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## Communities of enterprise: developing regional SMEs in the knowledge economy

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### Abstract

**Purpose** – This paper proposes the concepts of Communities of Enterprise (CoEs) and Virtual Communities of Enterprise (VCoEs) to describe business networking patterns in regional areas where there is no central organisational or industry focus and small and medium enterprises dominate the economy.

**Design/methodology/approach** – Based on analysis of the literature this paper builds on theoretical understandings of knowledge management, clustering and regional development.

**Findings** – The concept of CoEs is most appropriate for regional areas characterised by many small enterprises in diverse industries. CoEs enhance development of regional clusters by contributing to their intellectual capital, innovation culture, value networks and social capital. The incorporation of ICT creates VCoEs which provide added potential by enabling regions to expand their learning potential through innovation.

**Research limitations/implications** – This paper provides a conceptual foundation for empirical research into regional network or cluster development using ICT.

**Practical implications** – Virtual Communities of Enterprise value creation potential is substantial but only when the socioeconomic elements of regional clusters are understood. The VCoE 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.

**Originality/value** – The Virtual Communities of Enterprise (VCoEs) concept specifically addresses the unique requirements of SMEs in regions. It has the potential to provide value for regions in a way few ICT based regional development initiatives have been able to achieve.

**Keywords** – virtual communities of practice (CoPs), virtual communities of enterprise (VCoEs), small and medium enterprises (SMEs), cross-industry regional clusters, knowledge economy, knowledge management (KM), knowledge sharing, social capital.

## **Paper type Literature Review**

### **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 (Longhi 1999; Hospers and Beugelsdijk, 2002; DTI 2004; Feldman et al. 2005; St John and Poudier 2006) and there is considerable interest in emulating their success (Porter, 2003). Many have identified the potential contribution of information and communication technologies (ICT) to cluster development through online networking and knowledge sharing.

A major value 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 the participating enterprises 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 by stimulating 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 (Kodama 2004), how this is accomplished remains problematic because 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 and, 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 offer a powerful tool for 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 the development of networks (de Berranger et al., 2004). However, it has not been easy to realise the benefits of online initiatives and it appears that often there has been a preoccupation with technology infrastructure at the expense of attention to the underlying social and economic characteristics of regions (Hearn et al. 2004; Fisher and Craig 2005; Gengatharen et al. 2005). Further exploration suggests that the nature of regional economies and society does not align well with the cluster development model presented in the literature (Asheim et al. 2006; Henry et al. 2006; Simmie 2006).

This paper presents a new concept to describe how small and medium enterprises (SMEs) from diverse industries network and share knowledge to develop regional clusters. It also considers the role of ICT in facilitating business networking and knowledge sharing in this context. The contributions of the field of knowledge management, in particular the concepts of 'community of practice' (CoP) and 'virtual community of practice' (VCoP) are extended to a new concept, '(Virtual) Community of Enterprise' (VCoE) which more accurately describes the regional milieu, with its diversity of industries and reliance on SMEs. We anticipate that the concept of 'Virtual Community of Enterprise' will contribute to ICT initiatives that create value by guiding practitioners in their efforts to facilitate knowledge sharing networks and, ultimately, regional clusters.

First, we summarise the literature on clusters and their contribution to the development of regions. We identify key elements that lead to successful clusters. We then consider the potential contribution of ICT, noting that the regional industry structure is important as is the role of SMEs. We discuss the dynamics of networks and their ability to promote innovation and thus stimulate cluster formation before setting out the concept, (Virtual) Community of Enterprise and explaining its alignment with the economic and social reality of many regional areas and the ways it can promote regional development. Finally, we outline some research directions in which the VCoE concept can be applied.

### **Clusters, Small Business and Regional Development**

Clusters are not a new approach to regional development. At the end of the 19th Century Marshall (1947) first identified the clustering effect of agglomeration as a regional development strategy. He described how geographically proximate firms enjoyed many advantages when they were involved in cooperative economies of buying and selling labour, goods and services. He named these industrial districts. Recent examples include the much celebrated Emilia-Romagna region of Third Italy where decentralised networks of specialised SMEs provide the momentum for the economy (Amin, 1999).

The term clusters was brought into the regional development lexicon by Porter (1990). He emphasised their economic potential by arguing that sustaining competitive advantage in a globalised world relied on cooperation at the local level among manufacturing firms which otherwise competed with each other. When such cooperation is achieved, stronger clusters emerge with increased regional productivity. New innovations are created and new businesses are established.

With the rise of the global information economy, the focus of competition shifted from physical resources to the ability to create, process, and efficiently apply knowledge (Castells, 1997). European economists have analysed local and regional development processes (MacKinnon et al., 2002) and differentiated the innovative milieu required for this new knowledge-driven economy from traditional 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 the collective learning of 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. When this is successful, a learning region (Morgan 1997) 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 be innovative, diversify and reduce production costs (Raymond and Bili, 2001). Many governments are recognising the critical role SMEs play in their regions and are implementing strategies to facilitate SME development. Frequently, however, the anticipated results are not readily achieved (Cooke et al. 2003; Cuadrado-Roura and Garcia-Tabuenca 2004). This indicates the need for a long term view such as Singapore's SME21, which is an over-arching ten-year plan to ensure the ongoing viability of SMEs in that region (Sum et al., 2004).

Regional economic activity often has no single industry focus (Baum et al. 2007). This is because SMEs, which operate in a broad range of industries, form such a major component of those economies. Such regions 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 defined by their location rather than a dominant industry and this

type of cluster is more characteristic of the industrial districts of Third Italy (Boschma and Lambooy; 2002).

Two resources within regions are the networking that occurs between organisations and the collective learning they engage in. The capacity for regional development through sustained innovation and new product generation depends on this regional collective learning. The preconditions for collective learning are trust and social norms that support 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. There is pressure for global innovation and learning to meet global competition which has resulted in less local interaction and has increased the influence of powerful large firms.

Regions that include many SMEs where no single industry dominates require a mechanism for integrating the knowledge sharing and innovation of their diverse firms. With the intensification of competitive pressures, regions must work at developing business activity through more intensive networking and innovation activity. Responding to this pressure, ICT has been frequently seen as a powerful tool to link such a multitude of small businesses and to stimulate the kind of knowledge sharing and innovation that will lead to regional development. In the following section we explore the potential that ICT offers in such contexts.

### **ICT and regional clusters**

Rapid advances in ICT have made it possible to link the activities of many enterprises into large networks, enabling widely dispersed organisations to cooperate via computer networks including 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. In eClusters, communities of SMEs interact in a similar way to Virtual Organisations. Trust is critical for inter-firm alliances and forms the basis on which business is conducted. Three types of intermediaries are pivotal for eClusters: the community on which the eCluster is based which is essential for generating initial trust; the technology or the ICT platform by which networking is conducted; and the enterprise or the applications service provider (Boschma and Lambooy 2002).

The potential of ICT to facilitate clustering is evident (Sum et al. 2004; Tan 2006). The outstanding success of Silicon Valley and other high tech clusters has emboldened many government ICT initiatives that seek to facilitate regional clustering (Brown and Lockett, 2001; Hospers and Beugelsdijk, 2002; Kolko, 2002; Gertler and Wolfe, 2002; Diez, 2003). The results of these programs have been inconsistent in achieving regional development (Cuadrado-Roura and Garcia-Tabuenca, 2004; Hearn et al., 2004; Gengatharen et al, 2005). We have identified at least two drawbacks associated with the reliance on ICT for regional development (Mason et al., 2005). First, research has shown that ICT can have a dispersive effect (Bellini et al., 2003) which may even lead to the erosion of existing clusters (Wever and Stam, 1999). A region may gain great advantage from the connection among its denizens and their links to the world beyond, but it may also dissipate the local focus and encourage competition from stronger entities outside the region. Secondly, an emphasis on technologies themselves rather than what they are designed to facilitate may obscure the key issue in the knowledge economy – knowledge and its contribution to innovation and competitiveness.

The potential of ICT for regional networking and the mixed results in its deployment suggest that there are other factors that need attention. It appears that the great enthusiasm for online

technologies that support networking and knowledge sharing has tended to distract attention from social and socio-technical solutions. This indicates that rather than seeing online technologies as a generator of regional development, we need research to identify how these technologies can stimulate knowledge exchange and knowledge generation through active knowledge management (KM) strategies (Kaufmann et al., 2003). It is important that these techniques and models are appropriate to the context in which they will be used so that they can support the particular social relationships and dynamics to generate innovation and regional success.

### **Innovation, learning and cluster success**

Innovative capacity is identified as one of the most important competitive factors for regional clusters. This 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 a number of key themes including:

- Non-material advantages sourced locally rather than globally can be a major basis of learning.
- The creation and transfer of region-specific knowledge facilitates agglomeration of specialist industries.
- Trust is a factor binding networks together and sustains firms' involvement in processes of collective learning'

This indicates that socio-economic factors are critical to the development of regional networking. Taylor and Plummer (2003) argue that creating an environment where enterprise culture is engendered 'is the complete antithesis of current cluster policies' which focus on policy initiatives for facilitating new firm formation and new jobs (Taylor and Plummer, 2003, p. 560). This is an important observation because the latter approach has not proved sustainable (Taylor and Plummer, 2003). Instead of focussing on individual firms, a far more sustainable approach is the facilitation of an enterprise culture by establishing forums where coalitions can form and re-form on a needs basis. Here larger firms in regions involved in such coalitions provide the infrastructure and finance for their smaller counterparts. Firms can participate in more than one coalition at a time and, consequently, these entrepreneurial SMEs flourish. Enterprise culture is not about establishing new enterprises; rather, it involves providing a knowledge sharing environment that facilitates the formation of coalitions of SMEs so that they can exploit emerging business opportunities for their value creating potential.

To develop a robust knowledge-sharing network, a region needs to employ techniques that bring together human resources and an enterprise culture. 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).

Many large organizations regard 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

(Lemons 2005). Lave and Wenger (1991) articulated the Community of Practice (CoP) model for the learning organisation (Senge, 1990) that innovates continuously.

This model of knowledge management has been applied to SME knowledge sharing in regional clusters (Vestal and Lopez, 2004). Research to date has focussed on industry-based clusters (Dewhurst and Cegarra Navarro, 2004; Forsman and Solitander 2004) which works well for contexts where there is a dominant industry or a large organisation that is the focus of economic activity in the region. However, this orientation neglects networks with membership drawn from a variety of industries, such as SMEs in many regional areas, which can play a significant role in creating value.

### **From Communities of Practice to Communities of Enterprise**

We propose a new 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* (CoE) to highlight the importance of participating SMEs and their relationships across industry boundaries. The basis of interaction and cooperation is their common interest in their respective enterprises. The economic geographers Taylor and Plummer (2003) identified two sets of interrelated factors which drive economic development in regions: the level of *human resources* and an *enterprise culture*. *Human resources* are the latent local know-how and skills of the region which represent its inherent intellectual capital. *Enterprise culture* is found among those exhibiting technological leadership and a willingness to take risks. Enterprise culture involves a knowledge sharing environment that facilitates the formation of coalitions of SMEs that exploit emerging business opportunities for their value potential, thus encouraging them to be enterprising (Taylor and Plummer 2003).

The CoP concept addresses the first driver Taylor and Plumber (2003) identified, *viz.*, access to the latent know-how and skills in 'human resources'. However, the focus of a CoP is on 'practice' and this does not address the other driver of regional economic development that they identified, an 'enterprise culture'. Taylor and Plummer (2003) maintain that the key to establishing such an enterprise culture is facilitating SMEs' interaction with each other so that they are able to exploit opportunities as they arise within the region. This requires forums where SMEs meet and interact so that new ideas are generated and business opportunities are identified.

CoPs are appropriate for industry clusters. In CoPs it is the interest in the domain of knowledge and expertise about a specific practice that drives members' involvement. CoPs are based on a shared interest in a particular form of practice. Members share knowledge, gained from working in the field, simply to improve the skills and expertise of the practice. The focus on practice puts the emphasis on what people do and thus is suitable for operations-level activities and for the development of artefacts (Wenger et al. 2002).

In regions where SMEs are involved in diverse industries, however, there is no such common practice. Consequently, CoPs are not as relevant. What is needed is a coordinating mechanism around which SMEs can coalesce. A CoE reflects an 'enterprise culture'. SMEs focus on the enterprise as a whole, and are engaged in innovation at the strategic level, not on practice *per se*. An enterprise culture may be achieved through coalitions between organisations, or they may simply involve obtaining information about another enterprise across a number of areas of practice such as marketing, finance and so on. Knowledge sharing centres on improving the economic viability of the enterprise through innovation at the strategic level.

CoEs have the potential, like CoPs, to go online and extend their value creating potential. SMEs' lack of internal resources means that they do not have ready access to all the knowledge they require. Extending a CoE into the online environment (as a Virtual CoE or VCoE) can provide SMEs with ready access to such knowledge through trusted contacts. The benefits that this could provide include access to external expertise and information. Significant time and cost savings can be achieved by avoiding replication of others' mistakes, generating new ideas, and by solving problems at the enterprise or strategic level. The improved communication with other SMEs could lead to better understanding and increased reputation. This extended access to knowledge could stimulate the generation of innovative ideas and formation of new alliances (Taylor and Plummer 2003; Molina-Morales 2005). What this illustrates is that by incorporating ICT and forming VCoEs there is significant potential not only for improving the knowledge resources of individual SMEs, but for extending the value and innovative capability of regions.

The concept 'Communities of Enterprise' specifically relates to networks of non industry aligned SMEs, linked by various means, including ICT. In the discussion below, we address the following questions:

- How can Communities of Enterprise contribute to the development of regional clusters?
- How can their contribution be extended by ICT to create successful Virtual Communities of Enterprise?

### **Factors in the development of regional clusters**

From the literature on regional development we identified four commonly cited aspects of clusters which indicate areas in which (V)CoEs can contribute to their development: intellectual capital, a culture of innovation, value networks and social capital. The sections below show how CoEs and VCoEs can contribute in these areas.

#### *Intellectual Capital Generation*

Intellectual capital (IC) can be defined as the value to the community (firm or profession) of its knowledge and knowing capability (Nahapiet and Ghoshal 2002). It is the key resource in the knowledge economy (Pulic, 2005). A successful region has 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; for example, relationships with customers create brand loyalty and this in turn can convert into tangible value for the SME.

The success of a CoE or VCoE can be assessed by its ability to generate IC through interaction between human capital (people), structural capital (infrastructure), and external capital (customers/suppliers/collaborators). For example the members (people) of the CoE use the ICT (infrastructure) to share knowledge with those external to the region (customers, etc.) via the VCoE. Examples of the types of intangible value that SMEs and their region are able to achieve from their IC include: more rapid learning, generation of new ideas for products and services, re-use of existing knowledge assets, and faster response times (Lesser and Everest 2001). The generation of this innovative knowledge becomes a source of sustainable competitive advantage (Dewhurst and Cegarra Navarro 2004). The entrepreneurial orientation of VCoEs provides access to IC and thus they become a valuable asset for SMEs and the region. The VCoE can also provide an online repository of knowledge (IC) that extends the value of the CoE.

A VCoE can develop IC through well-recognised knowledge-sharing practices, capturing knowledge and making it available to a wide audience on demand. Online exchange can spur the interaction process and thus stimulate thought and innovation.

### *Culture of Innovation*

One of the characteristics of successful clusters is having a culture of innovation or an *innovative milieu*. It is most visible in high-tech clusters where value is obtained not merely from developing high-tech products but also through managing the multitude of relations among people in innovation networks (Capello, 1999, Spence, 2004). This innovative culture is not limited to high-tech industries but is more general. Innovativeness is associated with the firm's capacity to combine and exchange knowledge resources by becoming involved in inter-organisational relationships that create opportunities for knowledge acquisition and exploitation (Molina-Morales 2005). This is an evolutionary process of entrepreneurial behaviour where ICT is incorporated to achieve value through innovative developments in their businesses, or by extending their reach to incorporate external, even global, coalitions.

CoEs and VCoEs can substantially support an innovative culture in regional clusters. They establish an enterprise culture where collaborations among SMEs form to exploit emerging business opportunities for potential value. Through them intellectual capital can be accessed and developed by these collaborative processes. This maximises innovation and value within the region. Online interactions through VCoEs extend innovative potential to include coalitions with external sources so that the inherent knowledge of these external, particularly global, sources provides value to regions. Access to value inherent in a regional area revolves around network ties (or the strength of relations) between members (Nahapiet and Ghoshal 1998).

### *Value Networks*

Value networks refer to the tangible and intangible value flowing between groups of people (Allee, 2003). They are important to regional development because they increase the region's potential for innovation, improve the efficiency of systems within the region, and provide access to the region's accumulated entrepreneurial experience and region specific knowledge. CoEs are based on relationships where bi-directional, horizontal flows of knowledge occur between equal partners. Smedlund and Poyhonen (2005) identified this as a pre-requisite for innovation in SME networks. Because CoEs are based on trusting relationships, they are well-suited to facilitating value creation through intellectual capital generation, and are an effective model for facilitating regional development.

The incorporation of ICT into value networks extends their reach so that people who do not know each other can share knowledge even though relationships are less intimate. ICT can also draw different networks together to achieve common goals and combine their knowledge in new ways. Importantly, ICT can provide access points which enable individuals to establish identity within a far wider network (Vaast 2004). Value networks are expanded through VCoEs providing benefits to both individuals and the region as a whole.

### *Social Capital*

The final factor relates to the region as a whole and to the qualities of the social environment. 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). It is the interaction between social capital and intellectual capital which 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 fundamental for regional development and for regional initiatives involving VCoEs. 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).

Access to the value inherent in social capital revolves around the network ties or strength of links between actors in the network. Social capital is very significant in ICT regional development initiatives involving CoEs. While 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), VCoEs are potentially inclusive and can facilitate the development of social capital through online interaction. We have illustrated that CoEs provide an appropriate 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.

### **Summary and Conclusions**

This paper has outlined the concept of (Virtual) Community of Enterprise as a refinement of and extension to the well-known concept in the knowledge management field, (Virtual) Community of Practice. It has highlighted the special nature of networks of SMEs in regional areas which often do not have an industry focus, so their common interest is in strategic level development.

CoEs harness *intellectual capital* which is essential for creating learning regions and ICT investments facilitate VCoE formation to provide the necessary conditions for replicable innovation. CoEs give their members access to best practice through *networks*. ICT extends the network's reach, thus changing relationships and expanding the benefits to both the region and individuals. CoEs support the development of an *innovative culture* in regional clusters, and VCoEs' online interactions extend this innovative potential to include highly valued sources of external knowledge. CoEs ability to develop *social capital* promotes the value creating potential of regions. VCoEs add to that potential by facilitating the emergence of a learning region thus expanding its learning potential and ability to stimulate innovation.

The CoE focus on collective learning and knowledge sharing will increasingly be supported by ICT initiatives to form VCoEs, connecting regional enterprises more powerfully for the collective generation of value. ICT enablement alone, however, cannot achieve these aims. It must be aligned with the fundamental sources of value creation. ICT initiatives will help a region succeed only if social development is considered. The implications of this conclusion are that VCoEs, designed specifically to address the unique requirements of SMEs in regions, have the potential to provide value for regions in a way that few ICT based regional development initiatives have been able to achieve.

This paper's contribution is conceptual. The utility and robustness of the VCoE concept will only be demonstrated through subsequent research. It is possible that we have overestimated SMEs' focus on their enterprise as opposed to practice. We may also have overemphasised the importance of social capital formation as opposed to intellectual capital generation. There are a number of fruitful areas for such research which would clarify these issues and advance the understanding of SMEs' knowledge sharing in regional areas.

1. It is important to study the kinds of knowledge sharing that occurs in SME regional business networks, both in regions where there is an industry focus and those where the SMEs span a variety of industries. This would help to assess what kinds of knowledge are shared and how much the focus is on specific intellectual capital and

how much is related to the development of social capital. We would hypothesise that in regions with no industry focus, social capital development would be paramount.

2. Research into the kinds of value that SMEs seek to achieve from their knowledge sharing in networks would help identify the areas in which local practitioners and facilitators should develop VCoEs. Without a clear indication of what the end-users want from these networks, business development initiatives will struggle to attract local interest.
3. There are many avenues available for regional networking and knowledge sharing, but there is a lack of data about choices of communication channels, both online and traditional. An examination of participants' preferences for channels of communication and their patterns of use would be valuable, especially if this investigation were to be conducted on a broad scale, allowing a large number of factors and alternatives to be examined.
4. Action research whereby some of the insights from the VCoE concept could be implemented would provide a powerful test of this concept. Although such research would be, necessarily, limited in scope, it would give direct and useful feedback that would help refine this concept.

Further research will test the viability of the VCoE concept and lead to its conceptual refinement, identifying those contexts in which it is most appropriate and useful.

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