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Tonjia Kenner Coverdale  
*Morgan State University*

Jigish Zaveri  
*Morgan State University*

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Exploring the Impact of Global Structure on Organizational Knowledge Transfer: A Contingency Analysis

Tonjia Kenner Coverdale
Morgan State University
tcoverda@jewel.morgan.edu

Jigish S. Zaveri
Morgan State University
jzaveri@morgan.edu

ABSTRACT
In the global economy, organizational knowledge has emerged as a major contributor to achieving sustainable competitive advantage. In this paper, the authors present an outline for the exploration of the impact of the global structure of an organization on intra-firm knowledge transfer. The authors discuss four global structures: global, international, multinational, and transnational, and present the Global Knowledge Transfer framework. This framework suggests that the global structure of an organization has an impact on its knowledge flow. The framework also suggests that this relationship is moderated by the IT-based communication and social networks that are inherent within the organization. The authors suggest that this relationship can be examined through organizational and information systems theories including contingency theory, social network theory, and the theory of communicative action. The contribution of this proposed study is to provide a foundation to determine the optimal knowledge flow configuration for each global structure.

Keywords
Globalization, knowledge management, knowledge management systems, knowledge transfer, knowledge flow

INTRODUCTION
Globalization has presented many challenges to firms desiring to operate, compete, and survive in today’s business marketplace. In the presence of the rapidly emerging global economy, organizations are faced with the task of redesigning their operations in order to coordinate their activities on a worldwide scale. Some of the redesign tasks faced by global organizations relate to changing control systems, restructuring management processes, redesigning organizational structures, and globally leveraging technologies (Karimi and Konsynski, 1991). Increasing globalization has also caused organizations to seek global business strategies that allow them to effectively achieve cross-border integration and the coordination and control of business activities.

In addition to the emerging global economy, organizations are faced with the challenge of adjusting to operate in the burgeoning knowledge economy. The quest for knowledge has replaced the prominence of the production orientation in achieving and sustaining competitive advantage for organizations. The knowledge-based view of the firm suggests that the firm’s ability to apply existing knowledge to create new knowledge forms the basis for competitive advantage (Alavi and Leidner, 2001). Thus, firms are faced with the dual challenges of navigating the global economy while satisfying the need for knowledge acquisition, knowledge creation, knowledge application, and knowledge transfer. The global marketplace of the future has arrived.

As a result of the challenges presented by the onset of the global and knowledge economies, organizations are faced with redesigning their processes and structures in order to respond to the changes in the competitive environment. These changes are stimulated by the simultaneous set of forces that shape organizations in the global, knowledge-based economy. Thus, the performance of an organization is contingent on its structural and procedural responses to these external forces.

PURPOSE OF THE STUDY
The purpose of this paper is to present an outline of a proposed study that is designed to explore the impact of the global economy on the knowledge management initiatives of a firm. In particular, this paper will employ a contingency approach to examine the relationship between the global strategy of a firm and the knowledge flow throughout a firm. In examining these major variables, the impact of the communications processes and the social capital within a firm in terms of social networks and relationships will be considered. The design of this study is in the evolutionary phase, thus the purpose of this paper is to provide the foundation upon which the eventual study will be built.
The research question that serves as a foundation for this paper is “What is the impact of the global structure of an organization on organizational knowledge flow?” In other words, as a result of the differing global structural options that are present for an organization, what is the optimal knowledge flow configuration for each and how can firms achieve this configuration in order to maximize their knowledge management potential?

The next section of this paper will outline the varying options for the global strategy of an organization. Following this discussion, some of the important considerations relating to knowledge and its management within organizations will be presented. Next, the model that serves as the centerpiece of this study will be discussed along with the major underlying theories that serve as a foundation for the framework. Subsequently, a discussion of the proposed methodology will be presented that outlines the suggested means for quantitatively and qualitatively examining the relationship between global strategy and knowledge flow. Finally, the implications of the results of the analysis for practitioners and researchers will be discussed.

CONCEPTUAL BACKGROUND

Global Business Strategy

The global business strategy of a firm is the strategy that a firm uses to gain competitive advantage from its international presence through the concentrated configuration of activities, coordination among dispersed activities, or through the use of both concentration and coordination (Porter, 1986). Configuration involves the locations throughout the world where activities in the firm’s value chain are performed. This location configuration characterizes the organizational structure of a global firm. Relating to coordination, organizational activities are synchronized based on two environmental forces: national differentiation and global integration (Bartlett and Ghoshal, 1988). National differentiation refers to the diversity of individual country-markets and global integration refers to the coordination among activities in the various countries.

Literature suggests that there are several configuration and coordination options available for global firms: global, international, multinational, and transnational. These strategic options differ in terms of their business strategy and structure, strategic management processes, tactical business processes, and coordination and control policies.

Global Strategy

Using a global strategy, firms seek competitive advantage by capitalizing on the economies that are associated with standardization, global-scale operations, and centralized control of worldwide operation (Karimi and Konsynski, 1991). They are primarily driven by economic efficiency. Global firms pursue globally integrated strategies that are designed to achieve optimum production efficiencies by producing large volumes of standardized products that are sold across national borders (Levitt, 1983). In a global firm, the key parts of a firm’s value chain activities are geographically concentrated. Firms that pursue the global strategy emphasize centralized control and tight integration of operations. Key strategic decisions for worldwide operations are made centrally by senior management. In this centralized organizational structure, there is primarily a one-way flow of knowledge, capital, products, and resources from the central location to subsidiary locations (Ramarapu and Lado, 1995). Global strategy and structure is depicted in Figure 1. The solid lines in Figure 1 represent the strong relationship between the headquarters unit and the subsidiary units and the one-way arrows illustrate the general information flow.
International Strategy

Another strategy that has been discussed in previous literature is the international strategy. In the international strategy, a firm transfers knowledge and expertise to global locations that are less advanced in technology and market development (Karimi and Konsynski, 1991). In turn, the global locations are free to adapt the new strategies, products, processes, and ideas. In the international strategy, subsidiary locations are generally accountable for their assets and responsibilities. This organizational structure is a coordinated federation, where the subsidiaries are dependent on the parent location for new processes and ideas. This requires coordination and control by the central location as the subsidiary locations are dependent on the transfer of knowledge and information from the parent location in order to be successful. Under an international strategy, parent locations use formal systems and controls in its relations with subsidiaries. The international strategy and structure is illustrated in Figure 2. The dashed lines in Figure 2 demonstrate the loose relationship between the headquarters and the subsidiaries and the one-way arrows illustrates the usual information flow from the headquarters to the subsidiaries.

Multinational Strategy

The third global strategy presented in the model is the multinational strategy. Using the multinational strategy, a firm differentiates its products to meet local needs and to respond to the diverse national interests that may be present (Karimi and Konsynski, 1991; Ramarapu and Lado, 1995). Multinational firms perceive the importance of national responsiveness as being critical to their success, which leads them to emphasize the differentiation and customization of products and operations. The multinational strategy demonstrates a decentralized organizational structure in which firms delegate a large amount of operating independence and strategic freedom to the subsidiary locations. Through using this strategy, firms manage autonomous national companies as a portfolio of offshore investments rather than operate as a single global entity. Subsidiary locations are encouraged to focus on their local markets through the parent location’s emphasis on information technologies and market research that are context-specific to the country of operation. In the multinational strategy, coordination and control are gained through the personal relationships between top corporate management and subsidiary managers rather than a formal organizational structure. Strategic decisions are decentralized and central management (top management) is involved mainly in monitoring the results of subsidiary locations. In the multinational strategy, the linkages between the headquarters location and subsidiaries are generally weak. Subsidiaries enjoy autonomy in terms of designing and implementing strategies and are only financially accountable to the headquarters location. The multinational strategy and structure is depicted in Figure 3. The dotted one-way arrows represent the weak relationship between headquarters and subsidiaries in the multinational configuration. Unlike the previous two structures, the primary information flow is from the subsidiaries to the headquarters.
Using a transnational strategy, which is the fourth strategy presented in the model, a firm coordinates many of the national operations while retaining the ability to address national interests and preferences (Bartlett and Ghoshal, 1989). Organizations that operate using the transnational strategy are designed to manage global integration and national responsiveness simultaneously. Subsidiary locations are viewed as a source of ideas, skills, capabilities, and knowledge that are beneficial to the entire organization. As such, subsidiary locations are no longer viewed as the implementers of strategies that are centrally developed by the headquarters location. Using the transnational approach, organizations are both independent and interdependent. Subsidiaries tend to be independently operated in the midst of the interdependence between the subsidiaries and the central organization. Thus, transnational organizations operate as an integrated network of organizations with the power to ‘think globally and act locally’ (Bartlett and Ghoshal, 1989). As such, the top managers for each of the organizations are responsible for coordinating the development of strategic objectives and operating policies, coordinating the logistics among operating divisions, and coordinating the flow of information among divisions. Transnational strategies permit bidirectional linkages that allow the flow of resources, information, and skills between subsidiaries and between subsidiaries and the headquarters location (Ramarapu and Lado, 1995). This strategy is illustrated in Figure 4. The solid, bi-directional arrows in Figure 4 illustrate the integrated nature of the transnational strategy. Each unit within a transnational organization is seamlessly weaved together to create a boundary-less, cohesive organization throughout which information flows.
Knowledge

In recent years, knowledge has surfaced as one of the frontrunners in the race for organizational differentiation. The knowledge-based perspective of the firm that has emerged in recent literature is reflective of its importance (Nonaka and Takeuchi, 1995). The knowledge-based perspective extends the premises of resource-based theory by positing that organizational services are a function of knowledge that is embedded in and transported through organization culture, policies, systems, and members (Alavi and Leidner, 2001). Hence, knowledge and its application are inseparable from the context in which it is created and exists. As such, knowledge has emerged to become an organizational contextual variable.

Data, Information, and Knowledge

The definition of knowledge has varied throughout literature. However, it is generally agreed the knowledge is distinct from data or information. Data is thought to be raw numbers of factual information that is without specific meaning until it is processed into information. Information is processed data that is meaningful and useful to an organization and may aid in the decision-making process. Knowledge, then, is personalized information relating to facts, procedures, interpretations, ideas, and observations that is possessed in the minds of individuals (Alavi and Leidner, 2001). In essence, knowledge is the act or state of knowing gained through the psychological interaction between experience, learning, cognition, and perception of fact and truth. In further support for the contention that knowledge exists within an agent, Tuomi (1999) argues that knowledge is shaped by the needs of individuals in addition to their initial knowledge stocks.

Information and knowledge can also have a reciprocal relationship, according to Alavi and Leidner (2001). They posit that information is processed into knowledge in the mind of individuals and knowledge becomes information once it is articulated and able to be transferred in the form of text, graphics, words, and symbols. This suggests that in order for individuals to have a similar understanding of transferred knowledge, they must share a comparable knowledge base.

Global Knowledge Transfer

This may have major implications for the transfer of knowledge in a global setting, as knowledge must flow throughout the entire organization, crossing international and cultural boundaries. In turn, this has implications for knowledge-based information systems that support global organizations, as they are designed to enable users to assign meaning to knowledge-based information and capture existing knowledge for conversion into transferable knowledge. As a result of its global orientation, organizations with an international presence may face technological, cultural, and environmental barriers to the performance of a global knowledge-based information system.

Several differing views of the nature of knowledge are found throughout literature. One major view is that knowledge is a process of simultaneously knowing and acting (Carlsson, El Sawy, Eriksson, and Raven, 1996). This perspective focuses on the application of expertise in an organizational context. This process perspective implies that the focus of knowledge management within an organization is on knowledge flow and the processes of knowledge creation, knowledge sharing, and knowledge distribution (Carlsson et al., 1996). The process perspective also implies that the role of knowledge-based systems within an organization is to provide links among sources of knowledge to create wider breadth and depth of knowledge flows (Alavi and Leidner, 2001). Thus, information technology can be used to increase the channel capacity and quality of knowledge flow within an organization. This perspective is promising in terms of global knowledge-based systems. The process view is the basis for the examination of the focal research problem in this study.

Knowledge and Organizational Differentiation

In recent years, knowledge has surfaced as one of the frontrunners in the race for organizational differentiation. The knowledge-based perspective of the firm that has emerged in recent literature is reflective of its importance (Nonaka and Takeuchi, 1995). The knowledge-based perspective extends the premises of resource-based theory by positing that organizational services are a function of knowledge that is embedded in and transported through organization culture, policies, systems, and members (Alavi and Leidner, 2001). Knowledge is personalized information relating to facts, procedures, interpretations, ideas, and observations that is possessed in the minds of individuals (Alavi and Leidner, 2001). Information is processed into knowledge in the mind of individuals and knowledge becomes information once it is articulated and able to be transferred in the form of text, graphics, words, and symbols. As a result of its global orientation, organizations with an international presence may face technological, cultural, and environmental barriers to the performance of a global knowledge-based information system.
Knowledge Management

Knowledge management is defined as the act of identifying and leveraging the collective knowledge in an organization to help the organization in its quest for competitive advantage (von Krogh, 1998). Knowledge management initiatives focus on building a knowledge infrastructure, which is a web of connections between people that are given time, tools, and encouragement for interaction and collaboration. This study is primarily focused on the optimal knowledge infrastructure given the contingencies of global strategy and organization design.

Knowledge distribution, also known as knowledge transfer, has significant implications for global firms. Thus, it is the organizational activity of particular interest in the current study. Knowledge transfer occurs at several levels: between individuals, from individuals to explicit sources, from individuals to groups, between groups, across groups, and from the group to the organization (Alavi and Leidner, 2001). As a result of the varying routes for knowledge transfer within an organization, it is natural to assume that organizational structure will have an impact on the knowledge flow throughout an organization.

Huber (1991) mentions that knowledge transfer is not a simple process, because organizations are often unaware of their knowledge assets (i.e., they do not know what they know) and they often have weak systems for locating and retrieving knowledge that resides throughout the organization. Thus, it is suggested that communication processes and information flows drive knowledge transfer within organizations. Gupta and Govindarajan (2000) conceptualize knowledge flow (knowledge transfer) in terms of five elements, which are: the perceived value of the source unit’s knowledge, the source unit’s willingness to share knowledge, the existence and richness of the transmission channels the receiving unit’s willingness to receive knowledge, and the absorptive capacity of the receiving unit, which is the ability to acquire and use knowledge (Cohen and Levinthal, 1990). This conceptualization highlights the centrality of both social processes and technological processes in organizational knowledge transfer. Accordingly, the research model presented in this study is designed to consider both processes as they interact with organizational structure to impact knowledge flow.

THEORETICAL FRAMEWORK

The basic model of this study, the Global Knowledge Transfer framework, is shown in Figure 5. Seemingly a simple illustration, this conceptualization of the model is high-level, with detailed sub-conceptualizations expected to emerge during the course of the research study. In general, the Global Knowledge Transfer framework suggests that the global structure of an organization has an impact on the knowledge flow within an organization. This framework also suggests that the relationship between the global structure of an organization and its level of knowledge transfer is moderated by the IT-based communication that is present in the organization and the social networks that are inherent within the organization. The relationship between global structure and knowledge transfer will be examined through organizational theory and information systems literature, using contingency theory, social network theory, and the theory of communicative action.

Contingency Theory

Contingency theory posits that the optimum organization structure depends on several contingency factors, such as the complexity of the environment, the strategic positioning of a firm, or the technology that is employed within a firm (Galbraith, 1973). Contingency theory proposes that in order for organizations to be effective, there should be a ‘fit’ between the structural design and the conditions of the environment (Pennings, 1992). Thus, the effectiveness of an organization is
contingent upon the goodness of fit between structural and environmental variables. The systems approach to contingency theory will be used as a foundation for the present study. The systems approach maintains that in order for firms to be effective, they must select the organizational pattern of structure and process that matches the contingencies faced by the firm and develop structures and processes that are internally consistent (Drazin and Van de Ven, 1985).

In the present study, the contingency variable of interest is global strategy. In particular, this study aims to examine the structure of an organization in terms of the relationships between the headquarters location and subsidiaries as suggested by its global strategy. In essence, this study proposes that the optimal knowledge transfer between the various components of an organization is contingent upon the fit between the global structure, the IT-based communication, and the social networks that are in place within an organization.

Resulting from the above discussion, the proposition that serves as a basis for this study is stated below:

**Research Proposition:** The global structure of an organization and its congruence with organizational communicative networks will have an impact on the transfer of knowledge throughout an organization.

In this study, the communicative networks that are present in an organization will be conceptualized as IT-based communication and social networks. IT-based communication encompasses technological means of communicating within an organization and social networks relate to the networks and relationships between locations that are inherent in a global organization. The following sections explain the underlying theories in detail.

**Theory of Communicative Action**

The theory of communicative action (Habermas, 1984) views social communication within a top-down hierarchy of goals and resources in the context of social norms and cultural values. Design decisions for information systems that are designed primarily for communication rely on the knowledge of how people communicate (Te’eni, 2001). Knowledge, as previously discussed, primarily resides and originates in individuals. Thus, in order for the knowledge to be transferred throughout the organization, it is imperative that it is communicated. As such, the theory of communicative action is central to the discussion presented in the present study.

The relationship between mutual understanding and relationship is of particular importance to organizations for several reasons. Firstly, mutual trust has been found to facilitate a productive flow of information (Hart and Saunders, 1997). Thus, communication is more effective when trust and commitment are high. Also, faulty communication and unsuccessful interaction make it difficult to reduce the psychological distances between sender and receiver (Schein, 1996). As a result, it is imperative that organizations consider the relationships between individuals, functional units, and various locations when examining organizational communication.

**IT-based Communication**

Knowledge management systems (KMS) are employed within organizations to manage organizational knowledge. These systems are IT-based systems that are developed to support and enhance the organizational knowledge processes inherent in organizations (Alavi and Leidner, 2001). With this consideration in mind, the contingency basis of the Global Knowledge Transfer framework suggests that the IT-based communication within an organization moderates the relationship between the global structure and knowledge transfer. That is, the IT-based communication of a firm must ‘fit’ the global structure of the firm in which it is employed. The goodness of fit between the IT-based communication system designed to facilitate knowledge transfer of an organization and the organization structure implies that the firm will be more effective in terms of knowledge transfer.

**Social Capital Theory**

Social capital is defined as any aspect of social structure that creates value and facilitates the actions of individuals within a social structure (Coleman, 1990). It has also been defined as the goodwill that is engendered by social relations that can be mobilized to facilitate action (Adler and Kwon, 2002). Although goodwill is the substance behind social capital, the effects of social capital flow from the influence and information that the goodwill makes available to participants.

According to Leonard and Sensiper (1998), knowledge transfer within an organization relates to the degree of which knowledge is transferred throughout an organization and the extent of interdependency among subgroups or individuals. Therefore, social capital theories are relevant for the present study, because most social capital research locates the source of social capital in the formal structure of the ties that constitute the social network and the content of the ties. Two theories that are generally used to explore social networks are weak tie theory and structural holes theory.
Social Networks

The first theory relating to social capital and network structure is weak tie theory (Granovetter, 1973). Weak tie theory focuses on the strength of the social tie that is possessed by an individual. Another view that is often discussed relating to social network structure is the structural holes theory (Burt, 1992). Structural holes theory focuses on the pattern of relationships among alters within an individual’s social network.

The network of social ties that are inherent within an organization creates opportunities for social capital transactions. In addition, the interaction between social ties and IT-based communication has an impact on organizational communication and knowledge transfer. Therefore, another dimension is added to the contingency framework presented in this study.

METHODOLOGY

The sampling frame for this study will be Fortune 500 companies. Organizations that conform to the four global business strategies will be included in the study. It is intended for the sample to consist of organizations from various industries, in order to promote generalizability.

To provide a basis for the analysis of global structure and social networks, the linkages and relationships between the home location and the various subsidiaries will be structurally modeled based on information gained from company documentation, company web sites, and other company-specific information. The CIO of each organization or another informed official will be interviewed in order to obtain technical, architectural, and infrastructural information relating to the IT-based communication systems that facilitate communication throughout the organization. Proprietary information is not necessary, general information about the system such as usage, reach, level of interactivity, channel capacity, and degree of adaptiveness is sufficient for the purposes of this study.

Since this study is a contingency study, the knowledge transfer variable will not be measured or approximated. Using the network model and the communication system information, optimal organizational configuration in terms of network structure and communication systems will be determined mathematically. Network analysis techniques and other methods from physics and transportation planning literature can be used to provide an optimal measure for knowledge flow, in relation to the two contingency variables. As such, knowledge flow as a dependent variable will be quantitatively derived as a result of the mathematical model gained through the examination of the sample organizations.

IMPLICATIONS OF THE STUDY

This proposed study has implications of particular interest to both practitioners and researchers. For practitioners, this study will help them in their quest to navigate the pressures simultaneously of the global and knowledge economies. Using the results of this study, organizations can redesign their structures and connecting communicative technologies in order to optimize the knowledge flow throughout the organization. This increased knowledge transfer may result in increased effectiveness for the organization and contribute to their pursuits of differentiation in the marketplace, a source of competitive advantage.

For researchers, this study serves as a foundation for future related empirical studies. This study is largely a conceptual study resulting in the development of a model that can be applied in subsequent studies. Follow-up studies can be conducted that tests the validity and reliability of this model against a variant sample. This study also contributes to a broad base of literature including information systems, organizational theory, strategic management, and knowledge management. Thus, the results of this study may have a widespread appeal as it is truly reflective of the integrated nature of organizations that operate in today’s global business marketplace.

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