

CITIES OF INNOVATION: EXPLORING THE ROLE OF LOCAL COMMUNITY ORGANISATIONS IN ‘CONSTRUCTING ADVANTAGE’

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ABSTRACT Cities and regions around the world are attempting to ‘construct advantage’ by intervening to create knowledge- and innovation-based economic and social development. This paper considers the rationale for such intervention and in particular reviews the concept of ‘community innovation organisations’ by exploring their definition, origins, and purpose. It develops a classification of local innovation actors and their functions. We argue that the contribution of community based organisations to local innovation-based economic and social development has been largely overlooked in Australia by comparison with studies and initiatives in Europe and North America. We propose a programme of empirical research to assess the contribution and effectiveness of community innovation bodies.

Keywords: *innovation policy; local government; community organisations*

A NEW LOCALISM IN INNOVATION POLICY

Cities of Innovation

The motorist approaching New South Wales’ second largest conurbation a few years ago could not help being struck by the slogan, ‘Wollongong, City of Innovation’ proclaimed on several large roadside billboards. A number of cities throughout the world similarly use the word ‘innovation’ as a descriptive in their naming and marketing. In Wollongong’s case this is a conscious attempt to promote new image of knowledge-based economic development, in contrast to its history of dependence on a narrow base of heavy industry.

Located in the Illawarra Region approximately 80 kilometres south of Sydney, the City of Wollongong is recognised as the third largest local government area in NSW by population (est. 192,000 in 2006) (Australian Bureau of Statistics, 2007). Throughout the greater part of the 20th century, the city had a dominant industrial base with a large steelworks located south of the city centre at Port Kembla. By the 1980s, despite maintaining its image as an industrial city, the local steelworks was being rationalised – having been subjected to downturns in demand and global competition, particularly as a result of free trade policies on the part of governments and improved technology allowing for a more streamlined work-force. The steelworks shed labour from a work-force of 22,000 to less than 7,000 (Watson, 1991). For similar reasons, the local coal mines also were succumbing to economic pressures and introducing technological advances which required less labour. In addition to economic downturn, the City of Wollongong was often the butt of negative media stories. The Wollongong Image Strategy (Valerio et al., 1999) reported that there had been a wide range of negative articles relating to crime (including paedophilia), heavy industry, industrial unrest, pollution and floods.

The experience of the late 1980s and 1990s provided an incentive for the city's leaders to search for ways to diversify the city's industrial base and its near total dependence on steel and coal – recognising that, as the locals say, 'when the steelworks sneezes, Wollongong catches cold'. The seriousness of the industrial decline and the negative image of the city prompted the Wollongong City Council to fund a 'city image campaign' and allocated \$2.5 million over a 5 year period for this purpose. As a result of extensive research by consultants and with the consent of the council, the city declared itself a 'City of Innovation' in June 1999. A consultants report (Valerio, Baker et. al., 1999) advised that "Wollongong: City of Innovation" had received endorsement and gave an explanation as to why innovation was the recommended positioning strategy. Included in this were claims that: "...innovation – the introduction of something new or different – will be the single most important attribute of successful organisations in the next century" and "Wollongong's innovative credentials ...go back to the early days of its history. A summary of the rationale underpinning the recommendation of innovation was presented in the report followed by a public relations strategy to launch the 'city of innovation.' It identified innovation as a goal – 'The theme "innovation" is an inclusive approach that can be presented as aspirational for all residents and organisations... It can also serve to raise the City's overall competitive advantage ... in terms of investment, tourism and lifestyle perspective.' (p. 76); but also noted that 'It will not invent or fabricate – it will communicate what is already there'. As primarily an image campaign the recommendations were in keeping with the requirement to improve the image of the city and most were aligned to communications strategies.

The report listed a number of achievements of the citizens and organisations within the city, commencing with aviation pioneer Lawrence Hargrave and extending to include advances in manufacturing, communications, product design, engineering, medicine, electronics, synthetics, and environmental management. But it also noted the assets and characteristics of the city which could be included in the 'innovation set' including: a diverse industrial base ranging from mining, steel manufacture, education, engineering, retail and services; and a university and technical college providing a culture of learning and a well educated workforce.

The formulation of Wollongong's new image involved a wide range of stakeholders including professional consultants, representatives from the city council, the university, the business chamber, the steelworks, and individual businesses. Like similar strategies in other 'smart cities' it was forward-looking, even visionary, but equally importantly was built upon a foundation of past community history, character, culture and human and organisational resources – broadly speaking, the city's 'social capital'¹ and individuals' education and cultural capital.

Wollongong is not alone in promoting itself as an innovative or smart city. The experience of Wollongong was similar to that of many industrial cities throughout the world. The industrial cities of

¹ Cooke's definition is as good as any: 'trustful, reciprocal networking through professional, civic and cultural associations' as 'a means of securing full civic engagement and sharing of common problems and issues' Cooke, P. (2002). Knowledge economies, globalisation and generative growth: implications for policy. *National Economic Review* 50, 21-38

the United Kingdom also experienced significant downturns during this time and were also faced with similar challenges even on a larger scale. We have identified ‘Innovation city’ projects worldwide, from Johannesburg, S. Africa to Oulu, Finland, from Philadelphia, USA to Swansea, S. Wales, Erfurt, Germany and Gilwice, Poland.

RESEARCH ISSUES AND APPROACH

This paper contributes to understanding the broad issue of how local governments and communities can effectively intervene to promote knowledge and innovation based economic and social development in their region. There is a huge body of literature on regional innovation systems, industry clusters and case studies local policies and initiatives - little of it from Australia - that we cannot attempt to review here. Rather, we concentrate on the local organisation of innovation and on what seems to be a ‘missing institutional link’ in some regions. Garrett-Jones has observed that Australia seems to have been less effective than countries like Canada in building what may be termed ‘community innovation organisations’—bodies that do not necessarily carry out research or innovation themselves, but facilitate and promote regional innovation in various ways and support and network those who do (Garrett-Jones, 2007). Our discussion of ‘cities of innovation’ therefore takes the perspective of these community organisations. First we identify the characteristics of an ‘innovation city’ and to consider the extent to which these can be ‘locally constructed’. Second we discuss the structural and organisational frameworks necessary to ensure a successful innovation strategy for a city where the involvement of multiple stakeholders is required. Third, we define the scope and functions of local innovation organisations by reference to examples from overseas.

The purpose of the paper is exploratory. It asks ‘how do we set about testing a hypothesis that Australian regions have not been effective in turning social capital into sustainable business and community-based organisations for improving technological skills, awareness and programmes, and if so, why?’. Finally, we propose further research to answer this question.

CONSTRUCTING LOCAL ADVANTAGE

Attributes of innovative regions

What characteristics are crucial for an ‘innovation region’? We reviewed the claims of the self-styled ‘innovation cities’ mentioned above and the criteria which they use to demonstrate their status. In describing their attributes, while of course they draw upon ‘natural’ advantages like primary resources or geographical location as a transport hub or industrial centre, they particularly emphasise their intangible assets: education, research, knowledge and skilled labour. Where physical infrastructure or

natural advantage is mentioned they are often presented as an attractor to these intangible resources: a coastal position as a lifestyle attractive to professional staff, for example; or renowned universities as a drawcard for biotechnology companies.

De La Mothe and Mallory (2004; 2006) recognise four main categories of attribute: infrastructure, leadership, capital and people. Infrastructure encompasses both the physical (airports and transport links, local amenities and institutions) and ‘smart’ infrastructure such as ‘connectivity’: networks and linkages between regional actors and national policies and institutions. In relation to leadership, they emphasise cross-sectoral leadership from all local actors, firms, universities, government and nongovernmental organizations, and engagement, vision and debate including ‘community vision’. Here it is the acceptance of the nature of innovation which is important – as a dynamic, risky, uncertain activity. De La Mothe and Mallory (2006) however comment that ‘hyperbolic branding may deflect rather than attract investment’. The requirement for capital involves the availability of venture capital locally, as well as the ability to attract inbound investment (FDI, or from outside the region). With regard access to the ‘full variety of skilled people’ - Richard Florida’s ‘creative class’ (Florida, 2000; 2003), de La Mothe and Mallory (2006) note that ‘quality of life’ is attractive to highly educated workers but that this may be a subsidiary attractor by comparison with local expertise and networks. Gertler and Wolfe (2004) use a similar classification of assets, institutions and organisations and attitude. Specifically they describe ‘knowledge economy assets (such as work-force skills, knowledge and research development, creativity, advanced telecommunications infrastructure, quality of place, and financial capital), collaborative institutions and organizations (such as regional development organizations, professional networks, research consortia, and entrepreneurial support networks), and the regional mindset (values and attitudes)’.

Phil Cooke, one of the leading economic researchers in the area (Cooke and Morgan, 1998; Cooke and Piccaluga, 2004), sees the challenge in terms of stimulating the development of Regional Innovation and Learning System (RILS), through ‘prioritising Linkage, Leverage and Learning’ (Cooke, 2002). At core of RILS, Cooke notes, are the ‘sources of basic research’ and the ‘integration of innovation and learning’ in which both ‘learner’ and ‘tutor’ roles are key. In Figure 1 we summarise these desirable characteristics or ‘assets’ under the categories of infrastructure, leadership, capital, people, and learning.

----Insert Figure 1 about here----

‘Constructed advantage’

The common feature of many of these assets is their intangibility. As de La Mothe and Mallory (2006) put it, economic advantage in today’s knowledge economy is based not on what one has (the material factors of industrial production) but on ‘what we think and do’. In other words, knowledge is now a central factor of production. It involves knowledge creation (from universities and business), the

economic rise of intangible goods and services and exchange of knowledge for example through cross-sector research collaboration. De La Mothe and Mallory (2004; 2006) call this kind of ‘distributed innovation’ a ‘neo-Schumpeterian constructed advantage’ around science, technology and innovation.² For cities and communities, then, constructing advantage is ‘maximiz[ing] the impact of what they do as opposed to what they have’ (de La Mothe and Mallory, 2006). Their reviews emphasise the widespread significance of local innovation initiatives involving local institutions, regional and national governments and multinational agencies in ‘constructing advantage’.

What emerges is that local economic advantage is an artifice, and a dynamic artifice at that. It blends comparative and competitive advantage increasingly with what has been termed ‘constructed’ advantage. ‘Constructed advantage’ is not only increasingly valuable, but is, by definition, open to influence and construction by local actors.

What de La Mothe and Mallory (2006) show is that ‘constructed advantage’ is a process of building on and expanding social capital – skills, organisations and networks. They recognise a need to ‘engage local industries, university instructors, higher education leaders, not-for profit organizations, youth groups.’ ... and that ‘creating communities and economic advantage is a ‘full contact sport’ and not a dry policy making exercise. For innovation and growth to occur, a region or a city needs collaborative relationships. The role of national government then “shifts from ‘top down picking winners’ (subsidies and protectionism) to ‘backing local leaders’” (de La Mothe and Mallory, 2006).

Cooke (2002) observes several recent facets of regional innovation and economic development policies which involve (1) degrees of intervention by local governance to promote private-public interaction; (2) ‘weak regional foresight’ (institutional ‘envisioning’, learning and monitoring), and; (3) knowledge based clusters, which he comments need to involve ‘localised governance with markets much more to the fore as drivers of the potentially radical innovation process’. He favours a sectoral approach to developing local advantage, and notes that this approach is quite different from the ‘plan, programme, budget’ type of project typically favoured by regional development agencies. Rather it involves a more consultative ‘vision, manage, monitor’ strategy.

Three key points emerge from this discussion. First is that many of these intangible assets are open to local ‘construction’ – manipulation, encouragement and sponsorship. The second is that local organisations and networks are of fundamental importance in marshalling a region’s people and intangible assets. The third point to emphasise is the ‘uniqueness of place’ in terms of knowledge assets, history and institutions etc. What this means, as Cooke (2002) observes, is that ‘the key to regional development based on generative growth from innovation is to replicate the fundamentals of the organisational model of the cluster, not to seek to copy the technology as the old, mistaken policy theory led policy makers to try, and usually fail, to do’ (our emphasis).

² De La Mothe and Mallory present neo-Schumpeterian constructed advantage as a logical extension of neo-Ricardian (natural) comparative advantage and neo-Porterian competitive advantage.

COMMUNITY INNOVATION ORGANISATIONS

Regional organisations contribute to forming ‘patterns of interaction’ between different regional actors by reducing uncertainty, encouraging cooperative innovative activities, and creating trust (Gertler and Wolfe, 2005). ‘Community innovation’ is originally Michael Gurstein’s term used in the context of the development of local capabilities in informatics in an economically depressed region of Canada (Gurstein, 2002). De La Mothe and Mallory (2004) similarly introduce the role of ‘community alliances’, noting that ‘increasingly alliances can help us understand the dynamics of larger innovative communities such as cities and indeed they are being used as strategies to achieve local growth’. Gertler and Wolfe (2004) talk of an ‘economic community’ of relationships between firms and the wider community and note that ‘these relationships are mediated by key people and organizations that play a leadership role in bringing the economic, social and civic interests in the community together to collaborate’.

Our interest in this paper is the population of ‘community innovation organisations’ and the contribution they make to local innovation and socioeconomic development. Two problems arise in investigating these local organisations. First, they are not easy to define and, as a second, related issue, equivalent leadership roles may be adopted by quite different organisations in different regions, depending on the economic, cultural and institutional history of the region. We may therefore need to define community innovation organisations in terms of both their structure and their objectives/activities. Here we review some examples of community innovation organisations in order to define their scope and membership and to understand their objectives, functions and achievements. Three examples are taken from North America. We then turn to Europe and briefly review the more integrated initiatives to promote regional innovation undertaken by the European Union and the organisational actors involved.

Joint Venture Silicon Valley (USA)

Since AnnaLee Saxenian’s early work on regional innovation cultures (Saxenian, 1994) ‘Silicon Valley’ in northern California has been viewed as a leading model of ‘cooptition’ (innovation involving cooperation and competition between firms and other organisations) and the ‘breakthrough’ region in terms of regional innovation (Cooke, 2002). Joint Venture Silicon Valley (JVSV) was established in 1993 in response to the need for a regional organisation to address the concerns of leaders about the worsening competitive position of Silicon Valley after the economical downturn of the early 1990s. Coming from different sectors such as business, education, government (city and county officials) and non-for-profit organisations, these leaders acknowledged an urgent need for a collaborative “enhancing the economy and quality of life in silicon valley region” (Saxenian and Dabby, 2004). JVSV can be categorized as a regional institution which was not formed by the state or

federal governance bodies or reliant on their financial support. Rather it was established by the voluntary collaboration of different regional leaders who used their own resources (Wegener, 2001) in an effort to improve Silicon Valley's regional viability.

The actors playing key roles in organising and implementing JVSV's activities come from the organisations involved in regional decision making: business leaders, university and education leaders, healthcare representatives, civic officials, and non profit organisations (www.jointventure.org). The Joint Venture was formed in the already networked environment of the Silicon Valley, but was able to bring together different institutions which did not naturally interact with each other – e.g. between the public and private sector as well as the cities and counties (Saxenian and Dabby, 2004).

JVSV is a well known example of a regional leadership institution whose initiatives resulted in a number of regional outcomes. According to Saxenian and Dabby (2004), the Joint Venture contributed to the creation of a sense of “regional identity”, to building “social capital” among regional organisations by creating networks and interaction, and also through “use of research to inform regional action”. These valuable outcomes became possible through a range of initiatives established and implemented by JVSV. These initiatives (some listed in Table 1) operated through a range of functions such as streamlining the permit regulations in the region, reforming of the education system, publishing yearly reports to reflect on the improvement of the quality of life and regional economy (Saxenian and Dabby, 2004), ensuring the California state competitive edge through public policy, reforming state government performance, economic development through business growth, and improving the region's infrastructure (www.jointventure.org). Cooke (2002) on the other hand rather downplays the ‘communitarian’ aspects of Silicon Valley, emphasising that the most prominent players in the region are private and public research institutions, and market driven private firms, venture capitalists, law firms, specialist consultants and supply and service firms.

Ottawa Centre for Research and Innovation (Canada)

The Ottawa Centre for Research and Innovation (OCRI) is an example of a community organisation which is in fact a consortium of different ‘stakeholder communities’ such as business and education sector as well as the city and government research institutions. Evolved from Ottawa-Carleton Research Institute, OCRI has played a significant role in the economic development of the region over the past two decades (since 1983). Indeed, the municipal government has ceded the role of regional economic development role to this ‘community organisation’.

The Centre's annual budget is partly provided through arrangements with federal research agencies and provincial and municipal government while the major contributions come from its members, ranging from small and established businesses, secondary and higher education institutions, and government laboratories (Garrett-Jones, 2007). OCRI has contributed to ‘combination of explicit knowledge’ produced by different community role players through its linkages; additionally, helped in

building emotional trust between them, which facilitates ‘tacit knowledge transfer’ (Langford et al, 2002). These have been possible through a range of activities supporting research and technology transfer as well as improving ‘community awareness and education’. Its activities (see Table 1) include engaging different sectors varies from holding seminars, conferences, exhibitions, and sportive tournaments, running education development programs, promoting global marketing of Ottawa, starting and growing young businesses, facilitating collaborative cross-sector research, ‘catalysing the growth of life sciences’, investing in infrastructure development of the region (www.ocri.ca).

Calgary Technologies Inc. (Canada)

Calgary Technologies Inc. (CTI), formerly the Calgary Research and Development Authority, was established in 1981 as a partnership between the City, University of Calgary and Chamber of Commerce, with the aim of ‘diversification of Calgary’s economy’ (Langford et al., 2002). CTI operates through two major functions: first, establishing networks in the region by bringing together representatives of large and small high tech firms with public research institutions, and education sector. These networks contribute to building competence as well as emotional trust, which eventually lead to facilitation of knowledge flow, and attractiveness of the region for new high-tech start-ups. The other level of the CTI functions is operated through management of an incubator, ‘Calgary Technology Centre’ and an ‘Innovation Centre’ which is federally-sponsored (Garrett-Jones, 2007). The incubator has a reputation for facilitating knowledge transfer and business expertise sharing between different firms (Langford et al., 2002, Garrett-Jones, 2007). Table 1 shows examples of CTI’s activities. Above all is the vision and will. As de La Mothe and Mallory (2004) comment, ‘they want to construct their advantage. They believe in the viability of their community and in the importance of alliances across the four factors.’

Innovating Regions in Europe

For more than a decade and a half Europe has adopted policies and programmes to encourage local innovation and learning within and between regions (Bianchi and Bellini, 1991). The European Commission set up the Innovating Regions Europe (IRE) Network in the mid 1990s to exchange experience and good practice in the European regions aimed at increasing their capacity to support innovation and competitiveness among firms in the regions by strategies and schemes involving the development and implementation of regional innovation (IRE, 2007a).

The core activity of the IRE Network are the Regional Innovation Strategy Projects that allow regions to enhance innovation by thoroughly analysing their current innovation systems and making decisions on strategic priorities. The RIS Projects involve five steps: 1. initiating regional dialogue; 2. direct involvement of all relevant organisations in shaping innovation policy; 3. analysis of regional

innovation needs and capacities; 4. selection of priorities for innovation support; and 5. development of action plans and pilot projects.³ Regional innovation strategies have been developed or an RIS project implemented in around 150 regions. For example, the region of Tuscany in Italy was looking to improve technology development in their cultural heritage sector (EC, 2004). The Tuscany project aimed to link industry players such as institutes, restoration laboratories, the Ministry of Culture, manufacturers of optoelectronic equipment and a number of diagnosis and conservation specialists SMEs in a cluster around advanced conservation technologies (EC, 2004).

Any European region committed to developing their regional innovative system is welcome to join the IRE Network. There are currently 235 member regions (IRE, 2007a). Regions and firms automatically gain membership of the IRE Network by being awarded a Regional Innovation Strategy project, co-funded by the European Commission. A regional institution represents each IRE member region and has responsibility for coordinating innovation policy in the region. In most cases, a regional authority or regional development agency represents the network regions (IRE, 2007b). Government agencies and firms also are members of the IRE Network.

The notable aspects of the IRE network are (1) the sheer knowledge and expertise flowing from the breadth and longevity of the exercise; (2) the institutionalised ‘mentoring’, knowledge sharing and ‘common learning’ from other regions’ experience; and (3) the well-honed processes that comprise the RIS, which can be adapted for different regions but which allow for cross-regional comparison; and lastly (4) the intertwining of local and regional as well as national government organisations and other actors in the IRE Network to support and promote innovation.

Green (2002) contrasts the active intervention of government in regional innovation policy in Ireland, and Europe generally, with what he describe as the ‘paralysis’ of public policy in Australia: ‘It is this strategic approach to the role of government and markets in conjunction with a unique evolution of the boundaryless cluster that lies at the heart of Ireland’s knowledge-based economy and the broader canvas of European regional innovation policy’ (Green, 2002).

Scope, goals and functions of community innovation organisations

The structure and purpose of regional networking institutions has been approached by various authors from different perspectives. Looking at institutional aspects of regional support for small businesses in Canada, Langford et al. (2002) mention the regional networking organisations as intermediaries facilitating collaborative activities and trust between the regional organisations, and hence catalysing knowledge production in the region. They differentiate between three main types of networking organisations: first, the ‘community agency’ which is a consortium of different regional players including education sector, civic and regional authorities, and private firms aiming at regional

³ Source: http://www.innovating-regions.org/network/presentation/projects.cfm?project_id=1, 2007

economic development; second, the 'regional consortium of firms' facilitating 'peer communication' among regional firms; and third, interventionist organisations authorised by national government to take the role of knowledge exchange facilitator in the region.

Conducting a study on the Silicon Valley region Wegener (2001) proposes a categorisation of regional networking organisations which is quite similar. The similarity comes from the fact that he considers the role of players establishing the community organisation as well as the goals they should pursue as the main criteria for his categorisation. In addition, he emphasises the formation process of the organisations. His three types of regional organisations consist of (1) 'advocacy groups', which are voluntary collaboratives lobbying to guarantee regional comparative advantage; (2) the 'regional governance institutions' established by higher levels of government (federal or state), which is rather similar to the concept of 'interventionist organisations' proposed by Langford et al. (2002); and (3) 'regional leadership institutions' which are voluntary collaboratives established by different regional actors 'who address the regional problems using their own resources'. We summarise the range of institutional actors involved in regional innovation in Figure 1, noting that organisational functions overlap.

In this paper, what we mean by 'community innovation organisations' is essentially a combination of 'community agencies' of Langford et al. (2002) and the 'regional leadership institutions' of Wegener (2001), where the organisation is established by voluntary collaboration of different regional actors including private and public firms, regional and city government, educational institutions, NGOs, and public research organisations. Here, the main purpose of the organisation is to contribute to regional development through fostering knowledge and innovation production. It probably encompasses some of the role of Wegener's 'advocacy' groups too. However, we note that even this definition fails to capture the breadth of activity of some community organisations like OCRI which perform the function of a local economic development agency as well.

We therefore propose to define 'community innovation organisations' by the following criteria. (1) They focus on a defined geographical region. (2) They encourage broad membership, not only of businesses and/or policymakers, but a broad community of regional decision makers; businesses and business organisations; university and education leaders; healthcare leaders; 'civic officials'; non-profit organisations (JVSV); government research institutions, local industries, university instructors, higher education leaders, and youth groups (de La Mothe and Mallory, 2006). At their core they represent a partnership between a city/region, university and chamber of commerce (CTI). (3) They are not government bodies, in that they are not generally initiated or formed by (federal/State) government. (4) They rely on their members' funds and may (OCRI) or may not (JVSV) be financially supported by government. OCRI for example receives funds from federal, state and municipal governments. If government funds are used, they do not dominate; rather, they take the form of 'member contributions' or underwrite specific agreed functions or projects. (5) They take on a

very wide range of functions from advocacy to planning and funding local initiatives, which we discuss below.

The goals and objectives of these organisations are fairly well described. At the top level it is usually growth or diversification of the local economy for broad benefit. They include the creation of a sense of ‘regional identity’; building ‘social capital’ by creating networks and interactions; combining the explicit knowledge of different community role players and facilitating tacit knowledge transfer (Langford et al., 2002). They aim to bring together different institutions which ordinarily would not interact with each other, such as large and small high tech firms and public research institutions (CTI). They use research to inform regional action and networking to reduce transaction costs.

----Insert Table 1 about here----

A detailed examination of the activities of our case study community innovation organisations shows that they carry out functions and activities which cross each of the ‘asset’ categories shown in Figure 1. Using these categories, Table 1 shows selected examples of initiatives by the case study organisations. They are involved in physical infrastructure projects (local ‘beautification’ and wireless networks), institutional infrastructure (business incubators), ‘smart’ infrastructure (cross-sector research collaboration networks), cross-sectoral leadership and advocacy (about local regulations and education), branding and marketing the region, and encouraging community debate (planning and ‘foresight’). Providing and attracting finance is another function of these organisations, both local funding (R&D grants) and initiatives for attracting venture capital and other investment from outside the region. Facilitating networks of people is obviously central (formal meetings, exhibitions, breakfasts), but surveys of skills requirements are nominated too, as are more general initiatives aimed at a healthy, vibrant work-force (volunteers in schools, sporting and educational events). Lastly is the category of ‘learning’, which also pervades the previously mentioned activities. Activities here include ‘demonstration’ and best-practice showcase initiatives for business and the community, as well as providing ‘cluster mustering’ resources for firms in potential industry clusters to communicate and learn from each other.

CONCLUSIONS

The paper has shown that advantage in knowledge-based activities is open to local construction. It has outlined the ‘assets’ which are commonly targeted for creation by local institutional actors, and the range of the actors involved. We have developed from the literature a classification of both the actors and their functions as a prelude to examining the useful role of one of these actors – that we term ‘community innovation organisation’ – which have sprung up in N. America and elsewhere. We have also shown how the process of regional innovation planning has become institutionalised in Europe.

The limited literature on Australian regional innovation policies and initiatives has tended to focus on industry clustering (Enright and Roberts, 2001 ; Johnston, 2003; Marceau, 1999; Roberts and Enright,

2004) and the local contribution of universities (Keane and Allison, 1999; Turpin et al., 2002). Few authors have considered the structure of the local organisational actors or the value of community based networking or leadership bodies (Burns and Garrett-Jones, 2002). Yet there is evidence to suggest that Australian regions are lagging in the process and organisation of regional innovation policy (Garrett-Jones, 2007; Green, 2002).

We propose that a significant research programme is required to gauge the extent and contribution of 'community innovation' in Australia. The most obvious way to do this is to aggregate and extend existing regional case studies, such as has been done by the 100+ researchers in the Innovation Systems Research Network in Canada (Holbrook and Wolfe, 2005). An alternative or complementary approach would be to survey specific regions through an 'attitude, institutions and connectivity' survey seeking information on regional actors, their activities and effectiveness. A 'snowball' sample, starting with the technology transfer offices in local universities, research agencies would lead to the nomination of local 'actors' – both individuals and institutions who are involved in specific activities (based on our list of 'assets'). A survey to gauge the level of local community activity and involvement would target these actors in order to construct a matrix of activities and organisations. The outcomes would include metrics for comparison of different regions and an assessment of what forms of local organisation are most valued/valuable.

The time is right for such work, because, a new spirit of cooperation is emerging in Australia's regions, as a return to the City of Wollongong shows. In February 1982, the steelworks advised the Lord Mayor of Wollongong that the company was going to have to substantially cut its workforce. Faced with this threat, a revitalization plan for the Illawarra was hatched in his office in consultation with various business groups. With the plan ready, a meeting of regional leaders from local government, commerce, industry, unions and community organizations was convened. This meeting, and subsequent meetings of the leadership group elected to be the voice of the region, were marked by acrimony and tension as traditional rivals struggled with the crisis and the need for change. By contrast, in March 2007, following media reports that the teenage unemployment rate was 41%, the Lord Mayor of Wollongong convened a meeting of regional leaders to discuss the problem and identify ways of addressing this problem. In contrast, the meeting was marked by a spirit of harmony, shared concern and cooperation of the same groups. The University of Wollongong and BlueScope Steel offered \$45000 for the conduct of a research project to determine the profile of the teen unemployed and develop plans to address their problem.

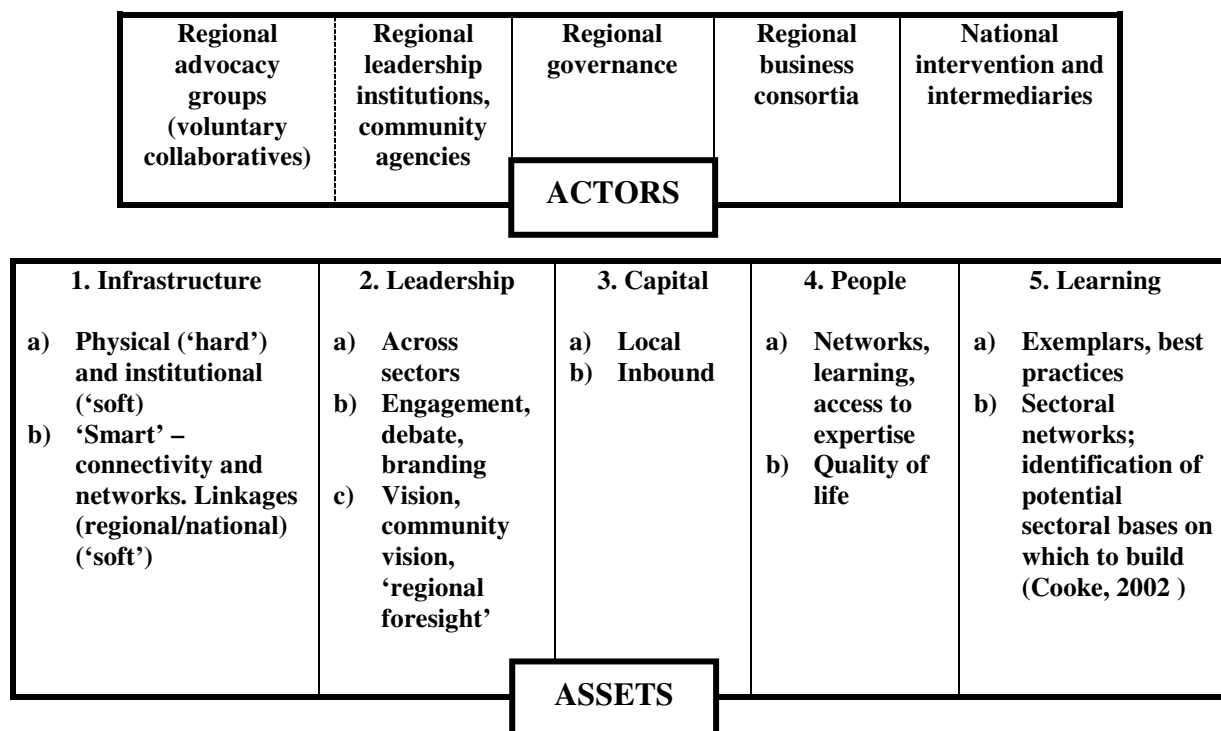
Over a period of 25 years, it appears that there has been a change of climate among the leaders where the attitude and behaviour is marked by cooperation and collaboration in place of the suspicion, rivalry and forced partnership that existed a quarter of a century earlier. Innovation may not only be reflected in technology and products but in the incrementally grown awareness of the need for collaboration in partnerships that benefit the community the leaders collectively represent.

Table 1: Functional elements of Community Innovation Organisations

Category of asset	Example of activities
Infrastructure – physical and institutional	<ul style="list-style-type: none"> • Improving regional infrastructure • Local physical environment improvement programs (appearance, transport, diversity) (eg El Camino Real – JVSV) • Using local expertise for public good: eg promoting public access to IT through design and installation of wireless networks in colleges (JVSC) • Management of business incubators and innovation centres (CTI)
Infrastructure – ‘smart’ – connectivity and networks. Linkages (regional/national)	<ul style="list-style-type: none"> • Fellowship programmes—business to academia to encourage long-term partnership (OCRI) • extra funding for existing research chairs, e.g. to bring in international experts (business encouraged to top up costs) (OCRI) • Facilitating cross-sector collaborative research. • Engaging SMEs into research, through ‘Research Days’ at universities; (OCRI) • a database of R&D within government labs and universities; (OCRI)
Leadership – across sectors	<ul style="list-style-type: none"> • Streamlining local permits and regulations – ‘Smart permit’ (JVSV) • Reforming State government performance • Reform of high school education through venture funding (JVSV) • Influencing competition policy
Leadership – engagement, debate, branding	<ul style="list-style-type: none"> • Reporting on regional economy and quality of life • Promoting economic development and business growth • Promote attractiveness of region for high tech start up firms
Leadership – vision, community vision, ‘regional foresight’	<ul style="list-style-type: none"> • Strategic planning and regional ‘Foresight’ exercises (Gertler and Wolfe, 2004) • Surveys of communities on strengths, weaknesses, character and future of community. ‘by the community for the community’ rating on leadership, people, money and infrastructure. (CATA TechAction, Canada) (de La Mothe and Mallory, 2004)
Capital – local and inbound	<ul style="list-style-type: none"> • Global marketing of the region • Wireless City, an initiative helping local companies market their wireless products in local, national and international arenas (CTI) (www.calgarytechnologies.ca) • Starting and growing young businesses • Local R&D funding (OCRI) • INFOPORT, a project (with Telus support) which facilitates networking and attraction of external venture capital and market for Calgary firms (CTI) (Langford et al., 2003)
People – networks, learning, access to expertise	<ul style="list-style-type: none"> • Hosting seminars, conferences, exhibitions • Technology ‘breakfasts’ and other forums for business and community leaders (OCRI) • Improving community awareness and education • Survey of vocational/trade skills needs (OCRI) • TalentWorks, a city initiative to undertake an analysis of gaps in the workforce (OCRI) • providing school breakfasts paid for through community fund raising activities, as an important talent-building activity (OCRI)
People – quality of life	<ul style="list-style-type: none"> • Sponsoring sporting events (OCRI) • Running a large cadre of community volunteers e.g. as ‘technology coaches’ in schools (OCRI)
Learning – exemplars, best practices (Cooke, 2002)	<ul style="list-style-type: none"> • Activities supporting research and technology transfer • partner with industries on courseware (OCRI) • ‘Sm@rtCapital’, a demonstration project funded by Industry Canada on how to use technology, through community demonstration sites (OCRI) • broadband vision for Ottawa: two demonstrations in rural communities; (OCRI)

Learning - sectoral networks; identification of potential sectoral bases on which to build (Cooke, 2002)	<ul style="list-style-type: none"> Forming WiTech Alberta, an association aiming at “linking companies and organizations in the wireless and telecom sector in Alberta to helpful information, events, resources and projects” (co-sponsored by CTI) (www.witec.ca)
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Figure 1: Institutional actors and assets in local innovation



Source: After Cooke, 2002 ; de La Mothe and Mallory, 2006; Langford et al., 2002; Wegener, 2001.

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