December 2006

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Interorganizational Learning through Information Technology Use in Partner Networks

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ABSTRACT

This paper proposes a study to examine the influence of information technology (IT) use across organizations in an alliance where IT is used to facilitate the relationship with external entities; specifically the study will explore the impact on interorganizational learning (IOL). IOL is an important area of interest to researchers and practitioners because the solutions to many problems in organizations cross organizational boundaries and a clearer understanding of the processes that take place still remain to be uncovered. A case study methodology will be used to investigate the impact on IOL across the organizations through the influence of IT use on organizational transparency and organizational receptivity of the external entities associated with the collaborating organizations.

Keywords

Interorganizational learning, networks, alliances, transparency, receptivity.

INTRODUCTION

In the current business environment, the growth and development of new organizational forms and virtual organizations have been made possible because of advances in technology, which provide the solutions for bridging the resources of these organizations. As a major facilitator of business activities, technology enables organizations to extend their reach, and it enhances the speed at which knowledge can be transferred (Davenport and Prusak 1998). IT also provides organizations with the ability to extract knowledge from individuals or groups within the organization, and to structure the knowledge so that it can be used by trading partners (Davenport et al. 1998).

Information technologies used in collaborations can vary extensively and in most instances will depend on factors such as: the type of collaboration, the technologies possessed by the partners and the goals of the organizations in the relationship. For instance, in a buyer/supplier relationship in a supply chain (type of alliance1) where the goal is to manage inventory and costs, information systems that facilitate collaboration, called interorganizational systems (IOS), are often required for communication and connectivity between the two organizations (Kumar and Crook 1999). In a less formal structure, for example where support is needed for a product, the technology use might be in the form of a telephone, an online frequently asked questions database, or e-mail.

There are a number of technologies available for an organization’s use in a collaboration, some of which are specialized for a specific industry or purpose. Overall, information technologies used in collaborations can be classified into three major categories: collaborative, monitoring and modeling (Scott 2000). Collaborative technologies include e-mail, teleconferencing, telephone and video conferencing; monitoring technologies include extranets, shared databases and supply

1 Business alliances are simply defined as “an arrangement between two or more firms that establishes an exchange relationship, but has no joint ownership involved” Barringer, B. J. and J. S. Harrison (2000). "Walking a Tightrope: Creating Value Through Interorganizational Relationships." Journal of Management 26(3): 367-403. They are not new phenomena and their roots date back to the 1960’s when outsourcing became a popular means for organizations to supplement their limited resources.
chain software, and modeling IT include computer aided design software, computer aided engineering software and spreadsheets.

Alliances and the new organizational structures formed by them are becoming increasingly important in the new business environment because they provide the means for organizations to gain access to resources, enabling them to meet or respond to the changing and complex business environment (Levinson and Asahi 1995); just as important, are the business ecosystems that these organizations participate in. IT is a primary tool used in many of these organizational arrangements, and its role is also increasing in importance. Organizations therefore need to understand the intricacies of these relationships and the factors surrounding their development, including the role of IT. One area of importance that has gained the attention of researchers is interorganizational learning (IOL). Interorganizational learning takes place between organizations; it is distinct from organizational learning which is the learning within an organization, yet the two areas are interrelated and need to be clearly understood (Homqvist 2003).

This paper proposes a study that will examine how IT influences interorganizational learning between partner organizations when used to facilitate relationships with external entities associated with a partner.

BACKGROUND

Organizational Learning

Organizational learning takes place through individuals and their interactions, however, the outcome of these interactions comprises a separate group of capabilities and characteristics that are more than the sum of the outcomes of the learning processes of the individual members. The organizational learning (also known as intra organizational learning) that takes place in the process of organizational learning is unique to each institution. It occurs when the organization changes its assumptions or the processes enabling it to improve its ability to solve problems, as well as increasing its capacity for action (Probst and Buchel 1997). The basis of organizational learning is the experiences and actions of the individual members of an organization (Argyris and Schön 1978; Probst et al. 1997). Organizational learning in this context can be thought of as the shared routines and meanings of the individuals in an organization that are interpreted and stored in an ongoing process, derived from individual learning (Edberg 1999).

The term ‘theories of action’ used by (Argyris et al. 1978) refers to an organization’s store of knowledge based on its vision and mission statements, goals, strategies, structures, culture and power relations (Probst et al. 1997). Theories of action form a frame of reference upon which organizations or individuals base their activities and it is comprised of two different theories: espoused theory and theory-in-use (Argyris et al. 1978). Espoused theories are formal or informal expressions of an organization’s goals and they consist of the ideas and values to which organizations or individuals direct their actions (Probst et al. 1997). Theories-in-use are not publicly discussed, since individuals and groups are not explicitly aware of them (Argyris et al. 1978). Theories-in-use can be derived by observing the real courses of actions that occur, as they are often tacit and arise from the interactions between individuals or groups (Probst et al. 1997; Edberg 1999).

The organizational learning process is triggered when there is a discrepancy between espoused theory and theories-in-use and changes are made that lead to an increase in the range of possible behaviors (Probst et al. 1997). This process occurs when the actions of an organization produce results that are unexpected, expectations are questioned, and in some instances, an adjustment is made (Probst et al. 1997). Individuals play a role in bringing about these changes because they continually modify their cognitive patterns and images of the organization (Argyris et al. 1978). During their development, individuals form cognitive patterns of the organizations, which they use to guide their perceptions and interpret situations (Argyris et al. 1978). The cognitive patterns or views develop as a result of the members from one organization or group transferring information to another organization or group (Simon 1991). The actions of individual members continually adjusting their maps and images of the organization therefore bring about changes in the organization’s theory-in-use (Argyris et al. 1978).

(Arghiros et al. 1978) divide individual and organizational learning into two types: single-loop and double-loop. Single-loop learning occurs when the underlying assumptions to the theory of action remain unchanged but the strategies of action

change; the learning occurs within the existing framework of values and norms (Argyris et al. 1978; Argyris and Schön 1996). An example of this would be identifying an error in a product specification and changing the product specification to eliminate further occurrences (Argyris et al. 1996). Single-loop learning is primarily concerned with effectiveness and it is the type of learning that tends to take place in organizational settings where the contexts are well understood and management believes it can control situations (Duncan 1974).

Double-loop learning involves a change of the strategies and assumptions as well as the values of theory-in-use. This can occur at the individual or organizational level and usually arises when existing norms and values are questioned (Argyris et al. 1996). An example of double-loop learning would be where an organization becomes aware that in order to exploit a new technology developed in-house, it has to sell it to a market that it is unfamiliar with and has to set up a whole new set of approaches and processes in order to do it (Argyris et al. 1996).

Interorganizational Learning

Interorganizational learning can be described as the transfer of knowledge that takes place between organizations, rather than within an organization. The transfer of knowledge also occurs, when knowledge acquired in one organization has an effect on another organization; the impact can be either positive or negative (Argote 1999; Robey, Boudreau and Rose 2000). Alternatively, IOL can be viewed as the learning that occurs when organizations interact, and as a result of the interaction, new knowledge is created (Larsson, Bengtsson, Henriksson and Sparks 1998).

The type of knowledge transferred during the process of IOL can be explicit, tacit or both. Tacit knowledge is difficult to articulate and capture, deals with know-how, and is normally “deeply rooted in action, commitment and involvement in a specific context” (Nonaka 1994). Knowledge that is explicit on the other hand, can be easily identified, coded and transmitted in a formal language (Nonaka 1994). To illustrate, in a partnership between an IT outsourcer and a university for the management, installation and maintenance of the university’s student services systems; the transfer of explicit knowledge occurs if the outsourcer provides the university’s systems administrators with access through an extranet to documentation that gives “best practices” (accumulated from working with previous clients) for managing the system. The transfer of tacit knowledge would occur in a situation where the outsourcer and the university’s systems administrators communicate via a conference call to discuss ideas for enhancing the student services in the university and new ideas are generated and implemented. The new ideas provide solutions for the university, and the outsourcer is provided with new knowledge that it can use to gain or renew contracts with other clients.

The process of interorganizational learning can be identified in four steps (Levinson et al. 1995): 1) “becoming aware and identifying new knowledge, 2) transferring/interpreting new knowledge, 3) using knowledge by adjusting behavior to achieve intended outcomes, and 4) institutionalizing knowledge by reflecting on what is happening and adjusting alliance behavior.” The steps are nonlinear in nature and a number of other factors come into play in the interorganizational learning process (Levinson et al. 1995). IT can play a role in each of these four steps, for example, it may enable an organization to gain access to new knowledge if members of the organization subscribe to a listserv and one of the members sends out a request for information on how to solve a problem and someone responds to the request with a potential solution not thought of by the organization’s members. IT can be used to influence the transfer and interpretation of new knowledge if a partner in an alliance who is providing support for an enterprise resource planning system (ERP), uses a virtual network community tool3 to access the computer system of its partner and uses the tool to show an employee how to complete a process on the computer (i.e. how to use a certain function in a PeopleSoft ERP system). IT may assist an organization to adjust behavior to achieve an intended outcome in an instance where an employee recognizes the need to implement a system to help monitor accountability for system changes with a partner in an alliance and implements a policy where sign-off sheets are e-mailed to the employees of the partner organization prior to system changes being made. Changes made based on feedback received through an online survey provided by one partner to another in an alliance about the effectiveness of helpdesk performance would be an example of how an organization institutionalizes knowledge by reflecting on what is happening and adjusting their level of support (Davidson 2003).

There are a number or enablers in the process of interorganizational learning; transparency, the level of openness of a firm to its partner and the opportunity it provides to a partner to learn; receptivity, the capacity or ability of the collaborating partners to absorb the knowledge provided by one another and intent, the purpose or aim of the partners in terms of their learning

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3 A virtual network community tool is a tool which enables a computer user to connect remotely to another user’s computer and see everything on the computer and take control of it functions.
objective (Hamel 1991; Doz and Hamel 1998). As one of the primary interfaces used by organizations to interact with a partner in a collaboration, IT has the potential to influence an organization’s degree of transparency and its degree of receptivity (Hamel 1991; Doz et al. 1998) and thus its opportunity to learn.

PROPOSED STUDY

In an exploratory case study surrounding an IT outsourcing organization (referred to as “TechOutsource”) and three of its clients (referred to as Reade College, Scholar College and Wright University), IT was found to influence interorganizational learning when used by the partners to facilitate the relationships (Davidson 2003). Preliminary evidence was found which proposes that the influence of the use of IT on interorganizational learning can be expanded to include the range of direct partners of the entities in the collaborative relationship. Organizational change depends on the use of new information that must be acquired from outside the organization and it would be unrealistic to believe that an organization has all the information within its boundaries that is required for it to change (Macdonald 1995). Organizations are made up of a broad network of relationships and so, should be analyzed taking into consideration the broader range of relationships (Doz et al. 1998; Iansiti 2005). These networks of interdependent but loosely coupled organizations are also referred to as business ecosystems (Laudon and Laudon 2006). In the ecosystem, technology can be used as a “connective tissue” which allows the ecosystem to function, grow, and develop (Iansiti 2005 p. 1); it enables the organizations to share information and to integrate systems.

In the previously mentioned partnership, the organizations in the collaboration had other relationships that extended beyond the immediate relationship with the partner in the alliance. These relationships were necessary for the support of the technologies and the services provided under a contract between the collaborating organizations. The relationships with the external parties were facilitated by the use of IT in the alliance, which had the potential to influence the organizational transparency and receptivity of the collaborating organizations. Figure 1 provides an illustration from one of the cases of the external relationships that were involved in the alliance between one of the universities (Wright University) and TechOutsource, and the external parties that might interact through the use of IT with the collaborating organizations.

As the figure shows, some of the relationships Wright University had with external organizations included: loan companies, the Department of Education, its own constituents, the National Student Clearing House and other schools in the consortium. TechOutsource had relationships with vendors that included: PeopleSoft, Microsoft, Dell and other TechOutsource entities located in other universities and colleges.
In addition to using IT to facilitate its own relationships, TechOutsource had to interact with the organizations on behalf of Wrighte University to support the technologies the institution used with those organizations. For example, when there was a problem with the system used for EDExpress, TechOutsource was responsible for working with EDExpress to resolve the problem.

In the three case studies, IT was used by the partners to interact with external organizations associated with the partner. The information provided to the external organizations ranged from information about processes to help develop ideas to improve efficiency, to requests to submit bids for technology purchases. Information was not only provided to external entities through the use of IT, but information was also received into the organizations during the process. Information incorporated into the organizations and the collaboration included: solutions/ideas from vendors to fix system problems, information from user groups, feedback through online surveys, and reports on problems.

Partners in an alliance should not underestimate the importance of the ability to learn through the use of IT from interactions with external organizations associated with the partner, and from the knowledge the partner gains through its interaction with those partners. Just as in the case of the use of IT with a partner, an organization in an alliance should take note of its use of IT to interact with external organizations and be cognizant of how the use of IT with those organizations can help it to access information and provide it with opportunities to learn. Learning might be in the form of how the external organization uses IT to provide service, which could be used by an IT outsourcer. For example in the exploratory case study with Tech Co., an employee of TechOutsource communicating with a vendor on behalf of Scholar College, saw how the vendor was able to use IT to automatically update desktop personal computers; the employee then worked with the vendor to develop a solution that enabled TechOutsource to automatically update Scholar College’s personal computers with other software.

The purpose of the proposed study is to develop deeper insight into the mechanics involved in the process of interorganizational learning arising from external entities of a partner, when IT is used to facilitate the relationship. The research will provide additional knowledge for researchers in this field and will increase the awareness for practitioners on how to capture value in interorganizational relationships with external entities associated with a partner that are facilitated by IT. The study will look at how the constructs organizational transparency and organizational receptivity reveal themselves in the collaborations when influenced by IT use, for example by exploring how IT helps an organization to become aware of a problem, how it helps to solve the problem; identifying where IT intersects with learning and where learning occurs.

**PROPOSED METHODOLOGY**

This study will use a case study research methodology to collect and analyze both quantitative and qualitative data about organizations in an alliance and the external entities that interact with them. A case study design is an appropriate research method because it allows a phenomenon (interorganizational learning) to be examined in the real life context of the relationships (between two partners in an alliance and their external entities) (Benbasat, Goldstein and Mead 1987; Yin 1993; Yin 1994) it provides the ability to answer “how” and “why” questions which are necessary for understanding the environment and complexity of the processes taking place (Benbasat et al. 1987; Eisenhardt 1989). A key question will be: how does the IOL take place between the external entities and the partner organizations and why does it occur? In most collaborations, the relationships are governed by informal norms and operate with less formal boundaries than those found in formal relationships such as joint ventures and consortia (Anand and Khanna 2000; Barringer et al. 2000) and the case study method provides the ability to perform an investigation where the boundaries were not clearly evident (Hakim 1987; Yin 1994).

Typically with case study research, data are collected using multiple data collection methods (Benbasat et al. 1987). Data will be collected through interviews with key participants in the partner organizations (using a structured interview protocol), a survey instrument (developed in the prior study) and information publicly available about the organizations (i.e., from their web sites, the Internet and media provided by the organization).

There is no standard format for case analysis and the process is typically accomplished through a detailed description for each case that provides the basis for generating insights (Eisenhardt 1989). A framework will be developed for the case study report prior to the data collection to guide the within-case analyses and to develop detailed case study reports. The detailed case study reports will describe the use of IT in the relationships, the collaboration context, and processes leading to interorganizational learning outcomes when IT is used with the external entities associated with the partner organizations.
LIMITATIONS OF STUDY

The aim of the proposed study is to gain additional insights into the mechanisms surrounding IT use with external partner entities in an alliance by examining the influence of IT use on organizational transparency and receptivity. It should be noted that transparency and receptivity are concepts that can are closely intertwined and one may have the potential to influence the other. Additionally, the intent of the partners may influence the use of IT. For example, if an organization uses IT to increase its capacity or ability to provide avenues to absorb more information from a partner organization, it may by virtue of that act become more transparent. By providing more information to a partner and becoming more transparent (open to a partner), an organization may not necessarily become more receptive because receptivity to a large extent depends on the (intent) purpose or aims of the collaborating partners in terms of their goals for learning in the relationship. As with the case of most case study research, a limitation of the study is that the findings of the study may be limited to the organizations that will be examined in the study and may not be generalizeable to the population as a whole.

REFERENCES


