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Looking for a C-change: Factors contributing to regional development and change

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Abstract:

In line with global economic innovation trends, regional development literature and policy documents reflect the importance of network connectivity and clustering; collaborative learning; cooperative relationships through the coordination of complementarities; and community building. Another central concept that permeates and underpins today's economic development is change. Technological change, constantly expanding knowledge, globalisation, new markets, political pressures, customer preferences, social expectations, and changing beliefs and values typify the nature of our techno-economic climate and combine with other aspects of the environment to cause the turbulence faced by regions and communities.

In a fast changing economy where marketplace opportunities present themselves in rapid succession, institutions, networks and regions are encouraged to be open to change to stay fluid in their innovation and strategic planning processes, whereby the focus has shifted from either a "hard" or "soft" philosophy to an integrated change theory, whereby internal and external value is achieved through lifelong and reflexive (Mode 2) learning. Thus learning and change are closely intertwined. For individuals, learning is an issue of engaging in and contributing to one's established networks and communities of practice. For communities, learning involves redefining their practices and ensuring new generation of knowledge and community involvement. Categorised sequentially, lifelong and reflexive learning include an analysis of the changing environment in terms of adequacy of the system in place; the development of a strategy to fit the changed environment; the implementation of a new structure to accommodate the change; and the strategic reflection and openness to remain flexible towards future change.

In a recent regional small business network study, change was linked to the aforementioned recurring literature and policy themes in regional development, namely (2) connectivity, (3) clustering**,** (4) communication, (5) collaboration (social and governance capital), (6) community, and (7) cooperation (economic and institutional capital) and adopted as the framework ('the 7C framework') to aid the analysis of perceived, barriers, drivers, and pathways for regional ICT innovation and change. C-factors were explored in terms of the role each factor played; whether certain C-factors were more important than others for regional ICT development; and whether all C-factors were indeed necessary to achieve ICT-based change.

In administering the 7C framework, it became apparent that each C-factor was an important element on the road to ICT adoption and e-business related change. None of the considered C-factors could be singled out as being *the* pivotal factor that might have led to change. Instead, the study analysis suggested that change was dependent on the interaction of all C-factors, or that the C-factors were interdependent. While all C-factors turned out to be significant, some turned out to be more important than others. For example, some C-factors seemed to perform an enabling role, while others were indeed critical for change to occur.

This paper will discuss the role of the aforementioned C-factors and introduce two new C-factors that came to the fore during the study analysis, namely commitment and convergence. The latter factors were added to the 7C-framework to form a new 9C-model as a de facto model for regional network development and ICT change. It is proposed that the 9C-model contributes to a greater understanding of the factors that drive and enable ICT adoption and economic development and can serve as a holistic support structure for community building, learning and change.

Introduction

With the rise of globalisation, technological innovation and the diffusion of information via the Internet, countries, regions, institutions, companies and communities everywhere are all scrambling to reinvent their existence in the 'Internet economy', alternatively referred to in the literature as the 'digital economy', the 'learning economy', the 'knowledge economy', and the 'new economy' (Beer & Nohria, 2000; Hudson, 1999; Lundvall & Johnson, 1994; Rayport & Jaworski, 2001; Tapscott, 1996). Proponents of the new economy view today's economy as being enabled and driven by globalisation and computerisation, which in turn enable world markets and the formation of new enterprise models (Stiroh, 1999).

The notion that the information age had led to a new, networked economy and increased returns has received considerable attention, although not everyone agrees that we have a new economy. American economist Milton Friedman (2001), for example, argues that advances in productivity have been ongoing since 1760, the beginning of the industrial revolution. Thus, according to Friedman, there is no technology-driven new economy at all, but rather a two-century old economy for which new valuations systems have been developed (Ullmann, 2001). Porter (2001) is also of the mind that the new economy is an old economy that has access to new technologies (Porter, 2001). Few seem to disagree with the notion that the advent of information and communication technologies (ICT) has brought about a global economy with economic agents now being able to operate in global networks of interaction (Castells, 2000). What may, however, be different in this so-called new economy is the "extreme rate of change in certain areas related to the production and use of ICT and the breadth of the impact across regions as well as social groups" (Lundvall & Archibugi, 2001, 3). In fact, much of the 'new growth' literature focuses on unprecedented, non-traditional forms of capital growth such as information, knowledge and research as the true forces of the new economy paradigm (Bartlett & Ghoshal, 2000; Cooke & Morgan, 1998; Evans & Wurster, 2000).

The growing influence of new communication technologies as the critical factor in shaping modernity and the distribution of economic advantage is relevant to regional development in that the diffusion of ICT and the Internet directly impacts interactions between local and global forces. Giddens (1990) conceives globalisation as the stretching process between local involvement and interaction across distance whereby the "local transformation is as much part of globalisation as the lateral extension of social connections across time and space" (Giddens, 1990, 64). Applying his so-called 'glocalisation' framework, Robertson (1995) places spatial issues on an equal footing with temporal ones by examining local and global forces in a concrete locality (Robertson, 1995). In Castells' notion of a 'regionalized, global economy' government intervention, regional (government) structures and networks play a significant role in the positioning of a region in the global economy (Castells, 2000, 102).

It has been argued that connectivity has boosted conventional reasons for interfirm networking and clustering, e.g., creating critical mass, as it facilitates the knowledge-based infrastructure network imperative for today's competitive advantage (Porter, 1998). The new technology-enabled landscape is said to provide the capacity for firms to cluster virtually and collaborate with former competitors and potentially achieve "competitive co-evolution, enhanced by digital platform features" (Ordanini & Pol, 2001, 282).

Inspired by the prosperity of regions such as the 'Third Italy', which is characterised by strong local small and medium sized enterprise (SME) clustering and economic interdependencies, policy makers in different parts of the world have been seeking to duplicate successful clustering experiences to unlock the wealth of their own regions (Asheim, 2001). The Australia government has shown renewed interest in, and support for industry clustering, although the philosophical debate whether clustering should be government- or industry-led varies from State to State. The State of Victoria, for example, has opted for an industry-based cluster policy that focuses on attracting major national and foreign companies into the State (Enright & Roberts, 2001). There are some recent reports on successful collaboration in the agricultural sector (Insights, June 2002). In the Birchip Cropping Group, a farmer driven agricultural research cluster, value is created through social cohesion, the exchange of information, farmer learning and, perhaps above all, a shared vision, drive and passion (Lowe & Berrisford, 2002). Other positive cluster accounts come from the tourism industry. Natural resources have long provided small tourism firms with a clustering incentive around geographic icons such as a natural health spa or a national park. Natural assets in Far North Queensland, home of The Great Barrier Reef, have driven the Queensland tourism industry to concentrate on certain locations, demonstrating that the tourism industry has the potential to achieve positive economic outcomes through clustering (Roberts, 2000). On the virtual tourism cluster front, a collaborative e-commerce gateway was successfully adopted as an additional destination sales channel and supply chain booking service in Daylesford, Victoria (Multimedia Victoria, 2002).

In some cases clustering may not be beneficial and in a dynamic economic environment clusters need to be open to constant innovation and change. As Sull

(2001) has demonstrated, when cluster participants fail to adapt to competitive changes and portray innovation inertia, it can lead to the demise of the cluster (Sull, 2001). European politicians have also sought to address the tension between competitiveness and cohesion within regions by using spatial policy initiatives, including novel trans-sectoral and proactive approaches to create bridges between firms, and between institutions and industry (The European Spatial Development Perspective, 1999). Recognising that economic growth is accomplished by designing regional-level intervention -- that allows actors within regions to shape their own development prospects and stimulate learning -- such spatial policy initiatives also include the decentralisation of power through multi-level governance; and the building of epistemic communities based on embedded competencies and social structures (Henderson & Morgan, 2001; Maskell & Malmberg, 1999).

It is believed that, like firms, regions can reduce uncertainty, foster innovative milieux, and augment creative capacity for firms by way of information and knowledge diffusion throughout the local network (Amin, 1999; Cooke & Morgan, 1998; Marceau & Dodgson, 1998). As a result, regional development theory has undergone a paradigm shift from an exogenous intervention focus to an endogenous, relational network one (DOTARS, 2003; Storper, 1997). Regions are being turned into so-called learning regions, in which socially a variety of regional agents and institutions are intended to take part in interactive learning cycles (Amin & Thrift, 1995; Lundvall & Johnson, 1994). Functioning as collectors and repositories of knowledge, learning regions are believed to be important sources of innovation and economic growth (Florida, 2002). By formulating networks and entering into interactive learning processes, it is believed that regions can create competitive advantage (Florida, 1995; Henderson, 2000; Morgan, 1997), with network cohesion, common culture, commitment and trust among network stakeholders being identified in the literature as key features to facilitate collaboration for mutual understanding and benefit (Håkansson & Snehota, 1995; Putnam, 2000). Thus, it is argued, collaborative and associative forms of governance can enhance the economic competitiveness of regions and that collaboration between firms, governance bodies and learning institutions can play an enabling role in regional and local capacity building (Leibovitz, 2003).

Despite this popularly adopted regional development agenda by academics and international policy makers (APEC, 2001; OECD, 1999), there are limitations to consider vis-à-vis the dependency on learning for regional innovation (MacKinnon, Cumbers, & Chapman, 2002). As Freeman (1994) has pointed out, those (nations) that are adept at matching institutional innovation with the emerging techno-economic paradigm are likely to forge ahead; those that suffer from institutional ‘drag’ or inertia may fall behind. Labelled as a ‘sympathetic critique’ of the learning economy in general and learning regions in particular, Hudson (1999) argues that capitalist societies have always used learning and best practice as part of innovation and that the contemporary focus on knowledge sharing and learning is simply “a new twist on an old theme that ‘knowledge is power’” (Hudson, 1999, 59). Be that as it may, in our connected society there appears to be unprecedented emphasis on learning and the creation, distribution and exchange of information and knowledge (Asheim, 2001). With the advent of connectivity, optimisation of information, knowledge and transaction flows; community building and learning have been added as prime drivers

of value creation (Dyer & Nobeoka, 2000; Gulati, Nohria, & Zaheer, 2000; Shapiro & Varian, 1999).

Knowledge creation and learning has traditionally been the domain of universities and learning institutions and collaboration between universities and practitioners is, in some ways, a relatively new and intricate process, for which new practices need to be developed. There appears to be growing consent that the way forward for academia is to change the forms of knowledge creation rather than to find appropriate theoretical frameworks (Toulmin & Gustavsen, 1996). Gibbons et al (1994) refer to knowledge creation in a conventional university setting as Mode 1 knowledge creation, whereby new knowledge generation is predominantly pursued in a closed network of peers. Mode 2 knowledge production, to the contrary, is a collaborative production of (often more practically relevant) new knowledge, co-created by academics and practitioners in the field (Gibbons et al., 1994). While both modes continue to exist, today's economy requires accelerated knowledge production and Mode 1 knowledge production is perceived by some as too slow and too inward looking (Groen & Van der Sijde, 2002). When researchers support interactive development processes and organisational linkages, powerful and efficient collective learning results can ensue (Gustavsen, 1998).

Change and the 7C Framework

In examining new economy literature themes, network connectivity and clustering; collaborative learning; cooperative relationships through the coordination of complementarities; and community building clearly come to the fore as key drivers. While the ability to connect and communicate with others in both the physical and virtual world is considered pivotal, the central concept that permeates and underpins today's business models and appears to typify the nature and success of our techno-economy is change.

Change has no particular arrival point and is driven by a number of factors, e.g., new technologies, new markets, political pressures, customer preferences and social expectations. No one is exempt from change. Like the change of seasons, every person undergoes lifecycle changes throughout their lifetime (Clarke, 1994). Change can occur involuntarily or it can be induced through learning.

As discussed above, companies, networks and regions are encouraged to be open to change to stay fluid in their innovation and strategic planning processes (Earl, 2000; Senge et al., 1999). Until recently, corporate change was predominantly based on either increasing economic value for shareholders or on developing "an open, trusting corporate culture" (Beer & Nohria, 2000, 133). However, in a fast changing economy where marketplace opportunities present themselves in rapid succession, the focus has shifted from either a 'hard' or 'soft' philosophy to an integrated change theory. In order to compete in the networked economy, it is argued that companies across the board must be prepared to strive for internal and external value through lifelong learning (Senge, 1992). Thus learning and change are closely intertwined.

Learning can take place for a number of different reasons and in a number of different ways. For individuals, learning is an issue of engaging in and contributing to one's established networks and communities of practice. For communities, learning

involves redefining their practices and ensuring new generation of knowledge and community involvement. For an organisation, learning is sustaining its communities of practice to "know what it knows" and thus becoming "effective and valuable as an organisation" (Wenger, 1998, 8). Categorised sequentially, organisational lifelong learning cycles include an analysis of the changing environment in terms of adequacy of the system in place; the development of a strategy to fit the changed environment; the implementation of a new structure to accommodate the change; and the strategic reflection and openness to remain flexible towards future change (Clarke, 1994). Network learning has been discussed above in terms of Mode 2 network development, with change being contingent on the network structure, cohesiveness of and commitment to learning by network actors (Chisholm, 1998; Gustavsen, 1998).

There has been ample discussion in the literature on connectivity, clustering, collaboration, communication, cooperation, community building and change (referred to here as C-factors or, combined, as the 7Cs) being pivotal building blocks of the new economy and regional development models. To the contrary, there has been relatively little discussion and empirical evidence on the successful combination and implementation of each or all of these factors; the actual interest in or need for change on the part of regional stakeholders; or the processes of change that characterise new economy regional development, especially when linked to connectivity and the incorporation of new technologies for economic development and global positioning purposes. Tracking the change and learning processes in a regional small business network in the process of adoption ICT and e-commerce made it possible to take a hands-on look at some of these purported regional development drivers.

The Study

The research evolved out of a portal development consultancy with the Grampians Campaign Committee, which is responsible for marketing the Grampians Product Region of Western Victoria. The consultancy brief was to help design a portal model that would give the region a prominent and competitive web presence and support the economic marketing and transaction efficiency needs of its regional small business network. Tourism network formation in the form of cooperative tourism marketing is encouraged by Tourism Victoria as part of its strategic direction to attain competitive advantage for all its Product Regions through regional cooperation (Tourism Victoria, 2002). The geographically vast Grampians product region embraces some 900 small and micro tourism businesses, seven major townships, numerous villages and seven local government shires (Ritchie, 2001). The Grampians Campaign Committee, made up of volunteer representatives from local industry and local government, is responsible for marketing the region and maintaining communications with its industry stakeholders.

In exploring the nexus between new technology adoption and change a collaborative action research methodology was suggested to and endorsed by the Committee. Action research is an intervention process that is collaborative in nature, as it aims to work *with* stakeholders rather then *on* them. Generally, an action research intervention consists of cycles of action and reflection (Mode 2 learning). Apart from its cyclical approach and practicality, AR is generally appropriate when a project relates to an unfolding series of actions over time and has a learning and change focus (Coughlan & Coghlan, 2002). A critical inquiry action research process (for a detailed

description of which see Braun, 2002) was applied to track ICT-related network change. To provide a framework for the study and help untangle the effects of the embedded network structure on regional ICT innovation, the action research outcomes were placed within the aforementioned 7C framework for analysis of the study. Study results pertaining to the C-factors are highlighted below.

Study Results

Connectivity is most often measured by volume, e.g., how many people are connected to the Internet, and revenue generation, e.g., the extent to which connected users transact online. This study's focus was on whether connectivity had changed network processes in terms of ICT-based interaction and transaction. The study found that embracing ICT-based change is a complex and evolutionary process that requires the negotiation of a journey that involves continuous learning and adaptation. While email had become the standard communication method for internal network business, it had not yet ubiquitously been adopted as the external mode of communication with industry actors across the region. Anecdotal evidence further indicates that to date most small firms within the network have yet to understand the relevance of e-commerce to their business. Regional network members did not appear to be au fait with what venturing into advanced ICT uptake entailed or that such a move could have economic implications for the region.

Given the state of connectivity, virtual clustering was regarded as an interesting but far-fetched idea. Small business operators were still too new to the virtual world to understand the relevance of clustering for their own business, let alone as a crucial economic strategy for their product region. Communication strategies or incentives to create industry awareness of clustering were not part of the product region's strategic planning or thinking process. The Grampians reluctance to cluster may further be attributed to its vast geographic boundaries, resulting in cohesiveness being acutely absent in the network. As a result, aggregation of complementarities or any other potential value added that might have been established along the regional value chain remained unrecognised and untapped.

Lack of access to information and non-coordination of information flows appeared to be systemic in nature across the network. Network communication was synonymous with marketing; and tended to be a unilateral rather than an interactive and iterative process. Embedded points of power, the preservation of poor communication channels in the region, possibly compounded by digital illiteracy, lack of resources, and a lack of understanding of the potential of communication and networking for regional competitive advantage, obstructed and politicised the change process.

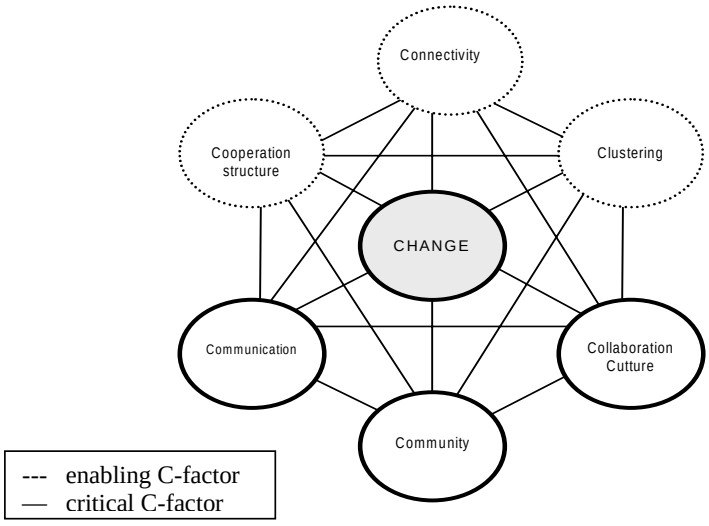
Strongly collaborative network structures tended to be parochial and competitive-inclusive within a particular Grampians destination, such as Halls Gap, based on an embedded local policy to keep visitors within the local destination. A lack of network cohesion, common culture, commitment and trust among stakeholders, identified in the literature as key features to facilitate collaboration for mutual understanding and benefit, prevented meaningful collaboration from taking place in the region. Perhaps even more conspicuous was the finding that policy rhetoric notwithstanding no one was resourced or responsible for implementing collaborative practices. Without providing the necessary infrastructure, the state body devolved the responsibility of engaging regional stakeholders to Committee members who, in their volunteer status,

bore no responsibility to collaborate either with operators, each other, across shires or, for that matter, with the consultant during the action research intervention.

In observing the myriad disconnected networks within the region, it became apparent that the cultural norm in the product region was one of divergence and competition. With sub-regions, individual destinations and micro-businesses all behaving in an atomistic and competitive fashion, a unified regional community structure was inevitably absent and there was there no discernible collective regional voice. The portal, which could have constituted a significant step forward towards augmenting weak regional ties and virtual and strategic regional community building, lacked community ownership through which trust relationships within the product region might have been reconstructed.

In the course of the analysis it became clear that resistance to change was a central issue in the region. The introduction of ICT tools did not automatically lead to increased network functionalities such as communication, community building, collaboration, clustering and cooperation. Despite policy calls for increased collaboration and networking, regional stakeholders appeared oblivious that retaining their parochial and disconnected networks might, long-term, impact on the product region's global visibility and strategic leverage. Without an understanding of, commitment to, accountability for, and holistic support structures to facilitate change, the region was unable to ascend political rhetoric and embrace economic innovation.

In administering the 7C framework, it became apparent that each C-factor was an important element on the road to change. None of the considered C-factors could be singled out as being *the* pivotal factor that might have led to change. Instead, the analysis suggests that change was dependent on the interaction of all C-factors, or that the C-factors were interdependent. While all C-factors turned out to be significant, some turned out to be more important than others. For example, some C-factors seemed to perform an enabling role, while others were indeed critical for change to occur.



Interdependent C-Factors

Figure 1

Figure 1 illustrates the interdependency of the C-factors and their respective roles. Connectivity, clustering and cooperation, represented in dotted circles, can be classified as enabling C-factors. While connectivity does enable e-commerce, it is a technological platform that extends the region's marketing channels, and, as such, cannot be considered a critical factor for change. Similarly, clustering and cooperation can both be classified as enabling constructs, as each facilitates critical mass but neither can be considered critical in the change process. Communication, a collaborative culture and a cohesive community, represented in solid circles, on the other hand, were deemed critical factors that underpinned change. In addition, without the commitment to change; and without social, economic and technological convergence to bring together the divergent social systems and alter the competitive and atomistic domain culture, change could not occur.

Towards A C-change

To achieve change, if indeed change is the desired objective for regions, it is argued that a shift in both critical and enabling C-factors will need to occur, although the magnitude of change will be influenced by the critical C-factors that underpin change, such as communication flows, a collaborative culture and a cohesive community. In terms of the latter, two new C-factors have come to the fore during the study analysis, namely the need for commitment and convergence. These new, and indeed critical C-factors were added to the 7C-framework, as they were deemed essential for a holistic C-change to take place.

Without the commitment to change; and without social, economic and technological convergence to bring together the divergent social systems and alter the competitive and atomistic domain culture, change cannot occur. Convergence is defined in the broadest possible terms to include social, economic and technological concepts. Social convergence is sustained by commitment to augment social network capital. As Putnam (2000) has argued, social capital is the store of trust, goodwill and cooperation in our communities. Nonaka and Konno (1998) have also pointed to socialisation as the foundation of knowledge creation and trust. Trust in turn can lead to a commitment to collective learning and knowledge exchange, enabling both economic and technological convergence. Economic convergence requires commitment to eliminate a competitive-exclusive culture and a move towards a mindset that combines competition and co-operation—along the lines of what Brandenburger and Nalebuff (1996) refer to as co-opetition—allowing sub-regional communities to uncover their value chains and become complementors in creating the regional market. Economic convergence enables clustering and cooperative e-business structures, while connectivity is enabled by technological convergence. The latter hinges on commitment to integrate regional (online) activities, as well as commitment to coordinate and support standards and adoption processes.

The C-factors were not initially expected to play a role beyond their use as a loose framework for study analysis purposes. However, through the emergent process of analysis it became apparent that change occurs through the interaction of the C-factors. By adding commitment and convergence to the original C-factors, as illustrated in Figure 2, it is suggested that the new 9C-model enhances our

understanding of the factors that drive and enable regional economic development, community building, learning and change, and that the framework could serve as a de facto change model for regional network development.

The change process is an iterative and dynamic one, with neither knowledge production nor action undertaken for its own sake; rather, knowledge is created through action (Gaventaa & Cornwall, 2001). However, as Senge and Scharmer (2001) have observed with their community action research work in the American context, and " 'self-organizing' cannot always be left to itself" (Senge, 2001 #485, 245). Appropriate infrastructures that support inter-organisational learning and collaborative work are necessary. In the words of social scientist Eva Cox (1995), one of the diseases of our present communities is that there seems to be a constant trade-off between time and money. Building connected communities, and supporting the modern drivers of change, requires social learning and institutional reflexivity, which cannot be accomplished in a voluntary system that markets policy sans engagement. It requires the design of structures that are capable of and supported in Mode 2 learning. The latter may well be a case of "déjà vu" or "plus ça change". In discussing the challenges of change, Dunphy (1972) made a similar case for commitment of resources and support to take responsibility for and create confidence in change.

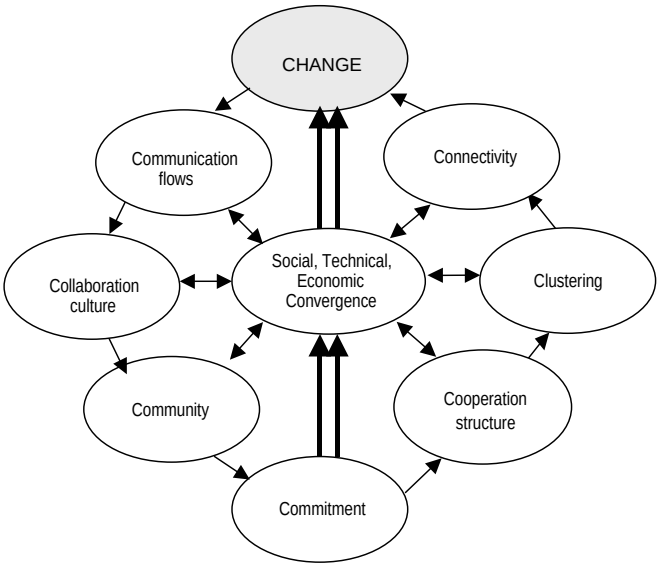


Figure 2
C-Change Model

In reviewing the role of each C-factor, it is suggested that commitment (engagement and resources) underpins all other actions; without commitment change cannot occur. It is further argued that the C-factors reinforce one another; and that there are cumulative and reciprocal linkages between the C-factors, resulting in a cyclical spiral model as depicted in Figure 2. All C-factors are subject to interaction and continuity—continuous renewal through action and reflection—to ensure a fluid learning culture and constant change.

Cyclical models have been used to describe organisational relationships between efficacy and performance (see Perry-Smith & Shalley, 2002). Of course cyclical models lie at the heart of action research (Coghlan, 2002; Reason & Bradbury, 2001) and the proposed framework hence supports the fusion between regional development models and action research methodologies.

In using the proposed model in conjunction with action-oriented methodologies, it is further suggested that a new sociology of knowledge is needed for the Australian culture to shift from an economic focus to a learning focus, whereby spatial differentiation perspectives and the relational underpinnings that affect network formation and information flows are taken into consideration. In accepting knowledge as the basis of policy and praxis, both the public and private sector require new skill sets, whereby public servants, academics and industry collaboratively seek informed, engaged and actionable policy paths and outcomes. With Australian university charters reflecting an increased commitment to regional collaboration, it is now possible for regional learning institutions to progress the relationship between regional development, learning and capacity building processes. Such constructs may be particularly useful in regional Australian contexts where there is not a strong tradition of learning for learning's sake and where actionable knowledge creation needs to translate into concrete and practical benefits.

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