Social Capital in Building Regional Innovative Capability

TOMI TURA* and VESA HARMAAKORPI†

*Department of Social Policy, University of Helsinki, PO Box 18, FIN-00014 Helsinki, Finland. Email: tomi.tura@helsinki.fi
†Lappeenranta University of Technology, Saimaankatu II, FIN-15140, Finland. Email: Vesa.Harmaakorpi@lut.fi

(Received December 2003: in revised form June 2005)

Tura T. and Harmaakorpi V. (2005) Social capital in building regional innovative capability, Regional Studies 39, 1111–1125. The paper focuses on the relation of social capital and regional innovative capability. It examines the social nature of the innovative processes placing demands on the regional innovation environment and underlining the importance of social capital. The paper analyses the concept of social capital and problems connected to it. It introduces a conception of social capital defining it functionally as a field-specific social resource of an actor. This conception is applied to analyse social capital as a central element in enhancing regional innovative capability. The relation between social capital and innovation capability is not, however, without problems. This still controversial relation is discussed.

Social capital  Regional innovative capability  Innovation


Valeur de l’interaction sociale  Capacité d’innovation régionale  Innovation


Sozialkapital  regionale Innovationsfähigkeit  Innovation

Tura T. y Harmaakorpi V. (2005) El capital social en el desarrollo de la capacidad innovadora de las regiones, Regional Studies 39, 1111–1125. El artículo examina la relación entre capital social y la capacidad innovadora de las regiones. Examina cómo la naturaleza social del proceso innovador introduce exigencias en el entorno innovador y cuál es la importancia del capital social. El artículo examina el concepto de capital social y todos los problemas asociados con dicho concepto. Se introduce una concepción de capital social cuyá definición se basa en su funcionalidad como un recurso social específico de un agente. Tal concepción se aplica al analizar el capital social como un elemento central a la hora de incrementar la capacidad innovadora de las regiones. No obstante, la relación que se da entre capital social y capacidad innovadora no está libre de problemas. En este artículo, se examina dicha relación.

Capital social  Capacidad innovadora de las regiones  Innovación
INTRODUCTION

Within the last 10 years, the concept of social capital has become a popular term, also used in everyday language. The positive associations connected with it are used as part of societal and political discussion (e.g. Engeström, 2000, p. 2). However, the idea behind the concept is not new in the social sciences: the themes associated with it were already present in classical sociology. As a concept, social capital is almost 100 years old. (Portes, 1998, p. 2).

The strength of the concept is the way it is used to break the disciplinary boundaries and connect their conceptual frameworks. It is hailed as the ‘missing link’ in development, as a complement and catalyst of the other, better-known species of capital (e.g. Grootaert, 1998; Fine, 2001). It pays attention to the non-economic forms of capital and underlines their nature as sources of power and action capabilities (e.g. Burt, 2000), as well as sources of wider economic development (e.g. Knack and Keefer, 1997). At the same time, it brings sociological and economic discussions closer together (Portes, 1998, p. 3). The concept of social capital can be understood as a starting point for the work combining the theoretical frameworks of sociology and economics. This point of view has had an important effect on the use of the concept of social capital in the context of innovations and innovation processes. For example, in Finland it has been used in the research of inter-firm networks, internationalization of firms and family entrepreneurship (e.g. Yli-Renko, 1999; Arenius, 2002; Mustakallio, 2002; Puhakka, 2002). It is considered one of the most interesting concepts in the research of regional innovation processes. In this context, it is of interest in at least the following ways:

- It offers a conceptual framework to specify the processes of non-linear innovations.
- It provides a tool for handling theoretically the importance of networks and strategic alliances in the modern business environment (cf. Lesser, 2000, pp. 9–12).

Innovative capability is widely seen to be the driving force in building regional competitive advantages. The present paradigm emphasizes the non-linear and interactive nature of the innovative processes, which places demands on building a regional innovation environment. Regional innovative capability is understood as the firms and other organizations’ common innovative capability in a region. Therefore, it is formed from the innovative capability of individual actors and innovation networks taking part in the regional innovation system. It is accepted that social capital plays an important role in creating regional innovative capability. However, it is still far from clear what this role is exactly, and its relation to other relevant concepts has not been examined deeply. Moreover, even the basic definition of social capital is still under serious debate. This paper attempts to clarify the conceptual framework related to the concept of social capital in the context of regional development and regional innovative capability. It analyses the concept of social capital and develops a conception called the resource-based view of social capital. Based on this conceptual analysis, it will be argued that social capital has a central role in the creation, re-creation and utilization of innovative capability.

REGIONAL INNOVATIVE CAPABILITY

In the present techno-economic paradigm, innovation is seen as a central driving force of competitiveness. As Archibugi and Michie (1995, p. 1) state, ‘the production and use of knowledge is at the core of value-added activities, and innovation is at the core of firms and nations’ strategies for growth’. The concept of innovation, however, has been understood in numerous ways during the last century. In early approaches, innovations were seen mostly as great leaps of knowledge achieved by talented individuals or research groups. With regard to this, Schumpeter (1942) created his theory of the heroic entrepreneur being the driving force of successful innovation. Innovations were also largely seen to be linear processes from the basic research to the market applications. The famous report by Bush (1945) is generally considered one of the first formulations of this ‘linear model of innovation’.

The linear model of innovation focuses on explicit knowledge developed in research processes. Each level in the linear model produces outputs that are transferred to the next level as inputs. The flow of knowledge is unidirectional, i.e. later outputs do not provide inputs for earlier stages (Kline and Rosenberg, 1986). The linear model of innovation is often connected with radical innovation processes. These processes are mainly caused by science push or market pull effects. Linear innovation processes are, in reality, exceptions. In contemporary discussion, the traditional approach is seen as too research-based, sequential and technocratic. Many others have criticized the linear model due to its incompatibility with the present techno-economic paradigm (cf. Kline and Rosenberg, 1986; Dosi, 1988; Lundvall, 1988; Asheim, 1999). Schienstock and Hämäläinen (2002, p. 50) listed the main reasons for criticism as follows:

- Innovation processes are seen as exceptional events.
- Knowledge creation is understood as a process of
reasoning and inference isolated from the rest of human activity.
● Problems of uncertainty are not dealt with.
● Research focuses only on research and development as the main function in innovation processes.
● Collaborative elements are not seen as relevant.

Nowadays, innovation is seen to be as much a social as a technical process. Innovations are seen to emerge as non-linear processes deeply embedded in normal social and economic activities, and as processes of interactive learning between firms and their environment (Lundvall, 1992; Asheim, 1999). The interactive and non-linear innovation model emphasizes:

- the plurality of the types of production system and innovation (science and engineering is only relevant to some sectors), ‘small’ processes of economic coordination, informal practices as well as formal institutions, and incremental as well as large-scale innovation and adjustment. (Storper and Scott, 1995, p. 519)

In non-linear innovation processes, multidirectional information flows are emphasized in creating and combining knowledge. A non-linear innovation is a consequence of various learning processes embedded in ordinary economic activities, where different kinds of actors are involved. The non-linear model of innovation assumes that innovations can be triggered by diverse causes. When trying to identify these, one must take into account complicated feedback mechanisms and interactive relationships involving science, technology, learning, production and demand (Edqvist, 1997, p. 1). The non-linear model also emphasizes the incremental nature of innovation processes. Incremental innovations take place in long-term processes, combining different, often rather small-scale, solutions to the relevant problems. These innovations are not easily noticeable. Radical innovations, which are based on advancements in science and technology, are thus important but they are only one form of innovative activity.

Evolutionary economics emphasize the uncertain and cumulative nature of innovations (Dosi, 1988). Uncertainty is included in innovations because of the manifold risks involved in the innovation processes. The uncertainty is especially embedded in the unresolved technological problems and in the impossibility of knowing the future consequences of the decisions and choices made. Innovations seldom happen randomly and individually. They follow rather certain technological paths making them cumulative in nature. Thus, innovations are strongly path-dependent and include high-risk factors making it important to promote learning processes and diminish uncertainty in the innovation environment.

Characterizing innovation as a social, non-linear and interactive learning process raises the question of the role of socio-cultural structures in innovation processes (North, 1986, 1990; Asheim, 1999). The socio-institutional environment where innovations emerge plays an essential role in successful innovation processes. From a regional point of view, innovation is consequently understood as a locally embedded process taking place within the regional innovation environment.

A regional innovation environment consists of innovation networks (Cooke and Wills, 1999) aiming at increasing the innovative capability of the system. These networks may take different forms defined by, for example, the origin, size, structure and objective of the networks (Harmaakorpi et al., 2003). However, most regional innovation networks fulfill certain typical characteristics. They are often formed of heterogeneous groups of actors including representatives of firms, universities, technology centres and development organizations. In comparison with innovation networks within or between individual companies, regional innovation networks are looser structures. The values, goals and ways of acting of the actors in a regional network may differ significantly. This emphasizes the role of creating a suitable social and cultural environment for achieving common goals and coordination of action.

The development of regional innovativeness is linked to the following dimensions of the innovation process:

- Gradual and cumulative character of the innovation process – developing gradually and proceeding along trajectories or development paths – which is based on a continuous learning process by entrepreneurs, technical experts and workers engaged in the innovation network.
- Integration of different and numerous technological and organizational knowledge inputs, derived from other sectors and regions, which allow know-how to be renewed and new problems to be solved. External knowledge should be combined with the knowledge and technologies available internally, since the frontier of technology is increasingly at the crossroads of two or more disciplines and traditional cultures.
- Interactive character of the learning process, which involves groups of individuals, both within individual firms as well as outside (social networks). It requires the development of linkages, networks and cooperation between different actors, again outside the channels of existing institutional structures (Cappelin and Steiner, 2002, p. 9, citing Kline and Rosenberg, 1986; and Lundvall, 1992).

Regional innovative capability means the joint innovation capability of the firms and other organizations of the region. Thus, it is made up of the innovation capability not only of individual actors, but also of the entire innovation network, which at best can be much more than just the sum of its parts. Following Teece and Pisano (1998), ‘innovative capability’ is defined here as an actor’s ability to sense the changes in
the environment and exploit existing resources and competencies in order to create competitive advantage by innovation activities. Consequently, the term ‘regional innovative capability’ refers to the ability of the regional innovation networks to exploit and renew existing resource configurations in order to create a sustainable competitive advantage by innovation activities in the constantly changing environment.

Certain theoretical frameworks and concepts are considered to help in analysing the creation of regional innovative capability in the present networked development environment: regional innovation systems (e.g. Cooke et al., 1997; Doloreux, 2002), an innovative milieu (e.g. Aydalot and Keeble, 1988; Camagni, 1991; Crevoisier and Maillat, 1991), industrial districts (e.g. Marshall, 1916; Piore and Sabel, 1984; Beccatini, 1990; Pyke and Sengenberger, 1992), new industrial spaces (e.g. Storper and Scott, 1992; Storper, 1995), a learning economy (e.g. Lundvall and Johnson, 1994), learning regions (e.g. Florida, 1995; Asheim, 1996), etc. In this context, the roles of network leadership (Sotarauta and Viljamaa, 2002; Harmakorpi et al., 2003) and institutions (Amin and Trift, 1995; Nelson and Nelson, 2002) are emphasized. These frameworks are partly overlapping, but each contributes differently to the assessment of regional innovative capability (also Harmakorpi, 2004).

Despite the apparent differences between these approaches, they have several common characteristics. Edqvist (1997) defines nine features that can be found in most of the approaches:

- Innovations and learning are at the centre.
- Assessments are holistic and interdisciplinary.
- An historical perspective is natural in them.
- Differences between systems and non-optimality are present.
- Emphasis is on interdependence and non-linearity.
- Approaches encompass product technology and organizational innovations.
- Institutions are central.
- Approaches are conceptually diffuse.
- Approaches are conceptual frameworks rather than formal theories.

The common features presented by Edqvist give a good overall picture of the theories of regional environment where regional innovative capability is created under the present techno-socio-economic paradigm. Much emphasis is placed on the role of institutions and socio-cultural environment, interactivity, and non-linearity of the development processes and collective learning as a source of innovations.

**SOCIAL CAPITAL AND ITS PROBLEMATIC CONTENT**

The above analysis underlines the overall importance of the socio-institutional features of innovation processes. Innovations are not created in a social vacuum; they take place in a particular social, structural and cultural environment, which affects both their nature and their effects. One of the most promising concepts by which researchers have tried to specify this is social capital. The following sections analyse the concept of social capital, its use and potential in the research of regional innovation environments.

In order to develop these themes further, one should examine the concept and the problems connected with it. It is far from clear what exactly is meant by social capital. The concept has been used in various, sometimes even contradictory, meanings because of different theoretical traditions. Bourdieu (1985), whose background is in the classical sociological discussion of capital, is one of the pioneers of modern research on social capital. Other important theorists are Coleman (1988), who relies on rational choice theory, and Putnam (1993, 2000), whose work is connected to the American communitarian discussion. While there have been important theoretical efforts to combine these backgrounds (e.g. Nahapiet and Ghoshal, 1998; Adler and Kwon, 2000; Woolcock, 2000), they are still quite distinct in empirical research. This has been especially the case between the economists concentrating on the social capital of individuals and networks on the one hand, and the social political research of communities on the other.

Even if the overall importance of social capital in regional innovation processes has been accepted, its specific role in producing innovations and creating innovation systems is far from clear. This is partly due to the theoretical looseness and unspecificity of the concept, and partly to the undeveloped methods for empirical research of social capital. It is not yet known exactly how social capital should be measured and estimated (Simpura, 2002, pp. 218–220). For example, Stone (2001) argues there is a gulf between the theoretical understandings of social capital and the ways in which social capital has been measured empirically. Furthermore, many recent measures of social capital focus on a wide institutional environment and on such community-level indicators that are hardly applicable to the research of regional innovation networks (e.g. Beugelsdijk and van Schaij, 2003; Stimson et al., 2003). Puhakka (2002) makes an interesting effort to develop a network-level measure of social capital.

In general, social capital refers to the possession of social relationships and membership in collectives, and to the resources that derive from these relationships and memberships. Portes (1998, p. 7) explains the basic idea behind the concept as follows: ‘[w]hereas economic capital is in people’s bank accounts and human capital is inside their heads, social capital inheres in the structure of their relationships’. Unfortunately, the common understanding of the meaning of the concept ends here.

One of the most cited contemporary analyses of
social capital is that of Nahapiet and Ghoshal (1998, p. 243), who define social capital as ‘the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships’. The authors analytically separate three dimensions of social capital. The structural dimension concerns the properties of the network as a whole: the impersonal configuration of linkages between actors – who you reach and how you reach them. The relational dimension describes the personal relationships between the members of the network. Friendship, respect and reputation are a few examples of this. The third dimension of social capital is labelled the cognitive dimension. It refers to the social assets such as shared representations, values, interpretations and systems of meaning. The common characteristics of all these dimensions are that they constitute some aspect of the social structure and that they facilitate the actions of individuals within the structure (Nahapiet and Ghoshal, 1998, p. 244).

Nahapiet and Ghoshal (1998, p. 245) identify two important productive effects of social capital in networks. First, it increases the efficiency of action, especially by creating effective ways of distributing information through minimizing redundancy, and by reducing the transaction costs through lessening the need for monitoring processes. Second, it creates opportunities for adaptive efficiency. By encouraging cooperative behaviour, it facilitates creative interaction and collective learning processes.

When trying to specify and apply the concept of social capital, one has to face certain, as yet unsolved, problems. The following questions, at least, are relevant in the context of this work:

- Is social capital the property of individuals or collectives?
- What is the relation between social capital and concepts such as institutions, trust, reputation, networks or social positions?
- Can social capital be dysfunctional or harmful?
- Could there be ‘too much’ social capital?

Two main groups of the definitions of social capital have often been roughly distinguished on the basis of whether they understand social capital as a property or as a resource of individuals or communities (e.g. Adler and Kwon, 2000, pp. 90–93; Grootaert et al., 2003, pp. 3–4). The first group, which is linked to the sociological network theory, is based on the idea of actors using their memberships in different networks and their connections to the others. Through social capital, these theories explain the differing success of actors in competition and power structures. This is the view adopted by Bourdieu (1985) and Portes (1998). Burt (2000) advocates the other view belonging to this group: he underlines the capability of an actor to use the structural holes in their social networks. Adler and Kwon (2000, p. 92) call this group of theories the ‘external view of social capital’. This interpretation has been criticized for its neglect of the importance of social capital for the whole network or community. Some theorists want to include an idea of ‘public good’ (e.g. Putnam, 2000, p. 20) in the concept of social capital. Social capital is understood as a property of collectives or networks, which also makes it meaningful to say that one collective can have more or less social capital than another. Robert Putnam is one of the best-known representatives of this view, called the ‘internal view of social capital’ by Adler and Kwon (2000, p. 92). In Putnam’s theory, social capital is formed by such things as associational involvement and participatory behaviour in a community (Portes, 1998, p. 18). According to the community-centred interpretation, trust, common norms and shared values are the most central elements of social capital.

The present authors believe these interpretations confuse the definition of social capital with its specific forms and with the mechanisms that maintain it. Social capital comes from very different sources, separated, for example, on basis of their level (micro versus macro) or their content (Woolcock, 1998, pp. 161–165). The inclusion of ideas such as overall trust in the definition of social capital restricts one to see only some individual, contingent forms of social capital. This is true both for the external and the internal views: a person’s social networks as well as the overall trust of a community are different, but equally relevant, sources of social capital and are not social capital as such.

Why is this the case? To argue this claim, one can draw a parallel with economic capital. On what basis is something called ‘economic capital’? How does one recognize certain objects as money? The answer given by the conventionalist theory of institutions (e.g. Lagerspetz, 1995; Searle, 1995) is that something is money only if one believes it is money. More specifically, an object counts as money if and only if there is a practice or context where that object functions as money. In this way, economic capital is an institutional form of capital.

The claim here is that social capital has basically the same kind of features. There cannot be social capital without there being some kind of convention or common practice that defines the relevant forms and scope of social capital. Something becomes social capital only in a certain context, in certain circumstances. Thus, just as a squirrel skin or a small piece of metal count as ‘money’ in a given practice, a social relation counts as ‘social capital’ only in a given context. This concept of social capital will be analysed below along with an explanation about what it means for a social relation to be a part of an actor’s social capital.

The connection between definition and individual forms of social capital may also bring one close to a vicious circle: the success of collectives is explained by their social capital, which is, at the same time, the central criteria for that success (Portes, 1998, p. 19). Common values and norms as much as emotional
commitments are certainly important sources and mechanisms of social capital, but they should not be confused with its definition.

Another possibility is to define social capital as generally as possible. Thus, according to Woolcock and Narayan (2000, p. 226), 'social capital refers to the norms and networks that enable people to act collectively'. This definition does not restrict social capital to its specific forms, sources or outcomes, but connects to the concept all those social phenomena that serve a certain function. The danger in this way of thinking is that it contains all the possible social phenomena and finally loses its theoretical and empirical force. Lin (2001b, pp. 9–10) argues that this is also the central problem in the public-good view: by divorcing the concept from its roots in networking and individual interaction, it becomes merely another term to employ in the broad context of improving social integration and solidarity. It is possible to formulate causal propositions between these features and social capital, but they should not be included in the concept itself. Correspondingly, we want to maintain the original idea of social capital as a species of capital, and believe that the strength of the concept lies just in the recognition of this capital-nature. There are other perfectly legitimate and well-formulated concepts for describing social cohesion and integration, and they add little to our understanding to call them social capital. On the other hand, one needs a concept to clarify the social element of the success and its differences between individuals, companies, communities, regions and countries. This is where the concept of social capital is most promising.

One relevant problem concerns the dysfunctionsality of social capital: its possible risks and disadvantages. Discussion about social capital has focused on its benefits, while research on its risks has, until recently, been scarcer (Adler and Kwon, 2000, p. 106; Westlund and Bolton, 2003). In particular, many theorists of the communitarian view have ignored these ‘perverse’ forms of social capital, which hinder more than enhance development (Woolcock, 2000). The main problem with social capital is that in spite of its apparent advantages, it also seems to facilitate a certain closure of a community and restricts its sensitivity to new information and alternative ways of doing things (cf. Nahapiet and Ghoshal, 1998, p. 245). Thus, a high level of social capital can in fact become an obstacle for reaching certain goals. For example, it may in certain cases restrain innovativeness.

When speaking about the dysfunctionsality of social capital, one could compare the advantages and disadvantages of social capital. This line of thought easily guides one, in turn, to assume that it is possible to value social capital as such as ‘good’ or ‘bad’. On the other hand, some examinations of social capital have raised the idea of the ‘optimal’ level of social capital: that it is possible to have too much of it (e.g. Woolcock 1998, p. 158).

According to the authors’ view of social capital, this line of thought is partly misleading. Social capital is in itself a value-free concept, even if its use often has positive and negative consequences. When one analyses the effects of social capital, it must be located in a specific context. These effects have value in relation to a certain environment and certain objectives. Social capital can be evaluated only based on how it ‘works’ or ‘does not work’ in order to reach those objectives. Of course, the use of social capital may well have positive or negative influences on an actor, his/her environment, or on wider society. This question will be returned to below.

CONCEPTUALIZING SOCIAL CAPITAL

The authors’ interpretation will be called a resource-based view on social capital. According to this view, social capital refers to an actor’s resources, the sources of which are located in the social relations of the actor. These resources making up social capital enable certain actions or the making of obtainable certain objectives that would have been impossible or unattainable without those resources (cf. Nahapiet and Ghoshal, 1998, p. 244). This view comes close to Lin’s (2001a, p. 29) definition of social capital as ‘resources embedded in a social structure that are accessed and/or mobilized in purposive actions’.

In the authors’ view, social capital is connected to the action capacity and action possibilities of an actor. The action capacity of an individual or collective actor consists of different resources that the actor uses and applies to his/her actions. One group of these resources are the actor’s positions and relations in social structures and networks: what is his/her social status, what kind of friendship relationships does he/she have, and what kind of cultural and value-based communities does he/she belong to. This combination of the actor’s social resources will be called his/her social capital. Through social capital, an actor has the capacity to mobilize other actors and their resources. Defined in this way, social capital is strongly connected to action. It is ‘material’ an actor can use in his/her action. At the same time, it can limit some other actions and possibilities. Theoretically, this resource-based view is associated with the critical realist social theory and with its philosophical background, realist interpretation of causality (Harré and Madden, 1975; Bhaskar, 1989; Manicas, 1993; Archer, 1995).

Thus, the authors’ definition of social capital is the following: a social relation between a and b; R(a, b), is part of a’s social capital if and only if a has such action opportunities, or access to such resources, he/she would not have without the relation R(a, b). In other words, b accepts or attributes certain action opportunities to a because of this relationship between them. This means that social capital is a capability-like resource: it is closely connected to the things one can do, while, for
example, physical capital is more about things one has. It is also dispositional: it can exist even if it is not exercised – or even recognized – at a given moment.

This definition of social capital basically follows Coleman’s (1988, p. 101) functional definition. In the same way as ‘chair’ or ‘money’ identify certain objects by their function, ‘social capital’ identifies certain aspects of social structure by their function (also Sandefur and Laumann, 2000, pp. 70–71). This implies that one can examine a given social relation of an actor as part of his/her social capital, as well as from the other points of view. A social relation of an actor becomes social capital when it functions by increasing his/her capacity for action and access to relevant resources.

Then what is the relation between social capital as a resource and the related concepts such as trust, reputation or shared values? There has to be a causal basis for the social capital: some social mechanism that states how a certain social relation connects to the relevant action capabilities. In explaining this, Ruuskanen’s (2001) analysis of the sources, mechanisms and outcomes of social capital is followed. Ruuskanen differentiates three basic sources: social norms and control, common identity, and ‘enlightened rationality’, which prefer long-term benefits of cooperation to short-term benefits of self-interested action. Moreover, two basic mechanisms transmit these sources to concrete benefits such as reducing transaction costs or getting social support: trust and communication (Ruuskanen, 2001, pp. 45–47).

The social mechanism forming the causal basis of social capital can be described by analysing the combination of sources, mechanisms and outcomes. For example, how does my belonging to a local club give me specific action opportunities? To answer this, one may describe how the group has a strong sense of togetherness. Because of this common identity, the members of the group trust me. Moreover, the other members assume that doing business with trusted people like me, for example, reduces their transaction costs and level of uncertainty. Thus, my membership in the group increases my opportunities for business cooperation with the other members. In a similar vein, other causal descriptions of social capital can be formed following Ruuskanen’s conceptual framework. The concepts of trust or shared values may become a part of these descriptions.

It can be argued that the authors’ interpretation of social capital is individualistic. It is true that the authors’ emphasize the capacities and action opportunities of actors instead of communities. However, this is at least partly misleading. First, it is important to realize that ‘actor’ can be collective as well as individual. Second, social capital is produced only at the collective level and it can only be used through it. Social capital is ultimately a collective phenomenon, despite the actor-focused perspective. This position comes close to that of Bourdieu (cf. Sisäinen, 2000, p. 11). But does our view make it possible to define the measure of collective social capital of a certain community or network? This is not a simple task: how to compare, for example, social capital based on value unity with social capital based on the social positions of actors. Some of these structures of social capital form the zero-sum game; while in others, the social capital of a collective may increase with the individual social capital of its members. In our view, such a comparison should thus start from the analysis of the general structure of social capital within the collective.

Moreover, we are not saying that social capital cannot be understood also in connection with the idea of public good. It is perfectly legitimate – and probably right – to claim that social capital tends to be high in societies or communities with a high average level of personal trust, and where the public institutions are non-corrupt and trustworthy. However, the point being made here is that this general trustworthiness in a given community is not, conceptually, social capital in itself. Social capital is about the causal action capabilities of the (individual or collective) actors, but its sources can certainly be located in the features of the civic society. For example, the overall trust of society tends to raise the level of general safety in that society and thus make it easier for an actor to ask for help or move safely at night. Thus, belonging to a group can be a source of an actor’s social capital only if there is some causal mechanism through which this belonging is mediated or transferred to an action capability of the actor.

According to the resource-based view, social capital is not independent of its context. A certain social capital ‘works’, is causally relevant, only in certain fields of action. This context-dependence will be called the ‘field-specificity of social capital’. This simple idea has some important consequences. The concept of field-specificity helps to understand the problems of the use of social capital. There are situations where an actor’s social capital is ‘worthless’. A simple example of this is a distinguished scholar, who has high social capital within the scientific community. This status does not, however, automatically give his/her social capital outside that community, in fields such as the business environment where both the respected actors and the rules of the field differ significantly from those of the university. The scholar’s social capital – resources based on a certain social status and relations – is not causally relevant in another context or field.

In this interpretation, those elements of social community often labelled under the concept of social capital (e.g. Putnam’s, 1993, work on modern Italy) are not in fact defining features of the concept. How does our conception, then, help to understand the social element of individual and community-level success? The main reason is that by separating the concept of social capital from its sources and by using the idea of social capital as a field-specific resource, it is possible to understand how social relations can enhance the chances for success.
in various ways: in principle, there is no reason to treat Burt’s (2000) structural holes as neither more nor less fundamental components of social capital than, for example, general trust between people in a given community. Thus, we try to explain how the different conceptions of social capital point in the same direction.

A community with a common value ground, high trust between members and a community-oriented atmosphere have not necessarily ‘more’ social capital than communities with looser social relations. It is possible that the weak ties (Granovetter, 1973) of an actor are more fruitful for his/her action capabilities than very close, strong ties. This is also underlined in the separation between ‘bridging’ and ‘bonding’ social capital (e.g. Putnam, 2000, pp. 22–24). Bridging social capital creates bonds of connectedness that are formed across diverse horizontal groups, whereas bonding capital connects only the members of homogeneous groups (Granovetter, 1985; Putnam, 2000). This division of social capital into bridging and bonding becomes crucial in assessing regional innovativeness, since it is essential both to build an atmosphere of trust in each innovation network and to keep them open in order to allow the necessary flows of information to take place. This will be returned to when analysing the role of social capital in innovation networks.

The conception presented here should hopefully also have some implications for the empirical research of social capital. This question cannot be thoroughly discussed here, but we would like to make a few short methodological comments. The first is quite obvious and generally accepted: social capital is a multifarious and multidimensional phenomenon with no single source, and in general, it should also be analysed as such. Of course, in an individual empirical study, it is reasonable to limit the scope of the concept, but this does not undermine the general point. The present analysis is an effort to cope with this multidimensional nature of the concept.

Second, as Stone (2001, pp. 4–6) notes, social capital research has frequently relied upon measuring the behavioural outcomes of social capital as indicators of social capital itself. For example, the level of civic engagement (memberships in formal associations, voting activity, etc.) has often been used as a proximal indicator of social capital. Moreover, distal indicators such as life expectancy, suicide rates or unemployment rates have been used as measures of social capital. Stone argues that this is confusing: behavioural outcomes may or may not be valid indicators of social capital, but they cannot be used as measures of social capital itself. There is also a tautological problem:

research reliant upon an outcome of social capital as an indicator of it, will necessarily find social capital to be related to that outcome, without empirical means to explain why, or indeed whether, this is so.

(Stone, 2001, p. 5)

Third, social capital should be analysed in its institutional context. For example, an empirical observation that there is a high level of overall trust between the members of a given network states there is a high level of trust, but not much more. To understand its relevance to the social capital of actors, one has to understand how it is ‘transferred’ to the action capabilities, i.e. how does it enhance the actor’s chances to mobilize, for example, the resources needed.

These brief comments provide some directions when trying to develop adequate indicators of social capital. First, one has to seek indicators of general, overall social and cultural relations in a given society, as well as field-specific indicators of network-based action capabilities. One also has to focus on both the bridging- and bonding-type indicators of social capital. Second, one has to separate clearly the indicators of social capital from the indicators of its outcomes. Third, every indicator used has to be based on a systematic understanding of the mediating mechanism between the measured feature and the action capabilities to which it gives rise.

SOCIAL CAPITAL IN BUILDING REGIONAL INNOVATIVE CAPABILITY

This section discusses the idea that social capital somehow affects the innovative capability of a regional innovation network. Maskell (1999, p. 3) summarizes this general line of thought:

Firms in communities with a large stock of social capital will . . . always have a competitive advantage to the extent that social capital helps reduce malfeasance, induce reliable information to be volunteered, cause agreements to be honoured, enable employees to share tacit information and place negotiators on the same wave-length.

Schienstock and Hämäläinen (2001, p. 144) separate four main economic impacts of social capital. First, it affects the productivity of the network by reducing general uncertainty in the specialization and division of labour. Second, it reduces the transaction costs in the network. Third, it affects the coordination costs of the network. These three effects are connected to the internal dynamics and efficiency of the network. Fourth, and perhaps most importantly, it affects the innovation processes by shaping the amount and diversity of knowledge achievable by an actor. This effect ultimately connects social capital with innovativeness. However, separating these general functions of social capital does not in itself state how social capital is used in innovation-creating activities and what are the mechanisms connecting social capital to innovative capability.

The authors’ definition of innovative capability refers to an actor’s ability to exploit and reconfigure existing
resources. According to this definition, the basis of innovative capability are the resources and competencies of an actor. These resources can be physical, economic, intellectual and social. The innovative capability of an actor is a combination of such resources and the ability to use and apply them. Thus, one can understand social capital as one element in the basis of an actor’s innovative capability. An innovative actor is capable of effectively using and renewing his/her social relations and action opportunities acquired with them in order to create innovations.

When moving from the individual level to the innovative capability of a community, an organization or a network, the role of social capital changes significantly. It is not only one resource among others, but also is located at the centre of the whole innovative capability. Social capital is a resource that gives an organization or network the capacity to use the material, economic and intellectual resources of the whole collective, as well as social resources reaching outside the collective.

When the innovative capability of the network is seen as a capability to organize and use the resources of the network to enable and support the innovation-creating activities, social capital can be understood as a ‘licence’ to use and develop this capability. In a network, at least some members have this ability to affect the innovation-creating activities of the whole network. This helps one to understand the necessary role of social capital in building the innovative capability of the network. Every member of the network may have a high innovative capability individually, but without anyone ‘licensed’ to combine, organize and use the individual resources and capabilities of the other members, one cannot speak about the innovative capability of the network.

The relation between innovative capability and social capital is, in fact, bidirectional. On the one hand, the innovative capability of a network refers to the capability of the network to use the resource configuration of the whole network through the mobilization of social capital. On the other, through innovative capability the network transforms and restructures its resource configuration, including its social capital. The restructuring process is fundamentally based on a recognition of the relevant changes in the environment of the network. This bidirectionality is illustrated in Fig. 1.

This analysis is in itself applicable to any kind of innovation network. However, regional innovation networks, which are our focus in this paper, have at least two characteristics. First, they are typically larger and more heterogeneous than, for example, inter-firm networks in a certain business area. Second, the purposes of regional networks differ from inter-firm networks: their common target is to contribute to the success of the whole region, while the specific aims of the actors focus on their own success. This difference can be clarified by separating two kinds of innovation networks.

**Planque** (2002, pp. 21–23) calls these two main forms of innovation networks mono- and multifunctional innovation networks. Monofunctional networks are concentrated on one, specific objective or task. In these networks, partnerships are typically formed around a certain stage of the innovation process (e.g., research and development) in order to use resources more efficiently. They often exist for only a limited time. In contrast, multifunctional innovation networks combine very different kinds of actors from the whole innovation chain. Their goal is not just to use existing resources effectively, but also to form a new, continuing innovation process capable of creating new resources. The innovation processes of these networks are typically non-linear. In the present context, regional innovation systems as well as local science and technology parks can be interpreted as showpieces of multifunctional networks.

Multifunctional networks combine actors whose aims and ways of acting may differ significantly. This is why the importance of social resources is emphasized in these networks even more than in monofunctional networks. When specific goals do not bind the actors of the network together, the motives and reasons for acting together have to be found in the benefits of the long-term, resource-creating processes. According to the framework developed herein, a central precondition for the recognition and utilization of these benefits is sufficient social capital among the actors of the network.

Probably the most important defining feature of regional innovative capability is that the relations in a regional innovation environment are deeply embedded in everyday interactions within a certain geographical space. A regional innovation environment is not developed in a vacuum, but it always has its roots in the institutional set-up and practices within a region. This implies that it is unreasonable to speak about social capital of an innovation network as such: the development of social capital in the context of innovation activities is deeply connected to the development...
of social capital in regional activities in general. To understand the role of social capital in regional innovative capability, it is necessary to see this connection between overall social capital in a region and social capital within a given innovation network.

Therefore, how can one understand the regional differences in the innovative capability by applying the concept of social capital developed above? The present analysis suggests that the number of social relations in a region is not, in itself, critical for the development of regional innovative capability. Rather, it is the *diversity* of these relations that enhances the regional ability to take advantage of different sources of information, and thus promotes the chances for successful regional innovation processes. For example, the presence of different minority groups has been argued to be one factor enhancing innovativeness in a region (cf. Florida, 2002). However, not this cultural variation in itself but rather the high level of inter-group connections within the region is relevant for the diversity of available information and thus for the regional innovative capability.

The present analysis, then, implies that the regional differences of innovative capability are connected to the social capital in the following way: the more connections between the different fields of social capital (see the above analysis of field-specificity), the more potential for regional innovativeness. These links between different fields of social capital will be called 'cross-field connections'. Cross-field connections refer to the multitude of regional and interregional cross-connections. For example, members of minority groups are not only acting within their own community, but also in interaction with the other groups in a region. The idea of cross-field connections is close to the idea of bridging social capital, but they should not be confused. Bridging social capital refers to the weak ties between *actors* from different communities or regions, while cross-field connections refer to *any* kind of interconnections between different *fields*. Regions scoring highly in innovative capability have the ability to exploit resources from various fields: ethnic and religious groups, sports clubs, economic interest groups, etc. Some cross-field connections may, of course, be a source of bridging social capital for an actor.

We believe that the relevance of the resource-based view of social capital for the research of regional innovativeness lies precisely here. By paying attention to the field-specific nature of social capital and by analysing social capital as an action capability, one can make the idea of cross-field connections understandable. The apparent weakness of innovative capability to the idea of close intra-group integration clarifies the role of social capital plays in a socially and culturally diverse region. In some fields, the sources of social capital may be based on common values or habits, while in other fields, on common economic or other interests. In the context of innovation activities, differences between regions are due to the actors’ ability to exploit these different sources. The structure of social capital in an innovative region is such that the actors have, via multiple cross-field connections, a multitude of ‘licences’ to take advantages of resources from different fields.

**SOCIAL CAPITAL: PREREQUISITE OR OBSTRUCTION FOR REGIONAL INNOVATIVENESS?**

The relation between social capital and innovativeness is not without its problems. There is empirical evidence that social capital in fact has a positive effect on the innovation activities of firms (e.g. Landry *et al.*, 2002). On the other hand, some important counter-evidence has been presented in the argument that social capital enhances the innovative capability of a region. Florida *et al.* (2002) claim that places with a high social capital are in fact the worst places for innovation and creative processes. They base their argument on large empirical data that show that areas with low levels of innovation scored highly on social capital, and vice versa. They argue that regions with a high social capital become complacent and insulated from outside information and challenges.

Fromhold-Eisebith (2002) argues in a similar vein for the complementarity of the concepts of social capital and innovative milieu. She states that the general purpose of social capital is ‘to sustain elements of stability and reliability in an environment of change’ (p. 8), while an innovative or creative milieu is more of a change-oriented concept. This idea of complementarity is an important contribution to the debate on social capital. Innovative processes demand the ability to adopt new information and new actors, as well as new ways of acting. The concept of innovative milieu is an attempt to explain these features.

However, the present authors believe that this idea is problematic in its detail. The problem is basically conceptual: it equates social capital with stability. It is based on the idea that the stronger the ties in a given collective, the more social capital is present. If our resource-based definition of social capital is accepted, this is not necessarily the case: the sources of social capital may come from various kinds of social relations, e.g. from the weak ties as well as from the strong ones. The apparent weakness of innovative capability to the Fromhold-Eisebith and Florida *et al.* refer, is in fact connected to two ‘lock-ins’ of social capital: the closure of the network and collective blindness. *Closure* refers to the way a network separates itself from its environment. The members of a closed network have close, interactive relations within the network, but only a few or loose relationships with the actors outside the network. By the concept of collective blindness, we refer to the way a network may collectively set its focus erroneously: it may be misled in its goals and on the
appropriate means to reach them. These risks can appear with the maintenance and utilization of social capital. However, they do not follow from the development of social capital.

This can be explained by the concept of field-specificity. It was claimed above that social capital is relevant only in certain fields of action and in relation to certain objectives. Think about a tight network with high trust, common values and common ways of acting among the members: a network with ‘good spirit’. The actors of the network interact mainly with each other, holding meetings resulting in a common understanding and agreement of the high trust and exceptionally good spirit of the network. What can one say about the innovative capability and social capital of this network? Fromhold-Eisebith and Florida et al probably would state that the innovative capability of the network is extremely weak. It is easy to agree with this judgement: the network does not adopt new information, and its creative tension is practically non-existent.

Is there, then, too much social capital within the network? Assume that the network in question is a regional innovation system, and thus its main function is the creation of opportunities for innovations. The resources of the network and its members should support this function. They have to be relevant to the field in question. In this network, this is not the case: the social capital the network offers to its members does not work as a means of reaching the objectives of the regional innovation system. One can say that either the network works in the wrong field (the social capital creates action opportunities the actors do not in fact pursue) or it works in the right field but in the wrong way (the actors do not in fact have the social capital they would need).

The weakess of the innovative capability of the network is thus a consequence of the closure of the network and its wrong direction (collective blindness), not of the quantity of social capital as such. The mistake in the argument of Fromhold-Eisebith and Florida et al is their tendency to see social capital in such way that it is, by definition, directly proportional to the closeness of the relations between the actors of a community. Rather, the problem described here refers to the aforementioned difference between bridging and bonding social capital.

Although bonding social capital can be seen as fruitful for the functioning of one innovation network, the regional innovation system, being formed characteristically of networks of high-bonding social capital, might lead to unwanted results. The closeness of an innovation network harms both the network itself, by decreasing its absorptive capability, and the entire innovation system, since closed networks may act against the interests of other networks leading to rent-seeking behaviour reducing the aggregate economic performance (Olson, 1982). The positive effects of bridging social capital are due to its nature in bringing the individual innovation networks into interaction with its environment. However, this is a question of empirical circumstances, not conceptual analysis. The concepts of ‘tight community’ and ‘community with high level of social capital’ should be separate.

The idea of having ‘too much’ social capital is basically on the right track. However, the way the idea is often put inside quotation marks should in itself indicate its conceptual fuzziness. One should be able to conceptualize this idea with more rigour and clarity. We believe that the concept of field-specificity may be helpful. In order to understand and explain the success of different regions, it is hardly clarifying to search for the ‘optimal’ level of social capital. At best, one could say that some amount of social capital is needed, but not be able to explain why social capital sometimes seems to enhance innovativeness, sometimes not!

This discussion underlines the fact that in order to analyse the relation between social capital and innovative capability, it is not enough to examine the amount of social capital. The research also has to focus on the way the network in question is organized to produce innovations. Analysis of the differences between regions is thus primarily a comparison of the different regional profiles of social capital, not a comparison of the regional levels of social capital as such. Taking the concept of social capital developed here seriously implies that it is the balance of different forms and dimensions of social capital that is critical to the differences between the regions. Thus, the aforementioned idea of having ‘too much’ social capital should in fact be interpreted as having an unbalanced structure of social capital.

**CONCLUSIONS**

This paper is not trying to provide a ‘final answer’ to the problems of the concept of social capital. The link between social capital and regional innovative capability has to be analysed and discussed more thoroughly. However, the authors believe that the conceptualization of social capital developed above points the way for future analysis. This final section opens a discussion about ‘creative social capital’ as a form of social capital needed in the regional innovation environment and ‘network-facilitating innovation policy’ as a policy implication to promote creative social capital.

Related to the reasoning of Florida et al., Sotarahta and Mustikkamäki (2001) see paradoxes and differences in networks as a driving force of the networked innovation processes. They present a term ‘creative tension’ as a counterbalance for social capital in a networked environment. Creative tension is needed, because regional development is moving toward an insecure and unknown future in a turbulent world. Actually, social capital and creative tension should not be seen as competing forces in a regional innovation environment. Tolerating of a certain creative tension and maintenance of social capital go hand in hand in
developing a regional innovation environment. This can be captured by the concept of ‘creative social capital’, which describes the form of social capital needed in the regional innovation environment. The characteristics of creative social capital are as follows:

- It is understood as a field-specific resource.
- It is a balanced amalgam of bridging and bonding social capital.
- It includes the elements of creative tension.
- It supports the necessary socio-institutional change caused by techno-economic development.

One starting point of this paper was the idea of an innovation policy as the most important sector of regional competitiveness policy. Earlier, the innovation policies have been very much equivalent to the science and technology policies emphasizing the science push effect in creating innovations. However, the causality between science and innovation has proved weaker than expected (SCHIENSTOCK and HÄMALÄINEN, 2001), thus creating a demand to foster other sources of innovation and to design new forms of innovation policies.

It is believed that a system approach-based, network-facilitating innovation policy is the modern way to enhance the regional innovation environment and creative social capital in it (SCHIENSTOCK and HÄMALÄINEN, 2001; HÄMAAORKORPI, 2004). The network-facilitating innovation policy pays particular attention to the communication, cooperation, and networking processes among firms and support organizations aiming to tackle all areas of systematically weak performance in the regional innovation environment.

The network-facilitating approach recognizes that different parts of the innovation process may become bottlenecks in the successful development of new products and processes leading to many kinds of systemic failures also regarding social aspects (LUNDVALL and BORRÁS, 1999; SCHIENSTOCK and HÄMALÄINEN, 2001). All such failures are potential targets of regional innovation policies and strategies (OECD, 1998). The characteristics of the network-facilitating innovation policy in promoting creative social capital in the regional innovation environment are as follows:

- It sees creative social capital as the most important form of capital in innovation processes.
- It facilitates the formation of new multi-actor, multi-discipline innovation networks in an unorthodox way (HÄMAAORKORPI and PEKKARINEN, 2003).
- It enhances future-oriented collective learning processes and systematic knowledge conversions in the regional innovation networks (HÄMAAORKORPI, 2004; HÄMAAORKORPI and MELKAS, 2004).
- It emphasizes mode 2 knowledge production in the innovation processes (GIBBONS et al., 1994).
- It tries to lower the obstacles of creativeness in the regional innovation environment and achieve collective creative eruptions in the regional innovation networks.

NOTES

1. On the link between social capital and the classical forms of capital, see, for example, LIN (2001a).
2. A more detailed grouping is developed by WOOLCOCK (2000), who identifies four distinctive views based on their understanding of the principal sources of social capital.
3. Thus, the authors strongly disagree with ADLER and KWON (2000), who claim that financial capital does not require social maintenance.
4. Apart from these, there are also other important risks of social capital. Among them are the problems of free riding and moral hazard, as well as the risks of the fragmentation of a broader society (e.g. ADLER and KWON, 2000, pp. 106–107).

REFERENCES


Social Capital in Building Regional Innovative Capability


Granovetter M. S. (1973) The strength of weak ties, American Journal of Sociology 78, 1360–1380.


