

Inter-organizational Knowledge Transfer Processes: An Integrative Perspective

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ABSTRACT

A process view on inter-organizational knowledge transfer (IOKT) is valuable in developing support strategies and in bridging the gap between human- and technology-oriented approaches for IOKT operations. However, there are few studies explicitly identifying and explaining IOKT processes, and those intensively focus on post-transfer processes and neglect the knowledge source perspective. In this paper, the IOKT processes are identified by focusing on how organizations can receive knowledge from another and by considering both the receiver and source perspectives. From the receiver perspective, the identification of the transfer processes is influenced by absorptive capacity theory. From the provider perspective, knowledge codification is taken into consideration. Based on the integrative perspective, the IOKT processes include identification, codification, acquisition, and interpretation have been established. The practical and research implications of the study for further studies are discussed.

Keywords: Absorptive Capacity, Inter-Organizational Knowledge Transfer Processes, Knowledge Codification, Knowledge Management.

II INTRODUCTION

Knowledge is a critical resource for building and maintaining organizational competitive advantages, especially in today's globally competitive environment (Khamseh & Jolly, 2008). Accordingly, organizations continuously create new knowledge (Choi & Lee, 2002; Kang et al., 2010), and implement knowledge management (KM) as an important strategy to convert the knowledge into organizational competitive advantages (Wu, 2008), which consists of knowledge creation, accumulation, transfer, and application processes (Alavi & Leidner, 2001). Among these processes, knowledge transfer is one of the most important activities of KM (Riege, 2007), especially in inter-organizational contexts (Meier, 2011), which is called inter-organizational knowledge transfer (IOKT).

In the IOKT context, knowledge is transferred through the interaction between two organizations (Easterby-Smith et al., 2008). It is different from transferring

knowledge within the organization and is more complicated because of the multifaceted nature of the boundaries, cultures and processes involved (Inkpen & Tsang, 2005; Martinkenaite, 2011). In response to these challenges, several studies have sought to understand the ways in which organizations manage and gain potential benefits from external knowledge transfer by investigating and examining its various antecedents and consequences (Martinkenaite, 2011). Indeed, they provide the concept of and meaningful knowledge about how to manage and control the IOKT initiatives. However, in practice, when organizations want to transfer the knowledge from external organizations, they require more knowledge about how to do it.

As knowledge can be of different types: individual, social and structured knowledge (David & Fahey, 2000), the type of knowledge to be transferred is a critical factor in deciding on the type of process needed to facilitate the transfer of knowledge (Goh, 2002). Broadly, there are two approaches of knowledge transfer, namely unstructured and structured approaches (Chen & McQueen, 2010). This paper concerns only with the transfer of structured knowledge that is embedded in organizational systems, its processes, tools and routines, and focuses on the structured approach for transferring this type of knowledge as it is designed to ensure that the transfer of knowledge takes place between the organizations, which requires a very structured transfer process. In addition, as organizations typically implement KM projects based on human- and technology-oriented approaches (Inkinen, 2016), an emphasis on the processes is critical for bridging the gap between these approaches; the processes determine the need for technology and define the roles of and knowledge needed by human (Maier & Remus, 2003). Therefore, it is important to investigate the processes of IOKT, by which the most efficient and effective strategies to support these processes can be developed. Nevertheless, there are few studies explicitly identifying and explaining the transfer processes. Alavi and Leidner (2001) state that the balance between the processes of knowledge receiver and knowledge provider is crucial for knowledge transfer. Therefore, this paper aims to identify the processes of IOKT by considering both the source and receiver perspectives.

The remaining sections are organized as follows: the following section presents background concept of inter-organizational knowledge transfer from external organizations, and reviews some related works on IOKT processes, and summarizes the absorptive capacity theory and knowledge codification. The third section presents and describes the transfer processes identified in the present study. The final section discusses some possible directions for future research and concludes the paper.

III RESEARCH BACKGROUND

A. The Concept of IOKT

IOKT refers to the flow of knowledge from one organization to another (Chou et al., 2015; Sussman & Siegal, 2003). It is seen as an essential part of KM dealing with the flow of knowledge from external organizations. In any case of IOKT, the objective is to facilitate the flow of knowledge between collaborating organizations (Bou-Llusar & Segarra-Ciprés, 2006). In this context, there are two main components involving in the transfer processes: the source who shares knowledge and the receiver who acquires that knowledge (Liyanage et al., 2009). As such, in this paper, IOKT focuses on the process related to the flow of knowledge from the source organization to the receiver organization. As shown in Figure 1, IOKT processes aim to facilitate the flow of knowledge from external knowledge sources into the organization, which may support other processes of KM in the organization such as knowledge creation, capture, application and integration. In this definition, IOKT is achieved when the receiver organization obtains the knowledge transferred from the source organization.

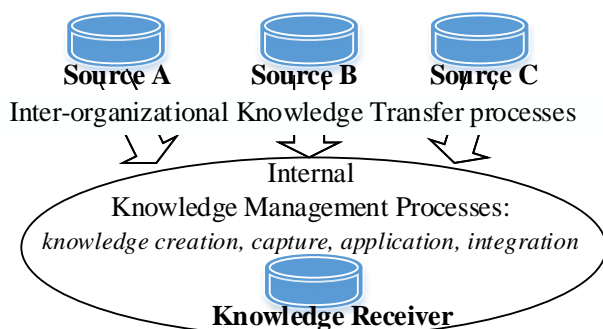


Figure 1. The IOKT Concept

B. IOKT Processes

Knowledge transfer approaches can be broadly divided into structured and unstructured approaches (Chen & McQueen, 2010). The unstructured approach is an informal, unplanned and spontaneous transfer process. In contrast, the structured approach is formal, planned and is an intentional transfer process. This paper focuses on the structured approach as it is designed to ensure that the transfer of knowledge takes place between the organizations, which requires

a very structured transfer process. However, there are few studies that explicitly identify and describe the various processes involved in the transfer of knowledge. The studies discussed in this section are representative of efforts to identify the knowledge transfer processes.

Chua and Pan (2008) state that the knowledge transfer process is similar to organizational learning sub-processes that consist of (1) knowledge acquisition – knowledge is acquired from the source, (2) Information distribution – information is distributed in the organization, (3) Information interpretation – the meaning and understanding of the information is developed, and (4) Organizational memory – knowledge is stored for future use.

Abou-Zeid (2005) conceptualizes the transfer of knowledge as a process in which the knowledge created within one organizational context is re-created and utilized in another organizational context. The knowledge transfer processes include (1) initialization – selection of the knowledge source and the type of collaborative arrangement; (2) inter-relation – initiating constructive dialogues between the source and receiver organizations and establishing the transfer conduits for transferring the knowledge; (3) implementation – unpacking and interpreting the newly acquired knowledge, and applying such knowledge in the receiver organization; and (4) internalization – routinizing and institutionalizing the new knowledge within the receiver organization.

Vito Albino et al. (1998) state that the knowledge transfer process begins with the transfer of information and ends with the interpretation of the transferred information to become knowledge through a learning process, which consist of (1) acquisition – simply acquiring information from another organization; (2) communication – distributing the acquired knowledge in the organization; (3) application – applying the communicated knowledge to be retained in the organization; and (4) assimilation – assimilating the results of applying the transferred knowledge.

Liyanage et al. (2009) propose that, based on communication and translation theories, the transfer processes consist of (1) awareness – the appropriate or valuable knowledge is identified to be transferred; (2) acquisition – the knowledge is acquired from the source; (3) transformation – the acquired knowledge is transformed by simply adding or deleting knowledge or by means of translation; (4) association – the transferred knowledge is associated with the internal needs; and (5) application – the useful knowledge is applied in the organization in order to create value.

Szulanski (2000) argues that the transfer of knowledge should be emphasized as the process of knowledge

movement, not a gradual process of dissemination. Therefore, the transfer of knowledge is seen as a process of dyadic exchanges of knowledge between the source and the recipient, which includes (1) initiation – the consideration of the feasibility of the transfer that leads to the decision to transfer, which involves the identification of the need and the

potential knowledge to meet that need; (2) implementation – the actual flow of the knowledge from the source to the receiver; (3) ramping-up – the initial use of the transferred knowledge by the receiver; and (4) integration – the gradual institutionalization of the new routines that result from the use of the transferred knowledge.

Table 1. Knowledge Transfer Processes Identified in Prior Studies

Study	Concept used	Pre-transfer	Transfer	Post-transfer
Chua and Pan (2008)	Organizational learning	NA	Acquisition	Information distribution, Information interpretation, Organizational memory
Abou-Zeid (2005)	Knowledge re-creation	Initialization	Inter-relation	Implementation, Internalization
Vito Albino et al. (1998)	Learning processes	N/A	Acquisition	Communication, Application, Assimilation
Liyanage et al. (2009)	Communication and translation theories	Awareness	Acquisition	Transformation, Association, Application
Szulanski (2000)	Knowledge movement processes	Initiation	Implementation	Ramping-up, Integration

The studies mentioned above use different concepts to identify the transfer processes, but these processes are likely to be similar in terms of the phases of the process (see Table 1). In addition, they intensively focus on post-transfer processes such as application, integration and internalization. It seems that the processes needed to foster obtaining external knowledge may not be adequate, while they are a prerequisite for other KM processes in utilizing the transferred knowledge. Further, as the IOKT concept defined in this paper, the authors argue that the transfer of knowledge and the application or exploitation of transferred knowledge may not occur in the same process. The knowledge has to be transferred before it is able to be utilized.

Knowledge application involves the use of knowledge to create value, whereas knowledge transfer focuses on how the organizations can receive knowledge from other organizations (Meier, 2011). Moreover, these studies neglect the perspective of the source organization. The IOKT processes involves both the source and receiver organizations (Easterby-Smith et al., 2008; Liyanage et al., 2009) and the balance between the processes of the receiver and the provider is crucial for knowledge transfer (Alavi & Leidner, 2001). Therefore, it is important to identify the transfer processes by considering both the two perspectives. This paper tries to do this by using absorptive capacity theory, from the receiver perspective, and by taking into account knowledge codification, from the source perspective. These will be described in the following sub-sections.

C. Absorptive Capacity Theory

The absorptive capacity (ACAP) theory has become one of the most prominent constructs in the area of knowledge transfer (Van Wijk et al., 2008). Several studies have indicated that a receiver's absorptive capacity impacts the level of knowledge transfer (Roberts et al., 2012). The ability of organizations to absorb new external knowledge is crucial for facilitating knowledge transfer across organizations (Easterby-Smith et al., 2008; Martinkenaite, 2011). Accordingly, from the receiver perspective, the theory of ACAP is influential in identifying the processes of IOKT.

ACAP is defined as “a set of organizational routines and strategic processes by which firms acquire, assimilate, transform, and exploit knowledge for purpose of value creation” (Zahra & George, 2002, p. 186). Therefore, ACAP consists of knowledge acquisition, assimilation, transformation and exploitation. These components are subsequent to each other, and are categorized in two subsets: potential and realized ACAP. The former refers to the ability to acquire and assimilate new knowledge, whereas the latter refers to the ability to transform and exploit this knowledge. These two subsets have separate but complementary roles.

Todorova and Durisin (2007) argue that Zahra and George's model is not built systematically enough on Cohen and Levinthal's (1990) original contributions and that there are some gaps and ambiguities in their model. Therefore, Zahra and George's model was refined in which the “ability to recognize the value” component was reintroduced from the original conceptualization by Cohen and Levinthal (1990) as

the first component. Recognizing the value of new knowledge is about understanding the potential value of the new external knowledge, whereas acquisition mainly focuses on the intensity, speed and effort to gather knowledge (Todorova & Durisin, 2007). Accordingly, ACAP consists of recognizing the value, acquisition, assimilation, transformation and exploitation of new external knowledge. As shown in Figure 2, the three first components are categorized as potential ACAP, whereas the two latter are components of realized ACAP.

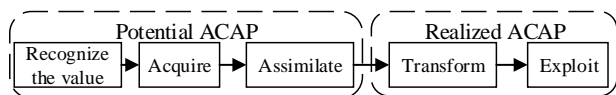


Figure 2. Components of Absorptive Capacity

D. Knowledge Codification

Knowledge codification may be essential for the transfer of external knowledge. Knowledge that is codified and is in explicit form makes it possible to exchange, share and disseminate (Janicot & Mignon, 2012). Accordingly, codification strategies are required to facilitate flows of organizational knowledge (Schulz & Jobe, 2001; Yang, 2010), especially for KM implementing based on system or technology strategies that focus on codifying and storing knowledge via information technology (Choi & Lee, 2002).

Knowledge codification is seen as “the process of conversion of knowledge into messages which can then be processed as information” (Cowan & Foray, 1997, p. 596). From this definition, there are two aspects of the codification of knowledge in which the information is created (Hall, 2006): codification of tacit knowledge, and codification of information. Tacit knowledge codification involves the use of language to explain, describe and articulate, and so on. It can be taken as a process by which the knowledge is transformed to be explicit. In the case of the codification of information, codification is of knowledge that has already been codified into information. This codification can be seen as a process of classification or organization of information. However, the tacit and the codified forms are not substitutes, but rather complements (Cohendet & Meyer-Krahmer, 2001). Typically, the key issue of codification is to convert knowledge into information that is represented in an object (the explicit form) such as expressed in documents or manuals. It is the process to represent the knowledge into the explicit form by linguistic and symbolic means (Senaratne & Malewana, 2011). In other words, knowledge becomes information, when it is presented in the form of text, graphics, words, or other symbolic forms (Alavi & Leidner, 2001).

IV IOKT PROCESSES IDENTIFICATION

In this paper, the identification of IOKT processes is made from the perspectives of the receiver and the source involving in the transfer processes. From the receiver perspective, the theory of ACAP is useful for identifying the IOKT processes. This paper follows the model by Zahra and George (2002) that distinguishes ACAP into potential ACAP and realized ACAP. Consistent with our definition of IOKT, the transfer process should be separated from the process of knowledge application or exploitation. It should mainly focus on how organizations can receive knowledge from other organizations. Therefore, knowledge exploitation is not considered to be included in the IOKT process as it is the process of utilizing or applying the transferred knowledge. Meanwhile, this paper also follows the model by Todorova and Durisin (2007) that reintroduces the “ability to recognize the value” as the first component. Accordingly, from the receiver perspective, IOKT is described as being dependent on the organization’s ability to recognize the value of new external knowledge, to acquire and assimilate that knowledge. Furthermore, from the source perspective, IOKT is also dependent on the organization’s ability to codify knowledge to be transferred. The following subsections describe these components in detail.

A. Ability to Recognize the Value of New External Knowledge

The ability to recognize the value of new external knowledge involves understanding and valuing new external knowledge, which is influenced by prior knowledge related to the new knowledge (Cohen & Levinthal, 1990). It should be the first component before acquisition because acquisition mainly directs attention to the intensity, speed and effort to gather knowledge; consequently, the ability to motivate these efforts by understanding the potential value of such knowledge may be ignored (Todorova & Durisin, 2007). This has crucial implications for IOKT. The transfer of knowledge from external organizations does not occur automatically; rather, it occurs when an organization understands the potential value of the external knowledge or has the motivation to seek the transfer of that knowledge. Accordingly, the motivation to seek the transfer of knowledge is one of the most important antecedents of IOKT (Easterby-Smith et al., 2008; Martinkenaite, 2011). In this paper, this process is referred to as “identification”, whereby knowledge is identified for transfer through recognition of its potential value. Several activities are involved, such as identifying the type of knowledge to be transferred, evaluating the expected outcome and potential source, together with the type of arrangement to be established with the source of the required knowledge (Abou-Zeid, 2005).

B. Ability to Codify Identified Knowledge

In the literature, it has been suggested that the ability to codify knowledge enables the ease and speed of the transfer of knowledge (Bou-Llusar & Segarra-Ciprés, 2006; Smeets & Bosker, 2011). Especially, in the IT-based system, transferring knowledge that is codified in the form of electronic documents saves times and reduces the access cost (Janicot & Mignon, 2012). In fact, knowledge that is codified, making it easier to transfer than tacit knowledge that is abstract (Dhanaraj et al., 2004; Hau & Evangelista, 2007).

Knowledge that can be transferred needs to be represented in a code which can range from natural language to numbers, from analytical models to images (Albino et al., 2004). Therefore, knowledge codification is necessary for organizations wanting to transfer knowledge to others, especially the transfer of organizational knowledge that is the focus of this paper. Accordingly, before acquiring, knowledge needs to be codified into information at the source organization in order to facilitate the flow of knowledge to the receiver. In this process, knowledge is codified into information representing in an object such as documents or manuals, which is influenced by cultural background, goals and experience of the subject who performs codification, depending on the knowledge transfer context (Albino et al., 2004).

C. Ability to Acquire Codified Knowledge

Knowledge acquisition is defined as the process in which the codified knowledge that has been identified to be transferred is acquired from the source organization by the receiver organization. From the absorptive capacity perspective, there are three attributes of an organization's efforts in the new knowledge acquisition that influence absorptive capacity: intensity, speed, and direction (Zahra & George, 2002). The intensity and speed in gathering knowledge can determine the quality of an organization's acquisition capabilities, whereas the direction of accumulating knowledge can affect the paths that the organization follows in obtaining external knowledge (Zahra & George, 2002). However, these activities vary in their richness and complexity, and expertise from different domains in the organization is required in order for the activities to be accomplished (Zahra & George, 2002). In this paper, knowledge acquisition is identified as an important process in IOKT as it involves the actual transfer of the required knowledge from the source organization to the receiver organization. Once the identified knowledge to be transferred is codified, the knowledge is acquired and then flows from the source to the receiver organization.

D. Ability to Assimilate Acquired Knowledge

Knowledge assimilation refers to interpreting, processing, analyzing and understanding the new knowledge acquired from external sources (Zahra & George, 2002). In this paper, this process is referred to as "interpretation" and is considered to be the last process of IOKT in which the newly acquired knowledge is processed. Once the knowledge is acquired, the organization has to understand and interpret what it has acquired. This can be seen as the process of reconstituting acquired knowledge in the form of information into knowledge. Information that is interpreted to be used in a particular context can be considered as knowledge. Therefore, interpretation is an important activity in the knowledge transfer process by which the information acquired from the source is turned into knowledge at the receiver (Garavelli et al., 2002).

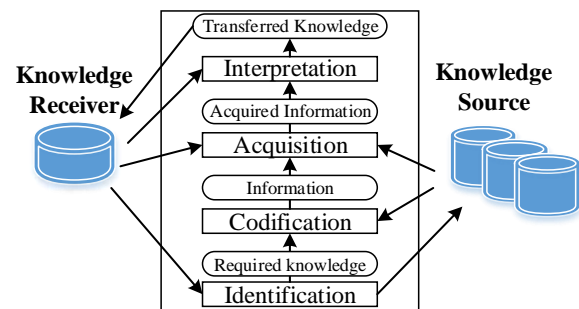


Figure 3. IOKT Processes

As indicated above, the transfer starts with the prospective receiver organization identifying what knowledge is required to be transferred from external organizations by recognizing its potential value, and which organization is appropriate to provide that knowledge. Before knowledge acquisition, the identified knowledge needs to be codified into information by the source organization. Then, the codified knowledge in the form of information is acquired from the source organization. The last process is interpretation where the acquired information is turned into knowledge. Figure 3 shows the sequence of these processes.

V CONCLUSION AND FUTURE RESEARCH

In this paper, the identification of IOKT processes is made from both knowledge receiver and knowledge source perspectives, which is different from previous studies that neglect the source perspective. From the receiver perspective, the transfer processes is influenced by the ACAP theory. From the source perspective, knowledge codification processes of the knowledge provider is taken into consideration. Further, the present paper considers that IOKT processes should be separated from the process of application or utilization of transferred knowledge. Accordingly, based on the integrative perspective, IOKT consists of the processes of identification,

codification, acquisition, and interpretation. These processes are essential to be sufficiently addressed in order to ensure that the transfer of external knowledge can be achieved.

This paper provides an understanding of IOKT in terms of the processes. It has some practical and research implications. For practical implications, this study provides a concrete way to conduct the external knowledge transfer initiatives. For research implications, the proposed IOKT processes would be used as the basis for future research with the ultimate goal of developing the most efficient and effective strategies, both human-and technology-based strategies, for supporting and operationalizing these processes. It would be helpful to determine human activities and roles and the need for and value of technology that are relevant in supporting IOKT effectively in a specific context. It serves as a procedure and methods to guide the implementation of the support strategies for IOKT. In particular for technology-based strategies, several technologies can be used to enhance the efficiency of knowledge transfer by increasing the speed of transfer and decreasing costs due to time and distance. However, without human intervention, technology is insufficient. Therefore, it is interesting for future research to explore in details the roles and value of technology as well as human roles in supporting and operationalizing the IOKT processes.

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