issues for future research related to the findings of this study. First, the creation and sharing of knowledge within transnational projects would benefit from more longitudinal studies. The interplay between the enablers and their timing and what impact this has on project performance is a plausible theme. Second, the interrelatedness between the enablers should be more systematically researched, making it possible to identify common characteristics for the impact and importance of knowledge management enablers.

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