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2006

# Communities of enterprise: SMEs, ICT and regional development

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### Recommended Citation

Mason, Cecily; Castleman, Tanya; and Parker, Craig, "Communities of enterprise: SMEs, ICT and regional development" (2006). *ECIS 2006 Proceedings*. 174.

<http://aisel.aisnet.org/ecis2006/174>

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# COMMUNITIES OF ENTERPRISE: SMES, ICT AND REGIONAL DEVELOPMENT

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## Abstract

*Many regional economies have pursued a strategy of stimulating the development of regional clusters. Such clusters typically include small and medium enterprises (SMEs) as a core component of those economies. Effective cluster development in that context depends on SMEs sharing knowledge and generating innovation. ICT networks can be an important resource for this sharing and innovation. This paper proposes the concept of 'Communities of Enterprise' to conceptualise the relationships and communication patterns used in cluster development. This concept builds on theoretical understandings of information systems, clustering and regional development. The value creation potential of Communities of Enterprise, supported by ICTs is substantial, but only when the socioeconomic elements of regional clusters are understood. The Community of Enterprise approach addresses the fact that without an industry focus it can be difficult to engage and link SMEs from different industries, although this is where the greatest potential for value creation in regional clusters is to be found. This paper concludes by considering the relevance of Communities of Enterprise for understanding and researching eCluster development in the Australian regional context.*

*Keywords: regional development, cross-industry regional clusters, communities of enterprise (CoEs), virtual communities, small and medium enterprises (SMEs), value creation*

# 1 INTRODUCTION

There have been many efforts by governments and other bodies to stimulate regional development through the formation of clusters (DTI, 2004). The attractiveness of clusters derives from their ability to concentrate economic activity in a particular location. The critical mass helps drive further development and outstrips the abilities of individual enterprises to develop competitiveness. Examples of successful cluster development have been widely reported (Hospers and Beugelsdijk, 2002) and there is considerable interest in emulating their success (Porter, 2003).

A key element of clusters is their contribution to the creation of knowledge (MacKinnon et al., 2002). The enterprises that participate in a cluster share what they know, enhancing the capability of the region as well as the capabilities of the individual enterprises (Saxenian, 1994). Although they may compete against each other on the level of the firm, at another level they gain competitive advantage from their contribution to their common interests (Prahalad and Ramaswamy, 2004). This seeming paradox is explained by the fact that knowledge contributes to value through innovation, which is a key source of value creation (Spence, 2004).

While it is accepted that networks facilitate knowledge creation which is the basis of innovation, how this is accomplished remains problematic as the strategy for cluster development is heavily dependent on the character of the local context (Gertler and Wolfe, 2002). Local circumstances, including history, culture, industry makeup and leadership resources, vary, consequently each regional development project is unique. A region can learn from other clusters, but must develop its own strategy suited to its own unique context. (Boschma and Lambooy, 2002).

Information and communication technologies (ICTs) can be used to enhance communication and knowledge exchange and provide new forms of value formation (Benbya et al., 2004). Recognising their potential, many regional initiatives have looked to ICTs to stimulate knowledge sharing and development networks (de Berranger et al., 2004) but a preoccupation with technology infrastructure has often obscured the underlying social and economic characteristics of a region. Only by understanding these socioeconomic dynamics and the nature of regional clusters and networks, can ICT-based initiatives be adequately evaluated.

This paper examines the literature on clusters and identifies key elements seen to lead to successful clusters. We propose a way of conceptualising the formation of enterprises into regional clusters. This concept may contribute to ICT initiatives that create value and facilitate clusters. We outline the nature of clusters and the benefits to be gained from cluster development. We examine the potential contribution of ICTs, noting that the regional industry structure is important as are the role of small and medium enterprises (SMEs). The contribution of the field of knowledge management, in particular the concepts of 'communities of practice' and 'virtual communities of practice' is extended to a new concept, 'Communities of Enterprise' which more accurately describes the regional milieu, with its diversity of industries and reliance on SMEs.

In analysing the dynamics of Communities of Enterprise (CoEs), we examine key elements relevant to the creation of value in regional clusters and the implications for initiatives that incorporate ICTs to support knowledge exchange. We conclude by outlining how this conceptual approach forms the basis for empirical research on communities of enterprise and cluster development in regional areas of Australia.

# 2 CLUSTERS, SMALL BUSINESS AND REGIONAL DEVELOPMENT

Clusters are not new as an approach to regional development. Marshall (1947) first identified clusters as a regional development strategy nearly sixty years ago. He described how the cooperative economies of buying and selling labour, goods and services resulted in localised firms agglomerating

into industrial districts which enjoyed many advantages as a result. Examples include the much celebrated Emilia-Romagna region of Italy where decentralised networks of specialised SMEs provide the momentum for the economy (Amin, 1999).

The economic potential of clusters was again emphasised in the early 1990s by Porter (1990) who argued that sustaining competitive advantage in a globalised world relied on competitive relationships between manufacturing firms cooperating at the local level. When this is achieved stronger clusters emerge with increased regional productivity. In this context, new innovations are created and new businesses established.

With the rise of the global information economy, the locus of competition changed from physical resources to one in which organisations, regions and nations depended on their ability to create, process, and efficiently apply knowledge-based information (Castells, 1997). European economists have analysed the local and regional development processes (MacKinnon et al., 2002) and differentiated the innovative milieu required for this new knowledge-driven economy from industrial districts. The innovative milieu is characterised by collective learning, cooperation and the transfer of knowledge. This results in innovative synergy rather than simply in interaction (Capello, 1999). The ability to transform collective learning in the innovative milieu into profit relies on both the firm's internal ability to exploit it and the strategies the firm uses to obtain competitive advantage from it. A learning region emerges with sustained competitive advantage. This has been achieved in high technology clusters of which Silicon Valley is a pre-eminent example (Lawson and Lorenz, 1999).

In these contexts, SMEs are a critical component. Their small size enables them to be flexible and adaptive, to innovatively diversify and to reduce production costs (Raymond and Bili, 2001). Many governments are recognising the critical role SMEs have for their regions and are implementing strategies to facilitate SME development. Frequently however, the anticipated results are not achieved (Berry, 2003) indicating the need for a long term view such as Singapore's SME21, an over-arching ten-year plan to ensure the ongoing viability of SMEs in that region (Sum et al., 2004).

With clustering strongly focussed on SMEs, regional development often has no single industry focus. Here the distinction needs to be drawn between industry clusters and industrial district clusters (McDonald and Vertova, 2001). Industry Clusters, or Marshallian type clusters, are based solely on vertical business networks involving differential power and dependency between local organisations. Industry clusters predominate where the location is dominated by particular industries, for example the USA science based industries (Braun et al., 2005). Industrial Districts, in contrast, are based on a combination of business networks and horizontal trust-based socio-economic networks, used to create, diffuse and use knowledge and information. These are dominated by the location rather than the industry. Such dynamic networks of SMEs are found in Third Italy (Boschma and Lambooy, 2002, Braun et al., 2005). Two main success factors of these industrial districts are the networking that occurs between organisations and their collective learning processes.

The capacity for regional development in the form of sustained innovation and new product generation depends on this regional collective learning. The preconditions of learning, trust and social norms, form the basis of inter-firm networking and enable the diffusion of embodied expertise to develop and change over time (Keeble et al., 1999, Boschma and Lambooy, 2002). This networking environment, where local SMEs are involved in cooperative competition, has been dramatically changed by globalisation. The pressure for global innovation and learning to meet global competition has resulted in less local interaction, powerful large firm influences, and changed organisational structures. Boshman and Lambooy (2002) describe three developmental paths resulting from globalisation:

- 1) *Herrigel-trajectory* – where the domination by leader firms controls entrepreneurial activity to such an extent that the economic significance of the region becomes irrelevant.
- 2) *Local network-organisation trajectory* – where the cooperative local network is coupled with specialist service providers that supply SMEs access to resources which consolidate and strengthen their ability to extend linkages into global markets. Here the success of individual SMEs keeps the region viable and a 'pluralist model' emerges.

- 3) *Bridge enterprise trajectory* – where cooperation and competition are essential aspects of the interaction between local firms. Leader-firms and business groups control intra-district relations and are fully integrated into synergistic relations based on reciprocity with the local SMEs. These relationships do not impact on the integrity and integration of the economic organisation of the region.

These trajectories identify that it is essential for regional sustainability in a globalised world that the region's SMEs are active participants in innovative and learning activities. In the situation where the 'Herrigel' leader firms are allowed to dominate the locus of value moves away from the region to these globalised firms. The ongoing viability of the region is threatened by the potential for these leader firms to move their operations elsewhere and in the process take their value with them. Regions that include many SMEs where no single industry dominates require a mechanism for integrating the knowledge sharing and innovation of their diverse firms. The latter two trajectories represent the type of sustainable model required for SME involvement. Information and Communication Technologies (ICTs) have been frequently touted as powerful ways to link such a multitude of small businesses. We will now explore the potential that ICT offers in such contexts.

### **3 ICTs AND REGIONAL CLUSTERS**

Rapid advances in information and communications technology (ICT) have made it possible to link the activities of enterprises into giant networks, enabling widely dispersed organisations to cooperate via computer networks such as the Internet. These eClusters or 'digital enterprise communities' (Brown and Lockett, 2001, p. 52) not only change the way that firms interact; the basis on which business is conducted is also dramatically changed. Carrie argues that 'as manufacturing becomes a truly global affair, the basis of competition will switch from individual companies and their supply chains to regional clusters' (Carrie, 1999, p. 45). The outstanding success of Silicon Valley and other high tech clusters has emboldened many government ICT initiatives to facilitate regional clustering (Brown and Lockett, 2001, Diez, 2003, Hospers and Beugelsdijk, 2002, Kolko, 2002, Gertler and Wolfe, 2002). The results of these programs have been inconsistent in achieving regional development (Hearn et al., 2004).

Previously we have identified two drawbacks associated with the reliance on ICT for regional development (Mason et al., 2005). Firstly, research has shown that ICT has a dispersive effect (Bellini et al., 2003) which may even lead to the erosion of existing clusters (Wever and Stam, 1999). Secondly the emphasis on ICT fails to adequately take into consideration the key tenet of the knowledge economy – knowledge. Rather than relying on ICT as a source of regional development, we need research to identify how knowledge-based techniques can stimulate knowledge exchange and knowledge generation through active knowledge management (KM) strategies (Kaufmann et al., 2003). Research is required not only on the basis of this understanding but also to be able to identify the role ICT can play in such initiatives.

### **4 INNOVATION, LEARNING AND CLUSTER SUCCESS**

It is clear that successful clusters are highly dependent on context. Any development strategy must therefore take account of the structural and cultural characteristics of the region. Southern (2001) recommends that government instrumentalities should utilise existing social and economic environments. It is inappropriate to be 'picking winners' by imposing top down cluster formation and implementation processes as these fail as soon as the funding ceases (Taylor and Plummer, 2003). What is needed is a clearer understanding of what makes regions successful.

Innovative capacity is identified in the literature as one of the most important competitive factors for regional clusters. This innovative capacity is linked to the continuous learning processes of individual firms and their inter-firm networks. MacKinnon et al.'s (2002) analysis of the learning region literature identified the following key themes:

- Globalisation linked to new forms of knowledge based agglomeration within localities.
- Non-material advantages are locally rather than globally sourced and are major basis of learning.
- Tacit knowledge of specific locations facilitates the emergence and agglomeration of specialist industries in those localities where close interpersonal and inter-firm relationships are based on the transfer and creation of tacit knowledge.
- Collective learning of a locality emerges over time, is based on trust, and stimulates the agglomeration process. Trust ‘binds networks together and sustains firms’ involvement in processes of collective learning’ (MacKinnon et al., 2002, p. 302).
- Less developed regions have the potential to become learning regions if they expand their learning potential through innovation. In low-technology areas this innovation occurs when incrementally accumulated know-how is applied to daily operations.

Taylor and Plummer (2003) identify two local drivers promoting economic development in regions: the level of *human resources* – latent local know-how and skills; and an active *enterprise culture* – built on technological leadership and willingness to take risks. They attest that creating an environment where enterprise culture is engendered ‘is the complete antithesis of current cluster policies’ (Taylor and Plummer, 2003, p. 560). This involves facilitating their creation through establishing forums where they can flourish, and eliminating any ‘red tape’ that hinders this process. Enterprise culture is not about establishing new enterprises; rather it is a process where coalitions of SMEs are formed to exploit emerging business opportunities for their value creating potential.

A research focus is required that is able to analyse both human resources and enterprise culture, within the socioeconomic context of a specific region. A well-researched form of developmental network is the community of practice (CoP), which is a voluntary group of people (community) who share knowledge, skills, expertise and know-how (practice) (Wenger et al., 2002). Large organisations have found that cross departmental CoPs provide the most significant value creating opportunities because they traverse organisational boundaries. Heavy investment in CoPs and their online counterparts, virtual Communities of practice (VCoPs) have resulted in significant value creation (Lemons, 2005).

This model of knowledge management has been applied to SME knowledge sharing in regional clusters (Vestal and Lopez, 2004) however research to date has focussed on industry based clusters (Dewhurst and Cegarra Navarro, 2004), and this neglects cross-industry CoPs which can play a significant role in creating value.

We propose a modified version of the Community of Practice concept which relates to the knowledge sharing, network learning and innovation existing in many regional clusters. We have named these networks *Communities of Enterprise* to highlight the importance of participating SMEs and their relationships across industry boundaries. In other words, their involvement in common elements of enterprise is the significant aspect of their cooperation.

#### **4.1 From Communities of Practice to Communities of Enterprise (CoEs)**

Organizations regard communities of practice (CoPs) as the essential business practice of the 21st-century (Lemons, 2005). These organisations are achieving both intangible and tangible value from their CoPs including positive impacts on time-to-market, reuse of knowledge, improved response time, increased employee development, development of knowledge sharing relationships, improved organizational learning, and successful change implementation. Wenger (2002) devised the Communities of Practice (CoPs) model for learning organisation (Senge, 1990) that innovates continuously.

The concept of CoPs addresses one of the drivers Taylor and Plumber (2003) identified for promoting economic development in regions, viz., access to the latent know-how and skills in ‘human resources’. However, the focus of CoPs is on ‘practice’ and this does not address the other driver of regional economic development, an ‘enterprise culture’. Successful entrepreneurial SMEs are high risk takers

consequently ‘the enterprise’ should be the major focus of any investigation attempting to analyse their innovative and value creation activities. SME owners focus on their businesses as a unified operation, rather than on practice per se. The proposed Communities of Enterprise (CoEs) model illustrates how the SMEs knowledge sharing, value creating and innovative behaviours inherent within it make it a valid mechanism for fostering regional clustering. The CoEs model addresses the human resources and risk taking aspects that drive regional economic development. However, the technological leadership aspect of Taylor and Plumber’s (2003) ‘enterprise culture’ remains unaccounted for. Successful SMEs are globalising their operations via ICT, they are the economic leaders in their regions, and therefore they have the potential to show technological leadership by moving the CoEs into the virtual domain.

Online or virtual communities of practice (VCoPs) have emerged in large organisations in response to the needs of their globally dispersed operations. VCoPs play an important complementary role to CoPs and need ongoing face-to-face interactions to survive. Their virtual nature alters the communication process and the way that intellectual capital is acquired and leveraged. Large organisations have acquired value from VCoPs through more effective knowledge use, innovation promotion, and recognition and exploitation of their capital. Hence their VCoPs drive strategy, start new lines of business, solve business problems quickly, transfer best practice, develop professional skills, and support the recruitment and retention of gifted employees (Lemons, 2005). Similar benefits have been achieved by regional SMEs through VCoPs where the consolidation of regional development produced innovation in the form of improved products and processes. In fact new industry specific knowledge assets embodied in VCoPs created a new source of capital that was not able to be achieved by any other means (Ho et al., 2003).

The above discussion of VCoPs indicates that there is potential for translation of the Communities of Enterprise (CoEs) into the virtual realm by extending and exploiting the value attainable through face-to-face interactions, such as is found in the large organisational context; or as a new form of virtual value not achievable by traditional means identified by Ho et al. (2003). The entrepreneurial SMEs that take advantage of these online opportunities can achieve technological leadership, the second aspect of the enterprise culture. CoEs are revealed as enterprise culture enablers by facilitating the formation of coalitions of SMES with the potential to exploit emerging business opportunities for their value creation potential. We will now investigate the viability of this value creating potential.

The concept ‘Communities of Enterprise’ has been developed specifically to relate to networks of SMEs, linked by various means, including ICTs. In the discussion below, we address the following questions:

- What are the key factors underlying the contribution of Communities of Enterprise to the development of regional clusters?
- What are the implications of these factors for understanding how ICT can be used for successful Communities of Enterprise?

## **5 FACTORS IN THE DEVELOPMENT OF REGIONAL CLUSTERS**

Our approach in answering the research questions involved reading the literature in the area of regional development where we found four recurring factors: intellectual capital, value networks, social capital, and a culture of innovation. We will now investigate how these factors inform the contribution that Communities of Enterprise (CoEs) make in regional clusters, and identify the implications these have when establishing ICT initiatives to support CoEs. This discussion will indicate the contribution CoEs can make to the challenges currently facing regional planners in their attempts to harness the value creating potential of their intellectual assets, viz identifying and facilitating conditions for replicable innovation and co-creation of value at the macro level; and

providing technological, infrastructure, and cultural changes that facilitate collaborative and communicative relationships at the micro level (Hearn et al., 2003).

### 5.1 Intellectual Capital Generation

Intellectual capital (IC) is the key resource in the knowledge economy (Pulic, 2005). IC has three sources: *people* as the generators of innovation and renewal; *organisational infrastructures* including information systems, databases etc as enablers; and *relationship capital* (Stewart, 1997). The successful region is therefore the one with the capacity to use its IC to create, transfer and implement knowledge to facilitate innovation (Smedlund and Poyhonen, 2005). This application of IC creates learning regions where value involves human factors as well as economic factors.

Participation in CoEs is voluntary involving people sharing knowledge and know-how about their enterprises. This approach based on collaborative and communicative relationships maximises the potential for the micro level conditions to harness the intellectual capital essential in creating learning regions. Where these CoEs are identified by regional planners, macro level government investments in ICT will be able to facilitate the move to Virtual Communities of Enterprise (VCoEs) thus providing conditions necessary for replicable innovation through co-creation of value.

### 5.2 Value Networks

Allee (2002) developed a model that illustrates how the intangible flow of information between actors creates *value networks* thus differentiating them from value chains. The dimensions that create value using intangibles are the way that intangibles are negotiated in economic exchange and how they are delivered in transactions. The key characteristics of the value network model are participants who conduct transactions involving exchange of tangible or intangible value. The model's strength is that the overall pattern of the system is made visible, it indicates the impacts each value exchange has on participants, and identifies the best ways to create, extend and leverage value.

Building on Allee's work and incorporating it with organisational determinants Smedlund and Poyhonen (2005) created a *regional knowledge system* that provides a systems theory based view of the creation of IC in a regional clusters of SMEs. Three network types were identified the:

- *Strategic production network* at the core of regional processes where knowledge is implemented to make products and services by ensuring efficient vertical and mechanical flow of raw materials, thus lowering transaction costs.
- *Innovation network* where new knowledge is consciously coordinated and created. The dynamic and networked flow involving tangible and intangible aspects facilitates continuous improvements in products, production methods, and processes by crossing production chains and including actors external to the region. Relations are informal, rich, and multifaceted.
- *Development network* where knowledge is cooperatively shared in casual daily interactions. The flow is intangible, organic and horizontal occurring between firms that may not be in the same production network and may even be competitors. Higher levels of efficiency are achieved by learning about other firms' best-practice. Its essential characteristic is knowledge sharing based on tacit knowledge, bi-directional knowledge flows, where relations based on trust are reciprocal resulting in improved social capital in the region.

Smedlund and Poyhonen (2005) found that the development network is the most important. It is a pre-requisite for trust and communication and critical to the effective functioning of the strategic and innovation networks. This network has cooperative horizontal knowledge sharing which is the key attribute of intellectual capital and major source of value creation in the knowledge economy. CoEs based on trusting relationships, where bi-directional horizontal flows of tacit knowledge occur between equal partners, emerge as an excellent means of facilitating value creation through intellectual capital, and an extremely effective model for facilitating regional development. In fact they have the ability to provide opportunities of greater benefit than the mere reciprocity of developmental networks, 'best practice' is made accessible through the accumulated collective knowledge of 'knowing how'



that only occurs when people with similar experiences also have the willingness and ability to access it (Duiguid, 2005).

The incorporation of ICT into networks extends their reach so that people who do not know each other can share practices, however relationships are less intimate. ICT can draw different networks together to achieve common goals and combines their knowledge in new ways, and provide access points which enable individuals to establish identity within a far wider network (Vaast, 2004). The insights networking provide for the application of ICT to CoEs are that the relationships change, thus benefits to the region and individuals within it can be much greater.

### **5.3 Culture of Innovation**

One of the characteristics of successful clusters is having a culture of innovation or an *innovative milieu* that stimulates innovation. It is most visible in high-tech clusters where value is obtained not merely from developing high-tech products but largely through managing the multitude of relations in innovation networks (Capello, 1999, Spence, 2004). This innovative culture is not limited to high-tech industries but is more general. Albonies and Moso (2002) argue that there is more to innovation than the technology based innovative milieu. Few regions have the capability and resources required to develop high technology clusters. Instead there needs to be an emphasis on innovativeness, an evolutionary process of innovative behaviour based on daily operations where collaboration provides SMEs in clusters the opportunity to learn new ways of operating.

The vast majority of regions seeking to become sustainable in the current economic climate have little hope of becoming high-tech regions. A far more viable alternative is to facilitate innovativeness in daily operations. CoEs provide an ideal model for enhancing innovative culture in regional clusters. They have an established enterprise culture where collaborations of SMEs have formed to exploit emerging business opportunities for their value creating potential. Their latent human capital is able to be accessed via these collaborative processes thus maximising the innovation and value creation potential within the region. The online interactions through Virtual CoEs extend this innovative potential to include the highly valued knowledge of external sources.

### **5.4 Social Capital**

Interaction between social capital and intellectual capital forms the foundation of competitive advantage in organisations and is central to understanding the dynamics of organisations and their ability for innovation and value creation (Von Mutius, 2005).

Social capital is the value accessible from networks that are held together by a sense of reciprocity based on goodwill, mutual support, common language, norms and trust (Huysman and Wulf, 2004). There are three interrelated dimensions of social capital that are useful in analysing its inherent value: *structural* – the network configuration, network ties and organisation; *cognitive* – the shared codes, language and stories; and *relational* – identification through norms, obligations based on trust (Nahapiet and Ghoshal, 1998). Most research has concentrated on the relational dimension and there has been much discussion of the importance of developing trust and communication. Thus any approach to regional development must use a mechanism that incorporates these dimensions. CoEs as a voluntary mechanism are revealed as eminently suitable for maximising regional development.

Access to value inherent in social capital revolves around the network ties or strength of links between actors in the network. Three types of social capital are found in networks: *bonding capital* between members of a group where a sense of identification is developed and support structures are provided to members through strong ties; *bridging capital* where weak ties between horizontal groups facilitate cooperation and sharing of resources; and *linking capital* where access to resources occurs via hierarchical ties between groups of different status (DCITA, 2005). Tie strength is an important aspect of the value that is achievable from social capital. Although strong ties are important in creating a sense of belonging if they become too strong external input cannot enter preventing any value creating

opportunities. Weak ties on the other hand provide access to external resources, the actor who can access the most resources has the potential to create the most value. Granovetter (1992) refers to this border crossing ability as ‘the strength of weak ties’. Consequently the management of weak ties is essential in regional development. CoEs are groups that cooperate and share information across horizontal networks and as such are sources of bridging capital characterised by weak ties. The potential for value creation through CoEs is therefore extremely high. There is a slight chance that bonding capital could become too strong negating value creating opportunities, however, their bridging characteristics are most likely to ameliorate this potential risk.

Social capital is very significant for ICT regional development initiatives involving CoEs. It should be recognised that ICT is not a panacea for regional solutions and cannot be pushed if it is in direct conflict with the principles of social capital (Karlsson, 2005). However, virtual communities have been identified as a means of enhancing regional social capital with the added potential of facilitating the development of learning regions (DCITA, 2005). Virtual CoEs as a form of virtual community are invaluable to the development of regions, enhancing their move towards becoming learning regions.

This investigation of social capital has illustrated that CoEs are an excellent means of promoting the value creating potential inherent in regions. Virtual CoEs have the added potential of enabling the region to take on innovativeness and become a learning region.

## **5.5 Summary of Regional Development Factors**

We have identified the contributions Communities of Enterprise (CoEs) make to the four key factors of region development, and have highlighted the way ICT impacts on these. CoEs maximise the potential to harness *intellectual capital* which is essential for creating learning regions, ICT investments facilitate Virtual Communities of Enterprise (VCoPs) formation and provide conditions for replicable innovation. CoEs provide access to best practice through *networks*, and ICT extends network reach changing relationships and expanding the benefits to both the region and individuals. CoEs provide an ideal model for enhancing *innovative culture* in regional clusters, online interactions through Virtual CoEs extend this innovative potential to include highly valued sources of external knowledge. The investigation of *social capital* illustrated that CoEs are an excellent means of promoting the value creating potential inherent in regions, and VCoEs have the added potential of enabling the region become a learning region.

## **6 CONCLUSIONS**

This paper has examined the factors which contribute to the development of regional clusters. These factors include intellectual capital, social capital, development networks and a culture of innovation. It has proposed the concept of Communities of Enterprise (CoEs) to highlight the kind of network that is appropriate in regional areas characterised by many small enterprises in diverse industries. The CoEs focus on collective learning and knowledge sharing will increasingly be supported by ICT initiatives, a powerful tool in the collective generation of value. ICT enablement alone cannot achieve these aims if it is not aligned with the fundamental sources of value creation outlined above. The capacity for innovation and production is maximised through development networks based on social capital. ICT initiatives will help a region succeed only if they are focussed on these socioeconomic outcomes.

Empirical research is underway examining these factors and their relationship to CoEs and ICT initiatives in a number of Australian regional case studies. The case studies examine value creation opportunities through CoEs and the role of ICT in supporting those communities. The context of these investigations is paramount, particularly as they involve cross-industry interactions of small enterprises. The results are intended to provide SMEs with new insights about how they can utilise networks to maximise their value creating abilities and should assist government and regional planners to assess the viability of ICT investment to support regional cluster development.

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