

Martinez, Cristina

Conference Paper

Managing strategic change at the regional level: Regional networks of economic development and industry clusters

38th Congress of the European Regional Science Association: "Europe Quo Vadis? - Regional Questions at the Turn of the Century", 28 August - 1 September 1998, Vienna, Austria

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Martinez, Cristina (1998) : Managing strategic change at the regional level: Regional networks of economic development and industry clusters, 38th Congress of the European Regional Science Association: "Europe Quo Vadis? - Regional Questions at the Turn of the Century", 28 August - 1 September 1998, Vienna, Austria, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/113545>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

38th Congress of the European Regional Science Association

**MANAGING CHANGE AT THE REGIONAL LEVEL: REGIONAL NETWORKS
OF ECONOMIC DEVELOPMENT AND INDUSTRY CLUSTERS**

M. Cristina Martinez-Fernandez

Faculty of the Built Environment, University of New South Wales
Sydney 2052 NSW Australia. Fax number: +61 2 9385 6374

Email: c.martinez@unsw.edu.au

Abstract

While the city and metropolitan regions grow in importance to politicians and developers, many regions lack strategies for changing trends towards unemployment, low business vitality and migration of youth. This paper will discuss the emergence of regional networks as a response to the problems experienced by regions undergoing processes of economic restructuring. Of the different kinds of networks that can be found at the regional level, industry "clusters" and "regional networks of economic development" (RENEDs) provide the most innovative effects in promoting and managing changes in regional development.

Industry clusters flourish in developed countries, as a serious industrial strategy for promoting sector growth and improving the competitiveness of local products and services at the international level. The characteristics of clusters clearly differentiate them from production networks, being a more flexible and progressive structure, taking better advantage of all resources available on the region. Regional networks of economic development involve a holistic combination of organisations from public and private sectors as well as non-profit organisations, all working in tandem on projects of regional development. This approach is based on collaborating and unifying goals and resources, and developing projects such as the promotion of industry clusters. This paper will present examples of regional networks from Australia and Spain which demonstrate innovative strategies for managing change in their regions.

Introduction

Regions around the world are producing innovative solutions for reducing the ill effects of economic restructuring. In a world where the metropolitan region is growing in importance as alternative pole to the city in economic development, region still tend to lack resources (both public and private) and motivation for producing strategies to redirect their development. Also too common is an acceptance of the region as the loser when pitted against the metropolitans. A "laissez faire" environment is inadequate for introducing strategies to stop unemployment, declines of business activity and the migration of youth to the cities. The time is ripe for the emergence of innovative regions which develop strategic organisations to address their economic decline. This paper will discuss two types of regional networks as strategic organisations with the goal of changing the direction of the economic performance of the region. First will be presented a review of networks at the regional level. Secondly, industry clusters will be discussed. Third, regional networks of economic development (RENEDs) will be analysed. Examples from Australia and Spain will be presented to show the emergence of these organisations in different social and political environments.

This paper is based in the approach of networks as an economic development tool. Networks are organisational forms that evolve from hierarchical vertical structures as a flexible response to change and uncertainty in the global economy. Some of the components underlying the emergence of networks are: changes towards more flexible production; the global impacts of economic decisions; information and communication technology as a driving economic force; and a growing awareness of the need to unify resources to compete at the international level. While there have always been alliances at many levels of society, the degree of sophistication and the management tools being developed today are unprecedented. Some authors describe networks as "the 21st century organisation" (Snow, 1992, Chilshom, 1996).

Networks at the Regional Level

A literature review of regional development shows evidence of the increasing importance of the "network paradigm" (Cooke & Morgan 1993). The network paradigm is a new trend in corporate and regional development which refers to the practice of networking between agencies and organizations as an aspect of economic restructuring in some regions. Such regions are engaged in a productive learning and adaptation process based on intraorganisational and interorganisational networking. Regional networks reflect changes that are taking place in our society including the ways communities participate in their development (Castells 1996, Granovetter 1985).

For the purpose of this paper three types of networks are considered as central to the economic development of regions: production networks, clusters, and regional networks of economic development. This typology of networks offers different characteristics, from those with very well defined boundaries to those with very diffuse and open boundaries.

Jay (1964) defines "networks" as all the organisational or social units connected by a specific type of relationship. Powell (1990:295) defines networks as forms of organisation typified by reciprocal patterns of communication and exchange, and contrasted with market and hierarchical governance structures. Yeung (1994) identifies a spectrum of networks which link markets and hierarchies: licensing, franchising, alliances, co-operative agreements, joint ventures, subcontracting, family businesses and conglomerates. These are all business or production networks with the common objective of making profit. Such production networks are the kind most often studied, especially in economics and management.

Clusters present a more complex structure with less defined boundaries. "Clusters" are local networks that consistently cross organisational and inter-sectoral boundaries, including not only firms but also sometimes government agencies and community associations. They are thought to be thus influencing new forms of regional governance,

reshaping the way that firms and governments have interacted until now. Clusters are discussed extensively by Porter (1990) in his proposed new paradigm for company competitiveness and global strategies. Porter draws three critical lessons about national and local conditions which suggest the possibility of cluster formation:

First, what makes nations, states, and cities prosperous and companies competitive is a relentless focus on innovation and upgrading. Second, competitiveness depends on creating and sustaining specialized and unique local advantages. And third, the public and private sectors must work separately and in tandem to encourage clusters to form, grow and diversify. (Porter 1990: 26)

As Porter points out, clusters should be encouraged by the public and private sector working in tandem. This is the foundation of regional networks of economic development. It is in this understanding that Chisholm (1996) sees networks as the organisational form of the 21st century, especially at the regional level. In regional economic restructuring, the problems faced are very complex: unemployment, lack of enterprise, economic decline, migration and depopulation, low level of educational skills and lack of investment. Complex networks are required to deal with such complex and interrelated problems. These networks could require the involvement of organisations from each level of the government (local, state, federal) and from different sectors (public, private, labor, and education) for progress toward a common set of goals (Chisholm 1996: 217).

In an earlier paper I defined "Regional Networks of Economic Development" (RENEDs) as pro-competitive strategic alliances between private sector, public sector and non-profit organisations with an interest in the economic development of regions. What is characteristic of RENEDs is that they act like non-profit organisations, and that they work for the common interest of regional development. This is a key point that differentiates RENEDs from production networks or clusters (Martinez, 1997). Another key point is that they can function without formal boundaries or fixed structures, encouraging inter-organisational alliances and extremely flexible relationships.

Even though the list is not exhaustive, for the purpose of this paper, networks at the regional level can be subdivided into production networks, clusters, and RENEDs. Production networks are the most mature and historically the oldest type of network organisations. Clusters and RENEDs are more sophisticated types of network organisations emerging from flexible production and the impact of globalisation of the economy and information technology.

Table 1 summarises characteristics associated with these different types of networks. The three categories are exclusive. A production network cannot be considered a RENED or a cluster or vice versa. For example, McDonalds, Benetton or Pizza Hut, are production networks falling into the category of franchising. They cannot be considered clusters or RENEDs because they have differentiated organisational characteristics and objectives, different topological structures, and their emergence and evolution present different features. On the other hand, RENEDs and clusters share many characteristics, because clusters can be a consequence of the emergence of the RENED in the region. A region could simultaneously develop a RENED, several clusters and several forms of production networks. What is not possible is for a region to present more than a RENED, due to the holistic definition of RENED characteristics. It can be argued that RENEDs are impacting on the emergence and development of industry clusters. The examples of industry clusters from the literature show a strong dependence on the existence of a regional network (Doeringer and Terkla 1995; Saxenian 1990, Sabety & Griffin 1996).

Table 1: Networks subdivision at the regional level

Characteristics	NETWORKS		
	Production	Clusters	RENEDs
<u>Organisational characteristics</u>			
(a) non-profit organisations	--	--	X
(b) defined goals	X	X	X
(c) defined schedule	X	X	X
(d) share resources	Some	Some	X
(e) success depends on broad representation of the region	--	--	X
(f) voluntary membership	--	X	X
(g) contractual relationships	X	--	--
(h) formal defined boundaries	X	--	--
<u>Topological structure</u>			
(i) evolving topology	X	X	X
(j) core management structure: share leadership between 2 or more members	--	X	X
(k) horizontal structure	--	X	X
(l) inter-links of members around projects	X	X	X
(m) non - hierarchical relationships	--	X	X
<u>Emergence and evolution</u>			
(n) impact from regional spatial competition and global markets regulation	X	X	X
(o) impact from political responses to economic restructuring	--	X	X
(p) impact from innovation management in corporate structures	X	X	X
(q) impact from “civic entrepreneurs”	--	X	X
(r) impact from emergence of “collaborative economics”	--	X	X
(s) impact from information and communication technologies	X	X	X
(t) impact from political responses impacting on urban and regional policy	--	X	X
(u) unique in the region	--	--	X

Table 1: Networks subdivision at the regional level (Continue)

Characteristics	NETWORKS		
	Production	Clusters	RENEDs
<u>Objectives</u>			
(v) make profit	X	X	--
(w) develop knowledge	--	X	X
(x) find partners	X	X	X
(y) seek alliances	X	X	X
(z) create jobs	--	X	X
(aa) generate new enterprises	--	--	X
(bb) make business more competitive	X	X	X
(cc) foster economic grow in the region	--	X	X
(dd) foster quality of life for the region	--	--	X

Organisations forming part of a RENED tend to be concerned with the community, not only with the economic development of the region, but also with the future quality of life. For example, a production network of mining companies could be interested in continuing the exploitation of a coal resource in a region for the next 25 years. It is understood to bring more jobs and investments to the region, and so contribute to the economic development of the region. A mining cluster could be interested in the full development of opportunities from the coal mine, leading to the development of links with small local supplier companies and other inter-related activities, such as manufacturing, assembling, and human resources. In exploring the RENED members' interests, an alternative project for the same area could be proposed. For instance an information and education centre about the coal history of the region. This would link in to a different range of businesses in the region, more to do with tourism, education and environment. This example suggests that there are more long-term planning perspectives in RENEDs than in production networks.

Industry Clusters

A cluster may be understood to be an informal association of firms, which are usually in geographical proximity, and which pursue deliberate practices of collaboration and innovation in order to heighten their competitive edge in regional, national and international markets.

The emergence of a flexible post-fordist mode of production implies important changes in the production systems that are reshaping the structural organisation of classical hierarchies such as the factories of fordist era (Yeung, 1994). It is in this emerging environment where the globalisation-localisation discussion takes place. At the micro level, local industry networks have attracted a significant amount of research in different disciplines, and they are usually referred to as “clusters”.

Asheim (1996) also links “clusters” with a discussion of the globalisation of the economy, particularly in the context of firms' organisational microregulation within a framework of “learning regions”. In his analysis, firms respond to the process of globalisation and deregulation through global or local networks that constitute a third form of governance as an alternative to markets.

The potential value of industry clusters in contemporary economic development lies in their articulation of strategies for fostering improvement in the areas of knowledge, technology and innovation. Industry clusters are much more than connecting buyers with suppliers or growth centres. They are about regional representation and competitiveness on the global market (Held 1996).

Recently, Brown (1996) and Murphy et al. (1997) have argued discuss that there is nothing new in clusters, that they have been present in different forms for a long time. While this is accurate in some senses, many factors impacting on cluster dynamics are a consequence of new environments and conditions, such that concepts such as the "growth centres” of past decades are being reshaped.

Perhaps the key characteristic of a cluster is its competitiveness. Achieving long term financial viability may be no longer simply an individual task for individual firms competing to get the best position on the market. Competition and collaboration are now increasingly necessary in the difficult task of taking advantage of new information technologies and knowledge. Globalisation of the economy is leading to a new regional order (Scott 1996), where regions must be represented in external markets. Success stories of industry clusters represent a method of industrial organisation with precise and replicable rules and dynamics. The opportunity to reproduce such models in other regional scenarios is an issue that has not yet fully explored. However, it could be an effective tool for sustained development and growth, a goal that benefits everyone in the region, generating synergies in all levels of society. Examples in the recent literature (Fulton, 1997; Arthur, 1990; Porter, 1990; Williams, 1997) show successful clusters in North America, Italy, New Zealand and England. There seems to be agreement that clusters are relevant to sectoral business growth, and now attention is being focused on how they can be more successfully implemented (Martinez, 1998).

A report on local cluster strategies in Adelaide sheds some light on success factors in cluster development (O'Neill, 1996). The work presented in the report on "The Cluster-Based Economic Development Project in Adelaide" outlines steps for the identification and initial development of an industry cluster. Clusters link to new regional organisations of industry, but intersect with the concept of "Collaborative Economics" (Henton et al., 1997) where the community is more participative in the strategies that lead to industry growth.

Clusters already provide a framework for local economic development and local export growth. They strengthen the ability of firms to compete and to attract new business (Martinez, 1997). It is a useful way to extend the region's strengths around core firms. In addition, clustering brings flexibility to the organisations involved, creating an environment enabling faster responses to the demands of the market. The success of business networks can be linked to dynamic technological and organisational innovation, together with the network characteristics of the local actors and their "milieu" (Bergman

et al., 1993). The software technology parks in the south of India, Bangalore, Chennai and Hyderabad are an example of information technology clusters functioning as virtual offices, giving support and development to software companies in the US.

The "Hunter Regional Economic Strategy" (HURDO, 1996) identified twenty-three potential clusters in the Hunter Valley of NSW, Australia. A process of regional consultation and workshops recently refocused this figure down to seventeen potential clusters, including: agribusiness, building & construction, mining, arts & entertainment, defence, education & training, engineering and fabrication, environmental goods and services, equine, medical research, information technology, marine, metal product manufacturing, tourism, wine, surfing and transport. The situation is dynamic, with changes still taking place. The identification of these clusters indicates the potential growth poles of the Hunter region, however it can be argued that not all of them would have the same economic effectiveness (Martinez, 1998).

These potential industry clusters are of interest because they are expanding their connections to the whole region, going beyond the boundaries of any one industry sector. The cluster strategy at the Hunter Valley is headed by the Hunter Regional Development Organisation (HURDO) with the support of most of the 25 organisations working and interacting in different projects of economic development in the region. Some of these proto-clusters are already embracing the advantages of networking, making better use of the economic, political and social resources of the region.

Regional Networks of Economic Development (RENEDs)

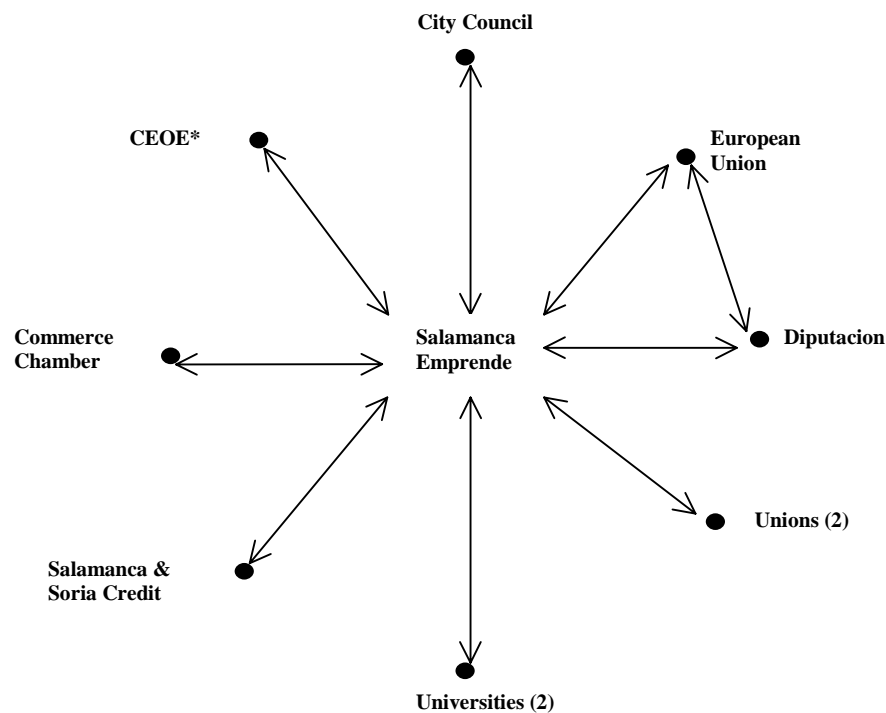
The holistic approach of RENEDs links organisations from the public and private sectors and non-profit organisations which share an interest in the economic development and improved quality of life of the region. RENEDs can have different shapes depending on the articulation and maturity of their collaboration. This section will present a RENED in a mature stage from Spain, and a RENED in formation from Australia. Both RENEDs fit the characteristics of Table 1, but differ in their articulations of collaboration and their definitions of formal boundaries.

The emergence of RENEDs is a contemporary phenomenon that could be located in the framework of a society with proliferation of networks (Castells 1996). Scott (1996) also argues on the macro-level that there is a new configuration in the distribution of the global economy characterised by "pole centres" and "islands of development". Pole centres are localised production agglomerations which form highly developed economic regions. Islands of development are the surrounding regions. Regional organisations can act as catalysts of growth and development in this new economic environment, where the driving force of the economy seems to be not in the hands of national leaders, so much as coming from inside the market. When the focus is applied to local markets, it is possible to find multiple interconnections along network structures between private and public sectors (Chisholm 1997, Hagen 1997). In the examples referred to below it is possible to see this mix of configurations between sectors.

Salamanca Emprende (SE) was a formal and clearly defined RENED in the Salamanca province in Spain. Ten organisations from the public and private sector and non-profit organisations officially formed it in 1993. There were three components that led to the emergence of SE in that specific moment: a crisis component, a leadership component, and accessibility to government grants. First, there was an economic and social crisis. By 1993, Salamanca had a very poor economic performance, with the loss of mining activity hardly replaced by a mixed dependence on primary industries sources such as agriculture, and on economic activity associated with housing university students. The unemployment

rate was one of the highest in Spain (22%) leading to youth migration. Business and especially exports were very weak and connections between the university and industry non-existent. This crisis produced a psychological component of urgency amongst the organisations and entities with an interest on the development of the region. This urgency generated the energy necessary for promoting alternative solutions. There was an awareness of the weakness of individual organisations and the strength of strategic collaboration. The second factor was the existence of regional leaders with strategic vision for the regional development of Salamanca. The third factor was the existence of economic resources from the European Union (EU) to promote networks and linked to projects of economic development. Figure 1 simulates the topology of the SE RENEED, the organisations which formed it and their reciprocal communication ties.

Figure 1: SE network topology



* Business Association

As can be seen from figure 1, SE (as the administrative agency) has the highest level of centrality of the RENED, with reciprocal ties to the rest of organisations. SE, Diputacion (province government) and EU constitute a clique that reflects the fact that they were the core management structure of the RENED. In this example, SE was an organisation formed by the rest of the organisations, with the goal of bringing cohesive and common strategy to the economic development of the province. SE mobilised a large amount of funds in the region and employed 40 local development agents, impacting on the way local government promoted and managed projects of economic development. SE advocated the following changes to the region: (1) promoting small businesses in the global market; (2) strengthening the collaboration between universities and industry; (3) opening an export path to Japan and the US; (4) opening tourist routes in the province; (5) initiating a restructuring process in the textile industry; (6) initiating a project of retail restructuring in small towns; and (7) promoting a local development agency. Today, Salamanca boasts a regional network of organisations, operating well although without a central management structure.

A different example of RENED, in a different level of maturity but sharing similar goals can be found in the Hunter Valley region of New South Wales, Australia. The Hunter Valley is involved in a restructuring process due to the closure of the BHP steelworks. It will lead to thousands of direct and indirect jobless. Here there is up to twenty-five organisations forming the initial part of the RENED. This RENED does not have a formal administrative structure and its boundaries are very flexible. As in the case of Salamanca the organisations come from the private sector, state and federal government, unions and non-profit organisations. The organisations report that collaboration has been increasing since 1990, focusing the efforts to have no overlapping functions but to complement each other. Collaboration is driven by projects of economic development which require articulation by several actors to achieve the set goals within time and financial constraints. The Hunter Valley case is different in that there is no central body to articulate the emergent RENED, but rather key players which sit on several boards of the most active organisations. These key players accumulate a large amount of the "network capital" (contacts among the RENED), and are important to the process of

decision making. It can be argued that even although there is no central body managing the RENED, certain organisations are leading the region's development strategies.

RENEDs focus on getting all the resources of the region organised together with a common set of goals. It includes the articulation of business enterprise interests, but also government regional policies, and the implication of the community through non-profit organisations. RENEDs have a strong focus on strategic planning and its articulation through projects of economic development. The fact that the RENED of Hunter Valley does not have a formal initial structure may be a disadvantage which could lead to poorer performance and effects for the region. This is an issue not fully analysed at the time of writing this paper.

Conclusion

This paper has discussed the emergence of regional networks as organisational strategies oriented towards addressing economic imbalances in regions undergoing suffering economic restructuring. Trends of increasing unemployment and decreasing population are leading these regions into a different position to confront the future. Regional actors are less likely to rely on government assistance than before, and they are making more innovative initiatives to resolve their problems.

Developing regional networks helps create a supporting belt to stimulate business in the global market, and to produce strategies of sustained development. The emergence of industry clusters is also supported and encouraged by the RENED, in promoting a holistic approach to the economy that also includes the whole community.

While more research is needed to determine the economic effects of RENEDs, clusters have already produced good indicators of their worth. This paper has presented clusters as phenomena occurring under the support of RENEDs, and it is argued that clusters function and develop better within a RENED.

Examples of regional networks (clusters and RENEDs) from both hemispheres have drawn attention on the temporal emergence of the phenomena, and their development will provide useful insights on regional economic organisation and strategic governance. Questions arising from this discussion, and that need further research are: Is it worth the support and development of regional networks by government policy programs? Are regional networks of economic development a worthwhile strategy to manage change in regions in economic restructuring? Are regional networks sustainable without government financial support? What are the dynamics linked to success of regional networks?

Acknowledgements

I would like to thank Professor Tong Wu and Professor Peter Murphy from the Faculty of Built Environment at the University of New South Wales for their useful comments and suggestions in the understanding of regional development and the relevance of clusters and networks. I also grateful to Michael Murray from the Hunter Regional Development Organisation (HURDO) for sharing his knowledge and experiences about industry clusters. Thanks also to Bronwyn Hanna of University of New South Wales for help with the editing of the paper.

References

- Arthur, W.B. (1990) Silicon Valley Locational Clusters: when do increasing returns imply monopoly? *Mathematical Social Sciences*, 19: 235-251
- Asheim, B.T. (1996). "Learning Regions" in a globalised world economy: towards a new competitive advantage of industrial districts?, in S. Conti and M. Taylor (eds) *Interdependent and Uneven Development: Global-Local Perspectives*, Avebury
- Bergman, E.M., G. Maier, and F. Todtling Edts. (1993) *Regions Reconsidered. Economic Networks, Innovation and Local Development in Industrialised Countries*. New York: Mansel Publishing Limited.
- Brown, R.F. (1996) *Industry Clusters: a new approach to economic development in regional Australia*. Commonwealth of Australia, occasional paper number 2, December 1996: Canberra
- Castells, M. (1996) *The Rise of The Network Society*. USA: Blackwell Publishers Inc.
- Chisholm, R. (1996) On the Meaning of Networks. *Group & Organization Management*, vol 21 (2): 216-235 Jun
- Chisholm, R. (1997) Building a Network Organisation to Foster Economic Development. *International Journal of Public Administration*, vol 20 (2): 451-477 Feb
- Cooke, P. & K. Morgan (1993) The Network Paradigm: New Departures in Corporate and Regional Development. *Environment and Planning D: Society and Space*, volume 11, pages 543-564
- Doeringer, P.B. & D.G. Terkla (1995) Business Strategy and Cross-Industry Clusters. *Economic Development Quartely*, Vol. 9 (3): 225-237
- Fulton, W. (1997) Making the most of the latest Buzzword. *Governing*, February: 25
- Granovetter, M. (1985) Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, vol 91 (3): 481-510 Nov
- Hagen, g., D.Ck. Killinger and R.B. Streeter (1997) An analysis of Communications Networks Among Tampa Bay Economic Development Organisations. *Connections*, volume 20 (1) summer.
- Henton, D., J. Melville and K. Walesh (1997) *Grassroots Leaders for a New Economy*. Jossey-Bass Publishers: San Francisco

- Held, J.R. (1996) Clusters as an Economic Development Tool: Beyond the Pitfalls. *Economic Development Quarterly* Vol. 10 (13) August
- HURDO (1996) *Hunter Advantage. The Hunter Regional Economic Strategy*. Hunter Regional Economic Organisation: Callagan NSW.
- Jay, B.J. (1964) The concept of “field” and “network” in anthropological research. *Man*, 64:137-139
- Martinez, C. (1997) Regional Networks as a Development Tool: Lessons from Spain and Poland. *37th European Congress of the Regional Science Association*, Conference Proceedings
- Martinez, C. (1998) *Industry Clusters: Competitive Advantage Through Innovation*. HURDO: Industry Cluster Studies, Number 1 July
- Murphy, P.; N. Pfister and C.T. Wu (1997) *Industry Cluster Strategies for Regional Economic Development*. CARED: Southern Cross University
- O'Neill, M. (1996) *Towards an Economic Community for the 21st Century. The Cluster Based Economic Development Project In Adelaide*. Collaborative Economics & MFP Australia
- Porter, M.E. (1990) *The Competitive Advantage of the Nations*. London: Macmillan Press Ltd.
- Powell, W. (1990) Neither Market Nor Hierarchy: Network Forms of Organization. *Research in Organizational Behaviour*, Vol 12:295-336
- Sabety, J. & Griffin, J. (1996) Pro-competitive Alliances: New Vehicles for Regional, State, and Community based Economic Development. *Economic Development Review*, vol 14(2): 2-6 Spring
- Saxenian, A. (1990) Regional Networks and the Resurgence of Silicon Valley. *California Management Review*, vol 32: 89-112
- Scott, A.J. (1996) Regional Motors of the Global Economy. *Futures* 28 (5):391-411
- Snow, C., R. Miles, and Coleman (1992) Managing 21st Century Network Organisations, *Organizational Dynamics* winter 1992: 5-19
- Williams, I.F. (1997) Local Clusters and Local Export Growth. *New Zealand Strategic Management*, summer 97:24-30
- Yeung, W-Ch. H. (1994) Critical Reviews of Geographical Perspectives on Business Organisations and the Organisation of Production: Towards a Network Approach. *Progress in Human Geography*, vol 18 (4): 460-490