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KNOWLEDGE MANAGEMENT FOR SME-BASED REGIONAL CLUSTERS

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ABSTRACT

This paper considers the need for knowledge management (KM) in regional clusters comprising many small and medium enterprises (SMEs) and the appropriate KM techniques for this form of economic organisation. Information and communication technologies offer a range of tools to help such clusters develop into electronically-linked eClusters, making KM possible on a scale not previously possible. Most KM techniques have been developed by large organisations and their relevance to SME-based clusters has received little attention. Based on our analysis of the literature, we conclude that KM approaches based on personalised rather than codified information are the most promising model for regionally-based eClusters and that Communities of Practice arising from open forms of internet collaboration are most likely to be successful in this environment. Future research will identify key issues and appropriate techniques for supporting regional clusters with electronic systems for KM.
INTRODUCTION

This paper relates and analyses the conceptual approaches appropriate for eClusters and knowledge management in a region of SMEs. Theory suggests that this is an important area of activity that we need to know about. However, a dilemma exists as there is no existing study on which to base this research. Given this lack of an existing study it is necessary to look at antecedents to identify areas of appropriateness for the chosen context. This paper is important as it establishes the conceptual validity of communities of practice (CoPs) as the area with the greatest potential for facilitating eClusters. A detailed literature review has been used as a basis in establishing the applicability of CoPs to this context. The next research step is to look at this in an empirical sense.

“Knowledge management [KM] has become the latest strategy in increasing organisational competitiveness.” (DeTienne & Jackson, 2001 p1). Today, knowledge is the primary source of competitive advantage and the key to success for organisations in the knowledge economy (Grant, 2002, MacKinnon et al, 2002, Patriotta, 2003). Unlike other resources the more knowledge is used the greater its value. Its greatest value is leveraged when it is encoded making it easy to access and use. This encoding process has created a paradox of value (Bosoit, 2002) as it allows easy access to those outside the organisation with the knowledge involved losing its value as a source of competitive advantage.

Spender (2002) asserts that the intangible nature of knowledge makes it harder to identify and manage, consequently it cannot be treated in the same way as other organisational assets. Knowledge that is simple, independent and explicit is transferred more quickly than knowledge that is tacit, complex and systemic (Bhagat et al, 2002). However, leveraging tacit knowledge secures strategic advantage and economies of scale for the organisation (Choo & Bontis, 2002). The strategic challenge for organisations is, knowing what to transfer and what to retain (Choo & Bontis, 2002). This applies to traditionally structured businesses as well as to other business formations such as networks and clusters, because knowledge is shared within the firm and between firms via strategic alliances and supply chain linkages.

Research suggests that corporate culture is the most important enabler of KM (Mertins et al, 2003). Culture is visible in the organisation’s philosophy, vision, management style and physical arrangements and is facilitated by having a common language, openness and trust. Trust is a prerequisite for knowledge sharing and it “matters more than ever, because knowledge-based organisations are totally dependent on the commitment and ideas of their employees.” (Chan & Mauborgne, 2003)

In this paper we consider the literature on KM with a view to ascertaining how this might be applied to small and medium enterprises (SMEs) in a regional cluster. This is important because regional clusters have received renewed interest with the emergence of the knowledge economy. The potential which clusters offer in facilitating learning and innovation has been cited as a key source of competitive advantage (MacKinnon et al, 2002).
The paper will firstly set the scene by discussing the importance of clusters as value creation systems, their knowledge perspectives, and the emergence of eClusters. It will then explain the major strategic approaches and KM techniques, developed primarily by large organisations which use them

- internally, with particular emphasis on indicating why communities of practice (CoPs) based on personalisation (a complex knowledge transfer involving the sharing of tacit and unstructured knowledge largely through direct personal communication) are such a powerful tool; and
- externally with other organisations, often as part of supply chains forming links in a process sharing information to hasten the production of goods (Steingraber, 1996). Others form strategic alliances that enable them to maximise their potential. KM in these inter-organisational arrangements will be scrutinised for relevance.

Understanding this will enable us to develop a research program and to identify how KM and knowledge sharing techniques might be developed to support a cluster of regional SMEs. An empirical research initiative could provide guidance for establishing such a KM program.

CLUSTERS AND THEIR IMPORTANCE

The concept of regional clusters was first proposed by Marshall (1947) based on the idea that a geographic region could provide economic advantage to the organisation because of the availability of specialised labour / resources suitable for a specific purpose such as clay and coal for pottery. Also the proximity of firms meant that knowledge spillovers, or the by-products involving transfer of knowledge to other economic stakeholders in the cluster, were enhanced. Regional clusters are typified by inter-firm relationships, shared resources, and a shared skill base where the accumulation, use and transfer of learning provide a major source of competitive advantage (Mitra, 2000). Some governments worldwide are actively promoting the development of clusters and, to that end, are providing assistance to regional industries (DTI, 2004, DIIRD, 2003). The rationale behind these governmental initiatives is based on Porter’s (1998) assertion that clusters influence competition in three ways: increasing the productivity of organisations; generating growth by increasing the speed and direction of innovation; and stimulating the formation of new businesses which in turn expand the cluster and make it stronger.

Porter (1998, p1) defines clusters as “geographical concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition.” Clusters commonly include many small and medium enterprises, linked by their close geographic proximity and by their common goals and shared technologies. Clusters are important because they address the paradoxical situation that in order for organisations to remain competitive in today’s global economy they have to be able to cooperate successfully.

Collaboration and learning are important for the inter-firm knowledge transfer in clusters (Konstadakopulos, 2000; MacKinnon et al, 2002; Hovers & Beugelsdijk, 2002), a process influenced by the innovative ability of individuals and the mobility of workers within the cluster (Almedia & Kogut, 1999; Nacham & Keeble, 2003).
Regional boundaries must be both sufficiently permeable to facilitate information flow and sufficiently stable to provide a framework for problem solving (Benner M, 2003). Innovation in clusters requires social interaction and collective learning across organisational boundaries, but a clear understanding of how critical these social learning processes are to regional economic development has yet to be established (Benner C, 2003).

Developments in ICT have enabled widely dispersed organisations to cooperate via computer networks such as the Internet, and have been referred to as virtual communities and eClusters. “eClusters are digital enterprise communities enabled by one or more intermediaries and are based on a new type of electronically enabled interorganisational systems” (Brown & Lockett, 2001, p 52). This new form of inter-organisational network has not only changed the way that firms interact, but has dramatically changed the basis on which business is conducted.

The eCluster business model provides the structure, services and governance that enables the community to function effectively. There are two levels of obligation to participate, or two dimensions of commitment: intermediaries and members. Intermediaries provide the structure, services and governance necessary for the eCluster to function as a community. Three kinds of intermediary (that is, technology, enterprise and community) are based on a platform of trust (Brown & Lockett, 2001). This trust is difficult to achieve however, it is possibly the most crucial aspect for success. Interestingly as trust increases it is accompanied by an increase in knowledge transfer, and this leads to competitive advantage (Brown & Lockett, 2001). Pihkala et al (1999) also emphasise the importance of trust, describing it as the ‘glue’ that holds the eCluster together. Trust is based on a joint strategy and a shared business concept. A temporary network of organisations is formed to exploit fleeting business opportunities. Potential partners are kept in reserve and join together in different formations on a needs basis. The prerequisite is that they offer strategic advantage to participating organisations. Temporal relationships, complex systems, and loose associations between members based on specialisation and distribution of cutting edge competencies are the main characteristics of these virtual organisations (Pihkala et al, 1999).

eClusters are important for sharing and managing knowledge for competitive advantage. There has been an emergence of eMarkets where the functionality, value of integration, and innovation has changed. These digital organisational communities are differentiated by their sense of commitment or obligation to intermediaries and to other members of the community. Brown & Lockett (2001, p53-54) classify organisations by their level of commitment as drifters, supporters, players and teams. Drifters are occasional users via ISPs (Internet Service Providers), supporters are connected via ASPs (Application Service Providers), players use electronically linked value chains, and teams are “representative of eClusters”. This is very similar to Wenger et al’s (2002) classification of CoPs that identifies three levels of participation, the peripheral group, the active group and the core group. This shows the potential of CoPs as a KM mechanism in eClusters. Like eClusters, CoPs are based on communities where trust is a key factor in participation.

The importance of knowledge sharing among SME members of regional clusters using electronic means led us to consider how the principles of KM might be used...
practically in regional clusters. We now discuss KM techniques used in large organisations because such organisations have led the field in developing KM strategies and techniques. In doing so we consider the approaches which might be applicable to regional clusters of SMEs.

**KM IN LARGE ORGANISATIONS AND THE RELEVANCE FOR REGIONAL ECLUSTERS**

Spender (2002 p 151) categorises knowledge into two different domains. In the first “Knowledge is conceived to be ultimately objectifiable, understandable (in a scientific sense), and inherently unproblematic” and in the second “Knowledge is considered to extend beyond that which can ever objectified or otherwise made explicit - goes beyond reasoning to intuition, emotion, judgment and skilled action”. These two domains relate well to the two major strategic approaches to knowledge management reported in the literature: codification and personalisation (Heisig, 2003, Kankanhalli et al, 2003, Jaitner, 2003). Codification places emphasis on standardised processes and Information Technology (IT) to store explicit knowledge for economical sharing and reuse, such as databases and knowledge bases. Personalisation involves the sharing of tacit knowledge largely through personal communication, where IT is used to assist people in locating and communicating with each other.

**INTERNAL KM TECHNIQUES**

Internal KM techniques refer to those used within the organisation. This may include various geographical locations throughout the world. The organisation develops the KM strategy and this is incorporated throughout its entire operations.

Three techniques most often incorporated by large organisations in implementing their KM strategies are: database systems (including knowledge bases and data warehousing), intranet or Internet-based knowledge exchange and collaboration and communities of practice (CoPs). The first technique is an example of codification while the other two are personalisation strategies. It is clear in the literature that most organisations with successful KM programs clearly identify with either a personalisation or codification strategy. Interestingly, most organisations do incorporate all three techniques indicated above in their KM armoury. The differentiation is in the emphasis of the strategic intent. As mentioned previously, a prerequisite to a KM program is to have a centralised database repository, however IT alone is not adequate for success. These techniques and their relevance to SMEs in a regional cluster are now discussed.

**Codification**

Codification was the main focus of the initial attempts at KM that occurred prior to the mid 1990s. These IT-based KM initiatives were based on the concept of a socio-cultural system that was able to be observed, documented and measured. The focus was on the structure and flow of information to decision-makers. Significant investment was made by organisations in the development of these IT systems. KM programs were launched as just another new product. Rewards and recognition were used to motivate employee participation in and commitment to the KM system (for example Gale, 2002).
Database Management Techniques
Database techniques are the backbone of codified KM systems. They require fast, reliable, reuse-oriented, electronic knowledge resources which are suitable for answering large numbers of similar questions quickly, simultaneously, and at low cost (Jaitner, 2003). They provide the organisation with a mechanism to create a global source of high quality information at reduced cost. This can increase organisational performance, enhance customer service and improve communication with external entities.

Knowledge bases, databases and data warehouses include document management systems with powerful search engines to access the data. European Bank for Reconstruction and Development (Balvanera & Koval, 2003) used several different forms of database technology to share and manage their information. Expertise profiling databases, frequently called Yellow Pages, are becoming increasingly popular and successful. They store information about experts and their abilities that are able to be accessed by employees using web-based technologies to locate those with expertise. Genuity (Roberts-Witt, 2002) launched Wings, a web-based database of all their internal experts, which aimed to connect individuals easily. Northrop Grunman (Roberts-Witt, 2002) created Yellow Pages to store the exiting expertise that resulted from a downturn in the defence industry. Similar measures are being introduced by organisations seeking to capture the expertise of baby-boomers prior to retirement.

Organisations found that these systems were not as effective as anticipated because the employees did not participate as expected and, even when they did, the knowledge produced by these systems was inadequate. In a culture where the employee’s position and salary were usually based on their knowledge, they were loathe to share this with others. Trust became a significant factor. Organisations realised that tacit knowledge, which is necessary to effectively compete, was not easily codified. Western companies observed that Japanese companies with their tradition of sharing were more successful in business and this was attributed to their ability to learn (Tsang, 1999). The quality is, of course, largely dependent on the quality of what is stored. This has been the disadvantage of codification because it requires initiatives to encourage organisational users to record relevant information. Incentives such as rewards are frequently used to this end.

The development of a centralised database management system is problematic for SMEs in a regional cluster, because it is a costly exercise and because SMEs do not have access to the funds or expertise necessary. Web-based systems such as the Yellow Pages are the only possible candidate for providing a centralised database system, because these operate on infrastructure which might exist within SMEs. Perhaps an even greater issue is that there is no central body within the cluster with the authority to establish and manage such a repository.

Personalisation
Some of the problems experienced in codified KM systems may be addressed by approaches that involve personalisation (for example McKenzie & Bechevaise, 2003). Many organisations have profited from KM because they recognise the importance of the social elements and human connections needed for knowledge sharing.
The popularisation of Nonaka & Takeuchi’s SECI (Socialisation, Externalisation, Combination and Internalisation) model (Nonaka, 2002) initiated the next phase of KM in the mid 1990s. This SECI model instigated many techniques for the sharing of knowledge, not just on a one-to-one basis, but also on a many-to-many basis because this provides organisations with the most leverage in accessing organisational knowledge. Face-to-face interactions dominate the techniques of Communities of Practice (CoPs), Storytelling, Mentoring and Collaboration where ICT are used to connect and facilitate communication between participants (King, 2002).

Many-to-many sharing develops social capital. Nahapiet & Ghoshal (2002, p 674) “…define social capital as the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit.” Three dimensions of social capital are important to the development of organisational knowledge: the structural dimension which is the total network of links amongst participants; the relational dimension which is behavioural in that relationships produce and manipulate resources; and the cognitive dimension which “refers to those resources providing shared representations, interpretations, and systems of meaning among parties” Nahapiet & Ghoshal (2002, p 675). CoPs provide the potential for the development of social capital.

**Internet / Intranet collaboration**

The rapid pace of change and the globalisation of operations have altered the way that organisations operate and have often resulted in previous methods of face-to-face interaction being unfeasible. Although web-based tools provide organisations with the potential to meet the demands of this rapidly changing environment, the tools have dramatically changed the way organisations share and collaborate. The key to success is to develop a knowledge sharing culture (Robbins, 2003). Trust is perceived as the most important issue for organisations to address in encouraging employees to share knowledge using these web-based tools. Internet collaboration provides excellent opportunities for the development of knowledge sharing by SMEs in a regional cluster. This would enable daily interaction via the Internet based on trust established through easily organised face-to-face meetings.

Recently there has been a couple of interesting developments in the use of intranets and the Internet. IBM has conducted massive online *Jams*. These are online global events where up to 50,000 participants have been involved in 48 hour online discussion on set number of topics, eg six. The first was geared to brainstorming by managers *The Role of the Manager@IBM*, the second *WorldJam* involved employees (Dorsett et al, 2002). Jams differ from online communities in that they have a specified time frame and can include almost limitless participation. IBM aims to use Jams to build up a set of best practice that is able be applied immediately. Shell (Burress & Wallace 2003) has incorporated similar events. It ran a two day continuous Annual Leadership Virtual Conference in Texas and the Netherlands, and also a two and a half day Leadership Event workshop. Three primary success factors include – the information is in the right context, the decision makers are available, and decisions are implemented quickly. There was an associated saving in time and cost by having people remain at their own work places. A Jam event
provides SMEs in a regional cluster an exciting opportunity to create a forum on which the basis for knowledge sharing is established.

**Communities of Practice**

Currently CoPs are the major focus of knowledge management in large organisations. The reasons for this focus are two-fold. CoPs enable the transfer of valuable tacit knowledge or know-how via socialisation; and trusting relationships are one of the intangible assets of CoPs. Trust is known to increase the amount of knowledge transferred and this in turn increases competitive advantage. "Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis." (Wenger et al, 2002, p4). The term Communities of Practice was originally described by Lave & Wenger (Wenger, 1999). The basic structure of a CoP includes a domain of knowledge, a community of people, and a shared practice (Wenger et al, 2002).

The short-term value of CoPs is that better solutions to problems are achieved through member interaction. Long term value, the establishment of practices, is created when members benchmark their expertise. Tangible value is achieved through quicker access to information, the establishment of standards, and members’ improved abilities. The intangible assets are - trusting relationships, a sense of belonging to the community, and improved professional confidence (Wenger et al, 2002). The development of CoPs within a regional cluster of SMEs appears to provide the potential for effective knowledge transfer, provided issues of trust are addressed.

One of the major benefits of CoPs is that they overcome the stultifying tendencies of large organisations, bridging the gap between the official view of the firm and the change necessary for innovation to occur (Brown & Duguid, 1991). The incorporation of CoPs as a key element of the organisations’ KM requires a cultural change (van der Spek & Carter, 2003). This requires sponsorship by management, a facilitator to ensure that the CoP remains “alive”, and the fostering of relationships between members, who are encouraged to share ideas, insights and practices that are worthwhile (Wenger et al, 2002). Although there is no overriding management readily available within SMEs in a regional cluster to sponsor the development of CoPs and harness their value, they do not have the stultifying tendencies evident in large organisations.

CoPs were originally established by organisations to improve knowledge sharing via interpersonal relationships (Tsoukas & Vladimirou, 2001). IT has been used to enhance the potential of CoPs to enable continuing interaction even when community members are not on site (Wah, 1999). More recently, organisations have incorporated Virtual Communities of Practice (VCoPs) where web-technologies are used to link CoPs and individuals. The World Bank has been extremely successful in its incorporation of VCoPs. Started in 1998 it has established over 100 VCoPs worldwide. In 1999 the Development Gateway, one of the most public faces of the Knowledge Bank, was created providing a single site with a common platform for sharing, dialogue and problem solving (King, 2002). Other organisations have found that personal contact is still a crucial element of effective VCoPs and that it is necessary to have regular face-to-face meetings to maintain the dynamism of the CoP - without it the VCoP gradually “fades away” (Hildreth & Kimble, 2000).
VCoPs created by organisations for knowledge sharing need an environment to include “a set of institutional norms promoting institution-based trust”, “multiple face-to-face COPs” that create a foundation for VCoPs, and “a set of clearly communicated norms and standards for sharing knowledge” (Ardichvilli et al, 2003, p75).

CoPs and VCoPs, like eClusters, are based on communities where trust is a key factor in participation. Benner, C (2003) suggests that formally created CoPs within regional clusters could be used to better understand the value of social learning processes. The European knowledge management forum (a cluster project and web site comprising all KM-related projects) maintains that CoPs research is needed to focus on what has been tried and learned to establish how ICT can enable organisations and communities to connect. The focus should be on finding effective means to enhance the collective intelligence of organisational CoPs through patterns of meaning, to recognise these, and to create sense-making patterns of connections global connectivity (Hearn et al, 2003). This suggests the potential and importance of conducting research into CoPs, and their associated VCoPs, in a regional cluster of SMEs.

In summary, the KM personalisation approach is most relevant to SMEs in a regional cluster because this has the greatest potential for the sharing of valuable tacit knowledge. CoPs and VCoPs, based on Internet technologies, appear to be the most likely candidates for success.

EXTERNAL KNOWLEDGE MANAGEMENT
The operation of business globally has magnified the problems of uncertainty, ambiguity, asymmetries and large numbers that occur when knowledge is dispersed. This is the realm of bounded rationality where individuals reach their limit in receiving, storing, retrieving and processing knowledge without mistakes, or alternatively where they are unable to express their knowledge or feelings. Uncertainty occurs when the knowledge needed to make an informed judgement is not available (Spender, 2002). When faced with uncertainty ambiguity occurs regarding the knowledge necessary for future needs (Claycomb et al, 2001). Large numbers increase the resource requirements for knowledge sharing, make this less clear, and increase issues of trust. Organisational units can be made small enough to enable temporary problem solving, however this will increase uncertainty and asymmetries (Becker, 2001). Asymmetries occur when there are significant differences of perception between those sharing knowledge, such as different national cultural expectations. Knowledge becomes inherently problematic and a new kind of knowing is needed. This is the world in which SMEs in a regional cluster are trying to remain competitive. By examining the KM approaches used in supply chains and strategic alliances it is anticipated that some strategies and techniques will be revealed of relevance to SMEs in a regional cluster.

Supply Chains
The purpose of an organisation participating in a supply chain is to coordinate activities and create value for customers whilst increasing profitability (Warkentin et al, 2001). “It becomes clearer and clearer that the single company is no longer the locus of competition. Instead companies have begun competing based on the strength of their supply chains.” (Gubi et al, 2003). This strength is obtained from
their ability to use knowledge. In fact, the application of knowledge is increasingly recognised as the major source of competitive advantage in supply chains (Fan et al, 2000; Claycomb et al, 2001; Collins et al, 2002; Desouza et al, 2003). The successful application of knowledge has proved to be difficult to imitate, which has been observed in the Just-In-Time production of Japanese firms (Claycomb et al, 2001).

The supply chain has to be coordinated so that knowledge flows create value for customers and maximise the profitability of those participating in the supply chain (Warkentin et al, 2001). Three types of knowledge flows in supply chains: upstream to the supplier, downstream to the customer and lastly within the firm (Claycomb et al, 2001). In the knowledge economy the optimisation and sharing of knowledge enable win-win situations and create benefit for all involved such as customers, suppliers and distributors (Warkentin et al, 2001). There is a strong relationship between trust and knowledge flows. Trust is based on a perception of competency and goodwill where participating organisations believe that their partners will deliver and sustain appropriate standards, will not take advantage of situations, and will act in each other’s interests (Stuart & McCutcheon, 2000).

A situation of trust is essential to avoid the withholding knowledge or providing incorrect knowledge, both of which are attempts to control a situation (Munson and Rosenblatt, 1999) and which would undermine the viability of the KM relationship.

Advances in ICT and the Internet have changed the way that supply chains operate, where supply chains are integrated entities and not just a series of links in a chain (Hult et al, 2002). Three key elements are visible in the change to virtual supply chains and the associated ecommerce: the creation of virtual trading communities; the development of virtual knowledge communities; and a shift of business operations from the physical to the virtual (Ho et al 2003). Knowledge portals are the means of systematically and efficiently providing information to supply chain partners where reciprocity is the motivator and prestige is obtained through being recognisable.

It is therefore apparent that there is a positive and significant relationship between knowledge and performance in supply chains. Virtual supply chains are inherently boundary spanning. The earlier discussion indicated that this boundary spanning creates uncertainty resulting in ambiguity. The supply chain that is able to manage this uncertainty obtains sustainable competitive advantage for its organisations, in fact the greater the uncertainty the more extensive are the benefits (Claycomb et al, 2001). SMEs in a regional cluster may be involved in supply chains where they can take advantage of the opportunities provided.

Strategic Alliances
The last two decades have seen an unprecedented growth in strategic alliances (Gulati et al, 1998, Das & Teng, 2002). They have arisen out of increased global competition and technological advancements. In this new economy strategic partnerships are central to success because they provide competitive advantage that is not otherwise possible in a single organisation. SMEs are not adequately resourced internally and so it becomes a necessity to form strategic alliances with other firms (Marino et al, 2002). Essential skills and resources are obtained via
these collaborative arrangements (Molévicius, 2001). These strategic alliances range from joint ventures with shared equity and hierarchical style controls (somewhat similar to those commonly found in large organisations) to contractual arrangements with no shared equity and few controls (Gulati et al, 1998). There is far more participation in these strategic alliances by SMEs than large organisations (Steensma et al, 2000).

The major reason cited in the literature for establishing strategic alliances is to learn from partners (Tsang, 1999, Norman, 2001, Fischer, et al 2002). In fact, Tsang (1999) asserts that the rate at which organisations learn may be the only competitive advantage. There are two objectives of learning: to gain access to the other partner’s know-how and skills; and to learn from the experience of dealing with sophisticated strategic alliance partners via cooperation (Tsang, 1999, Escriba-Esteve & Urra-Urbieta, 2002). The know-how includes not only individual knowledge but the valuable collective knowledge accumulated over time from experience which is not easily imitated (Molévicius, 2001). This most desired tacit knowledge is more difficult to access and communicate (Fischer et al, 2002). Wissel & Odenthal (2002) assert that access to knowledge is the core driver for the increasing importance of strategic alliance partnerships. Conversely this also causes major problems to cooperating partners.

The pursuit of knowledge by itself does not necessarily create economic value. The value in knowledge-based partnering is obtained by accessing knowledge that is vital to the success of the organisation. The ability to identify what is needed involves sensitivity to the nature of knowledge, the nature of the partnership and firm attributes (Matusik, 2002). The organisation must understand the nature of its knowledge, its stickiness, and also clearly identify what knowledge it wants from its partner, what it is willing to share, and what business-critical knowledge is vulnerable (Matusik, 2002). The nature of partnership also includes how symmetrical the learning is between the partners. There are two aspects to symmetrical learning. The first, non-mutual learning, occurs when partners learn from participating in the alliance but do not learn from each other. The second is when both partners seek learning leverage from each other (Tsang, 1999). This is where firms face the paradox of value discussed earlier (Norman, 2001). Asymmetrical learning occurs when there is a large gap between a partner’s technical competencies, as occurs when developed and developing countries form strategic alliances. Consequently, the firm with lesser knowledge obtains greater benefit (Tsang, 1999, MacGregor, 2004).

The governance structure of the alliance influences the ability of the organisation to learn, including the degree of knowledge transferred and the amount of learning associated with the alliance. Joint ventures with their hierarchical governance structures are more effective in transferring the valued know-how or tacit knowledge than the more loosely structured alliances (Fischer et al, 2002). This is particularly relevant to the study of SMEs in a regional cluster because no alliance structures (even loosely) exist.

Wissel & Odenthal (2002) maintain that to be effective, cooperative alliance management should include KM practices. They suggest a process which is based on their experiences of strategic alliances between various multi-national
companies. KM should provide partners with equal access to benefits, should proactively addresses cultural, organisational and legal barriers, and should ensure that timely and relevant knowledge is available (Wissel & Odenthal, 2002). The greatest challenge in KM of strategic alliances is overcoming cultural barriers. These include using knowledge as a means of power, the ‘not invented here’ syndrome, task alliance management, and the lack of awareness of the need for KM (Wissel & Odenthal, 2002). “…there are advantages enjoyed by small businesses that adopt a strategic alliance arrangement where the use of electronic commerce technology is concerned” (MacGregor, 2004, p11).

CONCLUSION

Large organisations use three main techniques to try to harness their knowledge potential: database management systems; the Internet and intranets for collaboration; and communities of practice. The database techniques have not proved as successful as a sharing mechanism and recent developments have involved the creation of web-based database expertise that are used to facilitate connection between those needing information to those with the knowledge. Intranet and the Internet collaboration, such as Jams, have enabled the successful linking of individuals that could not occur face-to-face because of time and geographical limitations. CoPs are groups of people with a passion about a topic who interact on an ongoing basis to deepen their knowledge. The use of web-based technologies has enabled CoPs to evolve into VCoPs or eClusters.

Few SMEs have the experience, expertise and resources accessible to large organisations. Therefore they need KM approaches that is easy to adopt and easy to use. Clusters, as value creation systems, have provided a structure in which SMEs can remain competitive in the global economy through cooperating with other competing SMEs in a region. It is therefore important that SMEs extend this opportunity provided by clusters to access the major source of competitive advantage - knowledge - and develop strategies and techniques to manage it within the cluster.

The KM technique with the greatest potential in regional clusters is formally created CoPs (Benner C, 2003) and their associated VCoPs or eClusters. These techniques have been pioneered in large organisations but need to be refined if they are to yield maximum benefits for regionally-based clusters, comprising SME networks. Little research has been conducted on this topic and, as a result, we are unable to predict what the best version of these techniques is.

The research dilemma is how to investigate issues relevant to eClusters and KM among SMEs when an existing Case Study is not available. The conceptual research outlined in this paper is important as it establishes the validity of communities of practice (CoPs) as the area with the greatest potential for facilitating eClusters. The next step is to conduct empirical research.

A Case Study will examine how KM approaches based on CoPs can be used to connect organisations and communities in eClusters. This will be used to establish what forms the basis of clusters and eClusters, ie their motivations to be involved. Exploratory research will examine how the techniques and mechanisms used by large organisations in establishing and maintaining KM initiatives apply to SMEs in a
regional cluster that lacks the institutional mandate available in large organisations. The mechanisms of authority that have the greatest potential for effective use of CoPs in a regional context will be analysed. An examination of what holds these networks together, what knowledge SMEs are willing to share, what knowledge they are not willing to share, and under what circumstances the networks are successful also forms part of the study. It is anticipated that key issues and constraints of practice, the effectiveness of technologies and barriers to use will emerge.

The focus on what forms the basis of clusters and eClusters will be used to determine the most effective means of enhancing the collective intelligence of CoPs. It is anticipated that trust and power will be crucial to this process. As a result we will be able to identify a set of strategies and practices which will have practical value for those developing KM for regionally-based eClusters.

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