

Rachel Parker

Networked governance or just networks? Local governance of the knowledge economy in Limerick (Ireland) and Karlskrona (Sweden)

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There is a widespread view that the globalisation of economic activity and the growth of the knowledge economy are associated with a rescaling (from national/central to local/proximate) and reframing (from hierarchies/control to networks/exchange) of economic governance. The emergence of networked governance of knowledge activities is portrayed as one component of a more general shift from government to governance. This paper suggests that a distinction can be drawn between networks and networked governance and provides some insights into the indicators that might help distinguish networked governance from networks. The distinction is applied empirically to emerging forms of local networks in ICT in Limerick and Karlskrona. Differences between the two regions can be conceptualised with reference to the governance role of local networks in steering, setting directions and influencing behaviour. The paper identifies the characteristics of network arrangements that appear to be necessary for governance objectives to be satisfied; these are density, breadth and association with values such as trust, mutuality and shared identity. The paper shows that there is a need to approach generalised theories of emerging models of governance with sensitivity to cross-regional variations around these characteristics. Claims regarding the emergence of new forms of governance in local spaces may be exaggerated if all types of network arrangements are taken as evidence of a transformation from government to governance.

Introduction

Globalisation and the growth of the knowledge economy are creating pressures for the evolution of models of economic governance and varieties of capitalism. The internationalisation of production, the growth of international trade, cross-border currency flows and (to a lesser and partial extent) the internationalisation of technology development and diffusion (Archibugi and Iammarino 2002) have posed particular challenges for distinctive varieties of capitalism (Cerny, 1996; Frieden, 1991; Goodman and Pauly, 1993; Moses, 1994; Radice, 1998; Webb, 1991). Further, an evolution in political-economic institutions is occurring as the struggle for economic competitiveness has shifted from an emphasis on investment in physical capital and resources to a focus on the promotion of economic processes and social arrangements that facilitate knowledge generation and diffusion, which provide the foundations of success in the knowledge economy (Powell and Snellman 2004).

Although the evolution of governance models associated with the globalised knowledge economy is typically depicted as universal, there is only limited empirical evidence of these trends - "...the field remains remarkably short on empirical investigations which draw on the literature to see new manifestations of governance" (Hajer and Wagenaar, 2003: 4). As Jordan, Wurzel and Zito (2005, 477) explain, 'the governance 'turn' has generated much theorising, but there is still surprisingly little comparative empirical work'. The discipline of comparative economic organisation has developed a sophisticated understanding of national varieties of capitalism and cross-national diversity in business systems (Hall and Soskice 2001, Whitley 1999). In comparison, understandings of cross-regional differences in forms of local economic governance are limited. The aim of this paper is to explore variations in the nature of local network governance for the purpose of contributing to an understanding of evolving models of economic governance in the globalised knowledge economy and to reflect on the empirical reality of much of the governance theorising.

The first section of the paper reviews the literature on changing models of governance and the growth of networks in the knowledge economy, noting that a conceptual distinction can be drawn between networks and networked governance, providing a framework for comparison across regions. A gap in current knowledge is identified in terms of the distinction between networks and networked governance and some insights are provided as to the indicators that might help distinguish

networked governance from networks. The paper suggests that in order for networks to be regarded as a form of governance they must play a role in steering, setting directions and influencing behaviour. The paper identifies the characteristics of network arrangements that appear to be necessary for governance objectives to be satisfied; these are the networks' density, breadth and association with values such as trust, mutuality and shared identity. The empirical dimension of the paper focuses on Karlskrona (Sweden) and Limerick (Ireland) which are regions outside the commercial and political-institutional centres of their nations that have sought to develop an emphasis on knowledge activities and in particular ICT. Networks in the ICT sector exist or are emerging in both regions although there is variation in forms of local governance of innovation in knowledge activities across the two regions.

Networked governance as a new model of governing the knowledge economy

The Anglo- Governance School (as Marinetto, 2003 has called it) has provided a general account of the shift from government to governance. In this approach, specific state initiatives are implicated in the transition to governance including privatisation, contracting and marketisation which have created a plethora of quangos, public-private partnerships, sub-contractors and not-for profit organizations which the state now relies on for the delivery of public services (Giddens, 1998: 28-33; Rhodes, 1996; Hay and Richards, 2000). The shift to governance is associated with decline in the capacity of the central state to steer society (Pierre and Peters 2000, 83-91). As van Bueren et al. (2003, p. 193) explain, networks have become an important foundation of governance in the context of 'wicked problems' that cut across policy fields and which are persistent despite ongoing attempts to resolve. Further, local governance is developing as a result of central and supranational (EU) policies which have stimulated 'bottom up' governance and private sector and community involvement in local and regional policies (Buuk, Hetsen and Jansen 1999).

Economic geographers are also exploring emerging models of governance; Bob Jessop (2002) has provided an account of the rescaling and reframing of the state in the particular field of economic governance. For Jessop, change is driven by the crisis of the fordist developmental regime that prioritised the Treasury and Keynesian economic management; this regime was based on a strategy of 'national developmentalism' that linked state space to the nation and involved centralised control of local institutions and economic development trajectories. The response to

crisis involves the development of local forms of state power and a strategy of networked urban entrepreneurialism, in which local spaces became important sites for economic development initiatives and competitive local inter-state rivalries (Brenner, 2004: 463).

The literature therefore identifies local networked governance as a characteristic of contemporary modes of economic organisation. Table 1 identifies the key features of networked governance; the first relates to the social basis of links between actors participating in networks. Sociologists and organisational theorists have long been concerned with the way in which social ties and interactions affect behaviour and identity construction. The social relations that structure and shape human action are conceived as networks; at their most basic level, networks are merely 'a set of actors connected by a set of ties' (Borgatti and Foster 2003: 992). Because the idea of networks is so broadly defined as to encompass most group processes, it has become a very useful conceptual tool in the literature on governance, which has documented the shift from models of state-centric policy-making processes to interactive, fragmented, multi-dimensional policy-making involving a range of state and non-state actors (Rhodes 1996; Stoker 1998). Central to the increased reliance on the concept of networks is the fact that governance is thought to involve social regulation, which is different from state based regulation which relies on authority, legitimacy, command and control (Pierre 2000, 242; Stoker 1998), the traditional domain of political scientists. Instead governance recognises the social foundations of collective action typical of network arrangements.

The emphasis on networks in the governance literature is designed to capture decision-making processes that are de-centralised and characterised by fluidity, which is necessary to cope with what sociologists have identified as rapid processes of social change, intense societal complexity and instability (Beck, 1999; Castells, 1996; Jessop, 2002). These characteristic of networks draw attention to their distinctiveness from hierarchies and markets as modes of governance. Hierarchies are characterised by clear roles and lines of control and authority and directive processes within organisations (Williamson, 1996); they are oriented towards bureaucratic positivist modes of decision-making based on problem solving through expertise rather than local experience (Fischer, 2003: 206). Networks involve negotiated agreement that can be contrasted with majoritarian decision making and hierarchical directives (Scharpf, 1997: 47). Networks can also be contrasted with markets, which involve atomistic arms-length contractual interactions between utility

maximising actors (Williamson, 1996). In contrast to hierarchies and markets, within networks there is a decentralisation of power and decision-making and a blurring of roles and responsibilities (Stoker 1998). Interaction occurs through the exchange of narratives based on local knowledge and experience (Yanow, 2000, 2003). Jessop has described network processes as being based on 'reflexive rationality' involving attempts at negotiation and steering for the purpose of shaping common world-views amongst actors in the pursuit of coordinated solutions (2002: 229-230). These are the second and third features of networks specified in Table 1.

The public administration literature also draws attention to these characteristics of networks by explaining that networks have emerged from the complexity that results from the fact that resources are distributed across a range of different actors whose participation is required for goals to be achieved and each of which brings 'their own perceptions and strategies' to the process of negotiation (Klijn 2001; Teisman and Klijn 2002: 199). Interdependent actors who share resources and purposes and are aware of the need for coordination form networks; in that sense, networks are self-organising (Rhodes 2000, Schout and Jordan 2005). As Mandell (1994, 100) explains it, 'members recognise the need, at the outset, for their combined efforts to accomplish what any of them, by themselves, cannot accomplish'; the fourth feature of networks outlined in Table 1.

There is therefore a well-developed literature on networks that informs much of the discussion on evolving models of governance. However, further analytical clarity is required in relation to the governance role of these new network arrangements, as understood by political scientists; as it stands there has been a tendency to conflate networks with networked governance. Davies (2000) explains that in parts of the governance literature 'evidence of local networking is evidence of local governance' (2000, 416). Teisman and Klijn (2002) have also highlighted the gap between the 'dream' and 'reality' of partnership arrangements involving cooperative governance, arguing that 'while there is an intensified interaction between public and private partners, there is little joint decision making and continuity in cooperation' (p. 198). Wilson (2003) has indicated that while the central state is increasingly consulting local government in Britain, this can be understood as a process of multi-level dialogue rather than multi-level governance involving policy-making. Despite the wide variety of actors participating in an extensive array of meetings, few of these groups demonstrate decision-making influence (p. 335). As Marinetto explains, even if local networks are autonomous from the central space, there needs to be further analysis

as to whether they are serving a governance function or whether they are just a loose arrangement of social actors involved in talk. Similarly, Wilson (2003) has argued that there needs to be a clearer distinction drawn between dialogue and governance which has resonance with a need to distinguish more precisely between networks and networked governance.

The purpose of this paper is to seek some clarity in the distinction between networks and networked governance. If the concept of networks is to be useful in the field of governance, a clearer distinction needs to be drawn between the category of networks, involving social relations and ties on the one hand, and the particular instance of networked governance on the other. The terms are often used loosely such that the broader conception of networks as social relations and group processes is indistinguishable from networked governance, which serves a steering and coordinating function. This distinction has not been clearly articulated in the literature on governance to date.

The public administration literature on networks provides some insights that might be used to establish a distinction between networks and networked governance. This literature has developed the concept of network structure to refer to formal and continuous links that result in a 'new whole' that is more than the individual organisations that participate in the network structure. The network structure develops goals that override the goals of individual group members (Keast et. al 2005, p. 364, Mandell 1994, 1999). As Keast et. al. explain it (p. 368):

“In a network structure, members come together because they realize that working individually has not worked. Although participants each have their own individual perspective, these perspectives are reformulated into a new, overarching goal or set of goals. Members begin to see themselves as one small piece of a larger whole”.

A network structure can therefore be distinguished from networking, the latter having a widely understood meaning in public discussion as the process of making connection with others through social interaction, business meetings, events, forums and conferences. In contrast to networking, network structures result in new values, new attitudes, changed perceptions and 'actively doing something' (Keast et. al. p. 368). A critical feature of network structures is that they order action such that the behaviour of participants is altered from that which they would engage in as individual actors (Mandell 1994, 109).

It is possible to further develop this distinction between networking and network structures with reference to the political science conception of governance, which underpins much of the discussion in the Anglo-Governance School. Governance can be defined as “the capacity of a country’s institutional matrix (in which individual actors, firms, social groups, civic organizations and policy makers interact with each other) to implement and enforce public policies and to improve private-sector coordination” (Ahrens, 2002: 128-129). Governance can therefore be understood as the process of decision-making and the administration of policy, involving the exercise of power, authority and influence. It involves steering, guiding and ‘getting things done’ (Stoker 1998, 24). This approach treats governance as a process that is producing the same outcomes as government; new models of governance involve networks that serve a governance function by ‘creating the conditions for ordered rule and collective action’ (Stoker 1998, 17). As Richards and Smith (2002, 279) explain, it ‘is not what the state does that is different but how it does it’. Networked governance, like network structures, results in changed behaviour in the pursuit of collective goals; actors behave differently than they would independently in their own organisation (Mandell 1994, 108-109).

There are therefore specific features of network arrangements that must be present in order for there to be networked *governance* as understood by political scientists. Table 1 identifies the key indicators of governance for the purpose of providing a framework against which particular empirical instances of networks can be compared in order to determine whether they satisfy governance objectives and can therefore be regarded as a form of networked governance. Not all networks involving ties between actors can be regarded as serving a governance function. The emphasis on decision-making and collective action in the political science literature on new models of governance contrasts with the broader use of the term by economic sociologists¹. Networks of actors involved in the sharing of information or the formation of bonds do not of themselves amount to networked governance unless they participate in collective decision-making and the social steering of behaviour. Networked governance involves network arrangements that are characterised by decision-making, steering and changed behaviour that are associated with the concept of governance.

¹ Economic sociologists equate economic governance with economic coordination and therefore include all social institutions which regulate behaviours including markets, associations, communities, networks and corporate hierarchies (Crouch 2004, 105; Hollingsworth and Boyer 1997). The concept of governance is not intimately connected with political activity and collective action as it is in the political science and public policy approach (Van Kersbergen and Van Waarden 2004, 146-147).

Further, it would seem that particular network features are required in order for the governance role of networks to be satisfied as reported in Table 1. The literature on networks is clear that networks vary in their density. A dense network is one in which all group members are connected to each other. Members of a network may be connected either because they have direct linkages with each other or because all group members connect to each other through a third party such that the group has 'closure' (Coleman, 1990). Density ensures that there are not gaps in the networks that might result in a critical break in communication, information sharing and negotiation; density would therefore appear to be a precondition for networks to perform a governance role. Networks also require breadth to satisfy governance objectives in the sense that they incorporate the range of actors and institutions whose activities impact on governance outcomes. Without density and breadth, networks would be unable to influence behaviour and set directions for the range of actors involved in a particular policy problem and would therefore be unable to satisfy governance functions.

In addition, trust, mutuality and common identity appear to be critical if networks are to perform a coordinating function in steering and shaping behaviour (Keast et. al 2005, 364). Rhodes has suggested that trust is the mechanism of coordination in networks; trust performs the role of command in hierarchies and competition in markets (Rhodes 2000, p. xiv). There is a growing body of literature showing that decentralised forms of economic coordination depend on trust (Piore and Sabel, 1984; Storper and Scott, 1989). Bogenrieder and Nootboom (2004: 298) explain that trust creates an 'expectation that others will not behave opportunistically even if they have both the opportunities and incentives for doing so'. They elaborate trust with reference to trustworthiness, which involves reciprocity, moral duty, obligation, empathy, common identity, acceptance of mutual influence (Bogenrieder and Nootboom, 2004: 298). Related to trust is Putnam's well-known discussion of civic engagement and the connectedness or glue between members of a group, which are the foundations of social capital (Putnam, 2000). Trust and civic engagement are regarded as characteristics of communitarian political cultures, regional governance systems and successful industrial districts (Asheim and Isaksen, 2003; Putnam, 1993; Trigilia, 1991). Like density and breadth, it would be expected that trust is a critical feature of networks necessary for governance objectives to be satisfied.

Table 1: Networked Governance

Networks requiring:

Actors connected by ties and social relations

Decentralised decision making involved shared power (absence of single actor control and domination)

Information transfer and reflexivity (reflection on practice and world views)

Actors participate out of recognition that they affect and are affected by the behaviour of other actors

Governance (decision making, steering, negotiation and coordination of activities) requiring:

Density (direct or indirect linkages between all nodes)

Breadth (incorporation of full range of innovation institutions)

Trust, mutuality, common identity

THE CASES: THE GOVERNANCE OF ICT IN LIMERICK (IRELAND) AND KARLSKRON (SWEDEN)

The two cases focus on the governance of ICT, a key sector of the knowledge economy. Cases involving the governance of knowledge activities were selected because in these cases we would expect to find an increasing reliance on networks, given that the processes of learning and innovation that are the foundation of competitiveness in knowledge sectors are thought to be facilitated through network arrangements (Cooke, 1997; Gertler, Wolfe and Garkut, 2000: 693-695; Morgan, 1997; Scott, 1998; Storper, 1997). Accounts of the transition from government to governance suggest that the rescaling (from national to local) and reframing (through the incorporation of non-state actors) of economic governance is a function of the evolving role of the state in the knowledge economy, which is to facilitate the conditions for the creation and commercial application of new ideas (Cerny 1997; Jessop, 2002). Cases involving the governance of ICT were selected because within the context of the knowledge economy, the ICT sector constitutes an increasing component of total economic activity amongst the OECD countries with its share of value added increasing from around 8 to 9.5 percent between 1995 and 1999. The

ICT sector therefore accounts for almost 10 percent of business sector value added in the OECD countries and an increasing component of international trade (OECD 2002, 30-31).

Ireland and Sweden are two of the OECD's strongest performers in the knowledge economy and particularly within the ICT sector (Parker, 2004). A regional space outside of the commercial centre of each nation was chosen for analysis according to the logic that new models of network governance are most likely to be identified outside of the metropolitan core of a nation or central state space. Regions were also chosen because of their emphasis on ICT, given that ICT is a key technology field within the knowledge economy and we would most likely expect network forms of governance to be emerging in knowledge intensive sectors.

Karlskrona and Limerick are quite small regions with populations under 100 000 and are remote from Stockholm and Dublin. Both regions have a local political authority implicated in regional economic development (Shannon Development in Limerick and the Municipal Government in Karlskrona). Both regions have an industrial history and have been identified in the literature and through approaches to government agencies as regions which have a focus on ICT activities and which have adopted various policy initiatives to promote ICT industry development. The cases are based on analysis of primary documents and interviews across the two regions with government policy makers, universities, lead firms and other key actors. The aim of the interviews was to extract information about the nature and function of networks in the region. The following discussion utilises the framework in Table 1 to analyse the nature of governance in the two regions.

KARLSKRONA

Networks

Networks are based on social relations and an examination of the ICT sector in Karlskrona reveals an extensive network of ties and interactions between the state (municipal, regional) and non-state actors (universities, firms, incubators, network coordinators) in the local space of Karlskrona. These interactions occur both in a commercial context and also arise at a social level because the region is small and relatively isolated from commercial centres in Sweden. Of particular interest is

Telecomcity, the network responsible for governing the ICT sector in Karlskrona. It provides an encompassing organisational framework for interaction in the ICT sector.

A key feature of networks specified in Table 1 is that they are self-forming by inter-dependent actors. Telecomcity was formed in 1993 at the initiation of the business community and the technical university; key figures from the municipality, the business community and the university played a role including the CEO of a local subsidiary of Ericsson (EP-Data) and the Rektor of the University who worked closely with the major of the municipality. These actors recognised the need for mutual coordination and were aware that they affected and were affected by the activities of other actors (Lundequist and Power 2002). The original funding was provided at a local level by the municipality and the companies in about equal shares. Currently the network is funded at about 60% from the municipality and 40% from private companies. As such, both public and private actors play a role in the network.

The aim of the network has been to broker between individual interests and across government, university and private sectors (Hallencrutz and Lundequist 2003). There are a range of interactive processes and collaborative problem definition and solution which occur within the network, a further feature of networks identified in Table 1. The managers of Telecomcity meet with each company at least twice a year. Information sharing occurs within the network regarding the synergistic activities of other companies and the potential for cooperation and collaboration in seminars and workshops but mainly through the work of the telecomcity managers who communicate on a regular basis with firms in the network. This sometimes results in new collaborations between firms or the linking of customers and suppliers. As a Telecomcity manager reported:

‘Each year we meet with each company at least twice a year. We spread information around and build the network – we tell a company it needs to speak to another company that is doing something of relevance’.

Interviews with firms and the Telecomcity network shows that the awareness that firms acquire of the practices of others firms encourages reflection on their own technological capabilities and future technology development and as such can be understood as a reflexive process, a key characteristic of networks identified in Table 1. One example of this reflective process is the current tendency for firms to focus on wireless applications for the public sector as they have become aware through the

network of the commitment of the municipality and network to the development of that sector.

As such, Telecomcity matches the key features of networks outlined in Table 1 in the sense that the network was self-forming (rather than established by the state), it involves a sharing of power amongst state and non-state actors, actors participate out of a recognition of mutual dependence and the key participants are involved in a process of information transfer and collaborative problem definition and solution through their interactions in the organisational framework of Telecomcity.

Governance

Importantly for the current analysis, the Telecomcity network goes beyond the information sharing and reflection that characterise networks in performing a governance role. Telecomcity works as an agency for facilitating cooperation between the university, government and industry. All 50 companies participating in the network have a seat on the board. The decision making process within the network involves board meetings which are run four times a year. At board meetings, the Telecomcity manager presents running 12 month business plans in which the priorities and activities for each quarter are reported and discussed and modified according to the input of network members. As such, the network constitutes a decision making forum, a feature of governance identified in Table 1.

A further indication of the governance role of the network is that an objective of Telecomcity is to set an agenda for the development of ICT in the region which can be understood as the steering role of the network. When the network was originally established, it had a vision to become the internationally leading environment within telecommunications (Cooke and De Marchi 2002). As one interview reported:

‘Telecomcity was set up with a vision – it still has the same vision – to be the leading international environment within telecommunications ... we have achieved that mission – it remains our mission’.

Interviews within the network indicate that in discussion with the key actors in the region, the vision has evolved with the evolution of the telecommunications industry such that it is now focused on wireless applications for the public sector. As such, the network seeks to influence the policy of the municipality so that it becomes a key

user of wireless applications and provides an important market for local SMEs in the area. The network also seeks to influence the university so that its training and research agenda evolves in line with the vision of the network; the University has been highly responsive to the economic development needs of the region since its inception (Nilsson 2005, 117). As well as setting a policy direction for the development of telecommunications in the region, the network influences the behaviour of the key actors and coordinates their activities in pursuit of the vision, key features of governance identified in Table 1. As one interviewee Telecomcity manager reported,

‘Telecomcity is in the middle, trying to facilitate cooperation between the university, government and industry ... I am paid by the municipality to represent the interests of the companies to the municipality The municipality is responsive to the needs of companies’

Telecomcity is also characterised by the constitutive feature of governance identified in Table 1. It has density and breadth because it is a network of private sector companies which seek to coordinate economic development in the region with a range of other actors including the municipality and the university. As such, there are a wide range of actors involved (incubators, firms, university, municipality) giving the network breadth. All actors are linked to each other through the umbrella of Telecomcity, ensuring that the network has density.

Finally the features of trust, mutuality and collective identities are apparent in the region. As Karlskrona has a population of around 50 000 people, professionals and entrepreneurs in the ICT sector know each other well. Their children go to the same schools and they are former colleagues. When new companies move to the region, they are likely to find themselves at lunch with the CEO of Ericsson, the Mayor of the Municipality and the head of Telecomcity to discuss ways in which they might assist each other to grow. The values of cooperation are strong in this environment; it is a small region and personal relations are strong (Hallencrutz & Lundequist 2003). There has been a lot of movement of people within the ICT sector in the region between the large MNCs, Ericsson and Vodafone and smaller companies. As one interviewee noted,

‘Even if you compete, you do it in a nice way because of your local reputation’.

These factors help to build a sense of trust and reciprocity. There is a strong regional identity around ICT and a sense of pride in the local community that Karlskrona has succeeded in regional transformation and the development of knowledge activities given that it was historically poor and suffering economic decline. As one interviewee noted,

‘In 1990 we were municipality of the year and everyone was very proud’.

Interviewees noted that within Karlskrona there is a strong sense that the telecommunications sector brought success to the region which was previously one of Sweden’s poorest performing regions. As such, the local community strongly supports the sector and there is a desire to ensure its continued success. As such, the Telecomcity network is caught up in the identity of the region and its sense of success. This is supported by the way that outsiders see the region. As the Telecomcity network manager reported, in 2004 there were 150 articles written about telecommunications in the region in newspapers and industry magazines and 75 of those were in national and international outlets. Recent surveys of key decision makers in Sweden show that 30 percent had heard of the network and were aware of for what it stands. Marketing in various newsletters and leading business magazines contributed to the image of successful regional transformation; Karlskrona was portrayed in the media in Sweden and abroad as a unique case of regional transformation and economic dynamism in telecommunications (Nilsson 2005, 126).

There is also a sense of mutual benefit derived from the ICT sector. The municipality benefits from tax revenues from economic growth in local companies and also benefits from revenues generated from the buildings it owns and rents in Campus Gräsvik in which many of the ICT companies are located, in close proximity to the university campus. Interviews within Ericsson and Vodafone suggest that they want to promote other firms in the region, because they no longer want to grow internally given the need for rapid specialised development of components of their technologies. They therefore want to encourage the growth of a critical mass of SMEs with competence in ICT and regard themselves as benefiting from the development of a critical mass of networked ICT firms in the region. The university benefits from the network of ICT in Karlskrona by establishing a profile as one of the leading technical universities in ICT in the country with a specialist mass of MNCs and SMEs in the region within which it is located. As such, the actors within the

region have common goals and a common identity as a high growth ICT region, important foundations for networked governance as identified in Table 1.

LIMERICK

Networks

There is no single network in the Limerick region, instead there are several networks organised and governed by different actors. First is the network of companies in the National Technology Park which was established in 1984 by Shannon Development and the University of Limerick and local authorities. The main focus of the technology park is to establish links between universities and firms in key sectors such as ICT and to provide incubator support to new firms and university spin-offs through the Innovation Centre (now called Innovation Works Limerick). As such, the park is comprised of interdependent actors involved in information sharing which are key features of networks identified in Table 1.

Second, Shannon Soft is a recognisable network within the ICT sector, which has been described as an inclusive network of companies that depend on technology (Shannon Soft 2005). As one of the network's organisers reported, despite its name, its membership is not restricted to companies involved in software development. It received EU funding to develop links and mentoring within the ICT software sector, however, it was initiated by actors within the region who were aware of the need to coordinate activities within the sector, a key feature of networks identified in Table 1. It was established in part because the activities of the peak industry association for ICT are concentrated in Dublin. Shannon Soft is designed to bring together professionals engaged in common practices in order to discuss and reflect on their practice at meetings and workshops. A similar network is the Shannon Supply Network which represents electronics sub-supply companies in the region.

A more inclusive network, seeking to bring together government, university and industry, is the Atlantic Technology Corridor which was launched in 2003 and has a wider geographical spread than Shannon Soft, incorporating Clare, Limerick and Galway. Although there are plans to develop this network further, like Shannon Soft, resource limitations have constrained the activities of the network and it remains at a very early stage of development.

Governance

There are therefore several networks in the Limerick region that might be considered for the purpose of identifying processes of networked governance in the region. Despite the range of networks in Limerick, none can be said to be performing a governance function, resulting in an absence of networked governance in Limerick. None of the networks in Limerick involve decision-making, steering, negotiation and coordination of activities resulting in the changed behaviour of actors in the ICT sector in the region, the defining feature of governance identified in Table 1.

The National Technology Park does not coordinate the development of the ICT sector in the region and therefore cannot be regarded as a form of networked governance as described in Table 1. Instead it seeks to encourage the development and growth of firms located in the park by facilitating networks between firms; the technology park provides support to firms in the nature of a traditional science park including technology and property infrastructure, marketing and business services (Shannon Development 2005). It is not a form of networked governance because it lacks the key features of decision making, steering and coordination as outlined in Table 1; it is not a substitute for government because it functions as a traditional science park rather than a decision making body or coordinating institution. Shannon Soft has developed more in the nature of an informal club than a form of networked governance and one of its key functions is in running training programs and workshops for its members and in providing a mentoring service. Its meetings are sporadic and are oriented towards fostering commercial collaborations rather than policy development for the industry. While the Atlantic Technology Corridor is designed to fulfil the role of networked governance, it is only at the seed stage.

As such, the defining features of governance are absent from these networks. It is also notable that the constitutive feature of governance (density, breadth, trust/mutuality/identity) are also absent. Breadth is missing from these networks because, as the Atlantic technology Corridor website reports, there is an absence of enabling bodies that can foster the development of links across universities, companies and local government and development authorities (Atlantic Technology Corridor 2006). As one interviewee put it, the network was developed because:

‘most would agree that there needs to be more collaboration if the region if we are going to survive’.

The move to form the Atlantic Technology Corridor indicates the lack of breadth and density in current network arrangements. As one interviewee put it,

‘the smallness of Limerick doesn’t make much difference to networking. I have had two companies in the same business working in the same industrial estate and they don’t know each other. Lots of SMEs are insular and don’t see past their own client. The general picture is that SMEs work in isolation and don’t know what is going on around them. They have arms-length relationships with other firms’.

None of these networks are encompassing (or characterised by breadth) in the sense that they bring together all relevant players in the sector in the region. While Shannon Soft and the Atlantic Technology Corridor are open to private firms in the ICT sector, they do not bring universities and the state into a single organisational framework for managing and coordinating ICT development in the region. There is no mechanisms for connecting all relevant actors to each other and as such there is a lack of density in these networks.

Further, Limerick has not developed a strong collective identity around ICT and knowledge activities. Although Shannon Development and the University of Limerick promote ICT, their activities are quite broad and encompass other industry sectors and knowledge activities. The University has a technology focus but its courses and research is broad. The sense of regional isolation in Limerick has spurred the creation of networks such as ShannonSoft and Atlantic Technology Corridor. The main driving force behind these networks appears to be the strong Dublin focus of the ICT sector. However these networks have not yet created a regional identity around ICT in Limerick or served as mechanisms for developing shared goals for ICT development in the region. There are a variety of institutions promoting knowledge intensive activities in the region, including Shannon Development, the University of Limerick and the Technology Park. However, there is a lack of direction and focus in the management of knowledge activities within the region. As such there is no evidence of trust, mutuality or common identity around the ICT sector within the region.

Finally, in considering governance of the ICT sector in Limerick it is necessary to consider the role of the regional development authority, Shannon Development. The

state plays a role in promoting innovation and industry development within the region through Shannon Development. This institution is unique in Ireland as a regional development institution set up in the 1960s to develop an industrial zone and tourist attraction around Shannon airport. It has evolved quite significantly from its original mandate and now focuses on economic development through knowledge enterprise and seeks to stimulate knowledge activities and in particular ICT. Shannon Development was a major force behind the establishment of the university, which was seen as critical to the development of knowledge activities in the region. It has played an important role in the establishment and management of the Innovation Centre (1980) and the Technology Park (1985). It has therefore been critical in the development of the institutional infrastructure of knowledge creation and diffusion in ICT in the region. A key focus of its activities has been the university and the technology park and the encouragement of interactions and linkages between universities and industry. It provides assistance to the Shannon Sub-Supply Network and in that sense can be regarded as sponsoring network promotion in the region. As such, Shannon Development satisfies the decision-making, steering and coordinating features of governance identified in Table 1.

Importantly, however, Shannon Development cannot be regarded as a network itself, because it does not incorporate a range of public and private actors in collective decision making and steering processes. It is a traditional public sector authority with a long established role in regional development (Callanan 2000). As such, Shannon Development's role has evolved in the knowledge economy, such that it might be said to fit the model of the flexible developmental state (Green et. al. 2001, O'Riain 2000) through its fostering of local networks, but this is distinctive from networked governance as described in Table 1 in which networks of public and private sector actors set directions for economic development and thereby take on the role of government.

In summary, an examination of the ICT sector in Limerick reveals a series of different network arrangements (Shannon Sub-Supply Network, Atlantic Technology Corridor, Shannon Soft) in the local space of Limerick. Communication and interaction occurs between the various actors involved in these networks, however, there does not appear to be a process of negotiation of a common strategy for the evolution of the ICT industry in the region. No institution or actor can be said to control the process, nor is any institution or actor playing a role in incorporating and coordinating other institutions and actors in an inclusive and comprehensive approach to the sector. As

such, while the features of networks are present those of governance are not. As many of the networks exclusively involve particular types of actors, the networks lack breadth and there is no organisational framework within which all actors are connected resulting in a lack of density. There is no evidence of regional identity, trust and mutuality; key constitutive feature of networked governance as identified in Table 1. While Shannon Development plays a role in governing the development of ICT in the region, it is not a network of state and non-state actors. As such, the key features of networked governance summarised in Table 1 are absent in the Limerick region.

Comparing local networks: density, breadth and identity as constitutive factors in networked governance

An analysis of the Limerick and Karlskrona cases, utilising the conceptual framework in Table 1, reveals that in both regions there are ties between actors that might be described as networks. Telecomcity and networks such as Shanon Soft in Limerick provide a forum within which companies and other relevant actors in the ICT field can meet and discuss technological and market developments and identify potential opportunities for collaboration. The features of networks identified in Table 1, including the presence of social ties, shared power, shared information, reflection on practice and awareness of mutual influence are present in these business networks in both regions. It would therefore seem that on the surface, both cases provide some evidence of a shift from hierarchies to networks or government to governance (Rhodes 1996; Stoker 1998), in the particular field of economic coordination and knowledge activities (Jessop 2002).

However, only Telecomcity in Karlskrona can be described as a form of networked governance, in the sense that it results in interactive decision-making and the coordination of choices and behaviours amongst actors. Although networks exist within the Limerick region, they do not involve coordination and negotiation regarding the investment of resources or the directions of industry development. It therefore becomes important to distinguish networked governance from other forms of networks involving ties between actors. The various networks in Limerick provide important forums for business interaction, information exchange and training but they do not result in a coordination of members' activities around a common goal of economic development in particular areas of ICT, as occurs through the Telecomcity network in Karlskrona. The case analysis confirms some of the concerns expressed

in the literature on emerging forms of governance that networks often involve dialogue, meetings and social interactions but lack decision-making influence (Davies 2000, Wilson 2003), revealing the gap between the 'dream' and 'reality' of new governance arrangements as Teisman and Klijn (2002) have expressed it.

A further insight to be gained from the case analysis concerns the features of networks which perform a governance role. In the Karlskrona case, the Telecomcity network has particular characteristics that help to explain the governance role that it has played in facilitating joint decision making and a coordination of behaviours around common goals of economic development. These features are density, breadth and trust/mutuality/identity; factors which the theoretical discussion identified as important features of networked governance. The density and breadth of Telecomcity exceeds that of any of the networks in Limerick (such as Shannon Soft, the Atlantic Technology Corridor and Shannon Sub-Supply). The Telecomcity network incorporates the full range of institutions that impact on innovation including universities, firms, the municipality and incubators (breadth) and actors are connected to each other through the umbrella of the Telecomcity administration (density). The networks in Limerick are not encompassing, different networks involve different players and no one network includes the range of actors involved in innovation. There is no mechanism for connecting all of the members of any networks and as such the networks lack density. While the state authority, Shannon Development, has played a role in fostering networks, these networks are not themselves governing ICT development in the region or displacing the role of the state. As such, the role of Shannon Development is more in the nature of a traditional hierarchical form of governance.

Further, in Karlskrona, network arrangements have a strong emphasis on telecommunications and wireless applications whereas in Limerick there is a more general encouragement of knowledge activities. So while the various institutions are engaged in promoting knowledge activities in both regions, in Karlskrona these activities are focused on creating and reinforcing a regional identity based on telecommunications. Interviewees also reported a strong sense of trust and mutuality in the governance of the ICT sector in Karlskrona arising from the small regional context and linked to the success story of regional transformation and the well publicised image of the region's achievements in ICT elsewhere in Sweden and internationally. In Limerick, there was a much weaker sense of identity around ICT

and an awareness of continuing problems in creating a cohesive and coordinated approach to the development of ICT.

These two cases shed some important insights into debates concerning the reframing and rescaling of state space. While many of the features of networks can be identified in both local spaces, there are important differences between the cases. Not all network arrangements can be described as governance networks. Further, the cases provide some support for the proposition that networks must have depth, breadth and an association with values such as trust, mutuality and identity in order for them to perform a governance role. As such, while it is possible to identify a large and growing number of networks in the two regions examined in this research, the networks in the Limerick case do not satisfy the steering and coordinating features of governance networks. As such, the Limerick case provides some support for the concerns raised by Davies (2000), Marinetto (2003) and Wilson (2003) that networks may simply involve dialogue rather than decision making processes.

The emergence of various forms of networks in knowledge activities in local spaces is not necessarily an indication of new models of governance in the sense that has been suggested by the Anglo-Governance School or by economic geographers. These networks do not necessarily perform a governance function in steering and policy making; they do not necessarily perform the role of government. While these networks do involve private actors in social ties, these ties might be associated with an information sharing function rather than a governance function as the Limerick case demonstrates. This suggests the need to approach generalised theories of emerging models of governance with some sensitivity to the empirical context and to cross-regional variation. Claims regarding the emergence of new forms of governance in local spaces may be exaggerated if all types of network arrangements are taken as evidence of a transformation in governance arrangements.

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