

Interorganizational Learning for Knowledge Management

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ABSTRACT

This paper begins with some discussion on definitional understanding of knowledge management, intelligent organization and inter-organizational learning. The approach towards the creation of intelligent and cooperative nations through development and management of knowledge is described through the organizational learning perspective. This paper serves knowledge managers with suggestion to approach knowledge management through inter-organizational learning activities via collaborative means. Approaches of inter-organizational learning such as joint ventures, knowledge networks, strategic learning alliances and e-knowledge networks for e-business are forwarded. Some issues pertaining to these approaches are also described.

Keywords

Interorganizational learning, Intelligence, Knowledge management, Networking, Alliances

1.0 INTRODUCTION

An organization's success greatly depends on its employees' learning abilities and capabilities. With the advent of Information and Communications Technology (ICT) advancement at massive rate, the demand for learning and knowledge is increasing rapidly. It is vital that an organization learn through its individuals in order to progress. A learning organization is one that is proactive ready, being in a better position to accommodate and adapt itself to changes. According to Charles Darwin (1859), evolution requires one to adapt otherwise extinction will follow. Therefore in order to evolve and adapt at the same time, learning is a must; especially so if an organization wants to be distinctive, competitive and make timely decisions to realize its long term goals.

The information age has inundated individuals with chunks of data beyond their consumption and usage ability. Therefore the need to organize information necessitates learning in order to separate 'nice-to-know' from the 'need-to-know' information. It can be said that learning has become the critical technology to tap the mental resources of employees to convert data and information to knowledge that can be used to perform tasks at hand.

Learning at organizational level itself is insufficient, as the world gets more interconnected and complex. Interdependence amongst organization is inevitable in the knowledge age due to increased level of globalization in recent years and decades to come. To prevent from feeling thunderstruck by lack of knowledge, top management of various organizations need to work collectively; which ultimately brings about better results for them as well as the nation. As all organizations in every nation learn, nations as a whole learn and advance as well. A nation's progress depends greatly on knowledge identification and usage by its working population; as such organizations ought to learn together, or collectively, as this would precipitate synergistic effect on knowledge gain, and organizational performance and results. Interorganizational cooperation for knowledge, thus far, is one of many solutions for organizations to adapt in facing the evolution of changes occurring in the business environment, especially in this knowledge era.

2.0 KNOWLEDGE MANAGEMENT, INTELLIGENT ORGANIZATION AND INTERORGANIZATIONAL LEARNING

2.1 Knowledge Management (KM)

The best definition for KM yet so far is offered by Yogesh Malhotra (1998): "KM caters to the critical issues of organizational adaptation,

survival and competence in face of increasingly discontinuous environmental change. Essentially it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies and the creative and innovative capacity of human beings". KM, in practice, often encompasses identifying and mapping intellectual assets within organizations, generating new knowledge for competitive advantage within the organization, making vast amount of corporate information accessible, sharing of best practices, and technology that enables all of the above – including groupware and intranets (Barclay and Murray, 1997).

However, it must be stressed that mere accumulation of data and information as antecedental activities for future conversion and interpretation for knowledge is insufficient. What is more important is the effective use of knowledge. Almost every organization depends heavily on the acquired knowledge, know-how and shared sense of competency possessed by its staff; and as such the capacity to create, transform, share and apply knowledge is becoming ever more critical aspect of competing (Albrecht, 2002) in an interconnected and complex business world. Hence, KM can no longer be restricted to information management or management of people and intellectual asset or technology management, albeit being essential for efficient KM, to achieve organizational goals. The pertinent issue that has risen to prominence is how well KM be used to create intelligent organization?

2.2 Intelligent Organizations (IOs)

An intelligent person has three things: an exceptional ability to grasp complex information from the outside world, an exceptional ability to respond appropriately to this information and the ability to learn quickly (Veryard, 2000) and accurately interpreting and converting these information to useable knowledge. Similarly, like humans, an organization may behave intelligently. IOs are alert to changing situations, respond creatively to new threats and opportunities, are learning continuously from their experiences and from the mistakes of their competitors. These organizations display the same qualities as that of intelligent people: an eager and receptive curiosity, a consistent but flexible set of responses and an ability to learn quickly (Veryard, 2000).

Maintaining broad horizons with long-term perspectives encompassing long-term viability and success, satisfying and serving stakeholders, self-energizing, rewarding work environment and operating with minimum wastage are some of the work of competent employees of IO (Wiig, 1999). The degree of competency will determine the degree to which the organizations behave intelligently. Its employees' competencies are directly (but not restricted to) a function of knowledge available explicitly or implicitly in the organizations' capabilities. Therefore how well the knowledge is managed becomes the major moderating factor in creating an IO.

Enabling organizations to act intelligently within its own domain has become the foremost objectives of KM. Employees need knowledge resources to work 'smarter', build their capability to keep their knowledge up-to-date and perform high quality knowledge work.

As IOs pursue broad horizons when strategizing and making decisions, internal sources of knowledge generated via intra organizational learning are simply insufficient. Thus, the need arises for interorganizational learning. To handle broad responsibilities in the present and deal with challenges of the future effectively, management teams of IO recognize the need to surpass concentrated and narrow perspective that includes environmental conservation, healthy local and global economies, societal well-being, etc. within their business perimeter. Their responsibilities emanates from the understanding that every organization is interconnected with other organizations, not only within the nation they operate but other nation as well.

2.3 Interorganizational Learning (IOL)

As globalization intensifies competition amongst organizations, an organization cannot depend merely on exploiting and exploring its own limited knowledge resources to realize market opportunities. Organizations must develop and accumulate new competences and knowledge enabling them to face the future successfully (Francisco et. al., 1998), by way of IOL. Moreover, organizations learning individually or independently are bound to face great impediment to progress as increased reliance on internal learning capacity may ill prepare them to confront complexities of managing their business.

Argote (1999) and, Lounamaa and March (1987) have stated that learning at organizational level can reduce or inhibit learning effectiveness. As such organizations today need to leap from intra organizational learning to development of knowledge between organizations (Larsson *et al.*, 1998; Halme, 2001) via interorganizational learning. IOL can be viewed as a collective acquisition of knowledge and skills (Halme, 2001) and it consists of a learning synergy between organizations that would not have occurred if there had not been any interaction (Larsson *et al.*, 1998). In addition, IOL also includes learning by observing other organizations and exchanging knowledge with others (Miner and Anderson, 1999).

Practice of IOL will require organizations to unlearn traditional polarized ways of communicating between them (Halme, 2001) and, to let go their selfishness in safeguarding their organizations' knowledge for their own use and retrieval. Such relinquishment of old ways of knowledge management for interorganizational collaboration for knowledge can "potentially provide an organization with access to information, resources, markets and technologies; with advantages from learning, scale, and scope economies; and allow organizations to achieve strategic objectives, such as sharing risks and outsourcing value-chain stages and organizational functions" (Gulati *et al.*, 2000).

The most highly valued benefit derived from IOL is the cross-fertilization of ideas arising from interaction with partner organizations (Davenport *et al.*, 1999). Besides these, Powell *et al.* (1996) argue that "scientific breakthroughs require skills and knowledge that exceed the capabilities of a single organization..." requiring some kind of collaboration or alliance with other organizations. Similarly, Kogut (2000) argues that rapid product development is dependent on external knowledge. It is noted that, increasingly, many organizations are inclined to interorganizational cooperation as it can bring numerous benefits such as reduction of costs and risks of R&D, a better access to knowledge-based resources and a better understanding of industry-wide technological developments (Dodgson, 1993a; Hagedoorn, 1993; Harrigan, 1986; Mowery, 1988; Veuglers, 1998).

3.0 IOL APPROACHES AND ISSUES

From a theoretical point of view the management of the learning organization is the least investigated issue (Vicari *et al.*, 1996). In this sense, the formalization of a process can enable an organization to learn from its partners (Francisco *et al.*, 1998). It is suggested that a systematic analysis of the organizations' strategic intent may be essential (Lei, 1993); and this can be a good start in order to identify the knowledge and skill that are to be acquired via IOL, in addition to knowledge available within the organization.

However, as knowledge management involves deliberate interventions (Senge, 1990; Swieringa and Wierdsma, 1992) as against IOL which is descriptive, the author of this article attempts to discuss some of the approaches to IOL. The approaches discussed below are some of the interventions suggested in order for organizations to take advantage of opportunities to mould the knowledge base of their organization. It is to be understood that interorganizational interventions or collaborative activities for learning can take a wide variety of possibilities that are intertwined; therefore the difficulty arises in making a definite delineation of intervention activities for IOL.

3.1 Steps in IOL

Levinson and Asahi (1995) have identified four steps in IOL:

i. *Analyzing the environment and identifying new possible knowledge to be acquired.* This may involve the information flow the organization receives. The absorptive capacity (i.e. ability to transform with ease new ideas and knowledge into competencies) of the organization come into play as new information has to be recognized from the large chunks of information flow.

ii. *Acquiring or transferring that knowledge and interpreting it, so that the new knowledge can be used to improve the organizational performance.* The knowledge of where to pass the information on to, and how the information could be useful to the members of the interorganization group are necessities (Ville, 2001).

iii. *The organization uses the acquired knowledge, by adapting its behaviour to achieve*

its intended outcomes. Here again the absorptive capacity of the organization is a critical factor, much needed to transform the information into new competencies and to set new knowledge utilization patterns.

iv. *Institutionalization of the newly acquired knowledge.* Levinson and Asahi (1995) called this second-order learning, in that the learning process is not mechanical in nature, but involves the complex interaction between the new knowledge and various other elements of the organization, like culture, technologies, etc.

Levinson and Asahi (1995) stressed that these steps are not passive steps. Besides the required ability of absorptive capacity, the whole IOL process should be understood and the steps be actively pursued; and to this effect active reflection is of particular importance to guide organizations in constantly monitoring and acting upon behavioral changes of the organization.

3.2 Joint Ventures (JV)

JVs, whether at national or international level, have been favored as a strategic route into new markets, new technologies and new products, judging from the trend in the increasing number of new JVs in the past few decades (Pollard and Hong, 2001). This sort of collaboration has prompted the question of how learning and knowledge development has taken place?

Kogut (1988) mentioned that, alongside the reduction of transactions costs and improvement in competitive advantage, the transfer and acquisition of knowledge between partner organizations is a fundamentally important component in executing interorganizational cooperation. Additionally, the ability to access market knowledge, technological expertise and managerial know-how reduces the need for a organization to develop its own core competencies (Lei and Slocum 1992). Recent research stresses structural and organisational determinants of learning effectiveness between JV partners (Larson *et al* 1998; Inkpen 1996, 1998; Simonin 1999), with some emphasis on opportunities for IOL amongst the partner organizations. For example, previous collaborative experience will affect subsequent alliance learning (Inkpen 1996), which in turn strengthens the learning capacity of the venture organizations. Each partner's ability to value, assimilate and utilize new knowledge is affected

by factors such as the organization's previous knowledge base, the compatibility of management practices and the similarity of partner operations (Pollard and Hong, 2001).

The process of learning in JVs is perceived as interactive and on-going (Doz 1996; Lei *et al.*, 1997). Parkhe (1991) cogently argues that learning in JVs should be considered as an ongoing and persistent process between alliance partners in order to overcome the diversity in societal, national and organisational contexts. From the nature of a JV, it follows that, to make the JV work effectively, the partner organizations must pursue a learning programme which means learning across borders is of high necessity. Furthermore, the nature of knowledge is likely to evolve as the venture matures and knowledge gained in the current venture may help an organisation to develop further effective collaboration. Therefore a JV management team need, to take a longer-term view of knowledge acquisition and transfer in adapting to the evolution of knowledge management.

3.3 Strategic Learning Alliances

One of the driving forces behind the increase of strategic alliances, according to Crossan and Inkpen (1995), is the increasing difficulty for organizations to remain self-sufficient in an international business environment that demands both focus and flexibility. Alliance partnerships are initiated as effective strategies to overcome the skill and resource gaps encountered in gaining access to global markets (Cravens *et al.*, 1992). Dowling *et al.* (1994) suggest "the partners pool, exchange, or integrate specified business resources for mutual gain. Yet, the partners remain separate businesses".

The term 'strategic learning alliance' is coined to reflect based on what Osland and Yaprak (1995) have stated, that developing strategic alliances to learn from a partner can be a faster and more effective method of acquiring specific knowledge. Learning facilitates the partner's motivation in achieving the objectives of the alliance relationship (Morrison and Mezentseff, 1997).

In JVs, the biggest cost and risks are associated with the shared value-adding venture that partners can lose their sources of competitive advantage to their partners very rapidly if they are not careful. If this occurs in the relationship, the less-reliant and sufficient partner may cause a threat to their

alliance partner/s by becoming a direct and potent competitor (Lei and Slocum, 1991).

Creating a learning alliance assists in overcoming the dilemma described above because partners are aware of the importance learning plays in the relationship. The type of learning that is encouraged in these relationships is aimed at creating a co-operative environment that encourages the sharing of information and experiences to enhance the knowledge of individuals and the organization (Morrison and Mezentseff, 1997). The learning appropriate for these relationships is double-loop learning (DLL) which helps to overcome the problems described by Crossan and Inkpen, (1995) in strategic alliances. This thought process incorporates a high level evaluation and analysis of information and encourages members of organizations to transfer this information into knowledge that enables changes to be made for mutual benefit. DLL provides the capacity continually to learn and innovate which are seen to be the epitome of survival and development for companies in the 1990s (DeGeus, 1988; Stata, 1989; Johnston, 1991; Pedler *et al.*, 1991; Mason, 1994). Learning alliances aim to incorporate a co-operative environment that encourages mutual understanding and benefits from the relationship.

A learning framework for successful strategic learning alliance partnerships can be modeled after suggestions by Morrison and Mezentseff (1997) to build a framework that includes a climate/culture conducive to learning, systemic thinking, knowledge acquisition, creation and transfer, surfacing and testing of shared mental models, building learning relationships and developing joint learning structures, strategies and processes.

Overall, strategic learning alliances that create a shared vision of mutual learning will develop the IOL capacity of organizations to continuously learn and improve the effectiveness of their operations. Organizations looking for long-term learning alliances, who incorporate the key elements of the above framework by Morrison and Mezentseff (1997) would be able to gain advantage over their competitors by developing a unique relationship, which cultivates a climate for mutual learning, trust and benefits while remaining focused on the strategic learning alliance objectives. Strategic learning alliances that ensure a co-operative environment and enable

the open transfer of information, resources and knowledge will increase the learning capacity of individuals and therefore the intelligence of organizations. This IOL approach will increase the organization's intelligence through these alliance relationships that will ensure a secure future for the organization and a sustainable competitive advantage. Furthermore, strategic learning alliances will pave the way for smoother inflow of knowledge from external sources, improving the quality of knowledge management outcomes.

3.4 Knowledge Networking and Sharing

The main body of evidence about IOL comes from business network settings (Larsson *et al.*, 1998; Inkpen and Crossan, 1995; Lutz, 1999). As national boundaries dissolve, organizations are changing more and more from well-structured and manageable systems into interconnected network systems. "Genuine sharing of authorities takes place. Organizations are neither fully independent nor is one wholly dependent upon the other. They do not lose their legal identities; they retain their own culture and management structure and can pursue their own strategies. However, they do reduce their autonomy, share decision making, interconnect their organization structure, manage jointly some activities or operations, and open their company culture to outside influences" (Badaracco, 1988).

Knowledge networking is built on the premise that managing knowledge creation and transfer takes place in the context of a network rather than from a traditional organizational perspective. The term "networks" can be interpreted as working relationships (formal, informal and non-formal) that exists between individuals, groups, or organizations, as well as between collectives of organizations. Formal relationships are created via functions carried out officially with documentation such as signing a memorandum of understanding for a joint venture and abiding by the terms of contract strictly; informal relationships happens when carrying out non-functional activities such as discussions during a game of golf; and, non-formal relationships is shaped by performing functions that are work related but not documented, such as debriefing or over a telephone call. The "network" construct demands that description and analysis does not concentrate only on a section of the relationships existing between the network participants and network relationships, but also comprehends the

network in its entirety (Seufert *et al.*, 1999). A social network can be defined as: "a specific set of linkages among a defined set of actors, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behavior of the actors involved" (Mitchell, 1969; Tichy *et al.*, 1979; Alba, 1982; Lincoln, 1982). In other words, the term "network" designates a social relationship between actors consisting of not only persons and groups, but also collectives of organizations, communities or even societies.

The form and intensity of the relationships establishes the network structure (Burt, 1979; Alba, 1982). Although formalized networks are vital, the importance of informal networks cannot be discounted as it has deep impacts on the results of and prerequisites for decision-making processes in organizations (Morgan, 1986; Sandner, 1990), the importance of the interconnection of organization-wide actions (Probst, 1987; Luhmann, 1988), and the influence of managers' positions in the internal network on their cognition and information-processing (Walker, 1985).

In order for the integration of networking and knowledge management to take place for effective use of knowledge, a network must be built up in which the knowledge and experience of employees are available. What is of prime importance is that creation- and sharing-processes are encouraged, not just the accumulation of data as in a data-warehouse (Seufert *et al.*, 1999; Seufert, 1997). The integration of networking into knowledge management yields great benefits. The openness and richness of networks are believed to foster a fertile environment for the creation of entirely new knowledge, while also accelerating the innovation rate. Powell *et al.* (1996) demonstrated a ladder effect, in which organizations with experienced partners competed more effectively in high-speed learning races.

Nonaka (1991) argues that knowledge conversion is a key process whereby knowledge is created, integrated and disseminated. The process of knowledge conversion involves a "knowledge spiral" (Grant, 1998) whereby knowledge (both tacit and explicit) is converted through the mutual interplay within and between different levels in the organization and in its networks or interorganizational collaborations. There are four main types of knowledge conversion (Mick and

Charles, 2000) that takes place in IOL via networking. First, socialization refers to the sharing of tacit knowledge between individuals. This may occur formally and individually or informally and collectively through shared interorganizational cultures or through shared inter-industry methods. Next, externalization refers to the conversion of tacit into explicit knowledge through a process of codification, in order to formalize articulation and ensure widespread dissemination. Third, combination refers to the dissemination of already explicit information to other levels of the organization or network and of organizationally held knowledge to individuals and teams, primarily through information systems. Finally, internalization highlights the conversion through routinization of explicit knowledge at organization or network level into tacit knowledge at team or individual level (Grant, 1998.). Spender draws a similar distinction between different types of organizational knowledge. He distinguishes between individual knowledge (conscious and automatic) and social knowledge (objectified and collective). Each implies different kinds of learning processes. It is, however, only in the interaction of these different types of knowledge that the richness of knowledge combination and re-combination can be captured via interorganizational learning.

A further important issue here is that of absorptive capacity. Cohen and Levinthal (1990) state that the premise of the notion of absorptive capacity is that the organization needs prior related knowledge to assimilate and use new knowledge.

Thus, knowledge management requires not only the combination of different types of knowledge, but also the combination of present and past knowledge, or knowledge and memory (Mick and Charles, 2000). As learning is cumulative, and as the organizational absorptive capacity is dependent on the capacities of individuals in the connected organizations, knowledge acquisition, integration and dissemination across organizations will be capabilities that need to be built up slowly over time, and are unlikely to be greatly speeded up through investment (although the importance of "learning by hiring" (Bell, 1984) is of obvious importance here). However, curtailment in investing in current knowledge development or acquisition will tend to mean that future opportunities for interorganizational

learning are circumvented. Failing to develop absorptive capacity at any one time will lead to greater costs in attempting to develop it later on (Mick and Charles, 2000). It is, therefore, suggested that organizations should ideally 'over-invest' in learning: that redundancy should be engineered into knowledge acquisition, and that a diverse knowledge base, created and acquired in multiple domains and across organizational and inter-organizational boundaries, represents a significant resource for an organization (Mick and Charles, 2000).

Grant (1996a) focuses on the issue of the integration of specialist knowledge, which he describes as the key organizational capability of the organization. Tacit knowledge is seen as more important strategically because of its relative 'stickiness', although it raises more complex suitability issues than explicit knowledge; moreover explicit knowledge is more difficult to share and integrate. Three major concerns for organizations are the efficiency of knowledge sharing and integration, the scope of knowledge sharing and integration and the flexibility of knowledge sharing and integration. The efficiency aspect refers to the cost-effectiveness and extent of the organization's ability to access and disseminate the specialist knowledge of individuals. The scope of sharing and integration refers to the breadth of specialist knowledge held and the ability of the organization to integrate it through IOL. The flexibility of integration refers to the ability of the organization to configure and re-configure knowledge and to acquire new knowledge.

Grant (1996a) also explicitly considers the issue of knowledge integration within networks existing within IOL alliances. As with any other type of transaction, there are three possible modes of knowledge transaction: internalization through hierarchy, externalization through market contracts and the intermediate mode of relational contracts or alliances and networks. Markets are not efficient in knowledge transactions because of uncertainties concerning valuation and suitability. Although transaction costs make relational contracts inherently less efficient than markets or hierarchies, the flexibility of such arrangements presents organizations with advantages in uncertain and hyper-competitive environments, where there is a need for speed in extending the knowledge base of the organization.

However, Grant (1996a) implies that only explicit knowledge can be integrated through networks. As tacit knowledge is difficult to manage, yet potentially represents a more important strategic asset than explicit knowledge, Chesbrough and Teece (1996) argue that tacit knowledge, and the activities dependent on it, should be kept within the boundaries of the organization. Hamel (1991) draws a distinction between alliances entered into for the purpose of access to partners' knowledge, skills and expertise, and those embarked on for the purpose of internalizing, which is, rendering tacit, the partners' knowledge, skills and expertise. The latter require a far greater extent of cultural fit and of mutual trust and commitment (and are thus rare and difficult to accomplish) than the former. Similarly, Lei *et al.* (1997) argue that relationships with competitor organizations involving the exchange of knowledge tend to "nurture their competitors in unintended ways" and that successful alliances based on explicit knowledge tend to be more simple upstream/downstream relationships. Where tacit knowledge transfer is concerned, however, supply chain divisions of labor tend not to be effective; rather, an "apprentice"-like relationship needs to be built up, with considerable forethought going into the management and maintenance of knowledge boundaries between the organizations. Further, they argue that as tacit knowledge is often culturally specific as well as organizationally specific, such arrangements are only likely to be successful between organizations of similar cultural contexts.

Finally, Mowery *et al.* (1996) argue that the comfort represented by formal joint ventures or other equity exchanges means that successful knowledge transfer is more likely in these types of alliances rather than more informal networks or contract-based alliances; in addition, knowledge transfer is more likely to be successful in alliances which show convergent development than those which show divergent development. In other words, organizations' technological trajectories as well as their history (or paths) affect successful knowledge transfer - knowledge and learning should thus be seen in the context of a "triple helix" of past, present and future

3.5 E-knowledge Networks for E-business

The increase in intra- and inter-organizational knowledge sharing capabilities brought about by the Internet-driven "new economy" technologies and the resulting managerial implications (Merrill

et al., 2001) have attracted the attention of researchers, academicians and practitioners for further scrutiny. Knowledge networks allow their participants to create, share, and use strategic knowledge to improve operational and strategic efficiency and effectiveness. E-business knowledge (or "e-knowledge") can be created and shared more effectively by a combination of new organizational designs and the adoption of new technologies, such as data mining and intelligent agents.

Anthony (1965) defines planning as comprising two fundamentally different aspects - strategic planning and management planning and control. Whereas strategic planning involves policy formulation and goal setting, managerial control is a planning activity that operationalizes the strategies in the form of enterprise administrative activities (Anthony, 1965; Mumford, 1968). Modern technologies can facilitate automation of many such controls and operations. Inter-organizational systems enable organizations to achieve organizational objectives by leveraging the information available from partners in managerial controls necessary for implementation of strategies (Premkumar and Ramamurthy, 1995; Applegate *et al.*, 1999).

The greatest impact of IT has been its ability to create linkages, not its ability to process internal data into information (Merrill *et al.*, 2001). Inter-organizational systems (IOS) are networks of company systems that allow organizations to share information and interact electronically across organizational boundaries (Kaufman, 1966). These systems "enable organizations to incorporate (and learn about) buyers, sellers, and partners in the redesign of their key business processes, thereby enhancing productivity, quality, speed and flexibility" (Applegate *et al.*, 1999). Increased information flows enable IOL that posits the learning organization to alter markets, changing the relationships between buyers and sellers, and create new channels of distribution.

Konsynski (1993) notes three patterns of IOS interaction. First is "one-to-one" in which two parties interact, often a buyer-seller IOS with a key supplier or vendor. These systems may evolve into another form. A second form is "one-to-many" in which a organization may connect to a number of upstream or downstream supply chain partners or other external constituents. Such

systems are often centered on marketing, sales, or distribution. A manufacturer may set up an IOS with its national agents or distributors. A seaport may set up a system to connect it to shipping agents. Finally, the "many-to-many" format is used to simultaneously connect to multiple entities on both sides, thereby creating an electronic marketplace for sharing information or for buying and selling digital goods or services. The central entity may be a single organization or an industry consortium.

Interorganizational systems exhibit three successive levels of control (Applegate *et al.*, 1999). At the data-control level, IOS participants merely send or receive data, or both. EDI systems are primarily data-control IOS. Some systems are unidirectional, while others may allow interactive data sharing. Process-control IOS maintain software that controls the underlying interactivity with partner organizations and the related information. However, organizations deploying these systems also incur coordination costs. Finally, network control IOS are owned and operated by one or more participants, who incur considerable costs along with the control. Costs arise from activities related to maintenance of integrity, security, and reliability. Of course, the Internet has created an entirely new platform for IOS that is nearly ubiquitous, is very inexpensive, and has established protocols for security and reliability (Merrill *et al.*, 2001) Through IOL efforts organizations can assimilate the virtuosity of IOS implementation that develops organizational knowledge and intelligence. Furthermore, as the population of organizations gains intelligence, at within and across national borders, the integration and cooperation amongst nations gets thicker, and effectiveness of knowledge management realized.

3.6 Mergers and Acquisitions (M&As)

According to Wall Street Journal's Year End Review, the three years 1995-1997 have broken all records with greater than \$919 billion in M&As in 1997 alone (Lipin, 1998). With the 1997 dollar value almost equal to the prior decade, obviously, the increasing frequency of M&A activity suggests that many top managers of organizations will consider M&As as useful opportunities for investment and promotion of knowledge transfer (Van Deusen and Mueller, 1999). As such, activities of M&As provides yet another gateway for interorganizational learning

for members of organizations involved in M&As to gain knowledge and sharing experiences.

Sudarsanam (1995) has stated that the terms 'merger', 'acquisition' and 'takeover' are all part of the M&As parlance; and that in a merger, the corporations' shareholders come together to combine and share their resources to achieve common objectives. Besides the shareholders gaining, M&As also, obviously, brings about knowledge gain to employees i.e. 'when resources from two or more organizations interact, giving birth to synergies. One of the main synergy effect that result from any M&As activity is the transformation of intellectual capital resources as result of the "interaction of two or more intellectual capital resources from previously sovereign organizations, that creates an enhanced combined effect to value creation and competitive performance, which is greater than the sum of individual effects"' (Gupta & Roos, 2001).

Resource interaction, in the form of resource trade, is the key to resource transformation, which then leads to intellectual capital synergy realization (Barney, 1991; Gupta & Roos, 2001). Resource trade that takes place in M&As represents all modes of intellectual capital interaction required to realize synergies (Haspeslag and Jemison, 1991; Chi, 1994). According to Gupta & Roos (2001) there are three mechanism under which resource trade takes place in order to facilitate knowledge transfer and management in any M&A activity: (1) Transfer – the give or take of resources to another contextual setting in which they can be leveraged more efficiently and effectively; (2) Share – the sharing of a resource beyond the firm that presently deploys it; and (3) Teach – teaching entails the replication of the resource under the guidance of its present deployer involving teaching and learning activities.

Besides the intellectual capital perspective for managing knowledge in M&As, much could be learned if stakeholders (i.e. both shareholders and employees) if M&As are approached from the perspective socio-economic management. Through M&As, organizations gain knowledge not only on economic aspects involving financial and legal matters but also on handling social aspects consisting of informal powers that "accelerates or thwarts the pace and direction of change, posing challenges for M&A related integration effort" (Buono, 2003). The socio-economic approach to management (SEAM) in

M&A creates vast IOL opportunities when members of both sides of organization go through "personal, interpersonal, group and intergroup dynamics" (Buono, 2003), that are experiential in nature, leading to a unique knowledge sharing frontier for post-combination planning and integration focusing on both social and economic factors.

An M&A also provide a significant source of technology transfer for competitive advantage. A successful technology transfer is indicated by the concreteness of the technology acquired by the lead organization i.e. the extent to which the technology is understandable, demonstrable and unambiguous; and such concreteness increases the probability of success (Bommer et al., 1997; Cutler, 1997). It must be understood that technology transfer is a dynamic, concurrent process of human interaction that is complex and continuous with multiple feedback loops that occurs in non-linear stages (Cutler, 1997; Green *et al.*, 1997; Spencer, 1997) and thus leads to higher levels of participation and collaboration to attain sufficient experiential knowledge to facilitate successful technology assimilation concretely.

Applying the above approaches provides experience on how to manage knowledge transfer when M&As take place. Besides, M&As give opportunities for organizations to pinpoint what knowledge is vital to make decisions, determine what knowledge is readily available (both tacit and explicit knowledge can be ascertained during pre-merger discussions) and knowledge management experience to prepare knowledge transfer.

4.0 CONCLUSION

Through the various facets of IOL efforts discussed above, albeit restraining issues confronting alliances, knowledge integration can be achieved for the betterment of the collaborating organizations. As organizations get integrated through knowledge sharing organizational intelligence sharpens. Viewed from the perspective of organizations working collectively within local and global level, the cumulative progress by the population of organizations in knowledge management via IOL will entail in nations becoming more intelligent and cooperative. Among the approaches recommended for IOL managing knowledge are joint ventures, strategic learning alliances,

knowledge networking and sharing, e-knowledge networks for e-business and mergers and acquisitions. By far these suggested approaches are not the only modes for IOL but are nevertheless contemporarily popular means of acquiring new knowledge. As new knowledge inflow comes via various means of IOL, organization members, especially the top management, ought to practice knowledge management efficiently and effectively in order to build organizational intelligence whilst maintaining cooperation with its collaborative partners.

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