Geographical Proximity Effects and Regional Strategic Networks

Heléne Lundberg
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Abstract

This thesis focuses on regional strategic networks (RSNs). RSNs are used as a tool for regional development with a view to strengthening regional relationship-development and networking by forming regional groups of actors. The thesis aims to clarify the nature of RSNs and the value of geographical proximity in both theoretical and practical terms. Theories regarding effects of geographical proximity, regional agglomerations and networks are presented, and their possible application to RSNs is analyzed. Furthermore, findings from two case studies are reported.

In the RSN study, the generally most highly valued outcome was the development of new relationships among the participants. Such relationships allowed for mutual learning and information exchange and also meant that for several participants the firms’ horizons were extended and their positions changed. Furthermore, internal marketing of training opportunities, in combination with financial subsidies, attracted several participants who attended training programmes on subjects that they would not otherwise have spent so much time on. However, few firms could state concrete results in terms of new business exchange or cooperative projects. The impact of structural factors on RSN outcomes is therefore discussed, in particular the impact of the membership composition of an RSN. Furthermore, important RSN-evaluation challenges are highlighted.

The second study demonstrated that most R&D done by firms is characterized either by incremental, gradual technology development and low importance of geographical proximity to customers, suppliers and academic research organizations or by fast, step-wise technology development and high importance of geographical proximity to customers, suppliers and academic research organizations.

Keywords: Network, Regional development, Regional Strategic Networks

Helène Lundberg, Department of Business Studies, Box 513, Uppsala University, SE-75120 Uppsala, Sweden

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Background

The geographical paradox

Is there a business value in geographical proximity? And, if there is, how does it come about? Can it be enhanced by regional development measures? These are the fundamental questions underlying the studies presented in this thesis, providing the various papers with a unifying theme. From an examination of these questions a paradox becomes apparent. On the one hand, new technologies reduce the hampering impact of geographical distance on business relationships. On the other, a growing number of scholars are emphasizing the role of space, stressing the value of geographical proximity for the technological development and economic performance of firms.

As the influential and oft-quoted sociologist Manuel Castells (1996) puts it, we are now living in a network society as new information technologies integrate the world in global networks:

The new economy is organized around global networks of capital, management and information, whose access to technological know-how is at the roots of productivity and competitiveness (p. 471).

Being connected with the right partners is the key to success. Thus, according to Castells, the geographical dimension is of secondary importance:

[W]ithin a given network flows have no distance, or the same distance, between nodes. Thus, distance (physical, social, economic, political, cultural) for a given point or position varies between zero (for any node in the same network) and infinite (for any point external to the network) (p. 470).

Here, Castells’ network view is in line with the markets-as-network framework (e.g. presented in Turnbull et al., 1996, Håkansson and Snehota, 1995) in stressing the importance of relationships for the exchange of resources, information access, innovation and knowledge development. Similarly, although the markets-as-network approach acknowledges the social aspect of business relationships – which in turn might seem to require some kind of physical proximity between the interacting parties - it has never made an issue of the value of geographical proximity. This view is supported by empirical studies indicating that firms tend to have the majority of their most important relationships with firms located beyond their immediate surroundings (e.g. Markgren, 2001, Malmberg, 2002, Kingsley and Malecki, 2004). Network effects are therefore mainly attributed to mutual knowledge and joint development efforts based on trust that has developed over time in long-term relationships, often spanning vast geographical distances.

Nonetheless, there are numerous reports of successful regions characterized by the agglomeration of firms in particular industries, suggesting that geographical proximity does have considerable business value. There seem to be performance-enhancing effects emanating from geographical proximity. Thus, although it could be expected that more globalization in terms of communications, transportation and competition would undermine the importance of particular locations and geographical proximity, regional arenas have in fact been strengthening their position under the spotlight of research and public attention.
The history of regional conditions

Industrial agglomeration is not new. Over a century ago, Marshall (1891) drew attention to the existence of locally aggregated firms:

This concentration of special groups of industry in particular localities, or the ‘localization of industry’ as it is commonly called, began at an early stage in the world’s history; and gradually prepared the way for many of the modern developments of division of labour in the mechanical arts and in the task of business management.

Marshall coined the term “industrial district” to describe such regions, and identified several advantages that firms enjoy simply by being located in one of them. First, “hereditary skills”: knowledge of the trade is “in the air” and can be learned more or less subconsciously, just by being there. Further, inventions and improvements are discussed and further elaborated as they spread through the community. Secondly, “the growth of subsidiary trade” supporting the industry. Thirdly, “the use of highly specialized machinery”: the economic use of expensive machinery becomes possible as economies of scale can be achieved by specialization. Finally, “a local market for special skills”: an ample supply of skilled labour is created that will benefit both employers and workers in the region (p. 330, 331). However, Marshall also noted some harmful consequences of localized industry. For instance, the demand for a particular kind of labour might become too great, thus pushing up wages.

Recognition of the regional effects of agglomeration as described by Marshall has been growing, particularly since the 1980s when some regions in Italy had an economic development far more successful than the rest of the country. These regions were dominated by small firms, and a parallel was drawn with the “industrial districts” discussed by Marshall (Becattini, 1991). In particular, as knowledge development, innovation and entrepreneurship have become crucial issues among theorists and practitioners, interest has revived in Marshall’s idea that important business knowledge can be “in the air” in particular locations.

However, while Marshall followed classical economic theory in conceiving the firms as atomistic actors, contemporary theory and empirical data on industrial districts emphasize the social aspects that affect individuals and interfirm dependencies. For instance, Becattini (1991) defines the Italian industrial districts as a spatially and culturally identifiable area in which both employers and employees live and work. An industrial district is thus described today as an environment in which cooperation and competition exist side by side in an atmosphere of trust, supported by social relationships within - but also outside - business exchange relationships (Harrison, 1992).

Factors behind agglomerations

Marshall (1891p. 327, 328) identified three major factors that can lie behind successful regional development in what was denoted by him as an industrial district. First, “physical conditions” such as climate, soil, mines and quarries. Second, “the patronage of courts”, whereby an assemblage of rich families constitutes a market for high quality goods that attracts skilled workers. Third, “the deliberate invitation of rulers”, whereby rulers deliberately invite artisans from other places, bringing them together in a new group.

Some of these reasons for the agglomeration of firms have declined in importance, but others have appeared to replace them (Porter, 1998b). Factors such as knowledge, innovations, relationships and motivation are examples of this (Kogut, 2000, Gadde et al., 2003, Grant, 1996, Porter, 1998a). It has been suggested that such factors are often of a local nature, as they are to a large extent inherent in humans, a production factor of relatively low mobility.
Physical conditions are still relevant, although in many instances the lower cost of transportation has reduced the importance of locating close to the source of a particular resource. Similarly, the presence of qualified and demanding customers is still seen as an important driving force behind successful local economies (Lazerson and Lorenzoni, 1999, Porter, 2000). However, nowadays there is some debate as to whether or not rulers - in the shape of government at various levels in society - can intervene deliberately by initiating or supporting the development of successful business agglomerations. A complicating factor here is that environmental qualities liable to trigger new clusters are also likely to be context-dependent, differing substantially from the nature of any other successful current clusters (Bresnahan et al., 2001). While some scholars argue that “governments should promote cluster formation and upgrading” (Porter, 1998a, p. 89), others thus stress that a cluster is the complex product of multiple forces and that regional industrial concentrations vary very much in their nature (Markusen, 1996), pointing out that a cluster-based policy approach may detract from a more holistic concern for the well-being of all firms in the region (Martin and Sunley, 2003, Markusen, 1999). Mostly, governments play an ancillary role in cluster theories, which makes it hard to distinguish ways in which governments could influence and stimulate cluster development. Porter (1998b, p. 246) has provided some general guidelines. He suggests that governments may have an important part to play in creating macroeconomic and political stability, in improving the general microeconomic capacity of the economy, and in “developing and implementing a positive, distinctive, long-term economic action measure or change process which mobilizes government, business, institutions, and citizens to upgrade both the general business environment and the array of local clusters”. However, he also emphasizes the necessity for private-sector leadership in these efforts, “companies can usually better identify the obstacles and constraints in their path, as well as the opportunities” (p. 265).

Regional industrial agglomerations seem to appear without any specific organizers governing their development. This poses a problem for regional developers who want to intervene and direct regional economic development in a certain direction. However, some writers claim that leading firms have been important to the development of specific Italian industrial districts (Boari and Lipparini, 1999, Lazerson and Lorenzoni, 1999). As Lazerson and Lorenzoni have put it:

If successful industrial districts are as much a product of large firms diffusing technology and knowledge at the local level as they are of historical path dependencies and imagined cultural communities, then the promise of reproducing them tomorrow in economically underdeveloped areas is all that much greater (p. 259).

There may thus be good reasons as well as opportunities for governments to intervene and to stimulate a positive development for firms in a particular region. In either case, the upsurge of regional development initiatives is a fact.

Regional development measures

Competition does not arise between firms or networks of firms (Gomes-Casseres, 1994) only. There is also competition among regions (Malecki, 2004). It is therefore in the interest of regional planners to try to understand and promote causes and drivers of beneficial regional conditions, while keeping potentially damaging effects under control. However, designing measures for regional development and business support involves a government in a very complex situation. Action and refraining from action will both affect business life. Even actions undertaken for purposes other than influencing business conditions may have unplanned and unsought effects on these very conditions.

Silicon Valley and the Italian industrial districts have both provided valuable objects of study, and have served as role models and a source of inspiration for the policy formulations of international organs such as the World Bank, OECD and the EU, as well as for national and regional governments.
and agencies responsible for promoting regional development. As a result, regional development measures have increasingly been aiming to promote cluster-like conditions with a view to achieving cluster advantages, thus often denoted cluster initiatives, or CIs. CIs have been observed world-wide (Sölvell et al., 2003) and are very pronounced in Sweden where the major agencies supporting economic and regional growth (NUTEK¹, VINNOVA² and ISA³) have all recognized the interplay of clusters and the use of cluster initiatives in general as a starting-point for a joint proposition for a growth-oriented policy for economic development (ISA et al., 2004). Swedish state aid to the regional level stems mainly from the national government by way of its ministries and agencies. This aid is often combined with funding provided by the European Union in the cause of regional development.

An evaluation of Sweden’s regional policy (Lindström, 2005) identified certain serious problems. The overall economic aim is national aggregate economic growth, whereby each region contributes as much as possible in relation to its specific circumstances. However, the conclusion of the evaluation was that there is a second – and to some extent partly conflicting - goal in the picture, namely regional equalization and national coherence. The conflict stems from the fact that national economic growth is rarely evenly distributed, and that reducing regional disparities may jeopardize the provision of the conditions most favourable to overall economic growth. The evaluator concludes that “dual and unclear objectives lead to conflicting targets and priorities that affect strategies”. He further argues that conflicting targets are played down or even ignored altogether by formulating broad, vague objectives. “The result is a regional policy affected by constant policy experiments and considerable uncertainty over which means will have what impact” (p. 15,16). He concludes that in order to avoid upsetting the market, most state aid is comprehensive in character and is given to all firms that fulfil certain specific criteria.

The evaluator describes how he struggled to quantify the overall amount of funding dedicated to regional development purposes: “it is to its character very difficult to entangle […] with an abundance of programmes and measures financed by various actors” (Lindström, 2005, p. 21). EU’s structural funds offer access to additional funding if regional co-financing is provided up to an equal amount. However, the implication is that projects with several sources of funding are often confronted by a multiplicity of systems for reporting and evaluation.

Regional development measures are often aimed at small or medium-sized firms, but may also concern other actors such as large firms, universities or research institutes. Broker policies promoting “networking” in the form of dialogue, interaction and cooperation among a group of actors, and training policies to reinforce existing competencies are two common approaches here. The networking theme accords not only with the findings of cluster studies but also with those studies of social and business networks that underline the importance of interaction for information access, knowledge development and innovation. To promote interaction and relationship-building between actors such that supportive regional networks of relationships are built thus becomes a common theme in regional development planning. There is a dual strategic intent behind this. The resulting network is intended to be of strategic value to those involved by providing them with greater access to information, knowledge and other valuable resources. At the same time, the political agency adopts the network approach for strategic purposes geared to regional development. Such networking contexts can thus be described as strategic networks in a regional setting, and will be denoted here as regional strategic networks, or RSNs.

I define an RSN as a networking measure supported by actors external to the network and undertaken with a view to enhancing business conditions in a particular region. To a great extent the RSN concept overlaps with the concept of cluster initiative, defined as “organised efforts to increase growth and

¹ Swedish Agency for Economic and Regional Growth
² Swedish Governmental Agency for Innovation Systems
³ Invest in Sweden Agency
⁴ In my translation.
competitiveness of clusters within a region” (Sölvell et al., 2003, p. 9). The activities undertaken are found to be similar: to foster networks among people and firms was the most frequent objective of cluster initiatives in a survey of 238 cluster initiatives around the world (ibid.). However, RSN settings sometimes have so little in common with cluster conditions that the term “cluster initiative” seems too specific - particularly when RSNs are set up in sparsely populated areas. The existence, in one place, of a critical mass of firms with unusual competitive success in particular fields (Porter, 1998b) is an example of an important cluster criterion that such areas cannot provide. Thus, I use RSN here as a concept that includes not only network initiatives undertaken with a view to upgrading areas that are judged to possess cluster characteristics (CI), but also initiatives undertaken in regions lacking such cluster conditions. RSNs are the prime object of study of this thesis.

In spite of their importance as sources of inspiration for regional development measures, theories on the value of geographical proximity - such as cluster theories - provide few normative implications suitable for direct use in regional development circumstances. For instance, they tend to concentrate on high-tech or craft-related industries in mature successful regions. Moreover, although extensive funds have been dedicated to regional development measures with special attention to geographical space, studies surveying, measuring and evaluating the outcome of such measures have been rare (Rosenfeld, 1996).

We have surprisingly little systematic knowledge of these [cluster] initiatives, their structure, and their outcomes. As more and more resources are devoted to efforts to foster cluster development, the need to understand best practices has become urgent. Cluster initiative practitioners have to find the approach that both builds on the international experience and reflects their unique local environment (Sölvell et al., 2003).

It is complicated to launch, drive and evaluate RSNs since it is a complex phenomenon with processes simultaneously ongoing on three levels: the region, the participating organizations and the individuals representing their organizations in the RSN. On each level, several tangible as well as intangible effects may develop. As RSN-measures are undertaken under very varying conditions, it is important to develop a nuanced understanding of how specific conditions will affect processes and outcomes. Such causal relationships are, however, still largely unexplored. Additional knowledge is also needed about the purposes for which RSNs can be used, or in other words, about likely outcomes of RSN initiatives. More elaborate evaluations of RSN performances and outcomes would be useful for improving their efficiency and the goal fulfilment on the three levels. Furthermore, regional development measures subsidized by state aid are subject to evaluations. It is thus important that the full extent of possible effects is known, so that evaluative assessments and judgements can be well-informed and cover relevant aspects. The complexity of RSNs implies that the inevitable choices on perspective and methodology will affect the evaluative judgement of their achievements.

Characteristics of regional strategic networks

RSN initiatives have their roots in the availability of funds dedicated to regional development measures. Actors like consultants, firms or government representatives recognize opportunities for using these funds, opportunities that sometimes have a network context. The initiative to launch an RSN may thus come from actors external to the local government, but it will have to meet with their approval to achieve funding from state aid sources. Some general goals are set for the RSN cooperation and, in the next step, a number of potential participants are contacted and offered participation – if regional funding is provided, regional administrative borders are often used to delimit the area of location for potential participants. The potential participants are offered an opportunity to cooperate for a specific purpose, often with financial and administrative support. Those who join will be denoted “a network”, but in their initial phase RSNs are neither real networks nor functioning organizations. Ultimately, the intention is to foster relationships that will generate a network structure, but initially these relationships are either absent or are few and weak. Initially, thus, the term “network” is more of a vision than a fact. The members of RSNs remain independent of one
another but work together for mutual objectives. Trade associations and federations, in contrast, mostly provide indirect services, such as lobbying, for their participants.

The RSN is not an organization, as its members are independent autonomous entities, free to exit the network at any time. There are similarities with projects, as funding is provided for a certain period of time for the achievement of certain goals. RSN initiatives can be supported by international, national or regional funding, and are thus influenced by the relevant political logic and the attendant administrative principles and rules. They are organised as projects in the sense that they have a pre-determined life span and a focus on specific targets. However, there are also several major differences between the two, as the participants in an RSN are independent, brought together with broad visions in mind, and often consisting of large, heterogeneous groups. Further, there is a hope that the relationships and processes will become self-sustaining and will continue after the administered time-period is over. In time, these network initiatives are expected to shift towards operations geared to a business logic and characterized by interaction, emergent goals, long-term processes and relational performance, and with unclear boundaries. These structures will share some of the typical characteristics ascribed to clusters or industrial districts, e.g., business relationships that are socially embedded, personal relationships between business actors of a trustful kind, and knowledge spillovers. However, it is difficult to maintain a long-term perspective as public funding is limited in time, often to as little as 3 or 4 years, particularly if funds are provided by the European Union. The financial support may thus come to an end at an early and/or sensitive stage in the relationship-building.

The term “strategic” in the designation RSNs refers to the time dimension and to the importance and impact of membership effects. With regard to time, RSNs are generally designed in a long-term perspective – even though their formal, financially supported life-span may be fairly short. When it comes to impact, there are various levels of analysis. The public sponsors of RSNs normally place considerable weight on the intended effects, since these concern business development in the context of regional or national industrial policy. At the regional level there is the desire to encourage and develop conditions favourable to business development. This introduces a strategic dimension, as some initiatives are supported and others are not. For the individual firm, the decision whether or not to join an RSN, and subsequent decisions about how much time and effort to devote to it, may not always look like strategic ones. It all depends upon how RSN membership coincides with the firm managers’ strategies and their own personal attitude towards co-operation and information-sharing.

The all-embracing aim of RSNs is to strengthen the competitive position of the participating firms by offering new alternative opportunities for development - opportunities created by the member firms themselves as a result of exposure to fresh knowledge and new competencies. This can be the result of formal training, or of the opportunities for relationship development. Both sources offer access to information and other valuable intangible and tangible assets that encourage business development, cooperative ventures or business exchange. RSNs are launched in regions where the existing firms have little knowledge of one another and few previous mutual relationships (which is one of the reasons for initiating a measure of this kind). Moreover, the firms often lack any shared picture of the opportunities or threats, and even if such opportunities or threats are present, they have not felt called to organize themselves in an RSN kind of way. A facilitator, often known as a hub, is therefore appointed to initiate, administer and coordinate network activities, and to encourage and motivate interaction among network members. The participating firms usually appoint representatives from their own staff to represent them in network activities. Thus a common first step is to encourage the development of relationships among these individuals, since social relationships often go hand in hand with – or even precede - business relationships (Granovetter, 1985, Uzzi, 1996). Catalysts of this kind may be needed to assist and encourage the development of relationships in situations where commitment and trust are lacking and relationships underdeveloped. However, in seeking to encourage and coordinate interaction and to create commitment among a multiplicity of expectations and demands, hubs face a complex task (Christensen and Kempinsky, 2004).
Few systematic studies of RSNs have appeared. A global survey of cluster initiatives (CIs) reported approximately 250 examples (Sölvell et al., 2003). It was concluded that every CI was unique, due to the variety of settings, objectives and processes, so no obvious “path” was followed. Objectives varied greatly, since the nature of the cluster and the process of the CI both contributed to shaping them. It was not always self-evident at the outset what objectives the CI should concentrate on, in order to achieve the greatest impact. The most frequently chosen objectives were divided into six main types: research and networking, policy action, commercial cooperation, education and training, innovation and technology and cluster expansion. Most CIs had broad goals, on average covering five of these six segments. The most common objective, among both companies and individuals, was general network-building. Virtually all CIs engaged in this. The CIs also tended to have a narrow geographical focus: half of them had most of their members within one hour’s travel distance from one another. The membership was typically broad; the exclusion of foreign-owned companies, competitors or small firms was rare. The variety makes CIs hard to compare and lessons learned in one context may not be applicable in other circumstances.

Aim and research questions

Globalization and competitive pressure create a need for firms to constantly improve their products and processes. However, some firms, SMEs in particular, have insufficient resources for knowledge development; therefore, learning from others, and together with others, has come to be regarded as a solution to this limitation. RSNs are intended to facilitate the processes of learning and knowledge development by providing arenas and sets of potential partners. However, we have little knowledge only of what RSNs are: how they function and what outcomes are likely under different circumstances. Research on RSNs is limited and theories on clusters and business networks are not fully applicable. Regions using RSNs as a tool for economic development rarely possess the structural characteristics of clusters, but little is known of how conditions at the outset - such as similar or complementary resource constellations among the network members - are likely to influence RSN outcomes. Further, RSN outcomes are likely to be influenced by the network activities initiated by the RSN project leader/hub. Complicating the picture even further is the fact there are several actor levels simultaneously in play: the regional level, the member level (firm/university/public authority etc) and the individual level (project leader and member representatives in the network). Goals and actions on all levels influence the final outcomes and different outcomes may be achieved on each level. The range and extent of outcomes will moreover be changing over time. To survey the full extent of RSN outcomes on all levels and trace their causal relationships to network activities and network structures would thus be a very complex and demanding task. Grasping the full extent of outcomes would be tricky as some outcomes may concern sensitive business information or be of a private nature and thus kept secret and causal relationships are likely to be complex, involving several variables. Nevertheless, considering the importance ascribed to regional development measures and the amount of state aid spent on such measures, evaluations are needed for improved efficiency and goal-fulfilment. RSNs thus constitute an important area for research.

This thesis aims to improve our understanding of RSNs and the business value of geographical proximity from a theoretical as well as a practical angle. It makes two contributions to our knowledge of RSNs, and the business value of geographical proximity - one theoretical and one empirical. Theories regarding geographical proximity, regional agglomerations and networking are presented and their applicability to RSNs as a regional development measure is analyzed. A RSN case study and a study of the value of geographical proximity across industries are also presented and analyzed. The RSN study illuminates a kind of context in which RSN measures often appear. It explores what outcomes an RSN in such a context may bring about among its member firms and their representatives in the network; further, it discusses how the outcomes may be related to network activities, in particular the actions of the RSN project leader/hub. The study of the value of geographical proximity
across industries further pinpoints the assumption of a value in geographical proximity that underlies the use of RSNs as a measure for regional development.

A chain of events generated several sub-themes for study. Initially, an attempt was made to identify how RSN conditions prevailing at the outset, when an RSN is being designed and implemented, are likely to affect outcomes. However, this made it necessary to look at the kinds of outcomes that could be identified in an RSN setting. The discussions of outcomes in turn triggered questions regarding their measurement and evaluation.

The research questions can be summarized thus:

How can regional strategic networks be defined and described theoretically and empirically? This question is studied in the present summary as well as in papers 2-5.

Is there a knowledge-development advantage in geographical proximity? This question is addressed in papers 1 and 2.

How are the outcomes of RSNs affected by initial structural conditions such as the configuration of industries and firms in a particular region? This question is mainly addressed in paper 3, where likely implications of similar/complementary capabilities and activities among RSN member firms are discussed.

What are the results of RSNs for their members and for the regional level? This question is discussed in papers 2, 3 and 4.

What affects evaluations of RSNs? This discussion is further developed in paper 5.

A theoretical framework for these issues is presented below. It encompasses theories on clusters, industrial districts, social networks and the markets-as-networks framework. The focus of all these theories is on the value of relationships, for instance as a source of innovative ability and competitive strength, but they differ in the importance and value that they attribute to the geographical aspect. These theories are likely to have influenced the choice of RSN as a regional development measure and their relevance for RSN settings is therefore discussed. Some methodological questions are then addressed and the studies are introduced. Thereafter follow summaries of the papers, a section summing up conclusions and questions remaining for further research, and finally the papers in full.
Theoretical frame of reference

Definitions of concepts central to the present discussion

All over the world, governments and regional planners are seeking to support business in various ways. “Interaction”, “Relationships” and “networking” have become the buzzwords. The markets-as-network framework states that every firm exists within a complex network of interactions between actors exchanging information, expertise, goods and services, payments and loans, etc (Ford et al., 1997). The network is made up by nodes (firms) and threads (relationships between the nodes). Relationships are typically characterized in terms of mutuality, a long-term character, a process nature and a context dependence (Holmlund and Törnroos, 1997). However, it has been recognized that, although intuitively appealing, a precise delimitation defining a level of interaction as a relationship rather than as a series of independent events is difficult to make (Håkansson and Snehota, 1994). Håkansson and Snehota (p. 152) suggest the tentative definition “mutually oriented interaction between two reciprocally committed parties”. However, they acknowledge that there is a large, multidimensional, variation between different relationships and therefore emphasize that “a relationship is not a given, but a variable that can take on different values” (p. 153).

In business relationships, resources and activities of the firms are combined in ways that neither firm could manage on its own. This interlocking of resources and activities implies interdependence and thus a certain loss of control. It is therefore a step not taken unless there is a certain level of trust between the firms. In the initial stages of relationship-development this trust may stem from personal relationships or from a person’s or firm’s reputation in the market. Subsequently the level of trust can increase, as the chain of events becomes longer, and the events in themselves more elaborated and demanding (Larson, 1992). A progressing development is not, however, self-evident; the direction of the relationship development will depend on the choices made by each of the parties on how to act and react. A relationship may thus grow stronger, but also weaker, in response to changes in the relationship but also in response to changes in the surrounding environment. Networking is a term used for describing the interaction process over time (Johannisson and Mønsted, 1997). Relationships and networking are also presented as key success factors in theories on clusters and thus constitute an important source of inspiration for any administration confronted with the task of regional development. Relationship-building, for instance, is designated by Porter (1998b) as being crucial for cluster development.

Studies of the effect on firms of being located within a common region often emphasize the importance of geographical proximity. However, the concept of geographical proximity is both relative and subjective and can be interpreted in a variety of ways. Its impact on opportunities for interaction, for instance, depends on the conditions regarding communication, and regulations and much else. It will be assessed not only on the basis of objective factors (distance in kilometres, time and cost) but also on the subjective perceptions and interpretations of such factors (Torre and Rallet, 2005).

Enright (1996a) proposed the set of definitions for regional agglomerations and business networks that will be used below. For the broadest definition of industrial agglomeration he follows Porter (1990), adopting the industrial cluster definition for a set of industries related by way of buyer-supplier and supplier-buyer relationships, common technologies, common buyers or distribution channels, or common labour pools. A regional cluster is an industrial cluster defined by close geographic proximity among the member firms. Finally, industrial districts are subsets of regional clusters.
representing concentrations of firms engaged in interdependent production processes, often in a particular industry, embedded in a local community. In the following pages, regional clusters are discussed under the abbreviated denomination cluster and, in line with Enright and for the sake of simplicity, industrial districts are treated as subsets of clusters. Finally, in Enright’s terminology, business networks consist of firms involved in ongoing communications and interaction; there may be a certain level of interdependence, but the firms may be attached to separate industries and be far away from one another in terms of geographical distance.

Strategic network is a concept used - for instance by Gulati et al. (2000) - as an umbrella term for enduring interorganizational ties of strategic significance to the firms concerned. Strategic networks are organized by way of an array of contractual terms. The concept includes strategic alliances, joint ventures, long-term buyer-supplier partnerships and other similar ties. The presence of such networks in the market has increased dramatically since 1980 (Gulati and Gargiulo, 1999). Jarillo (1988) has provided us with an oft-quoted definition of strategic networks as: “long-term, purposeful arrangements among distinct but related for profit organizations that allow those firms in them to gain or sustain competitive advantage vis-à-vis their competitors outside the network.” The networks are administered by a “hub” (Jarillo, 1988, p.32) that acts as facilitator and driver. Firms combine resources in strategic networks to cope with uncertain environments, to access critical resources, to share the costs and risks of technology development and to increase sales (Gulati and Gargiulo, 1999). With their planned and formalized character, albeit usually without any geographically restricted intent, strategic networks have appealed to political goals regarding the support of local industry in an apparently structured and manageable way. Strategic networks are generally discussed in the context of business strategy and theories on business networks, while clusters/industrial districts are generally discussed from the perspective of economic geography or regional economics.

Inspired by reports of the impressive economic development in areas such as Silicon Valley (Saxenian, 1994), Italian industrial districts (Becattini, 1991), and the growing number and importance of strategic networks (Gulati and Gargiulo, 1999), governments world-wide have initiated or supported the creation and development of various forms of regionally delimited strategic networks as tools for regional development (Lundequist and Power, 2002, Huggins, 2000, Rosenfeld, 1996, Neergaard, 2000, Welch et al., 1996, Waluszewski, 2006, Ketels, 2004). Regional strategic networks, RSNs, as I see them, are intended to enhance knowledge capital, social capital and visibility in a particular region thereby enabling its resident business to compete more comprehensively and successfully. The central idea, or hope, is that they will “unlock important synergies, encourage innovativeness, raise efficiency, and thus strengthen the competitive advantages of the regional economy […]. As a by-product, local network building may also enhance political competencies and social commitments (Staber, 1996a). A regional delimitation, often guided by administrative principles, is thus characteristic of RSNs, and RSNs may be conceived as a regional resource.

RSNs – their theoretical underpinning

A look at the theories on clusters and the regional conditions that affect firms’ competitiveness, or at theories on business networks and the benefits of relationships, or at theories on designed interaction in strategic network settings shows that RSNs do not fit completely into any of them, although they have something in common with them all. There is no strong or uniform theoretical foundation for RSNs as such, and thus no indisputable grounds for stringent rules or recommendations about how to go about designing and implementing them in the most effective and efficient way. The following discussion of the most prominent similarities and differences between RSNs and the theoretical sources that inspire their launch will further illuminate these conclusions. To begin with, strategic networks will be discussed, followed by theories on clusters, theories on social networks and theories on business networks.
Theories on Strategic Networks

A frequently cited definition of strategic networks is given by Jarillo (1988, p. 32): “long-term, purposeful arrangements among distinct but related for-profit organizations that allow those firms in them to gain or sustain competitive advantage vis-à-vis their competitors outside the network”. In the strategic networks presented by Jarillo, “a ‘hub’ firm with especial relationships with the other members of the network” is the central actor of the network.

Collaboration with an appropriate partner can provide a firm with access to critical resources and improve innovation capability. However, knowledge of this causality is not the same as being able to establish a suitable collaborative relationship. Firms will be judged as partners on their accumulated technical, commercial and social capital and both inducements and opportunity factors will decide the linkage-formation propensity of firms (Ahuja, 2000). In choosing new partners, firms tend to rely on information from their current partners (Gulati and Gargiulo, 1999). Further, social networks facilitate the formation of new alliances as they provide valuable and trusted information to firms about the specific capabilities and reliability of potential partners as well as their operations and potential cooperative opportunities (Gulati, 1995).

Theories on Strategic Networks and RSNs - a comparison

RSNs share several important features with strategic networks. In both cases, the networks are designed by an initiator, both have specific member organizations, and both are administered by a central “hub” function. This means that RSNs reflect the formal set-up and the planned and organized structure of strategic networks, even though their ultimate goal is different, namely that the member firms should develop mutual trust and a common culture enabling them to assume a state of a self-organization when the period of external public support comes to an end. To begin with, strategic networks and RSNs both also suffer from a deficit in trust and in the social networks typical of clusters, and in particular, of industrial districts. Thus, to begin with, interaction and cooperation has to be encouraged and coordinated so that sufficient trust can be developed to allow for the exchange of information and experience. It is necessary that someone - a hub – should take on the job of driving the process and promoting interaction. In strategic networks the hub function is often taken on by one of the member firms, which then has an economic interest in the outcome of the cooperative effort. In RSNs the hub-function is usually performed by an independent actor: a consultant or project leader financed by members’ fees and public funding, and with no personal financial interest in the action taken. Like the hubs of strategic networks, the hubs of RSNs are expected to adopt a network view and to communicate strategic ideas and intentions to all the member firms (Lorenzoni and Baden-Fuller, 1995). Further, like strategic networks, RSNs also have specified boundaries. Membership determines the activities undertaken as the hubs in both cases are restricted to dealing with a specific set of actors. However, it has to be remembered that these actors also enjoy ties with other firms that, although they are not members, can still impact upon it via restraints inherent in the relationships concerned (Blois, 1998). However, the regional delimitation of RSNs is not an inherent part of the strategic network concept, although spatial considerations may affect the design. Strategic networks can span vast geographical distances.

Becoming a member of a strategic network often represents a major commitment and the dedication of substantial resources. Membership of an RSN, on the other hand, tends to be less demanding, usually requiring only a minor annual fee. Also, RSN’s contract terms are often less demanding than those in business, for instance, or in R&D-oriented strategic networks. Rosenfeld (1996) distinguishes between hard and soft networks, pointing out that the need for formal arrangements is more pronounced in hard networks where firms co-produce, co-market, co-purchase or co-operate in their product or market development, than in soft networks that focus on the solving of common problems, the sharing of information or the acquisition of new skills. The RSNs discussed in this thesis are mainly of the second kind.
The undemanding terms of contract and the low level of commitment allow firms that see no particular advantage in joining an RSN, to join anyway, “just in case”. Firms that were not in on launching the RSN, and that were only offered membership at a later stage, have invested little if anything in the project and may simply have joined as a precaution - in case something interesting should develop later. By becoming a member they have shown at least the appearance of interest in regional development and cooperation, and can decide to take a more active part if they spot any promising opportunities later on.

RSNs may imply an opportunity for a firm to get in touch with another member with which it would otherwise have a hard time getting access. However, as Ahuja (2000) points out, the opportunity to build relationships is not enough to make them happen; there also has to be sufficient inducement. If this is not at hand, the members’ commitment to the RSN will be low at first and will only grow if membership offers promising opportunities or significant advantages. It is difficult to identify a common purpose, when members differ significantly in their maturity, business strategies etc (Staber, 1996a). RSNs often embrace quite a lot of firms, gathered around rather vague goals and under very general terms for their participation or demands for formal commitment.

While the goals of strategic networks have to be precise enough to govern contract terms and encourage investment in cooperative action, the goals of an RSN are often fairly broad and general, as governments may want to allow the parties some leeway and to appeal to a large number of firms in the region. Strategic networks are often formed on a basis of complementary resources, i.e. knowledge. RSNs, on the other hand, are usually intended to remedy a lack of knowledge, capabilities and experiences among the participants by providing opportunities for new contacts and information exchange, often together with joint training opportunities. Actors with complementary knowledge for achievement of a specific purpose may not be available in that particular administrative region; the cooperative goals are then set on a more general level.

Table 1 below provides a summary of the above discussion.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Strategic Networks</th>
<th>RSNs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Long-term, purposeful arrangements among distinct but related for-profit organizations</td>
<td>A networking measure supported by actors external to the network and undertaken with a view to enhancing business conditions in a particular region</td>
</tr>
<tr>
<td><strong>Governance mechanism</strong></td>
<td>Contracts</td>
<td>Cooperation on a voluntary basis</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Formal, hub appointed</td>
<td>Formal, hub appointed but aiming at self-organization</td>
</tr>
<tr>
<td><strong>Boundaries</strong></td>
<td>Specific</td>
<td>Specific</td>
</tr>
<tr>
<td><strong>Geographical proximity</strong></td>
<td>Varying - no spatial rules</td>
<td>Within a certain region</td>
</tr>
<tr>
<td><strong>Formal commitment</strong></td>
<td>Major</td>
<td>Minor</td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>Specified</td>
<td>Vague</td>
</tr>
</tbody>
</table>

Table 1. Strategic Networks and RSNs - a comparison.
Theories on clusters

The most frequently cited cluster definitions are provided by the business strategist Michael Porter:

A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities. The geographic scope of clusters ranges from a region, a state, or even a single city to span nearby or neighbouring countries (Porter, 2000).

According to Porter (1998b), proximity and repeated exchange foster better coordination, trust and learning which reduces transaction costs among firms in a cluster. For cluster effects to develop there is however a need for a critical mass, in one place, of firms with unusual competitive success in particular fields (Porter, 1998b).

The competitive advantages of clusters depend to a large extent on personal relationships, face-to-face communication and interaction among networks of individuals, firms or institutions. Some cluster advantages are largely independent of social relationships (e.g. availability of a large pool of employees with proper skills), but most, if not all, are connected, at least to some extent, to the social relationship dimension (Porter, 1998b). The main difference between modern theories on clusters and in the discussion of agglomerations in Marshall (1891) is the belief that clusters reflect “not simply economic responses to patterns of available opportunities and complementarities, but also unusual levels of embeddedness and social integration” (Gordon and McCann, 2000, p. 520).

More cooperation can be expected among firms in clusters then in firms in geographically dispersed industries as there are more activities that can be shared by firms in close proximity with one another. Further, co-located firms are more likely to be interdependent and to recognize their interdependence (Staber, 1996a). Even so, although favoured by physical proximity, local inter-firm relationships and interaction cannot be taken for granted. Porter thus identifies relationship development as an important area for supportive action on the part of local governments (Porter, 1998b). Many types of relationships can link cluster actors together, but the most common are buyer-seller relationships, competition, spillovers in personal interactions and joint R&D-projects among firms (Malmberg, 2002).

Theories on clusters also stress the importance of local markets. The more demanding and sophisticated customers put pressure on firms to innovate and to keep up with the latest developments. In a global economy, it is the quality rather than the size of local demand that counts (Porter, 1998b). Geographical proximity is expected to ease customer communication and to facilitate knowledge transfer and personal interaction. Further, specialized suppliers make for easier procurement and lower transaction costs, as they have to consider their reputations - as firms and individuals - in the market and the community. It is assumed that a rich variety of specialized suppliers will develop, as proximity to a lot of local customers makes it easier to recognize market opportunities and less risky to follow them up. In an oft-quoted study, Saxenian (1994, p.2) describes the Silicon Valley cluster as “a regional network-based industrial system that promotes collective learning and flexible adjustment among specialist producers of a complex of related technologies”. Furthermore, constant competition among the suppliers will tend to reduce their prices and transaction costs. The competitive nature of clusters is reinforced not only by pressure from local competitors and the greater potential for interpersonal competition arising from the effects of embeddedness, but also by the striving for status and position in the local community (Staber, 1996a).

Knowledge spillovers has been defined as “a prototypical externality by which one or a few agents investing in research or technology development will end up facilitating other agents’ innovation efforts (either unintentionally … or intentionally) (Breschi and Lissoni, 2001). It is, however, an elusive concept and one that is hard to operationalize and measure. It has therefore been studied and measured indirectly. The existence of knowledge spillovers has been difficult to demonstrate empirically in any consistent way, and the concept has consequently been called in question and
denoted as “a black box” in industrial-district research (Breschi and Lissoni, 2001, p.976) and economic geography research (Martin and Sunley, 2003). Some evidence of knowledge spillovers has been found. Jaffe, Trajtenberg, and Henderson (1993) studied the relation between originating patents and citing patents in seeking to identify knowledge spillovers. Their results showed that cited patents originated in a specific city 5 to 10 times more frequently than would be expected, given the geographic distribution of the technologically related activities. The effects were significant, but rather slight. However, they were confirmed in a later study by Almeida and Kogut (1997). In addition, Feldman (1994) found a positive relationship between the amount of knowledge-generating input in a region and the resulting amount of innovation. Taken together, these studies suggest that knowledge is sticky, and that it remains largely in the region where it originated.

Tallman, Jenkins, Henry and Pinch (2004) postulate the existence of common cluster-level knowledge available to all firms in a region, claiming further that this will enhance the transfer, absorption and application of knowledge within the cluster but will hamper flows across cluster boundaries. They argue further that firm-specific knowledge will still persist, so that differences will remain in stocks and the application of knowledge among cluster firms. These unique circumstances will help to protect firm-specific knowledge, but may also limit a focal firm’s capacity to absorb the knowledge available at the cluster level. Firms and industries undoubtedly differ in their susceptibility to externalities. Knowledge spillover effects seem to be more pronounced and more important in knowledge-intensive industries, and are perhaps of particular benefit to smaller firms (Henderson and Jaffe, 1999, Harhoff, 1999). However, the studies referred to above do not attempt to explain how the processes of knowledge transfer evolve. Up to now little research has been done on this topic, and although localized effects are indicated, the studies have not been able to show that these were generated by spillover processes.

It has been suggested that proximity facilitates the creation of random networks (Ropoport, 1979) and informal information-sharing. Furthermore, once formed, networks will be easier to maintain if the actors reside in the same area (Harhoff, 1999). Measuring actual effects, however, is very problematic. Zucker and Derby have suggested the importance of specific individuals, in their case star scientists. They show that the timing and usage of new knowledge in firms was dependent on the presence of star scientists who actively contributed to developing the basic science. However in this case too, it could not be shown that the localized effects were caused by spillover processes.

In a survey study of patterns in firm linkages and specialisations in the London Region, Gordon & McCann (2000) came to a more limited conclusion regarding the presence and importance of agglomeration externalities:

[…] the views of businesses about the key location factors for their type of activity tend to emphasise basic issues of accessibility and the cost/availability of relevant kinds of labour and premises, rather than more sophisticated aspects of the business milieux, which tend to be significant only for small minorities of business.

However, the ability of studies to capture all aspects of business life is limited. Furthermore, firms may be unaware of the actual impact of externalities – or be unable to appraise them. The question of the extent and form of location externalities, in particular knowledge spillovers, thus still remains open.

The cluster advantages identified in theories on clusters are important, as the inspiration of various regional development initiatives. RSNs aim to foster cluster conditions within a particular region, with a view to promoting some of the advantages attributed to firms located in cluster settings. Cluster advantages in mutual interaction are expected to generate competitive advantages of three main kinds: increased productivity, higher rates of innovation, and higher rates of new business formation.
**Increased productivity** can be explained mainly by easy access to skilled employees and specialized suppliers, as well as pressure from sophisticated and demanding customers. There is also better access to information about buyers’ needs, technical development etc that promotes and guides specialization. There are also valuable complementarities, e.g. opportunities for joint marketing and a shared value in the reputation of a location. Access to institutions and public goods, for example the possibility of recruiting staff from a local university, reduces the cost of internal training. Finally, competitive pressure and constant comparisons encourage business development, while the socially embedded nature of business relationships means that these will be efficiently managed: opportunistic behaviour is likely to be restricted out of fear for one’s reputation and the risk of sanctions in the community. Unlike opportunistic behaviour, trust reduces risk and smoothens the way for interaction.

Some of the qualities that currently underpin productivity can be expected to have a more pronounced effect on the **direction and pace of innovation**. Due to the proximity of firms in related industries and the concentration of sophisticated customers, firms in clusters may be quicker than their isolated competitors to spot opportunities and buying trends. Ample access to suppliers and customers within the cluster also encourages flexibility, and thus the ability to react promptly to new pointers. In addition, the continual pressures in a cluster – competitive pressure, peer pressure, and constant comparisons – reinforce general awareness and the capacity for prompt action. Nonetheless, it has to be remembered that cluster locations may also obstruct innovation - if attitudes become too inward-looking, the rigidities and collective inertia of “groupthink” take over. Enright (1996a) suggests that while clusters may be flexible in handling incremental change, they can be rather rigid and inflexible when confronted by radical change.

The existence of a concentrated customer base makes it easier to spot opportunities, thus favouring **the formation of new businesses**. The cluster often represents a substantial local market which makes it less risky to start a new business. **Barriers to entry are also lower** within a cluster, as the necessary assets, skills, inputs and staff are often readily available. In turn, the new business formation will then expand and reinforce the cluster in a positive feed-back loop.

**Critique of theories on clusters**

However, theories on clusters and the advantages claimed for cluster locations are widely recognized and influential - but they do not go unchallenged. The cluster concept is very fuzzy. The borders are largely in the eye of the beholder; there are no clear directions about how to delimit a cluster (Martin, 1999, Markusen, 1999). For instance, should every single firm in the Silicon Valley area be regarded as a member of the cluster, with the same access to - and the same use of - cluster benefits as every other firm, or are there also differences within clusters? Malmberg (2002) indicates three important aspects of the cluster concept. First, it is a concept used for describing sets of functionally integrated businesses or, secondly, to designate geographical agglomerations. Thirdly, it has become a popular term for denoting local business sectors in policy discussions regarding regional economic development - sometimes also used with the reservation of “potential” preceding a cluster name – a name often ending with “Valley”! The term cluster is then chosen more for political and legitimacy reasons than as a result of empirically based investigations of actual circumstances. This fuzziness is fundamental and has wide implications, as it complicates operationalisation and comparisons between various agglomerations, support efforts and studies.

Staber (1996b) points out that the lack of precise and operationally defined concepts is a major weakness in the theoretical underpinning. He also notes that the industrial districts hitherto studied are not all equally successful. This variability makes it difficult to explain or design district development in a single coherent model.

District analysts generally do not ask how their perspective handles a particular theoretical problem, and so it is not clear what theoretical contribution the district model makes. Given this ambiguity it is somewhat questionable if the district approach has the status of a theoretical model. It may be more appropriate to consider it a broad conceptual framework for thinking about certain spatial relationships.
We are given … no testable hypotheses. Without precise operational definitions of concepts, and without clear specifications of relationships between concepts, the “model” of industrial districts, as it stands now, is not falsible (p. 149,150).

In line with Staber’s argument, Tallman et al. (2004) observed that firms in a cluster do not perform equally.

Enright (1996a, p. 201, 202) criticizes theories on clusters from another angle, arguing that one of the central factors in modern agglomeration theories - the incidence of trust - is often both overstated and overrated:

Some of the work on trust in regional clusters appears to give short shrift to any economic explanation for transaction governance in regional clusters. … A complete description of transaction governance in regional clusters must clearly incorporate both economic and sociological factors.

Enright also feels that there has been too much focus on the internal operation of clusters, with the resulting neglect of external factors important to the success or failure of the cluster in question - a point also made by Lazerson and Lorenzoni (1999). This neglect of external relationships has also been a primary object of criticism among theorists representing the markets-as-networks framework. Waluszewski (2004, p. 127), for instance, questions what she sees as an underlying assumption of theories on clusters:

[W]hen stressing the competitive or co-operative aspects of spatial clustering, the common underlying assumption is that the exchange conditions within a cluster differ from those outside it. Close interaction – whether in terms of intense competition or close co-operation – is treated as an exception, something dependent on spatial proximity.

Nevertheless, in spite of this criticism, interest in the spatial agglomerations of industries remains strong and clusters continue to inspire regional development initiatives world wide.

Theories on clusters and RSNs - a comparison

The conditions of RSNs differ from those of clusters in several important ways. RSNs are planned and organized ex ante and are administered and driven by a hub. Clusters, on the other hand, are self-organizing entities that evolve over a long period of time. RSNs aim to create an arena for cooperation and joint development on the lines reported regarding clusters, but there is no blueprint as to how to proceed. Today’s successful clusters were not planned as such from the start, nor are the conditions now prevailing likely to be identical with those that originally set the process in motion (Bresnahan et al., 2001). Moreover, clusters come in many shapes and forms and it is unlikely that there should be an over-arching agglomeration model applicable to them all at every stage of development (Markusen, 1996, Martin, 1999).

The regional focus of RSNs coincides with the cluster concept, and is central to the descriptions of industrial districts, in that it stresses the value of geographical proximity. There is a major difference, however, in that whereas the geographical dimension is instrumental in the creation of RSNs, clusters develop organically regardless of administrative geographical boundaries, except for practical aspects: for instance regarding the possibilities for travel or communication. Cluster theorists, such as Porter (2000, p.16), ascribe external resources mainly to a particular location: “clusters suggest that a good deal of competitive advantage lies outside companies and even outside their industries, residing instead in the locations at which their business units are based”. However, Porter’s view of clusters as being present: “at several geographic levels (for example, nations, states, metropolitan regions, and cities)” (1998b, p. 204), still allows for the inclusion of relationships stretching over vast geographical distances. Cluster effects - somewhat paradoxically considering the stress often put on the favourable effects of geographical proximity - are thus presented as independent of the level of observation and fairly independent of geographical distance. In RSNs, on the other hand, member firms are encouraged to interact with a specified set of actors. RSNs are composed of a clearly defined set of members, and
thus have a precise border. Cluster boundaries, on the contrary, are constructed in the eye of the beholder as they can be studied at varying geographic levels and different levels of agglomeration in order to expose different issues. Cluster delimitation is depicted by Porter (2000, p. 17) as “a matter of degree” involving “a creative process informed by understanding the linkages and complementarities across industries and institutions that are most important to competition in a particular field”. The industrial district concept is associated more closely with a particular geographical region, but even in these cases firms may have important linkages with other firms located outside that area (Lazerson and Lorenzoni, 1999).

In clusters, and most pronouncedly in industrial districts, the interplay between production activities and daily life interactions engenders a governance mechanism characterized by mutual trust underpinned by an underlying threat of social sanctions in the community (Becattini, 1991). Theories on clusters propose the individual’s striving for reputation and status in the local community as an important impetus behind competition and business development. Constant comparison among firms and individuals sharing the same local circumstances is a powerful force behind the striving for continuous improvements. Further, the embeddedness in a local community means that any particular behaviour will quickly become known to many actors. Misconduct, for instance, would thus immediately be exposed, damaging the reputation of the originator. Embeddedness can thus be expected to deter wrongdoing and to foster trust, making it easier for firms to accept the dependencies that accompany the development of highly specialized competencies.

Underlying the RSN vision is the assumption that interaction and relationship-development can be fostered among a certain set of actors by a “network manager” or hub. A hub is needed, since to begin with the conditions for a cluster – i.e. planned and unplanned, private and organizational interaction - are absent. However, the members consist of independent organizations, and the hub has no formal means for making them comply. The hub thus has to do a bit of “internal marketing”, in motivating the member organizations to dedicate time and other resources to the network initiative. By using public funding to subsidize certain activities, such as training programmes or participation in trade shows, it may be possible for the hub to push the member firms in a certain direction.

RSNs focus on cooperation, whereas theories on clusters emphasize competition. Porter argues that there has to be competition within a cluster as well as cooperation, but that the main emphasis is on the competitive aspect, and on indirect spillover effects and common goods. It is deemed easier for firms to measure and compare their performances in a cluster, since several similar firms share the same general circumstances. Moreover, managers can be expected to enjoy a feeling of pride and being able to look good in the local community. Thus, it is assumed that fierce competition fosters the development of knowledge and gives unique competitive advantages. Cooperation is considered, but is not stressed. Cooperative aspects are more prominent in studies of industrial districts, which have been described as having “a peculiar combination of competition and cooperation” (Becattini, 1991, p. 85).

Boari et al. (2003) examined the assumption that the competitive pressure is greater for firms located in a cluster. The authors drew a useful distinction between competition and rivalry, defining competition as occurring among firms that depend on the same resources and that may remain largely anonymous to one another, whereas rivalry implies mutual recognition and represents more of a struggle for each individual firm to gain supremacy by means of observing and comparing with specific firms. The rival firms thus constitute a sub-group among the competitors. In a study of exporting firms with less than 50 employees in an Italian cluster, the authors found no evidence of “all against all” rivalry. The number of competitors identified was much higher than the number regarded as rivals. On average, the firms indicated 4.91 rivals. This is a higher number than in other studies, and may indicate that firms in clusters are able to observe other firms more easily, and that proximity increases the availability of information as well as the incentives to act upon it. Only 32 % of the rivals identified were located within the cluster, a figure that in this sample is probably dependent on the volume of exports among the firms (43 % of the production was exported). However, the descriptions
of rivals within the cluster were richer, and respondents stated that it was more difficult to gather information about distant firms. The sharing of local suppliers and the mobility of inter-firm labour were reported as important sources of information. Boari et al. therefore suggest that the ease in identifying and comparing with rivals within a cluster could explain the tendency of these firms to engage in non-price competition, and thus that “the competitive advantage of clusters and individual firms inside the clusters could perhaps be ascribed more to a different way of competing than to more intensive competition” (p. 486).

The incidence of non-local rivals, however, may be crucial in counteracting a development towards cluster myopia and inertia. Some Italian researchers point out that most industrial district studies have focused on the “in the air” transfer of knowledge by way of social interaction in various areas of life, both during and outside working hours, although, there are often also some leading firms in the district with district-external contacts that bring new knowledge into the area (Albino et al., 1999, Lazerson and Lorenzoni, 1999).

In arguing for the advantages of clusters, Porter draws comparisons with isolated firms, vertical integration and formal alliances with entities outside the cluster, rather than with cooperation within relationships - a form of cooperation that is governed less by contract and more by trust and commitment than are formal alliances. Porter (1998b, p. 215) argues against formal alliances mainly on the grounds that they “introduce[s] complex bargaining and governance problems and can inhibit a firm’s flexibility. The close, informal relationships possible between firms in a local cluster can offer a superior solution“. Thus he seems to believe that close, informal relationships can only take place within clusters, and that this represents a major cluster advantage. At the same time, however, he acknowledges that “while the existence of a cluster makes such relationships more likely to develop and more effective once in place, the process is far from automatic”, providing the example of a cluster in Massachusetts where “[e]xecutives in the cluster had never come together” before the cluster was “discovered” and government initiatives were launched to stimulate interaction” (Porter, 1998b, p. 214).

Finally, the successful clusters of today have deep roots in historical circumstances and have developed over long periods of time. RSNs, on the other hand, are administered and funded with a specific and fairly short time horizon, although the underlying aim is to reach the state of seemingly infinite interaction that clusters are reported to enjoy.
### Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Clusters</th>
<th>Industrial districts</th>
<th>RSNs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>A geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities</td>
<td>A spatially and culturally identifiable area in which both employers and employees live and work</td>
<td>A networking measure supported by actors external to the network and undertaken with a view to enhancing business conditions in a particular region</td>
</tr>
<tr>
<td>Geographical proximity</td>
<td>Varying – but geographical proximity is often stressed as a strength</td>
<td>Within a certain region/district</td>
<td>Within a certain region</td>
</tr>
<tr>
<td>Boundaries</td>
<td>Vague - in the eye of the beholder</td>
<td>Centres on a specific district</td>
<td>Specific: the participants</td>
</tr>
<tr>
<td>Organization</td>
<td>Self-organizing, based on a common culture</td>
<td>Self-organizing, based on a common culture</td>
<td>Hub appointed but aiming at self-organization</td>
</tr>
<tr>
<td>Governance mechanism</td>
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<tr>
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<td>Time horizon</td>
<td>Long-term, not set</td>
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<td>Specific, short-term but aiming at long-term effects</td>
</tr>
</tbody>
</table>

Table 2. A comparison between clusters, industrial districts and RSNs

### Theories on Social Networks

Classical economic theory depicts firms as anonymous actors in an atomistic structure driven by rational and impersonal rent maximization and cost minimization. However, sociologists have demonstrated the importance of social networks in private life as well as in business (Burt, 1992, Granovetter, 1985, Uzzi, 1997). This is not to say that atomistic markets do not exist. They do, but they coexist with other types of markets - some more or less atomistic, some with weak social bonds and some showing very strong relationships consisting of business interests profoundly interwoven with social relationships and inter-personal loyalties.

The concept of social capital occurs in a number of social science disciplines for discussing benefits stemming from social relations. Based on a definition of social capital as “the goodwill that is engendered by the fabric of social relations and that can be mobilized to facilitate action”, Adler and Kwon (2002, p.17) have reviewed and synthesised the general findings. They have identified a major dividing-line between a focus on the formal structure of the ties constituting the network, mainly in terms of open or closed systems (Burt, 2001, Coleman, 1988), versus a focus on the content of the ties, such as shared norms and beliefs. Within the structure analysis there is a secondary division between Coleman’s analysis of closed systems highlighting solidarity benefits and Burt’s perspective focusing...
on information and power benefits. Hansen (1999) argues that closure will be beneficial to the handling of relatively uncertain tasks, since trustful relationships facilitate cooperation and the sharing of tacit knowledge. For tasks that are more certain, on the other hand, open systems with relationships bridging structural holes will be favourable, because of the greater and more timely access to information. Lin (2001) states that closed structures are preferable for preserving or maintaining resources, whereas open structures should favour searching for resources and for obtaining them. Finally, Burt (2001) claims that brokerage across structural holes is the source of value added, while access to closed structures may be critical for the realization of such values. The implication for RSNs is that structure will affect likely outcomes, but that the ideal structure seems to vary with the task at hand.

Theories on Social Networks and RSNs - a comparison

In RSNs, interaction and mutual learning initially occur on a personal level between representatives of the member organizations. There is an underlying premise that personal networking provides an important non-market means for transferring knowledge, and that interaction will also trigger the recognition of opportunities. This line of argument finds support in the works of Granovetter (1973) on the importance of weak ties for information access and in Burt (1992) on the value of bridging structural holes for the recognition of opportunities. Further, in a meta-analysis of the factors affecting the effectiveness of relationship marketing, Palmatier et al. (2006) conclude that interpersonal relationships between boundary spanners may be established more quickly, and may also be more effective and sustainable, than relationships of an organizational kind.

An RSN is an add-on in relation to each individual participant’s prior set of relationships. RSNs are intended to expand the contact networks of the participating firms in order to reduce the risk of stagnation. However, RSNs formed in a specific region and delimited by administrative principles may reinforce any tendency towards regional closure if they focus too much on intra-regional processes.

Theories on Business Networks

In the present thesis, theories on business network are represented in particular by the markets-as-networks framework, as described by Turnbull et al. (1996) for example. In this theoretical realm, relationships are regarded as being governed by both economic-rational and social factors (Henders, 1992). Furthermore, it is stressed that individual relationships cannot be fully understood in isolation. They are affected by the relationships - direct and indirect; previous, present and potential - of the parties involved, as well as by the surrounding relationships of other actors, all of which together constitutes a dynamic and complex interrelated network of relationships. The concept of embeddedness refers to this dependence. Several dimensions of embeddedness have been identified (Halinen and Törnroos, 1998), such as temporal, spatial, social, political, market and technological. The term “networking” refers to interaction in network contexts (Ford et al., 2003). However, because information is bounded, no single actor will be able to perceive the whole network, but only that part of it which lies within its own network horizon (Snehota, 2004). Furthermore, within the network horizon of a specific firm, a sub-set of actors will form the context that is considered relevant for strategic actions (Håkansson and Snehota, 1989, Anderson et al., 1994, Holmen and Pedersen, 2003).

In a study of R&D consortia, Doz et al. (2000) found that cooperative relationships may evolve in one of two ways, namely as emergent or as engineered processes. An emergent process may start if changes in the environment involve a threat or an opportunity in the market, and when there is perceived interdependence among a number of firms. Such processes are reinforced if at the same time the firms develop a common view and recognize the similarity of their interest. Alternatively, cooperative relationships may develop in an engineered process, whereby a triggering entity actively strives to create some sort of cooperative alliance. Doz et al. argue that the presence of a triggering entity is likely to be of critical importance to the emergence of cooperative networks in cases when
interdependencies between the firms are difficult for the actors themselves to recognize. Government agencies or specific firms or individuals may assume this triggering role by seeking to create a common perception of a need for - or an increase in - collaboration. As such a need or increase is probably barely recognized by the member firms at first, commitment to the project is likely to be weaker than it is in emergent processes that are based on a common recognition of opportunities or threats. Doz et al. suggest further that emergent processes are characterized by the members’ self-selection, while in an engineered process it is the triggering entity that selects the members and organizes and coordinates the interaction between them.

Triggering entities are not entirely without a role in emergent processes, but their role appears to be more crucial and influential in engineered processes, for instance if potential member firms lack access to certain specific information or if some prominent and respected person initiates, coordinates or in some other way legitimates or gives status to a project, thus helping to attract and retain members:

The paucity of reliable information about the capabilities, the needs, and the behaviour of potential partners creates a significant informational hurdle for organizations that consider entering strategic alliances (Gulati and Gargiulo, 1999).

A triggering entity may be what is needed to overcome an information hurdle, especially if the triggering entity itself may imbue the project with legitimacy and trust. Regional governments and agencies have sometimes performed the triggering role in initiating RSNs among firms and organizations in particular regions. A common ingredient in these initiatives is networking, i.e., stimulating a build-up of new relationships among the member actors (Sölvell et al., 2003).

In relationships, heterogeneous resources are exploited and developed. Relationships are thus seen as a key success factor for achieving a competitive edge in the market. In relationships, production and handling costs can be reduced, and innovation and technical development increased, as information is exchanged and resources are combined and juxtaposed (Håkansson et al., 2004). However, relationships have their dark sides as well: dependence, reduced flexibility and lock-in effects for instance (Håkansson and Snehota, 1998, Håkansson and Ford, 2002) and there are costs associated with the building and maintenance of relationships. Relationships thus represent varying degrees of commitment and adjustment, and call for constant revaluation (Blois, 1998).

Network position is a central concept in theories on business networks since certain relationships may be more valuable than others, and a large number of relationships may be better than a few when access to information is important in a changing environment. Network position, can be defined as the relation of a focal firm to other firms in the network in terms of its role, its importance, its relationships and the strength of its relationships (Henders, 1992, Johanson and Mattsson, 1985) A particular position is also associated with a certain reputation in the market. A positive reputation can be very valuable as a source of swiftly developed trust in new relationships (Meyerson et al., 2004).

In business network theory, the potential advantages of trustful and cooperative relationships with customers and suppliers are a central theme, but emphasis is given to the development of resources and capabilities in specific supplier/buyer relationships, rather than to the geographical circumstances. Relationships are considered regardless of the geographical origin of the parties concerned. It has been found, for instance, that the most important customers and suppliers of a focal firm are often located outside the immediate locality of that firm (Markgren, 2001, Markusen, 1999, Malmberg, 2002). Geographical distance, however, has been recognized as one important aspect of the distance between firms that has to be tackled if fruitful cooperation is to develop between two firms - other aspects being the social, cultural, technological and time distance (Ford, 2002). Furthermore, it is acknowledged that interaction tends to be more frequent and to cover a wider range of issues when the geographical distance involved is not too great (Cunningham and Homse, 2002). Nevertheless, what limits the scope of action for a firm from a business network point of view is not primarily geographical distance. Rather, it is the bounded information access, together with the limited
information-handling capacity, that restricts the world view of a focal firm to actors within an actor-specific network horizon only (Snehota, 2004).

Local agglomeration effects, such as knowledge spillovers, have received rather scant attention within the markets-as-networks framework, and when dealt with have been questioned. Unlike the geographical-proximity advantages that are claimed to benefit firms in a cluster, it has been suggested that place should be treated as a heterogeneous concept since it can be created and used differently by firms/organizations (Håkansson et al., 2002).

Theories on Business Networks and RSNs – a comparison

The markets-as-networks framework stresses the importance of cooperative relationships for resource sharing, resource development, information access and innovation. This is reflected in the RSN concept by the emphasis upon relationship development and cooperation. The underlying assumption of the RSN concept is that a greater number of relationships among the specific group of actors constituting an RSN will prove beneficial to the firms involved even if resources have to be taken from the firms’ previous relationships outside this setting in order to develop its new ones. In other words, little attention appears to have been paid to the dark side of relationships. It is up to each individual firm to determine its own level of participation, but the underlying assumption and expectation behind the creation of RSNs is that the opportunities to form new relationships will be perceived as beneficial by the participants, and will thus be acted upon.

Contrary to the RSN design, the markets-as-networks framework plays down the importance of geographical proximity, and boundaries are discussed for analytical purposes only. Business relationships are self-organized and the long-term relationships that give rise to the descriptions of advantages from cooperation are characterised by trust and unlimited time-spans, rather than formal coordination in project-oriented settings.

The above discussion is summarized in Table 3.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>The markets-as-networks framework</th>
<th>RSNs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Every firm exists within a complex network of interactions between actors exchanging information, expertise, goods and services, payments and loans, etc</td>
<td>A networking measure supported by actors external to the network and undertaken with a view to enhancing business conditions in a particular region</td>
</tr>
<tr>
<td>Geographical proximity</td>
<td>No spatial delimitation</td>
<td>Within a certain region</td>
</tr>
<tr>
<td>Boundaries</td>
<td>For analytical reasons only</td>
<td>Specific: the participants</td>
</tr>
<tr>
<td>Organization</td>
<td>Self-organizing</td>
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</tr>
</tbody>
</table>

Table 3. A comparison between the markets-as-networks framework and RSNs.
Methodological considerations

The origin of this thesis

A research project was initiated at Mid Sweden University in 2001 by Dr Tommy Roxenhall and the industrial liaison officer Edith Andresen. It consisted of three areas of research: Strategic Networks (Sundsvall), Auditing (shared between the campuses of Sundsvall and Östersund) and Entrepreneurship & Business Development (Östersund). The “Strategic Networks” project was headed by professor Jan Johanson at Uppsala University. Jan had noticed the prevalence of strategic networks aiming at regional development and had long taken an interest in them. Furthermore, such networks were common in the region where the Mid Sweden University is located and were considered important by the local county administration and the local municipalities. The purpose of the Strategic Network project in Sundsvall was to improve the efficiency of strategic networking initiatives aiming at regional development. The project had strong empirical roots as well a natural theoretical domicile in the markets-as-network framework that researchers at Uppsala University had played an important part in developing.

I was working as a teacher at Mid Sweden University Sundsvall at the time and I joined the project as a doctoral student on an 80% basis in August 2002. The other members of the team were Professor Jan Johanson, Professor Lars Hallén, and Professor Martin Johanson, Dr Mats B. Klint, Dr Tommy Roxenhall and Dr Eva Sandberg, and doctoral students Anette Bergman, Daniel Hellström, Beatrice Ohlsson and Edith Andresen.

Eva Sandberg initiated a study of an RSN, the Z-Group that she and I conducted in the winter of 2002/2003. We shared the workload of interviewing and transcribing but focused on separate topics. Eva was mainly interested in the network’s historical roots while I focused on network outcomes. I wrote a paper on knowledge-development effects resulting from participation in the Z-Group Network and another paper on effects on network horizons and positions in cooperation with Lars Hallén. This last was presented at the IMP conference in Copenhagen, Denmark, in 2004.

At the end of 2003, Martin Johanson brought up the idea of a book documenting the work of the project group. The book, edited by Martin himself, Lars Hallén and Tommy Roxenhall, consists of papers discussing different perspectives on RSNs. It is mainly intended for the stakeholders involved at different stages of developing and driving an RSN and is to be published in 2008. My own paper focusing on RSN results in terms of knowledge development found a natural context in that book.

When analyzing the data on Z-Group I realized just how hard it is to try to catch all the aspects of network outcomes. For instance, several informants stressed that different minor processes were underway that might become important and valuable in the future. Further, the informants found it hard to sort out the influences stemming from this particular experience from all the other influences in their surroundings. It was thus impossible to grasp fully how the experiences and knowledge gained in the network had influenced, and in the future would influence, their way of acting. Reflection upon these issues got me interested in evaluation challenges and I wrote a chapter for the above-mentioned

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book on that topic in the autumn of 2004. A summarized version of this chapter was presented at the HSS conference in Östersund in 2005.

During 2004/2005 I realized that the initial reference to strategic networks that had inspired the concept of regional strategic networks ought to be supplemented by references to clusters and industrial networks - two concepts often used by Swedish state aid administrators and policy makers. I thus intensified my reading on these topics and began writing the paper “Regional development initiatives under the influence of cluster visions - How member composition affects outcomes in regional strategic networks”. An early version was presented at the IMP conference in Rotterdam, Netherlands, in 2005.

Martin Johanson had access to some data on geographical proximity effects and knowledge transfer across industries from an earlier study in which he had participated. We saw the possibility of using this data to enrich the discussion of the value of geographical proximity in the context of knowledge transfer. This work resulted in the paper “Geographical proximity, technology in use and R & D”. An early version of that paper was presented at the IMP conference in Milan, Italy, in 2006.

The research questions
The overarching questions - Is there a business value in geographical proximity? And, if there is, how does it come about? Can it be enhanced by regional development measures? were addressed with the following research questions:

- How can regional strategic networks be defined and described theoretically and empirically? This question is studied in the present summary as well as in papers 2-5.
- Is there a knowledge development advantage in geographical proximity? This question is addressed in papers 1 and 2.
- How are the outcomes of RSNs affected by initial structural conditions such as the configuration of industries and firms in a particular region? This question is addressed principally in paper 3, where likely implications of similar/complementary capabilities and activities among RSN member firms are discussed.
- What are the results of RSNs for their members and for the regional level? This question is discussed in papers 2, 3 and 4.
- What affects evaluations of RSNs? This discussion is further developed in paper 5.

Two studies have inspired the five papers that constitute this thesis. Both adopted a case study method and are based on interviews. However, the case-concept can vary in the level of detail adopted. In the study of the Iota-network I regard the entire strategic network as a single case. However, the network consists of 30 member firms, each of which could be the object of an individual case study, thus representing a case in itself. Accordingly, one of the articles (New horizons and positions: Structural effects of regional strategic networks) focuses on a particular member firm in the network. This firm then becomes “the case”. Likewise, each one of the firms in the study presented in “Geographical proximity, technology in use and R & D” may be regarded as cases in themselves. They do not belong to a certain network in the same way as the members of the Z-Group do, but they may also still

6 Högskolor och Samhälle i Samverkan, "Vad skiljer framgång från misslyckande i samverkansprojekt?".
7 Industrial Marketing and Purchasing Group Conference, "Can regional strategic networks provide cluster advantages?".
8 Industrial Marketing and Purchasing Group Conference, “The impact of geographical proximity and technology on firms’ R&D-operations.”
represent a case when taken together, for instance when common aspects of interest such as knowledge transfer or knowledge development in certain lines of business are being discussed.

Data collection

Surprisingly little research has been dedicated to business networks and their management despite their prevalence and importance: nor is there much methodological literature addressing business network research (Halinen and Törnroos, 2005). Research on strategic networks, and in particular RSNs, is even more sparse (Camarero Izquierdo et al., 2008, Rosenfeld, 1996).

Halinen and Törnroos (2005) discussed the way research into contemporary business networks should be conducted, and noted that “business networks” as a subject tends to increase the complexity of the relevant research in four important ways: boundary-setting, mastering network complexity, understanding the role of time and process, and making case comparisons. For RSNs, the question of boundary-setting is not so problematic, as there is a given number of network participants. However, as soon as influences from actors in the network’s environment are taken into consideration, the problem reappears. Furthermore, the problem of complexity remains. There are several actors involved: not only network participants but also network hubs, administrators of state aid, the member firms’ other relationships (direct as well as indirect), evaluators, etc. The problem of time appears for instance in changes in commitment to network activities among the various network members. There may also be changes in the composition of the membership as members may leave the RSN and/or new participants may join. The number and structural/resource characteristics of the member firms may thus change over time. Finally, opportunities for RSN case comparisons are limited by the fact that networks are “embedded in different spatial, social, political, technological and market structures, which makes each network somewhat unique and context specific” (Halinen and Törnroos, 2005, p. 1286). Considering these complexities, Halinen and Törnroos conclude that the case strategy is the most suitable method for studying business networks.

The case study method

RSNs are very complex to their nature, as there is considerable variation within the fundamental dimensions such as regional characteristics, the number of participants, financial resources, hub characteristics etc. Quantitative studies thus come up against severe statistical difficulties as regards data access and compatibility (The EC Regional Structural Funds’ impact in Sweden, 2004). For the sake of simplicity, the hubs are often used as respondents in surveys and evaluations (Sölvell et al., 2003). However, hubs play an important part in producing outcomes and may be held accountable. This may foster a temptation to embellish outcomes by providing flattering descriptions of processes and results. Qualitative case studies have also been undertaken, but the results are contradictory and the reported outcomes of RSN initiatives in relation to their goals have been mixed (Huggins, 2000, Rosenfeld, 1996, Neergaard, 2000, Nilsson and Nilsson, 1992, Human and Provan, 1997, Ketels, 2004, Kingsley and Malecki, 2004).

A case study allows for deep and detailed understanding of complex phenomena. Merriam (1994) describes case studies as being particularistic, descriptive, heuristic, and inductive. Cases studies are particularistic in the sense that they focus on a certain situation, event, phenomenon or person. A case is suitable when it illuminates important aspects of the phenomenon in question and what it may lead to. A specific case may elucidate a general problem and thus be of general interest. A study can be characterized as descriptive insofar as it refers to the informative description of relevant variables, and the interplay between them. Case studies are furthermore descriptive in the sense that they may improve the reader’s understanding of the phenomenon by creating new meanings, expanding the reader’s experiences or confirming what was already expected. They are finally inductive in the sense that generalizations, concepts and hypotheses may evolve from the information provided by the case.
From a pragmatic perspective, the knowledge received from a case study should be judged by its comprehensibility and its usefulness (Merriam, 1994).

Cases studies can rarely answer questions about “how much” or “how often”; they focus on qualitative problems like discovering what is happening, what that leads to what, and relationships linking different events. They are particularly suitable where little is known about a phenomenon and when current theories seem insufficient or inadequate (Easton, 1995). I thus came to the conclusion that a case study would provide the best way of getting to know the intricate nature of RSNs. For the above reasons it seems to me like a reasonable decision. An explorative case study was thus undertaken in an attempt to catch as many of the complexities as possible, and to allow several voices to be heard. I mainly used interviews for data gathering but I also had access to written material and I was able to make observations during network meetings. By using several data sources I tried to take advantage of the unique strength of case studies, namely the ability to handle different types of data (documents, artifacts, interviews, and observations) (Merriam, 1994).

Case selection
Choosing objects of study for case studies raises questions about sampling variety and external validity. Silverman (2005, p. 37) proposes that the answer to worries about sample size, and the related questions of sampling variety and external validity, lies in regarding this kind of research “not as an attempt to provide categorical ‘truths’ […] but as an attempt to raise questions […] by looking at a single case in detail”. He further argues that “the validity of a case study depends more on the quality of the analysis than on the size of the sample” (p. 55). The undertaken studies are in line with this approach. They are exploratory rather than definitive; they raise questions but cannot provide generalizable truths.

The Iota-network was chosen for two reasons in particular. It was a network initiative that could be expected to meet with difficulties, since the delimited region was vast and sparsely populated. This RSN thus had to work out of a challenging context and it seemed interesting to investigate what had been achieved under these circumstances. In addition, access to this network was facilitated by the fact that some of the firms in question had previously cooperated with the university regarding student assignments.

In the study of so-called high-technological or R&D-intensive industries, 37 firms in the Mälardalen region were chosen. This sample was not random, since the intent was to find firms working in certain industrial sectors that represented different aspects in terms of size, age, ownership and markets served.

The interview as a research tool
Connotationally speaking, interviews – with their hint of interplay and the exchange of views between two parties – provide an appropriate tool for studying networks and relationships. The interviewer “walks” together with the respondent (the word “conversation” stems from the Latin “to walk together with”). During such walks, subjective stories are told that may differ a lot from one respondent to another. The stories are interpreted and compiled by the interviewer and presented to the community in general in the shape of new useful stories about some of the events unfolding around us. When these stories reflect a complex phenomenon, they tend to become complex as well (Kvale, 1997).

My view of the interview as a scientific tool is largely inspired by Kvale (1997). He defines the qualitative research interview as being semi-structured: neither a non-restricted conversation, nor a strictly structured questionnaire. The interview follows an interview guide focusing on certain themes and possibly suggesting certain questions. Kvale describes the interview as being undertaken in a search of the meaning of the respondent’s tale. The form allows for follow-up questions and
clarifications. It aims at nuanced descriptions of specific situations rather than general opinions, and the interviewer remains open to new and unexpected phenomena. An interview may trigger change; respondents may change their view or their description of a particular theme in the course of the interview. Thus, different interviewers may receive different statements from the same respondent on a specific theme, depending on the interplay between the two parties concerned and on the questions asked.

My intention was to adopt a holistic and flexible research approach. The interview method seemed sufficiently flexible and, thus, appropriate. I preferred to ask rather general questions and then to ask more detailed questions in response to the information that I received. In the literature on business networks and social networks I identified concepts such as knowledge development and relationships that seemed likely to serve as useful starting-points for interviews.

In the Z-Group I collected data from interviews with the hubs (the present one and his predecessor), the project leader for the sub-project Växtkraft, and respondents from every firm that had been a member for more than a year, which made a total of 30 firms altogether. I made the study in cooperation with Dr Eva Sandberg. We held 3 interviews together, after which Eva interviewed 9 of the member firms and I interviewed the rest. The hub gave its permission to the study and informed the chosen member firms that they would be contacted. We then contacted each firm by phone and asked to speak with the person who had taken the most active part in RSN activities. We presented the study and, in all but 3 of the firms, made appointments to meet at the firm sites for the interviews. For practical reasons, the 3 remaining interviews were undertaken by phone. To visit the firms in question would have been very time-consuming. None of the firms refused to participate.

In most cases the respondent was the owner, or part-owner - someone who usually also occupied the position of managing director, as most firms had fewer than 50 employees and some fewer than 10. The respondents were allowed to talk quite freely, but a prepared set of questions was used as a checklist to make sure that all major themes were covered and that relevant questions were asked. We also encouraged the informants’ spontaneous stories. The main themes included the member firms’ major business relationships, their relationships with other member firms before entering the RSN (in broad terms), their reasons for participation, the extent of their participation, their reasons for not participating, their expectations and outcomes. The questions were open in character, so that the respondents would feel free to talk about aspects that had not been considered at the time when the questions were being planned (the interviewing guide is included in Appendix 1). Each interview lasted for 1-2 hours; they were tape-recorded and transcribed in full.

The study of the firms’ R&D-operations was carried out in Mälardalen, the region in central Sweden surrounding Stockholm. In total, 37 firms were studied, 25 were located in the Stockholm area and the remaining 12 in 4 neighbouring counties. This study was part of a larger one, and the interviews were carried out by a research team. I was not involved in designing the study and did not take part in the interviews, but I was given full access to the transcribed interviews and other written background material by my co-author, professor Martin Johanson, who had taken a leading part in it. Most respondents were R&D managers. The research questions were of a semi-structured kind and concerned broad areas of research. A heterogeneous sample was sought in terms of size, age, ownership and the markets served. However, all the firms represented so-called high-technological or R&D-intensive industries. Notes were taken and the interviews were fully transcribed shortly after they were over.

According to Kvale, an interview may have an exploratory purpose or aim to test a hypothesis. In my case there was an exploratory purpose, but, as Kvale puts it, hypotheses may still be tested during the interview in the form of questions to the respondents. In this way the analytical stage is integrated into

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9 Växtkraft was financed by the European Social Fund (ESF) through the Social Fund in Sweden which finances projects that gives more opportunities for development and renewal in working life through competence development.
the data-gathering stage. This was the case in the interviews underlying this thesis, as the form of the interviews allowed for the testing of hypotheses that the conversation gave rise to, by including them as questions in the interviews. This was also the way I acted during interviews.

Observation as a research tool
Observation may aid the researcher in understanding other contexts. It is also a way of obtaining first hand information of aspects such as the environment, the participants, activities and interplay, frequency and duration. The observed individuals may, however, be affected by being observed and, for instance, start to act in what they believe to be acceptable or desired ways (Merriam, 1994).

During the study of the Z-Group I participated as an observer in two network meetings, and had full access to the network’s documentary sources in the form of memoranda, funding applications, and minutes from the board of directors and committees etc. These data sources were used as background material but also provided additional information on such things as financing and budgets as well as network plans and activities.

Data analysis
The interviews that I conducted myself were to a certain extent continuously analyzed as they were being held. During the interviews, I sought to clarify vague statements and to confirm my interpretations of the tales that were told by presenting them to the respondents as summaries of their statements.

On a basis of the transcriptions, the interviews were also analyzed by categorisation. For my own interviews, this work began already after the first interview as I wanted to look for aspects presented by the respondents that were not covered by the prepared set of questions. However, no major change had to be made, and most of the work of categorization was done after the interviews were all finished.

I worked on the categorization without the aid of any data analysis programme as I wanted to stay in close contact with the data. I began by reading the text, continuously summarizing it by writing key concepts in the margin of the text. The key words selected could be expressions used by respondents, my own words or theoretical concepts. I then joined text parts that had been given the same or similar headings and reconsidered the key words that they had been given. I finally checked my results by analysing internal consistencies and deviances among the texts that were grouped under each key word. Initially I looked for commonalities, key themes and patterns, but also for contrasts and irregularities as I was anxious to identify the range of the material, that is to say in terms of the varieties in expectations or outcomes (Coffey and Atkinson, 1996). I then reduced the number of concepts by looking for conceptual hierarchies or otherwise related concepts. In this process, patterns were also conceptually clarified by reference to the literature.

The article on network horizons and network positions (New horizons and positions: Structural effects of regional strategic networks) focuses on two theoretical concepts that were particularly difficult to handle. The concept horizon is defined in the article as the world seen from the focal firm’s viewpoint. It is thus enacted, subjective and company-specific. During the interviews, the firm representatives were asked whether they had become aware of any other firms as a result of their RSN membership and whether any prior relationships had been affected. Change was then established in cases where such relational changes were reported. I did not attempt to verify the reports as the concept was subjective by definition. Likewise, no attempt was made to delineate any overall horizon.

The concept of position also posed some methodological difficulties. Here it is defined and applied as a theoretical concept comprising all conceivable interpretations, that is, the views of all market actors
in the all-encompassing business network. However, it would be impossible to collect all the views of all the relevant market actors concerning the position of one specific focal firm, and if it were possible it would still not be sufficient. All these views would be subjective, based on the network horizon of the firm in question. They would have to be aggregated and some sort of universal all-encompassing view would have to be extracted that would constitute the market position of the firm in question. For obvious reasons, this process had to be simplified in the case study.

No attempt was made to define the actual position of specific firms. Again, only changes were being considered. The discussion of change in specific firms was based mainly on reports on four aspects of change from the firm’s informant, which meant that it was a subjective view of change that does not fulfil the theoretical demands of the concept. In some instances a report of the establishment of a new relationship or of a change in a previous relationship could be verified by statements from the respondent in the other firm involved. No attempt was made to compare statements systematically, however, and the respondents were not asked to give their views on the other actors’ positions. This would have strengthened the claim that change had occurred, but the information would still have been too little to verify that change had occurred. Moreover, the process for extracting a common position is by no means given. Nevertheless, as the aim of the article was to discuss the membership effects of strategic networks in theoretical terms, using the case only as an illustrative example, the data acquired was still regarded as sufficient for a discussion of positional change.


Limitations

A case study may give the impression of providing a complete description of a phenomenon, but that is something that is impossible to achieve. For instance, although the interviews on which this thesis is based were long and exploratory, they were guided by certain pre-selected themes and some important aspects were omitted. I am thus not able to reproduce the full complexity of the cases. Some possible themes were left out for reasons of delimitation; others possibly because the interviewer was not aware of them. Furthermore, verbal accounts from respondents cannot provide a complete account of events or experiences – particularly when it’s a question of past experiences.

In addition to the remaining problems of complexity, it has to be acknowledged that RSNs have a process focus and should ideally be studied longitudinally over time (Halinen and Törmöros, 2005). However, the interviews in the present study were held at one specific point in time. The issues discussed during the interviews were meant to compensate for this limitation by aiming at a historical reconstruction of critical events. However, when we are asked to present a situation in retrospect, memory may delude or fail us, and managers may be tempted to rationalize decisions and events ex post. I had intended to compare the number and strength of relationships among the member firms when the network was started with the equivalent situation at the time of the interview. However, the firm representatives generally found it hard to recall the original status of the relationships. I then chose to focus on certain specific relationships about which those concerned spoke with confidence and in accord.
When coding data, choosing one way of coding always means ignoring other coding possibilities, or, as Silverman puts it, “every way of seeing is also a way of not seeing” (2005, p. 182). It also diverts interest from uncategorized aspects. When interpreting and analysing case study data, the researcher depends to a large extent on his/her own sensibility, frames of reference and ability. A case study report thus has to be read critically and its dependence on the researcher has to be borne in mind.
Geographical proximity, technology in use and R & D

This paper deals with firms’ R&D-operations: how these are affected by geographical proximity with other firms and organizations, and by the particular firm’s technology in use. The paper discusses geographical proximity in terms of the geographical distance to business partners such as customers and suppliers and to universities and other types of academic research institutions. As we focus on R&D, the technological context is of interest as a firm’s learning and knowledge development is contingent on the technology it is using. Thus, we put forward the idea that a specific firm’s technology is related to its R&D operations. The firm’s technology is described either in terms of incremental and gradual development in small steps, or of rapid step-wise development. A model combining geographical and technological aspects is presented and subsequently applied to a sample of 37 high-technology firms in the Mälardalen region in central Sweden. The study demonstrates that most R&D done by firms is characterized either by incremental, gradual technology development and low importance of geographical proximity to customers, suppliers and academic research organizations (which is the case for construction, mechanical engineering, wood, paper and pulp, energy, chemistry, raw materials and food industries) or by fast, step-wise technology development and high importance of geographical proximity to customers, suppliers and academic research organizations (which is the case for biotechnology and some IT firms).

Knowledge development by way of RSN cooperation (in Swedish)

The Swedish-language book chapter “Kunskaps- och kompetensutveckling genom samarbete i regionala strategiska nätverk” (Knowledge and competence development through cooperation in regional strategic networks) is based on a case study of the effects of membership in a Swedish RSN. The network encompassed 30 firms in a large and sparsely populated Swedish county. With a budget of 23 million Swedish crowns for a period of three years, its goals were to develop membership cooperation in marketing, knowledge development and joint systems-selling. Some joint marketing activities were achieved, but no joint systems-selling. The knowledge-development goal was the one that was best achieved. The internal marketing of training opportunities in combination with financial subsidies attracted several participants, who were encouraged to attend training programmes more often, and on subjects on which they would not otherwise have spent so much time. Most of the participants rated the development of new personal relationships as the most valuable result of their participation in the network. A few firms could indicate concrete results from their network membership in terms of new business exchange or cooperative projects.

Regional development initiatives as influenced by visions of industrial clusters - How member composition affects outcomes in regional strategic networks

RSNs are inspired by successful cluster regions, but are adopted as a regional development tool in regions lacking dynamic economic development. Thus, the local composition of firms and relationships that determines the nature of an RSN rarely corresponds to the conditions of successful cluster regions. To be able to pinpoint the likely opportunities and limitations of RSN measures, we
need to clarify similarities and differences between successful clusters as observed today, and RSNs. This article looks at the way initial structural conditions can be expected to affect the outcomes of regional strategic networks. The cluster and RSN concepts are developed. Thereafter cluster characteristics are analyzed and compared with RSN characteristics, and propositions are formulated regarding the impact of the composition of the RSN membership on the expected effects of membership. This discussion is based on complementary as against similar competencies and activities among the member firms. The propositions indicate that RSN membership may benefit individual firms and have a regional impact, even when cluster conditions are absent. The outcomes, however, are likely to be affected by the member composition of the individual RSN.

Relationships, horizon and position: effects from participation in a regional strategic network

This paper develops the regional strategic network concept and analyzes how membership may affect a firm in terms of its network horizon and network position. The discussion is illustrated by findings from a case study showing how membership in a regional strategic network resulted in new relationships among the member firms, and that this extended the network horizon of a focal firm and thereby affected its network position.

Difficulties encountered in RSN-evaluations (in Swedish)

The book chapter “Utvärderingsproblematik vid bedömningar av regionala strategiska nätverk” (Evaluation problems in the assessment of regional strategic networks) is also in Swedish. It deals with performance evaluations, since the public actors are accountable for their use of state aid. Regional development initiatives, such as RSNs, are therefore the object of evaluations. However, complex and changing circumstances and intangible effects are hard to quantify which complicate such assessments. Furthermore, several stakeholders - each with their own specific perspectives, goals and evaluation criteria - are involved in the process. Too much focus on planning and measurable results may even hamper the achievement of the fundamental goals. This book chapter discusses these dilemmas and suggests some points for consideration in evaluative discussions regarding RSNs.
Discussion and conclusions

The contexts in which RSNs occur differ in several important ways from the contexts of clusters and business networks. There are thus major difficulties involved in applying the same theories to these and to RSNs. However, the RSN idea finds support in the claim, supported by both lines of research, that geographical proximity facilitates relationship development and information exchange. Nonetheless, it appeared from the study of R&D operations in Mälardalen that the value of being co-located with specific actors varies across businesses. In a specific location, the value is likely to depend upon several characteristics of the actors such as size, competencies and so on. It is also claimed in this thesis that the possible value of a location is likely to be specific to the particular firm, i.e. dependent upon that firm’s specific knowledge and its capacity to absorb the knowledge on offer.

The geographical aspect is particularly problematic for RSNs. The form of an RSN tends to be based on administrative principles and rules. Its boundaries often follow administrative divisions that may not match the geographical nature of the relevant business complementarities. Also, boundaries based on administrative principles may still involve awkward geographical distances between the member firms, if the administrative region in question is a large one with distances that complicate personal meetings. If business similarity or complementarity were to govern the geographical range of the project, it would sometimes include bits of several administrative regions rather than sticking to one only. The Iota case can exemplify this. A couple of firms would have liked to include firms from a neighbouring region, but this was not allowed on administrative grounds. A regional delimitation may serve as a unifying and uniting factor when a group combines to exploit the interests of the region vis-à-vis those beyond its boundaries. However, over-emphasis on local and regional aspects can prove detrimental, counteracting any ambitions for regional development.

It has also been shown that stakeholders’ expectations need to be set in relation to the conditions prevailing at the start of a regional development project. Several important aspects need to be considered: the number of firms in the region and the distances that separate them, their previous experience of cooperation and their sets of relationships, the mix of industries and their characteristics regarding complementary versus similar resources and competencies, for example.

It has been suggested that regional strategic networks composed of firms with complementary capabilities and activities have the potential to extend the network horizons of the member firms, as well as the contexts considered relevant to action within these horizons. This in turn opens the way to reducing transaction costs, increasing specialization and promoting adaptive learning and knowledge development among the member firms. However, this potential is less than it is in clusters, and it depends largely on the entrepreneurial capability of the firms to exploit the wider network horizons and the broader contexts for opportunity recognition, and on the availability of resources for exploiting the opportunities thus engendered.

Regional strategic networks composed of firms with similar resources possess, essentially, the potential to exploit knowledge spillovers and to make instructive comparisons – all of which can encourage learning and the development of further knowledge among member firms - a potential that diminishes, however, if the geographical, social, cultural, or technical distance is too great. There will also be a potential for improving visibility, particularly in the form of sharpened context distinctiveness.
However, RSN outcomes are difficult to measure, and it is hard to estimate the efficiency of the measures themselves (Armstrong and Wells, 2006). In the Z-Group, new relationships developed in the arenas that emerged - relationships that the respondents judged to be important in several respects. These relationships were used for comparisons, for learning and for developing knowledge – all processes that are facilitated by geographical proximity. However, not many relationships involving business exchange actually developed. This may have been because such processes do take time to evolve, and they may not have been fully realized at the time of the study. Several respondents declared, however, that it would take more than geographical proximity to replace their current suppliers in other regions with whom stable long-term relationships already existed. Thus, it seems that it is difficult to replace - by means of RSN activities only - long-lasting and often long-distance business relationships by the kind of local business interaction characteristic of clusters, in particular industrial districts. Primarily, the RSN approach seems suited to supporting business indirectly by providing greater access to information and opportunities for knowledge development. In this respect it is almost a question of cluster conditions. More direct influence on business relationships, however, is more demanding in terms of understanding and accepting the need for mutual investments and adaptations - undertakings that are hard to grasp or to plan and control, and that often take a long time to take shape.

Nonetheless, as has been pointed out in social network theory (Granovetter, 1973), the value of establishing further weak ties may be substantial, particularly for small firms with limited sources of information, and, perhaps, a location in a sparsely populated area or an area lacking major resources (Kingsley and Malecki, 2004). For inexperienced small-firm managers, new contacts may have a social value in that they reduce insecurity and uncertainty, and a business value in that they improve and expand business by providing access to new information and opportunities for knowledge development. Furthermore, greater skill at interacting in relationships will be a valuable asset in itself. Finally, membership of an RSN can bring contacts with other member firms that would otherwise have been difficult to reach. However, in evaluations it is difficult to grasp fully the effects of regional development measures such as RSNs, since many aspects of their nature are elusive and difficult to measure. Intangible effects need to be considered as well as the more tangible kinds. It should also be remembered that stakeholders will reach different conclusions on such things, since their evaluations will be affected by their own motives and expectations: what appears positive to one actor may have detrimental effects for others. Consequently, evaluation methods tend to be inadequate for capturing the impact of initiatives of this kind (Armstrong and Wells, 2006). However, it has to be admitted that existing evaluations of regional development measures (Effektutvärdering, 2004, The EC Regional Structural Funds’ impact in Sweden, 2004) do cast doubts on the extent of any major valuable effects.

Moreover, the positive effects that have been reported often emanate from a small number of participants only (Huggins, 2001). This applies to the Z-Group, where – as in previous studies (Human and Provan, 1997) - only about a third of the participating firms were active members. Further studies should investigate whether the decision of the remainder to be members more or less in name only is to be regarded as the result of well-informed consideration. Relationships and networking have a dark side as well (Håkansson and Snehota, 1998), and devoting resources to developing new resources can affect current relationships negatively. Thus, seeking to influence the relationship-development processes of firms and organizations may not be the most rewarding or efficient way for politicians and policy-makers to use the state aid granted for regional development purposes. Alternatively, non-membership or passive membership could stem from a lack of knowledge about the advantages that this kind of arrangement can offer to active participants. If this second alternative does apply, then the role of the hub in coordinating and internally marketing the concept, becomes even more essential.

Further studies of these regional development arrangements - of their design, their management and their outcomes - are thus called for, and should be approached with an open mind. Researchers and practitioners would both benefit from a more elaborate and nuanced picture of the possible
contribution of RSNs and - considering the extent of the activities taken in the field - this is an important research question.
References


Appendix 1. Intervjuram (Basic questions Z-group)

Delprojekt: Z-Group Medlemsstudie
Eva Sandberg
Heléne Lundberg
Mitthögskolan

BAKGRUND/ HISTORIA

• Startår?
• Antal anställda?
• Bolagsform/ägare?
• Omsättning och omsättningsutveckling de senaste åren?
• Finns tillväxtambition eller är företaget ”lagom” stort som det är?

VERKSAMHET

• Typ av verksamhet?
• Standardiserad/differentierad produkt?
  Egen eller legotillverkad?
• Vilken typ av produktionsteknologi?
  Enhetsproduktion
  Korta serier
  Långa serier
  Massproduktion
  Processproduktion
• Vilken är den viktigaste konkurrensfaktorn?
  (Vad efterfrågar kunderna: pris/kvalitet/leveranser/produktutveckling?)
• Hur mycket skiljer sig er produkt från konkurrenternas?
• Vad gör ni från att skilja ut er från era konkurrenter?
• Hur gör ni för att utveckla den kompetensen?
• Hur söker ni ny kunskap?
RELATIONER/ AKTIVITETER/ UTBYTE

• Vilken är er viktigaste kund respektive konkurren? Samarbete?
• Vilken är er viktigaste samarbetspartner?
• Externa aktörers roll i företagets kompetensutveckling?
  Kunder
  Leverantörer
  Konkurrenter
  Andra kontakter
  Vilken typ av kompetens tillför de?
• När gick ni med i Z-group?
• Vilka Z-Group aktiviteter deltar ni i/har ni deltagit i?
• Fanns sedan tidigare någon relation till andra medlemmar i Z-Group?
• Har ni efter ert medlemskap fått nya relationer till andra medlemmar i Z-Group?
  Aktiviteter?
  Var det en helt ny motpart för er eller har ni haft kontakter tidigare?
• Har ni genom medlemsskapet fått nya kunder eller leverantörer?
  Om JA – vilken typ av affärer?
  Var det en helt ny motpart för er?
• Påverkar ert medlemskap i Z-Group era övriga relationer utanför nätverket?
• Har ni något styrelseuppdrag (eller andra uppdrag) för Z-Group eller medlemmarna och vice versa?
• Vad kan ni erbjuda Z-Group?
• Vad vill ni ha i utbyte av Z-Group?
• Vilken nytta tycker ni att ni har/haft av medlemskapet i Z-Group?
• Har andra medlemmar haft nytta av er? (Exv. kunskap)
• Har du nytta av personliga relationer för ditt arbete?
  (Info, pålitlighet el.dyl.)
ANPASNINGAR/ LÄRANDE

• Såg ni några möjligheter att öka er kompetens när ni valde att gå med i Z-group?

• Har detta, eller något annan aspekt på kunskap, infriats?

• Har ni efter ert medlemskap i Z-group, på grund av lärdömar eller erfarenheter ni erhållit, ändrat ert arbetssätt, era rutiner, i något avseende?
  Ex administrativa rutiner
tillverkningsprocess
leveransrutiner
försäljningsarbetet
ledarskapsarbetet

Om JA – vilka förändringar?

• Har ni anpassat er efter andra aktörer i Z-Group eller utanför nätverket?

• Har andra aktörer anpassat sig efter er?

FÖRESTÄLLNINGAR/ FÖRVÄNTNINGAR

PROBLEM/ MÖJLIGHETER

• HUR UPPFATTAR NI Z-GROUPS SYFTE OCH MÅL? ((Då-Nu)
  Förväntningar?

• VARFÖR VALDE NI ATT GÅ MED I Z-GROUP?

• VILKA PROBLEM UPPFATTAR NI FINNS MED Z-GROUP?

• VILKA MÖJLIGHETER UPPFATTAR NI FINNS?

• FÖRSLAG TILL FÖRÄNDRINGAR?

• HUR SER NI PÅ FRAMTIDEN FÖR Z-GROUP?

• VAD HAR VARIT DET VÄRDEFULLASTE RESULTATET AV ERT MEDLEMSKAP I Z-GROUP?