

Regional Actor Networks Between Social Capital and Regional Governance

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The development of regions depends on the social capital of regional actors. Reliable relations between actors help to move in a personal network. Social capital is a connecting bridge supporting the exchange of resources between actors. According to Coleman there are two basic principles which have to be maintained in order to create sufficiently social capital: "closure" and stability of social networks. Only in social networks with closure the actors may effectively combine their resources in collective sanctions. Examples for closure in social networks are cliques, social circles and multiplex relations. In the center of the analysis is the interaction between these patterns of relations and the influence of actors on regional decision processes. Based on empirical data collected from elite actors in the region of Hannover/Germany we show that closure of social structures facilitates the creation and maintenance of social capital in actor networks. In contrast to hierarchical instruments such as plans or promotional programs cooperation models which are based on the understanding and self-control of the actors concerned gain more and more importance in regional development. This cooperation is supported and coordinated by "regional management". A prerequisite condition for self control is a network between the actors, which does not a priori follow certain aims. It is supposed: If "purpose-open" networks are successful, they are a productive collective property. Therefore they belong to the infrastructure of a region and strengthen its social capital. Regional management may use this productive collective property. But it may and has to form and support regional networks as well in order to improve the chances of development of a region by cooperation. With the example of the region of Hannover/Germany the paper shows information about regional networks that can be gained in practice, and it presents interpretation possibilities with regard to regional development of the network structures found and describes starting points for action based on this interpretation.

REGIONAL ACTOR NETWORKS UNDER DEVELOPMENT PRESSURE

Actors of all sectors of the economy are more and more sucked into the whirlpool of supraregional and global networks. Not least supported by the Single European Market they are increasingly bound in supraregional relations (Cooke, 1995). The globalization of the economy, the dissemination of new information and communication technologies as well as changed ways of production (lean production, out-sourcing, just-in-time etc.) resulted in an "enlargement of scale" of eco-

¹ Based on a paper presented on the International Sunbelt Social Network Conference in Charlston in February 1999.

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conomic activities (Toffler, 1987). In contrast to that the political regional actors still think and act – due to their function – primarily locally and in administrative limits.

Globalization is connected with a loss of the spatial pattern of places. According to Manuel Castells this is a result of a “new logic of space”, he labels “space of flows” (1996, 378). This logic includes analogous to the “Panta Rhei” of Heraclit the connotation of space of flows; in postmodernism it replaces the old logic of space of places. An space or spaces of flows form the material basis of processes and functions of the communication and information society; three levels are to be differentiated (ibid., 412ff):

- (1) *Circuit of electronic impulses*: micro-electronics, computerization, telecommunication, satellite-aided mass communication and high-speed transportation are the material basis of the flowing space. They produce networks in which no place exists by itself since the positions are defined by flows. Places do not disappear but their logic and their meaning become absorbed in the network.
- (2) *Network of nodes and hubs*: The space of flows consists of the network of decision-making elites of global economy and the global financial system having its location in the global cities. Beyond these the continental, national and regional economies have their own nodes that connect to the global economy based on the logic of communication technologies.
- (3) *Global organization of dominant managerial elites*: In the communication and information society the dominant elites are in their networks and relations cosmopolitan. The space of power of elites is projected throughout the world, while people’s life and experience is rooted in places.

Anthony Giddens remarked that globalization is not primarily a phenomenon of the formation of a world system as described by Immanuel Wallerstein (compare 1979). It is as well not a continuation of the geographical expansion of capitalism of the West but as a consequence of the emergence of instantaneous global communication and the global spread of mass transportation it has to be considered as transformation of space and time (Giddens 1997, 23). As consequence of this development it is forecasted that local and regional contexts will be reordered, local communities will be uprooted and there will be a tendency that local and regional customs and practices will be dissolved. The regional actor networks are affected by that, as existing structural patterns decompose and new regional profiles may form. The results is a dynamic of tensions: The one group with a globally extending context of action will establish its identity in expanding chains of relations and the others will stay in spatially limited relations in the regional context.

Giddens formulates: The big companies influence new forms of social and economic regionalization, but they are not necessarily the main agents involved. Changing patterns of regionalization respond to wider aspects of globalization or, more accurately, to shifting relations of the local and the global. As elsewhere, processes of regionalization are dialectical, many pre-existing local communities disintegrate or become substantially restructured, but these self-same changes also promote local communal mobilization (1997, 130f.).

Richard Sennett argued in a similar way when he introduced the term “flexible capitalism”. Its main concept is “to act in a flexible way, to be open for short-term changes, to take risks and to become less dependent on rules and formal procedures” (Sennett 1998, 10). Social bonds elementarily develop out of a feeling of mutual dependency; but according to the standards of the new order of flexible capitalism dependencies are avoided. According to Sennett these changed framework conditions will have far-reaching impacts on the character of the individual. As the character of an individual depends on his or her connections to the world, traditional traits of character such as loyalty, mutual obligation, the pursuit of long-term targets or the postponement of satisfaction for the sake of future purposes are successively undermined by the new framework of flexible capitalism. With the loss of traits of character the individual will start to drift (ibid., 36). Just as in every day life of the at present pursued flexibility paradigm companies close down or merge and jobs

appear or disappear, there will no longer be a linear standard for the orientation of behavior. Companies stress that they have to free themselves from the linkages to places and regions. As a consequence also the spatial reference of actors starts to drift.

There is a system of power with a new orientation hidden behind flexible capitalism which discontinuously reorganizes institutions. The direction of reorganization of institutions can be illustrated using network theory: As loose networks are more open for fundamental reforms than pyramidal hierarchies for re-engineering processes, companies loose the connections between the nodes and fragment the linkages (ibid., 59f.). These changes in the networks of markets and production in the direction of unequal and unstable relations make a concentration of power possible without its centralization (ibid., 69f.).

“Flexible networks” are held in high esteem as the post-Fordistic competitiveness of companies is improved (compare Grotz 1996, 67). It is a principle of flexible capitalism that uncertainty increases the possibilities of moving in a network (compare Cooke, Morgan 1993; Knuth, Latniak 1991). In this context it is said that it is easier for the industrial company or the actor to move in a network the more ties are absent, the more detours or intermediate nodes there are between the actors.

These tendencies also have an impact on regional actor networks. They are under a critical development pressure as the flexibility orientation also dissolves structures of trust and commitment. In other words they are confronted with a field of tension of global and local orientation which has great importance for future developments of regional actor networks. This can be illustrated with a heuristic diagram which contrasts in an ideal-typical way the area of conflict of regional actors in the present situation or the current phase of globalization (see figure 1):

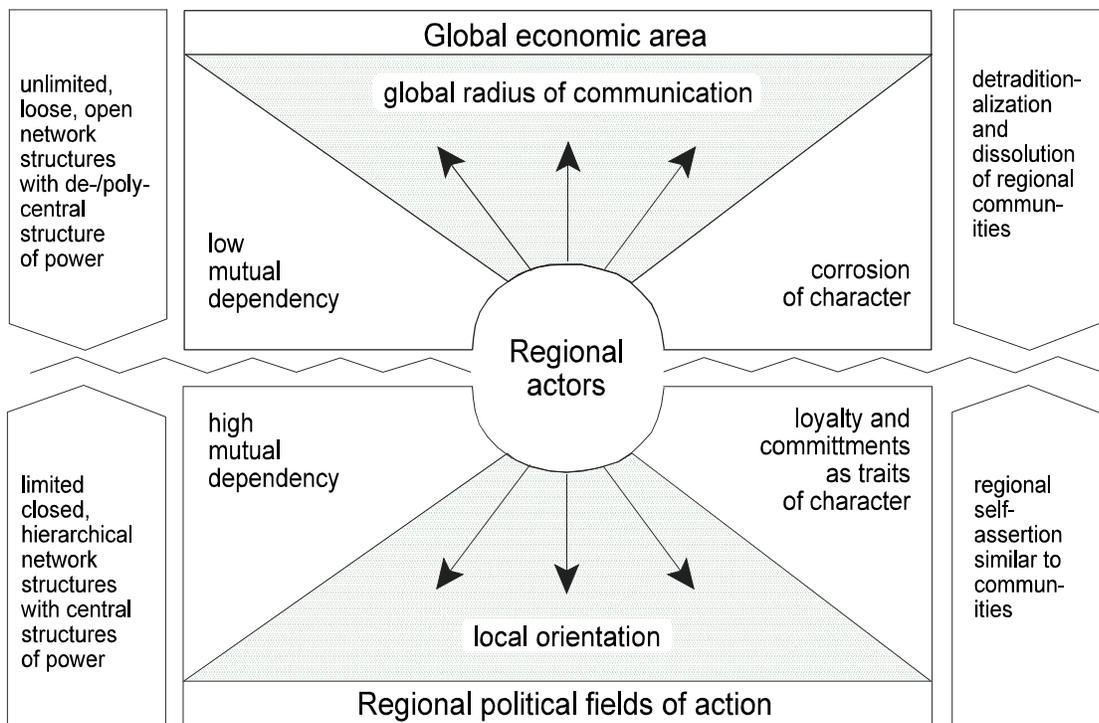


Figure 1. Regional actors in the field of tension of global and regional orientation

- (1) Due to the globalization of the economic area, the communication radius of regional actors with economic orientation also widens on a global scale. Interpersonal connections

tend to be woven more and more in unlimited loose and open network structures with decentral or polycentral structures of power. There are less mutual dependencies; the importance of social traits of character such as trust and mutual obligation is reduced in favor of principles of individual freedom of action. Also regional communities lose their importance in this process.

- (2) In contrast to the first group the network structure of actors with an orientation to regional policy areas is limited and closed, they have a hierarchical tendency with a centralized structure of power. Their connections are characterized by stronger mutual dependencies due to the higher permanence of relations based on spatial closeness. Due to this fact traits such as trust, bonds and common aims have an important control function. A result of the relative closure of the network is regional self-assertion and identity in analogy to communities. In this way the network can be differentiated from interconnection contexts of other regions.

SOCIAL CAPITAL IN ACTOR NETWORKS

Coleman and Putnam counter a model that emphasizes absent ties in networks with a concept of social capital. "Social capital" is defined as potential being produced in the social life of persons in communities. It comprises characteristics of social life such as networks, norms and trust which enable the individuals to act more effectively together and to pursue common targets (Putnam 1995, 664).

As a result of Putnam's studies in Italy those regions are considered economically and culturally successful in which a multitude of common organizations and contacts exist and in which an atmosphere of trust as well as mutual responsibility prevails (1993). In regions that are economically and socially less successful the advantage of cooperation is rationally recognized but there is no trust in regional consensus on the willingness to cooperate. Without this trust individual strategies are pursued to realize one's own advantage at the expense of the others. A central role plays: (1) the willingness to participate in local networks and (2) trust in the behavior of other actors.

For all areas of society from administration to commercial enterprises social capital is defined as precondition. For example cooperation in an atmosphere of trust, self-help ability, or the development of a common system of values are considered as results of social capital. Against this background Fürst states that regions depend on the surrounding social capital (1994; 1997; 1998).

The term social capital has its origin from the application of the term of physical capital to the area of social sciences. Coleman differentiates physical capital, human capital and social capital. All three types of capital have in common is that they have their origin in changes. Physical capital is created by changes in material to form tools that facilitate production. Human capital results from the acquisition of skills and capabilities that make persons able to act in new ways. In contrast to other forms of capital, social capital is not lodged in the actors themselves but it results from the relations between the actors. Social capital is a resource that is based on changes in the relations between the actors so that certain actions are facilitated and individual intentions can be put through. The value of social capital lies in the fact that it is determined by the properties of social structures and by the function it has for the actors. The functions for the actors are the use of social structures in order to achieve individual interests and aims (Coleman 1988, 1990).

Social capital also includes stable experience from the past and reliable relations in the present which help to move through a personally attainable network. So to speak social capital virtually exists in social relations as possibility to combine human resources. In order that social capital can be a connecting bridge for the exchange of resources of the actors according to Coleman it is less important to increase flexibility than to connect open network options (1988, 99). This closing of the network presupposes that the actors live in the same regional environment, visit the same places and events, share the same normative experience and have an interpersonal bond-capability. Com-

municative, economic or political exchange and activities in networks cannot be successful without social embeddedness (in the sense of Granovetter). According to Coleman, from the point of view of flexibility, each (partial) withdrawal from social networks reduces the potential social capital.

A discontinuity of actor networks – e.g. as a result of globalization – may lead to a regional lack of social capital. According to Coleman there are above all two basic principles, that have to be maintained for the sufficient production of social capital. These are on the one hand the closure of networks and on the other the appropriable social organization. Only if the relation patterns of social networks form closed chains and circles can the members effectively combine their resources in collective sanctions (Coleman 1988, 105). A multiplex network has a stock of sustainable social capital that can be used for multiple purposes (ibid., 108), as in multiplex networks resources of one relationship can be appropriated for the use in others, they can be used for more than one purpose.

Bernd Pietschetsrieder, president of the board of directors of BMW has recognized this fact. At a forum of the Federation of Employer's Organizations of the Metal Industry in Berlin he has stressed the importance of relations (1998, 18): "The central challenge of modern regional policy is a management that includes all partners and departments: i.e. companies, labor unions, education and research institutions, structural, education, research and cultural policies, job creation and approving authorities have to see themselves as network partners... But a clear role distribution between the actors or the assignment of responsibilities and the maintenance of sanction mechanisms – e.g. by competition and the market – may not be put into question. Extraordinary competences being an important factor for competitiveness do not develop on their own in individual companies. They develop in a process of competition and cooperation along the chain of the creation of value." As this argumentation focuses on the chain of creation of value, a dichotomy of the term network has to be assumed. Networks with and without spatial ties of creation of value are to be differentiated. Therefore regional actor networks are in competition with functional networks with relatively few spatial ties for the social capital of more globally connected actors.

OPERATIONALIZATION OF SOCIAL CAPITAL IN NETWORKS

Coleman follows the paradigm of methodological individualism. But he does not assume that the explanation of system behavior only includes individual activities and attitudes (1990, 6). Elements of the systems are on the one hand actors and on the other the resources or events, they control or they are interested in. From the interaction of individuals result new emerging phenomena on the level of systems. Actions take place on the level of individuals, the level of systems exists in form of newly developing properties that characterize the system of actions as a whole. The behavior of a social system is explained on the basis of three components: (1) the impact of system-inherent properties on limitations or orientations of actors, (2) actions of actors belonging to the system, and (3) the linkage or interaction of these actions, which are responsible for the creation of system behavior (ibid., 33).

As the actors do not completely control the resources that can satisfy their interests transactions with other actors are necessary. The types of exchange and transfer of control take place within the scope of social ties, mostly in form of authority relations, trust relations or the allocation of rights per consensus. These social relations are not only components of social structure but are themselves resources for the individuals (ibid., 389). Coleman interprets these social resources as capital assets for the actors (ibid., 392). These are embodied by the relational structure between the actors and they facilitate certain actions of the actors who are part of the system. In this way social relations are in principle connected with social capital.

Physical capital is created by changes in material to form tools, human capital results from the acquisition of skills and capabilities that make persons able to act in new ways. The characteristic of social capital is that relations between persons facilitate certain actions (ibid., 394). In a triad between three persons A, B and C the nodes correspond to human capital, whereas social capital is

represented by the lines that connect the nodes. The function the term “social capital” depicts, is the value of relational resources for the realization of interests of the actors (ibid., 395). If A does something for B and trusts B to reciprocate in the future this establishes an expectation in A and an obligation on the part of B to justify the trust. This obligation has the character of a “credit slip” as Coleman calls it.

If A holds a large number of these credit slips for a number of actors there is a direct analogy to financial capital. In one social structure there may be an intensive level of dependency of actors with a large number of credit slips, whereas actors in another structure may be more self-sufficient and depend less on each other so that there are at any time fewer credit slips outstanding (ibid., 396 f.). Above all networks lacking ties have fewer credit slips. One consequence of the absent ties in a social network is that the actors do not have the opportunity to influence the contributions of the others. As they have no relation to each other they can neither motivate nor sanction each other. Under these uncertain relational conditions it is for nobody relational to contribute (ibid., 357).

In a triad between the three persons A, B and C in the ideal case the chain of relations is closed in a “three-actor-system.” Each actor controls events the two others are interested in in the same way. Due to this symmetry the power of the three persons is equal in size. If there is no relation between B and C the system has a hierarchical structure. Here actor A has twice as much burdens and credit slips as B and C and therefore also has more social capital he can use. B and C have less power than A if the events controlled by A and B are of the same interest for both actors and if also the events controlled by A and C are of equal interest. According to Coleman the power of an actor is a direct measure for the social capital an actor has available in a system.

An important form of social capital is the potential for information that inheres in social capital. If network contacts supply information that facilitate particular actions it constitutes social capital (ibid., 402 f.). Also the existence of “effective norms” constitutes a powerful form of social capital. Particularly, the norm that one should forgo self-interests and act in the interest of the regional collectivity represents an important form of social capital. On the other hand effective norms may reduce the innovativeness of actors as deviant actions are limited (ibid., 403 f.). If an actor has transferred the right of control over certain actions to an other actor this has received social capital in form of these rights of control. If several actors transfer similar rights of control to the actor he has an extensive fund of social capital so that a great potential of power results from this authority relations (ibid., 404). Voluntary organizations are brought into being to aid some purpose of those who initiate them. The relations resulting from that are available for appropriation for other purposes. The social capital of organizations that were initiated for one purpose therefore often is used for different purposes (ibid., 405).

MOBILE AND STATIONARY SOCIAL CAPITAL

The described development pressure of regional actor networks is to be interpreted against this background in a way that in flexible networks the degree of independence of actors increases. The greater independence corresponds with a lower potential of social capital; as a consequence of the weaker level of interpersonal trust, fewer credit slips of social capital exist. Under the conditions of increasing flexibility social capital changes in a way that the extent of interpersonal combination of actor resources to social capital reduces. According to Coleman the reasons are changes in the “degree of trustworthiness,” the “degree of closure of regional actor networks,” and the “logistics of social contacts” (ibid., 398).

Regarded from another point of view there is a tendency that the interactive scope of action of the actors extends over a large number of actors due to the flexibility trend and that the social capital resources spread over a larger network radius. This can at least partly be due to the dehierarchization of social networks. In networks with a hierarchical structure the credit slips of social capital are of above average benefit to single hierarchical heads or actors whereas such a concentration is not

found in less hierarchical structures (ibid., 401). The credit slips of social capital are distributed evenly over the actors in case of low centrality.

In order to be able to contrast the tendencies of actor relationships in an ideal-typical way the differentiation of the terms “mobile social capital” and “stationary social capital” is introduced. Also this differentiation has a heuristic character. The pressure the regional actors are confronted with in the present phase of globalization is transferred to the potential social capital (compare figure 2):

- (1) Regional actors with global orientation have in the majority space-independent individualized relationships. Their contact structure can be described as flexible. Therefore their trust in a network with regional connections is rather low, they mistrust regional forms of communities. The social capital of these network structures is mobile as in open networks special resources can be combined in an individual and flexible way at different places (ubiquitous and temporary). These actors tend to evade the integration in regional network structures.
- (2) In contrast to these actors with a more regional orientation are embedded in relatively stable contact networks. Their relations are mainly tied with the region, they are characterized by interpersonal trust as well as positive expectations. On the basis of an accumulated capital stock of credit slips regional resources can be combined in an extensive way due to the closure of the networks. The social capital is stationary as its sphere of activity is concentrated on the region (stationary and permanent).

There is competition between both types of capital; under the global pressure, regional networks threaten to lose stationary social capital due to its mobilization. In turn regionally oriented actors try to bind as much of the mobile social capital as possible in the region and to transform it into stationary social capital.

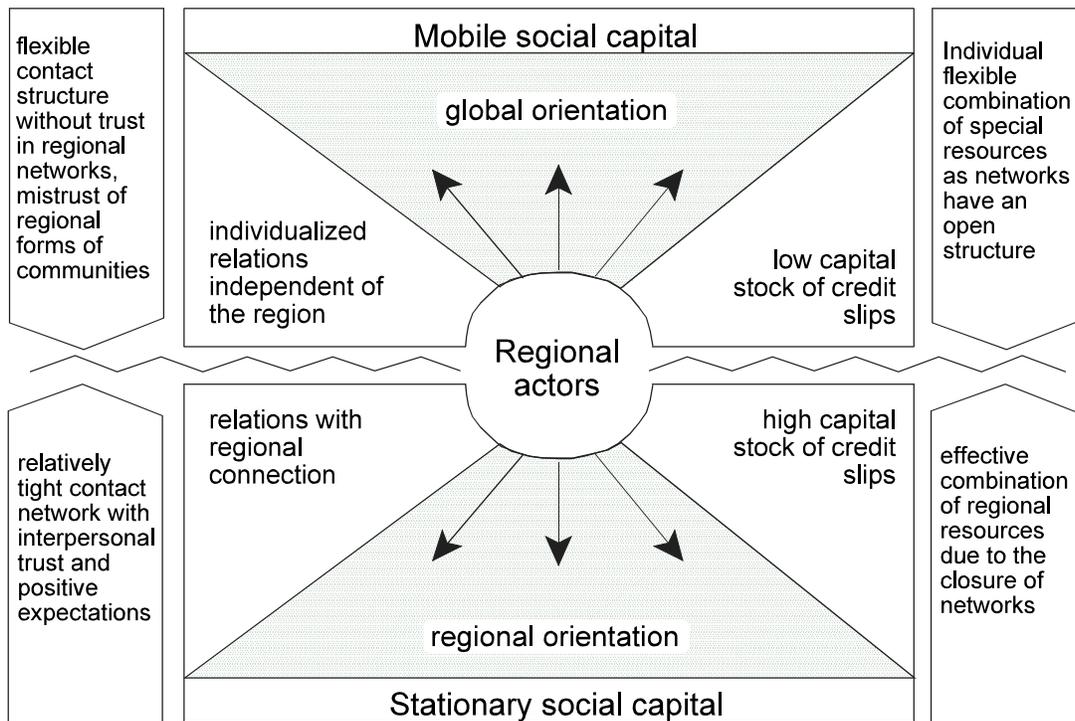


Figure 2. Regional actors in the field of tension of mobile and stationary social capital

Against this background hypotheses can be formulated about the conditions on which regional actor may be successful in embedding the flexible global actors in the region. Particularly such regional networks are successful in self-assertion that have created organizational obligation structures in order to bind global actors regionally. Therefore regional networks can be considered successful if they have succeeded in binding as much of the mobile social capital as possible in the region and to make it stationary in this way.

The following hypotheses can be formed:

- (1) One condition for success is that regionally oriented actors include globally oriented actors by *linking them to their network*. Only with active connections in the regional network can a spatial bond be created, only by integration in the network can the willingness to cooperate in the regional context be aroused.
- (2) Regional actor networks are moreover considered successful that have *established organizational structures of trust* in order to embed globally oriented actors. Only in organizational structures with obligation potential are effective combinations of actor resources to social capital possible by interlinkage.
- (3) The establishment and application of a *sanction and reward code* within the social tie structure represents another condition for success in order to link globally oriented actors in the regional network. Sanctions further the development of norms which have a high binding force on external actors due to internalization.
- (4) Regional actor networks that succeed in giving trust in the regional network to both globally and regionally oriented actors, and giving rise to *positive expectations* can be considered successful.
- (5) Decisions of regional importance are dominated by actors with stationary social capital. A *successful decision power* therefore requires a certain proportion in favor of regionally oriented actors.
- (6) If there are too many actors with mobile social capital in a regional network *the chances of self-governance* are reduced as the above mentioned aspects of success are too weak. The chances of a region being in international competition worsen if actors with mobile social capital cannot be linked to the regional network.
- (7) *Representation* belongs to the universal forms of organization of society. In networks, representation has the function of intermediate authorities; therefore it has a key role of intermediation. Regarded from the point of view of game theory, all actors relevant for decisions no longer act with each other. Due to a lack of coordination and determination of aims as well as due to own interests, hindering or counter-productive effects in the network may result; but it is also an instrument of support for the maintenance of contact between globally oriented actors and regionally oriented actors through intermediaries.

Siebel and Mayer have analyzed “the organization of innovation” with the example of the IBA Emscher Park and the EXPO 2000 Hannover (1997). They too stress the “input of new actors” – their external expert knowledge is used in order to attain qualitative improvements in the region – and the “concentration of resources” by bundling and linking personal capacities with a focus on space, content and time (ibid., 2). Integrated work requires project-related cooperation of actors of different fields and interests.

It is a new form of regional policy governance if instruments and strategies are developed with the aim to bind external flexible social capital in the Ruhr area and in Hannover. The creation of new organizational forms that stimulate and increase cooperation between public and private actors is stressed as particular innovation of process. The new organizational patterns enlarge the social

scope as actors with mobile social capital are included into the process. Before that the competence of these actors could not be used or their interests were underrepresented. EXPO 2000 and IBA Emscher Park fulfill – regardless of all differences – the function of an organizational obligation structure in the region. In the region of Hannover numerous actors with a global tendency of social capital could be – at least temporarily – bound in the regional actor network. Moreover aspects of the EXPO 2000 are the thread of the involvement in the issue: according to own statements nearly 90% of the regional actors are concerned with this issue.

INDICATORS OF SOCIAL CAPITAL OF REGIONAL ACTOR NETWORKS

A characteristic of social structures that further the creation of social capital is the closure of social networks. In open social structures selfish behavior to the disadvantage of other actors rarely is sanctioned. Structures with closure allow sanctions and the compliance with expectations and obligations. In this way they support the reliability and trustworthiness of relations and thus serve the constitution of social capital (Coleman, 1988).

A broad definition of closure of social networks could be that each actor who has at least two relations to other actors in a completely connected network already has closed relational patterns. And actors with several direct links to other actors have multiple closed relation patterns. Actors who have direct relationships with actors that have many links to a large number of actors have clearly more closed relation patterns than actors having numerous relations to actors with rather few ties.

Indicators of network analysis can be used to describe these closed structures:

- (1) **Centrality:** In literature the term “centrality” comprises the central position of actors i.e. the distribution of power in a network (Schweizer 1996, 183). Wassermann and Faust call the central favorable position in a network “prominence” (1994, 179). The measure “degree” is the sum of lines, an actor has as direct relations. In contrast to the total number of direct relations the degree describes how much of the total social capital of a network can be directed to individual actors. Actors who are firmly embedded in the network with complex connections in the region have a central position, this is called “local centrality” by Scott (1991, 86). The measure “closeness” describes the distance of the actors. It includes indirect relations of actors in the network that are connected via others. The closer the points are in a network the easier becomes communication, actors can establish contacts more effectively with a low level of dependency on others. The distances between the different actors are measured; Scott calls this “global centrality” (1991, 88). Actors of global centrality are those who can get in contact with many of the other actors without being directly connected to them. In the first step these two measures of centrality help to find out those actors who have on the one hand the highest potential social capital and on the other those who have the lowest potentials. In comparison a distribution function of social capital can be depicted that makes statements about the degree of embeddedness and hierarchy possible. Hierarchical networks in which few actors are able to mobilize an above-average potential of social capital are limited in their innovative combinability of actor resources and can be considered less productive. In a further step the extent of social capital and thus the potential power of individual network sections can be shown. Here the local and global centrality of actor contexts with more mobile and actor connections with rather stationary social capital can be compared to each other.
- (2) **Social circles:** In the focus are cliques, i.e. complete subgraphs between at least three persons when all persons are connected to each other. If cliques intersect via a multitude of actors their structure forms a “social circle.” A circle consists of several cliques that overlap. If actors belonging to the same clique have a larger number of mutual acquaintances they are members of numerous small networks. Alba has therefore proposed that

overlaps should be recognized in social network analysis (compare Alba, Moore, 1978). This concept goes back to the German sociologist Simmel (1908). He described already at an early date the “intersection of social circles.” The cohesion of a social circle is not founded on the direct face-to-face contact of the members – as in case of cliques – but on the existence of short chains of indirect connections which weld them together. (Scott 1991). As they result from the sum of the intersections of cliques and therefore from the ramification of indirect connections the circles are not visible for the actors. Social circles are therefore to be understood as a structure with only loosely defined boundaries which have no clearly defined goals (Kadushin 1968). Formal criteria of membership or formal organization are not decisive for social circles but Kappelhoff pointed to the fact that there are often relations to underlying institutional systems. (1987). All cliques with three actors which differ by only one member are merged into a circle. In cliques with more than three actors at least two-third of the member should be identical to be merged into a circle. The level of overlap as basis for the aggregation of cliques into circles can in general be freely chosen (Scott 1991, 123). In this context the chain of overlapping cliques is called “regional circle.” Characteristics of relations based on trust are contacts of several relational levels, e.g. business and private contacts, contacts in associations or political groups. It can be assumed that such multiplex relations promote the establishment of relationships of trust. The regional circle describes the potential stationary social capital if the actors are tied with each other in a multiplex structure with parallel connections at the levels of business and intermediate relations. Actors connected in a uniplex way are to be differentiated, they rather represent the mobile social capital.

- (3) **“Betweenness”**: The centrality measure betweenness is based on the fact how often an actor can be potential intermedior between actors. For each pair of actors the shortest distance of the path is calculated. The betweenness is the higher the more often an actor lies on the path between two actors in the network. Via indirect connections between two actors a third might have some control over the interactions between the two actors. The measure of betweenness indicates the barrier degree and the disruptive capacity of actors in a network (Schweizer 1996, 188). But it is not only the high level of control that characterizes the central intermediary position in the network; there are also the nodes that are of great importance for the closure of chains. Their “intermediary role” is very central to the connection of the social circle and to the whole network (Scott 1991, 89). In this way, for example, actors with a high betweenness can establish as broker or gate-keeper a large number of indirect connections although they only have few direct links. In this sense betweenness also describes circular or closed relational patterns. An actor with high centrality is a chain-link of the paths between many other actors so that he is central in closed networks. Actors with low centrality are rather located at the periphery of the network, they are loosely connected into the network.
- (4) ***Involvement in particular issues***: Regional actor networks have agglomeration advantages as the geographical closeness of the actors can be used for the collective acquisition of knowledge and synergies in the regional innovation process (König et al. 1997). At the regional level issue networks can be formed which concentrate the regional interests and competition potentials in the sense of social capital. On the basis of trust and reciprocity as well as of a common regional cultural identity transaction costs can be reduced by establishing regionally oriented pressure networks for different issues. Actors are considered to be successful who do not only commit themselves to a particular issue for a personal motive but who link with other regional actors who are concerned with the same issue. The analysis of regional network relationships according to their involvement in particular issues therefore leads to descriptive indicators: The density of relations between actors with similar interest is assessed in order to receive indications for “willingness to assume responsibility” in the network.
- (5) ***Variety of voluntary organizations***: Social capital is defined by the function it has for the actors in order to facilitate the realization of interests. This is done intentionally by the

actors with certain aims by taking part at events as well as with memberships in associations and societies. In this way an intermediary trust potential forms that is based on direct exchange of communication between the actors. Characteristics of voluntary organizations are direct, short chains of interaction. These organizations are mostly concerned with an issue and are oriented to action as the actors initiated them with a specific motivation and for a particular purpose. That is the reason why at the regional level mainly actors with stationary capital are interlinked in intermediary constellations. The frequency of organized events and discussion forums indicates intentional linkage and redundant connection strategies of the actors. Due to their involvement the relevance of particular issues for the regional development can be seen. On the other hand there is a risk that due to the fragmentation in many small discussion forums and sectional decision-making circles no social network establishes between the organized forums and the productive activation of development potentials is hindered. Indicators are the number of organizations and societies concerned with the same issue and the number of actors who are linked in particular organizations.

EMPIRICAL RESULTS IN REGIONAL ACTOR NETWORKS

Sampling

In order to determine the size and composition of the actor set in the region of Hannover a two-step method was chosen. In the first step all important persons and organizations in the region of Hannover were collected. In autumn 1997 all in all 2.000 persons and more than 1.000 organizations were listed in this first step. In order to limit the number of persons and organizations for the network analysis the set was reduced. At the end of 1997 persons and organizations were chosen that can exert a strong influence on regional development due to their position. The result of this narrowing was a reduction to 628 actors and 459 organizations.

In a second step 15 representatively chosen personalities condensed the number of actors and organizations with the reputational technique. They rated every actor and organization of the list with several hundred entries by their importance for regional development so that the sample was further reduced. They marked those persons and organizations with a cross they considered to be important for the region. After the anonymous individual assessment in writing the results were counted at the beginning of 1998. In order to be included in the sample survey the persons and organizations had to be nominated by at least two personalities. The persons and organizations have been integrated into one total list ($N_{\text{SAMPLE}} = 179$).

Actors of regional importance were defined as: persons and organizations that play an important role for regional development due to their position or function; persons and organizations whose views and interests have indispensably to be taken into consideration in decisions of regional importance; persons and organizations that are attributed to have a decisive role for regional development by the public of the central city and the urban area.

Analysis of the regional actor network

A letter informed the chosen actors about the analysis. They received a list with the names of the 179 persons of the sample. For the collection of network data interviews over the telephone were carried out as this form of communication has a high acceptance among leadership groups. In the first six months of 1998 data was gathered using "computer-assisted telephone interviews" (CATI), a method that has proven worthwhile in network analysis.

Most (81%) of the chosen actors participated in the interviews ($N_{\text{REAL}} = 145$). Compared to other surveys, this is an above-average response rate. It emphasizes that probably also the included regional actors place high expectations in the survey. The analysis of a regional actor network in-

cludes the following dimensions of social networks: (a) die interorganizational relations that are cultivated through formal roles of job and business contacts and connections; (b) interpersonal relationships based on individual esteem that become the character of private contacts and that comprise in private contacts the confidential discussion of important matters; as well as c) informal relational options that serve as soft links the exchange of information, often in the form of a regularly used network of strategic and professional telephone contacts; (d) group relations based on voluntary organizations of actors (clubs, associations, societies etc.).

Stationary and mobile social capital

Apart from the concrete network relations in the region the actors were asked about the spatial focus of their business and private networks. With this data the potential stationary and mobile social capital and the combination of both forms of social capital was determined in an ideal-typical way. Actors with a private and business network that is to a high degree embedded in the region have a large amount of stationary capital available. Correspondingly mobile capital predominates in case of actors without spatial network foci who have their private and business network outside the region of Hannover. Actors with networks inside as well as outside the region can activate a combination of stationary and mobile social capital to achieve their interests.

Starting from the thesis that the development chances of a region depend on the productive combination of stationary and mobile social capital the region of Hannover has a favourable starting position.

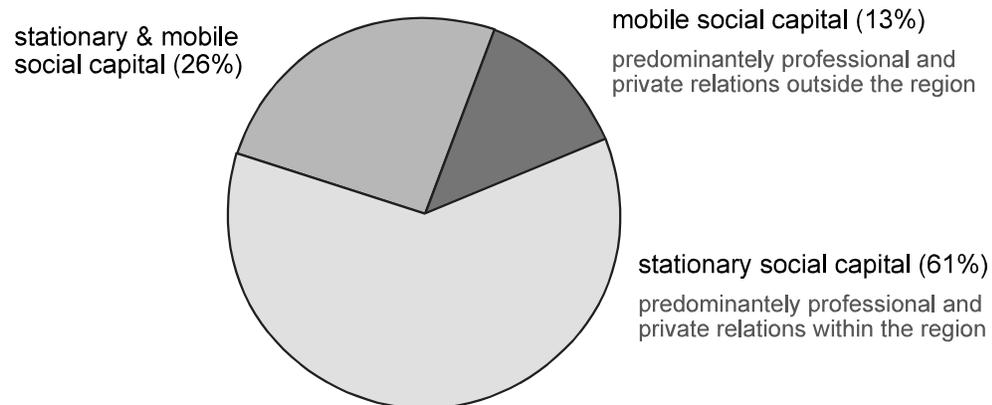


Figure 3: Stationary and mobile social capital in the regional actor network of Hannover (N=142)

As the majority of the actors have their place of residence as well as their place of work in the region of Hannover and as their field of business activity is oriented to the region, most of the actors have local social capital available that is located within the region of Hannover (61 %). The relatively high number of actors who unite in their person stationary and mobile social capital (26 %) shows that actors with a high proportion of mobile capital could be tied to the region. Among this group above all State politicians and members of the State Cabinet are to be named who are responsible for the whole state of Lower Saxony. A proportion of 13% of the actors mainly have mobile social capital available. An excessive amount of mobile social capital that is not tied to the region would have negative effects on the self-governance capacity of the region as on the part of the actors regional issues would be of low interest and regional decision processes of low importance. A lack of mobile social capital is disadvantageous in the European competition of the regions as few communication networks are established beyond the borders of the region. Both is not true for Hannover.

One task of regional network management is to bind actors with mobile social capital to the region. The extent to which the region of Hannover already succeeded in this establishment of bonds is shown by the network relations between actors of different forms of social capital. A first indicator is the density of network relations between actors with stationary and mobile social capital.⁶

Table 1. Network densities of business relations between actors with stationary and mobile social capital in the regional actor network of Hannover (N=142)

network density of professional relations	stationary	stationary + mobile	mobile
stationary	0.39	0.31	0.40
stationary + mobile	0.33	0.29	0.37
mobile	0.27	0.29	0.41

Table 1 shows that the density of business networks between actors with stationary capital and actors with mobile capital (0.40) only slightly differs from the density within the group of actors with stationary capital (0.39). Also actors with mobile social capital have to a high degree links to regional business networks.

Social capital is understood by Coleman in as a resource for persons, it is in the first place connected with the relation between individuals and society. But the term of social capital can also be applied to groups of persons and subsystems of society. Fürst (1998) sees a connection between social capital as part of human resources and regional governance mechanisms. The governance forms of regions and regional subsystems such as the economic, the political and administrative, and the social and cultural subsystem influence the development potential of a region. If the integration of regional subsystems in the region is interpreted as successful governance form the capability to integrate mobile social capital is a contribution to the strengthening of regional development potentials.

Closure of social networks

Structures with closure support the creation of social capital. Stationary social capital is oriented to the region. The actors live and work in the region, there are many business contacts and meeting places. Correspondingly actors with stationary social capital have numerous direct contacts, they are mainly connected in structures with closure. Actors with mobile social capital have less time for relations, they are thus less integrated in networks with closure. Their connection to the regional actor network is mainly based on short chains of interaction.

If the numbers in Table 2, showing direct relations (degree) and the betweenness at the four levels of relation (job/business, telephone, association/society, private) of actors with stationary and mobile social capital, are compared to each other the results only partly come up to expectations. Stationary social capital is characterized by a large number of direct relationships; it is to a clearly higher degree integrated in structures with closure as represented by the centrality measure of betweenness. Actors with mainly mobile social capital are also highly integrated in the regional actor network. The number of direct connections only is slightly below average. But they are less often tied in business relation structures with closure. The integration of actors with a high amount of mobile social capital is mainly based on purpose-open private relations. In this field they are as

⁶The measure of density describes the proportion of the actual relations and all possible relations of the actors in a network. The value differs between 0 and 1. If the density is near 0 there are almost no relations between the groups of the analysis. A density of 1 means that all possible relations between the groups are actually realized.

intensively connected in networks with closure as actors with stationary social capital. The lack of integration in regional business networks is compensated for by private contacts.

Actors with stationary as well as mobile social capital have the most unfavorable integration in the regional actor network. The number of their average direct relations and their integration in networks with closure is at all levels or relation below average. The splitting between several local or regional networks has as inevitable consequence that there is only a weak integration in the actor network of a region. On the one hand these actors have an important function for the regional development on the other hand their local linkage is characterized by loose and open patterns of relation.

Table 2. Centrality measures of actors with stationary and mobile social capital in the regional actor network of Hannover (N=142)

mean indegree	social capital		
	stationary	stationary + mobile	mobile
professional relations	51	44	49
regular phone calls	24	20	22
relations based on associations (sym.)	12	5	6
private relations (sym.)	4	2	4

betweenness	social capital		
	stationary	stationary + mobile	mobile
professional relations	0.4	0.3	0.3
regular phone calls	0.7	0.4	0.3
relations based on associations (sym.)	0.7	0.1	0.2
private relations (sym.)	0.7	0.4	0.7

Social circles as structures with closure

For the circle analysis the network of business and private relations among elite actors in the region of Hannover was chosen as in contrast to mere business relations private relationships are particularly based on trust between actors. Private relationships were considered as relations that were named by both actors (symmetrical relation). The result of the circle analysis is shown in Figure 4.⁷

⁷ In the figure the actors are positioned in the graph using the multidimensional scaling technique (MDS). Multidimensional scaling calculates on the basis of closeness values the coordinates in a two-dimensional space so that the Euclidean distances between the actors are minimized (Wassermann/Faust 1994). Actors having many relations with each other are close to each other and are rather in the center whereas actors with few relations are more often at the periphery. For reasons of graphical representation the results of the MDS analysis were adjusted in a way that they are easier to read so that closeness values are not reflected on an accurate scale. Concentrations of actors with great proximity are pulled apart, peripheral actors come closer to the center.

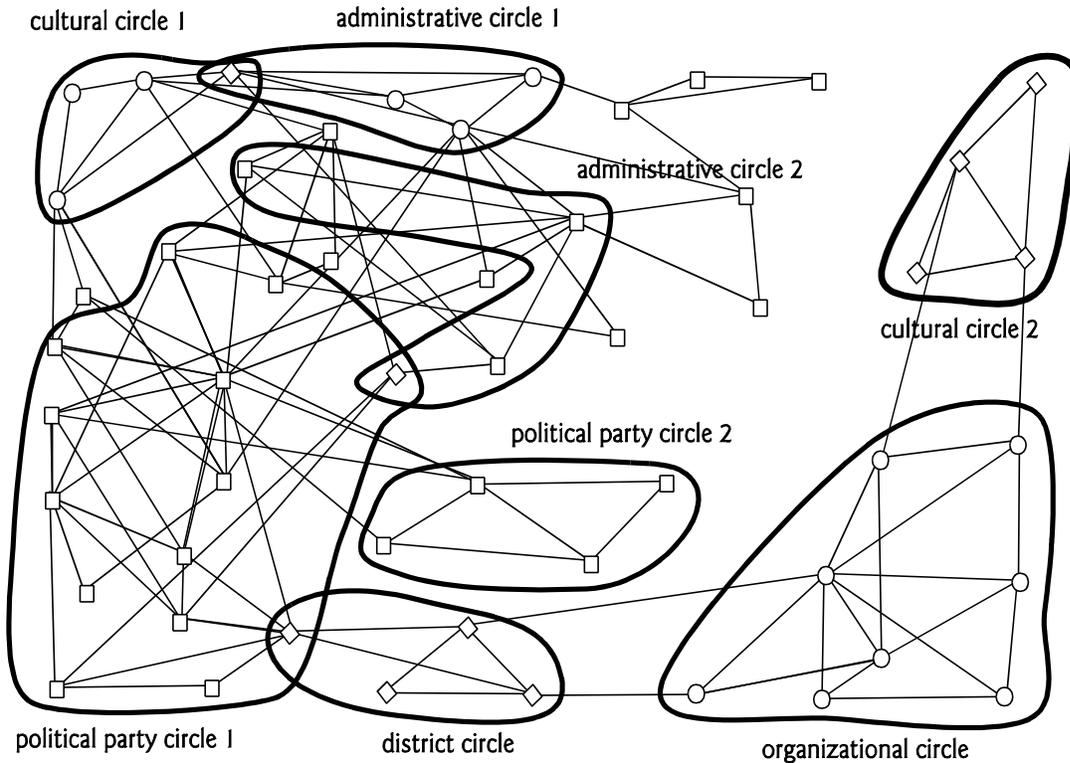


Figure 4. Social circles of business and private relations in the regional actor network of Hanover

Of the total of 179 actors 44 actors are connected in private cliques, 107 actors are isolated and are not included in the diagram. The 44 actors can be combined in eight social circles of different size. The individual circles are not connected to each other in the same way. Intermediary actors who are members in several circles are indicated in a particular way. In the center of the network is the political party circle 1 consisting of members of the majority party. Tightly connected are the cultural circle 1, the administration circle 1 and the administration circle 2 including the upper administrative level of the central city. The political party circle 2 consists of political actors of the opposition; it only has links to the party circle 1. In direct connection to party circle 1 is also the county circle which is mainly composed of upper administrators of the county. The association circle has a direct connection to the county circle but no connection to the political party circle 1. It mainly consists of actors of the economic sector who have private contacts through common memberships in an association. Actors of the regional press and directors of cultural institutions form the cultural circle 2 that has the highest path distances to the other actors.

If the two forms of circular structures are compared to each other there are on the one hand actors connected in open structures: the isolates (not represented in the figure) and actors with social capital that only takes effect within the circle (party circle 2, county circle, association circle, cultural circle 2). Actors with circular structures of relation are actors who have numerous connections within their circle as well as beyond their circle (party circle 1, cultural circle 1, administration circle 1, administration circle 2). The comparison of actors of both circular patterns with regard to their structural properties such as membership of a political party, sectors etc. shows significant differences: actors with circular structures of relation are above average members of the majority party, they often belong to the political or administrative sector. 80% of them work in the central city. Their business and private contacts are predominantly located in the region but an above average number of them is oriented to the region as well as beyond it.

Table 3. Circular relation patterns of actors with stationary and mobile social capital in the regional actor network of Hannover (N=142)

betweenness	social capital		
	stationary	stationary + mobile	mobile
circular patterns of relationships	19%	8%	26%
non-circular patterns of relationships	81%	92%	74%

The circle analysis based on multiplex business and private relations is to a high degree influenced by the private social network. The most part of the actor network is not represented in the private network. The findings of the previous analysis of structures with closure are corroborated by these results. The inclusion of actors with mobile social capital has its focus at the private level. Actors with a combination of stationary and mobile social capital are under-represented.

Involvement in particular issues

Apart from general involvement in and interest for certain subjects the actors were asked about their concrete involvement in particular issues and the organizational structure in which this takes place.

Table 4. Organization-related involvement of actors with stationary and mobile social capital in the regional actor network of Hannover (N=142)

issues	social capital		
	stationary	stationary + mobile	mobile
networks of enterprises, administration and science	53%	43%	44%
support of enterprises	53%	29%	56%
regional reform	58%	23%	22%
Agenda 21	53%	31%	39%
regional transport system	38%	17%	28%
EXPO 2000	78%	77%	78%
social problems	64%	49%	28%
environmental protection	39%	20%	17%
culture	54%	54%	56%
sports	28%	26%	11%

A precondition for organizations that are concerned with particular issues is the geographical proximity of the actors in order to support the formation of relations of trust. Therefore it does not surprise that actors with stationary social capital are above average involved in all fields of issues. Issues

with a high integrative power for actors with mobile social capital are the EXPO 2000 and culture as well as economic issues with the focus on the promotion of the economy. Particularly the EXPO 2000 attracts independent of their social capital more than three quarters of all actors. Despite all controversial discussion the EXPO 2000 gives rise to great expectations on the part of the actors; from a network strategical point of view it has a high potential to activate regional actor networks.

Variety of voluntary organizations

There are clear subject foci in the concern for particular issues of most of the actors. But the vast majority of the actors do not use organizational structures for their involvement or support. They communicate via bilateral contacts or informal spontaneous meetings. A large number of associations exists on the individual issues. The small number of actors in each organization shows the segmentation of the issue-related network in many different organizations. On average only two actors are active in the same organization. There are only few interconnections beyond the boundary of the party or the sector.

Table 5. Regional Organizations and involvement of actors according to issues in the regional actor network of Hannover

issues	number of organizations	actors per organization
networks of enterprises, administration and science	19	1.9
support of enterprises	16	1.8
regional reform	21	2.2
Agenda 21	21	1.4
regional transport system	10	1.7
EXPO 2000	25	1.9
social problems	27	1.8
environmental protection	18	1.3
culture	13	2.6
sports	4	2.5

REFLECTIONS ON THE GOVERNANCE FUNCTION OF NETWORKS

Networks gain importance as elements of regional infrastructure if they are stable, i.e. if they are permanently available as collective goods and if they have the function of a governance instrument for development processes. Also the context has to be taken into account in which the processes of regional development are considered. For example from a pure economic point of view the development of regional supply chains requires other network structures than a cross-sectional process of sustainable regional development.

Supply networks are clearly oriented to the aim of comparative advantages over competitors outside the network. Regional networks and thus an increase in the creation of value that is desirable for the region only establishes if there are advantages⁸ over a supraregional network or market or over hierarchical exchange structures. Such purposive networks are also conceivable on other is-

⁸Jones, Hesterly & Borgatti call these advantages "comparative advantages".

sues at the regional level, e.g. the organization of an important event or the improvement of the regional education system.

Jones, Hesterly & Borgatti (1997) have developed a governance theory about purposive networks that is founded on the theory of transaction cost economics of Williamson (1994). Jones, Hesterly & Borgatti (1997) assume that structural embeddedness of actors in a network enables these to adapt, coordinate and safeguard exchanges through social mechanisms. In this way comparative advantages result. For the emergence of such networks the authors identify the following conditions:

- The actors have their specific qualities (human resources) the other actors are interested in ("asset specificity"),
- instable boundary conditions make the demand for exchange uncertain ("demand uncertainty"),
- the task to be fulfilled is too complex that it cannot be completed by a single actor or few actors ("task complexity"),
- cooperation is necessary in more than one case ("frequency").

Other regional networks e.g. regional forums or regional conferences but also the network of regional influential elites dealt with in this study are not purposive but they are characterized in an ideal-typical way by the openness of the connected actors to invest their human, financial and social capital for example in sustainable regional development. The above cited conditions for the establishment of purposive networks cannot be found or almost do not exist in this actor constellation. The asset-specific exchange is of such low importance for the actors that exchange has not to be safeguarded in a particular way.

It is expected of such "purpose-open" networks that they lead to new development processes or the reformation of existing structures. Their role can be interpreted as that of "meta-networks" that form the basis for the establishment of new purposive networks for the realization of innovative development strategies. Moreover they have in the same way as purposive networks the task to sanction or reward undesired or desired developments.

With two examples in the following the question is dealt with if the fulfilment of this task can be proved and probably also measured with a network analysis:

Example 1: The coordination and sanctioning power of parties in comparison to that of meta-networks

Political parties play a decisive role in the establishment of political will and in the concentration of political interests. Modern political parties - as they see themselves - can be considered as purpose-open networks. Their general ideological orientation comes second to their demand for internal plurality and their openness to different groups. In contrast to that is the actually very strict internal structure of the parties in which the leading level is mostly able to achieve their interests. If in party organizations the key positions at different levels are held by the same persons over a longer period of time the internal and external renewing capacity can be reduced.

The governing party furthermore tries to strengthen its power by giving key positions in the administration and in public enterprises to persons of its own ranks. If the same party is politically dominating in a region over a long period of time this may lead to the fact that the whole public life is penetrated by that party. Scientific discussion assumes that in this way conservative attitudes can be induced that hinder the development of the region (compare e.g. Grabher 1989).

Such a situation can also be found in the region of Hannover where party 1 dominates already for decades the political area of the central city, constitutes the State government and also plays an important role in the county even if party 2 as other large political party holds the majority of influential positions.

With the collected network data information may result about the actual impacts of party networks on communication and influencing structures of the regional elite. As the actors were not asked about party membership they could only be assigned to a party or considered independent if corresponding information was open to the public. This was the case for 122 persons. Top-level actors of the field of economy, science, culture and regional media are less often in public. Their political membership is not easy to find out, so that it can be assumed that they are under-represented in the sample of 122 persons.

Nonetheless the political power structure in the region is approximately represented in the sample. In the city of Hannover 55 % of the actors belong to party 1, this shows a clear domination in the filling of key positions. The situation in the county nearly is the opposite: Here party 2, the majority party in many municipalities of the county, supplies almost half of the actors. Party 3 and party 4 are smaller parties. The actors of party 3 are exclusively concentrated on the central city, they are more important in the central city than the actors of party 4. Party 4 has a stronger position in the overall network as it includes representatives of the county, of the regional association (association of planning authorities of the local area) and of other circles. As the actors in the city represent the largest group party 1 also has a dominating position in the overall network with 50,8 % of the actors.

Corresponding to our reflections of the beginning the membership in a political party plays an important role apart from the political sector also in the sectors of administration and justice. Here it is likely that the few office holders of the sector of justice are among the independents of this sector. The dominance of party 1 also in the economic sector is striking. This is easy to explain as some of the economic actors of the sample work in public enterprises. For these also a political membership is easier to determine. In nearly all fields actors of party 1 as strongest party are relatively less concerned with regional issues than most of the other groups. A reason for this may be that in the smaller parties or in case of independents tasks cannot be divided in a way this is possible for party 1 that has available numerous members. But also the other big party is more involved than party 1.

As already mentioned above a sclerotic and/or conservative network milieu is associated with the dominating position of a party in the region over a long period of time. For the confirmation or refutation of this thesis the internal and external densities of the parties within the total sample are investigated.

As expected the internal densities are very high with regard to the analysed network relations; in case of party 3 in business and association/party networks even the maximum value of 1 is attained. Association/party contacts and private friendship as rather purpose-open forms of relation play in case of smaller parties a much greater role than in case of the big parties as the values of internal density show that are partly many times higher.

Table 6. Internal densities of political parties

Internal density	business contacts	phone contacts	contact via Verbände etc.	private contacts
Party 1	0.58	0.36	0.27	0.07
Party 2	0.52	0.31	0.26	0.09
Party 3	1.00	0.90	1.00	0.60
Party 4	0.67	0.53	0.40	0.33
independent	0.47	0.18	0.06	0.04
Density of overall network	0.28	0.13	0.04	0.01

A comparison of internal densities of business and party contacts of a party allows conclusions about the relation of the importance of party membership (business contact) and active party work (in approximation the level of relation “cooperation in associations and parties”) for actor networks. In case of party 3 this value attains as already mentioned the maximum of 1; party membership and cooperation in the party are among the leading elite not differentiated. A comparative low differentiation also exists in case of party 4. In case of party 1 the internal densities of business and association/party contacts differ more than in case of party 2. The common membership in party 1 obviously plays an important role in business contacts. In contrast the cooperation within the party is not well developed. Party membership probably often serves as instrument to improve access to business contact networks.

Example 2: Comprehensive networks on regional reforms

In the region of Hannover administrative reforms are planned with the aim to cut back on parallel administration structures between the central city, the county and the regional association and to facilitate internal administrative coordination processes. The amalgamation of the regional association and the counties to a new regional authority and the integration of the city of Hannover – apart from various special rights - at the same level as the towns and municipalities of the county in this authority is planned⁹.

On the part of the towns and municipalities there were considerable uncertainties about the impacts of this reform on the budget and about possible shifts in power distribution.

The State of Lower Saxony attached as political condition a common decision of the local authorities concerned in favour of regional reforms to the enactment of the reforms that have to be grounded in a State law. Therefore the city of Hannover, the towns and municipalities of the county, the county council and the regional association have to come to an agreement. This process is still going on.

The systems of the establishment of political will in the region primarily have a local orientation. Usually more attention is paid to the local council than to authorities at the county or regional level, the political parties have tight local structures of organization. Also within the party structures the innerregional distribution conflicts become visible. But above all their unanimous approval irrespective of local administration and party structures is a precondition for the realization of regional reforms. As subsystems on the one hand the actors of administration and on the other the political parties at the local and regional level are decisive for a successful discussion process. In the following it is to be analysed

- (1) what are the attributes in the network of most influential actors of those who – according to their own statement – support actively regional reforms,
- (2) in which way the relations of administrative authorities and of the connected political bodies between the city and the county are structured as subnetworks,
- (3) what kind of network relations exist between party representatives of the central city and the county.

Against the background of the postulated governance function this means to find out if from the meta-network of the most influential actors purposive, productive subnetworks can develop, as the meta-network is open for numerous options.

78 actors or 53,7 % of all persons asked stated that they support actively the issue of regional reforms. The largest part of them belongs to the sectors of administration/justice (28 actors) and politics (35 actors). Within these sectors this issue plays a very important role among the subjects asked about. Among the group of very influential actors the issue is as well considered to be very

⁹ For complexity reasons the role of the upper administrative authority in this process is not dealt with.

important; it takes third place of all issues proposed. Actors who support regional reforms have moreover an above-average degree measure. Particularly the indegree measures in case of telephone contacts as well as contacts for the cooperation in associations/parties are the highest of the partial networks of involvement analysed. In summary in the subject of regional reforms particularly those persons of the network of most influential actors are involved who are from the sectors of administration/justice and politics that are most concerned by reforms, persons who are very influential and persons who have numerous links to the overall network. For a successful discussion of the subject the conditions are thus favourable.

Considering the internal densities of the partial networks on regional reforms differentiated according to relational levels it shows that those actors who actively support regional reforms actually are tightly bound at all levels. Particularly at the level of confidential phoning that allows agreements evading the formal way the densities are very high also compared to other groups involved in the issue.

A necessary though not sufficient condition for a successful discussion is that the actors concerned are generally well linked to each other. The actors have moreover to be prepared to compromise beyond their sphere of jurisdiction. Under this conditions an agreement does not become an automatism but good contacts beyond one's sphere of responsibility can be considered as decisive for a higher efficiency of discussion processes. Of particular importance is the opportunity for informal contacts ignoring official channels; here usually single phone contacts do not suffice.

It seems that there is a structural barrier between the political and administrative systems of the central city on the one hand and the county and its towns and local authorities in the other hand. There are numerous distribution conflicts between the central city of Hannover and the area around that lead to a difficult atmosphere of negotiation. Also refusal or restructuring on the part of administration actors is conceivable, especially restructuring is connected with shifts in jurisdiction or even loss of competence. Therefore the densities of phone contacts among and between the subsystems of the city and the county of Hannover are analysed:

All those actors of the overall network were chosen who carry out a political or administrative function at the level of the city of Hannover on the one hand and at the level of the county of Hannover, its town and local authorities on the other hand. The actors of the regional association should due to their nominal tasks have an intermediary position between both sides. It would be very interesting to include this group into the comparison but as the number of these actors is extremely small they cannot be taken into consideration in the following table. But there are indicators for the fact that they comply with the function of an intermediary.

**Table 7. Network density between actors of the city and the county.
Contact level: phone calls for no particular reason**

	density	
	city	county
city	0.455	0.108
county	0.158	0.453
density of overall network : 0.125		
actors city: 15 actors county: 23		

As expected the actors of the city and the county are internally tightly connected with each other. The bonds in the overall network of most influential actors at the relational level of phone contacts is used for comparison. The network densities between both groups are considerably lower. The contact rate of actors of the county in the city is above general average whereas this is not the case in

the other direction. This could be a possible barrier. Here the infrastructural quality of the network could be improved.

As described in the first example political parties play a decisive role in regional negotiation processes. Independent of the business or political positions in the following example network relations of actors are compared to each other who are members of one of the big parties¹⁰ and who are – with regard to their business/political context - classified to belong either to the city or the county of Hannover.

The table clearly shows that within a party relational structures for informal communication are tighter than within territorial boundaries. But within the parties also big differences in contact densities can be seen between the territorial units. In case of party 1 it is interesting that the actors of the county have more contacts in the city than from the city in the county. In case of party 2 the opposite is true, but the difference is even greater. City and county actors obviously attach different importance in the party network. This presents starting-points for an increase in efficiency of the actor network on the issue of regional reforms.

Table 8. Network density between actors of the big parties of the city and the county, contact level: phone calls for no particular reason

Densities	Party 1, City	Party 1, County	Party 2, City	Party 2, County
Party 1, City	0.419	0.238	0.142	0.063
Party 1, Landkreis	0.267	0.709	0.106	0.247
Party 2, City	0.176	0.076	0.467	0.286
Party 2, County	0.097	0.292	0.214	0.39

Density of the overall network: 0.125

actors Party 1, city: 41
actors Party 1, county: 13
actors Party 2, city: 12
actors Party 2, county: 17

Network governance and regional management

Regional meta-networks are effective at a collective level, e.g. by enabling the establishment of purposive networks that reduce external effects of individual action of persons. Such networks become important regional elements of infrastructure if they are seen as collective productive goods and are used by the elites.

The task of regional management oriented to networks could be to give actors an understanding of the importance of collective gains from networks and to arouse their interest with efficient marketing strategies. A solid socio-emotional basis is a precondition for purpose-open networks.

The influential regional elites should be made aware that they belong to a network. Also the establishment of regular communication forums is of importance in order to ensure a continuous exchange and therefore the frequency of relations described by Jones, Hesterly & Borgatti (1997). Leading persons can only be successfully linked through regular contacts. It is important that communication takes place also outside ideological or interest organizations such as parties, associations or boards.

¹⁰An analysis of the smaller parties would of course be interesting but *their number in the sample* is too small for reliable calculations.

With network analysis within the scope of network management it is possible to show structures that reduce efficiency and especially insufficient densities between subnetworks. With network analyses and the knowledge of conditions necessary for the establishment of productive networks perhaps also actors can be gained for result-oriented networks if concrete regional problems have to be solved.

Regional management using networks is confronted with the dilemma between personality protection (data protection) and the individual social character of relations in a network. Network analysis depends on the collection of critical actor data. Relations of trust are necessary for that. In order to comply with this precondition network managers should be located outside the network. They should moreover not have own interests in the networks (except for the gain resulting from their success in network management).

Networks are based on their continuity, they are at the same time open for changes in their composition. Regional management using networks therefore has to be a continuous process. In contrast to management methods used until now (e.g. discussions/negotiations with a moderator, regional conferences) no limits in time should be set.

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