The Concept of the Regional Development Platform and Regional Development Platform Method (RDPM) as a Tool for Regional Innovation Policy

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Abstract:

Regional development strategies should be based on the sound assessment of regional resources, capabilities, competences and core competences, as well as on dynamic capabilities aiming to develop the resource configurations in order to form regional competitive advantage. In this study, the concept "regional development platform" is used as a tool for assessing the regional potentials on which sustainable, competitive advantage could be built. A regional development platform is a concept understood as a platform that is often industry- or expertise-based and presents the business potential of the actors working for the platform. The Regional Development Platform Method (RDPM) is presented as a tool for designing and managing regional innovation system. It consists of eight phases, in which the underlying potential in the region is explored and the exploitation of the potential organised. The experiences gained from applying the Regional Development Platform Method in the Lahti Region, Finland, are used to illustrate the article.

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1 Introduction

Regional development strategies should be based on the sound assessment of regional business potentials and on opportunities to develop the defined potentials in order to form competitive advantage over other regions. The assessment of the business potentials should include, for example, an audit of the regional industrial and institutional structure, which builds the basis for the regional innovation system. Each region has its own history, present potential and future opportunities, which makes it impossible to implement common strategies in individual regions.

Competitive advantage is based in its resource configurations, but these resource configurations have to be renewed over time in order to keep them competitive. The framework of dynamic capabilities focuses on these processes aiming to continuously renew the resource configurations. The framework has its origin in the resource-based view of strategic management. According to the resource-based view, sustainable competitive advantage is mainly caused by valuable, rare, inimitable and non-substitutable resources. Inside the scope of this current paper, we focus on five dynamic capabilities considered to be important in a networked regional innovation environment: (i) innovative capability, (ii) learning capability, (iii) networking capability, (iv) leadership capability and (v) forecasting capability.

In this study "regional development platform" is used as a concept for assessing the regional potentials on which sustainable, competitive advantage could be built. A regional development platform is a concept understood as a platform that is often industry- or expertise-based and presents the business potential of the actors working for the platform. The actors of a regional development platform are firms, technology centres, expertise centres, research centres, educational organisations, etc. contributing to the defined development platform. The Regional Development Platform Method (RDPM) is developed as a tool for designing and managing regional innovation system. It consists of several phases, in which the underlying potential in the region is explored. The last two phases of the method concentrate on building and enhancing the so-called core processes of the regional innovation system. The core processes aim to form and run future-orientated innovation networks in order to exploit the existing regional potential and to promote collective learning on the defined development platforms.

The current article assesses the concept of the regional development platform in comparison with other closely related concepts, and further develops the regional development platform method . The article also considers the validity of the Regional Development Platform Method as a tool for regional development. The article tries to tackle the following problems:

- Is the concept of a regional development platform reasonable or merely confusing?
- Is the regional development platform method a sound network leadership tool for regional development?

The experiences gained from applying the Regional Development Platform Method in the Lahti Region, Finland, are also used to illustrate the article.

2 Changing Regional Innovation Environment

Regions are facing severe challenges in today's world. They have to maintain and develop their wellbeing in global competition under the rules of absolute competitiveness (Camagni 2002). The concept of absolute competitiveness is closely related to the concept of competitive advantage (Porter 1990). Absolute competitiveness relies, in a post-industrial society, increasingly on the non-

price factors of the competitiveness. These factors are often quite abstract in nature and can be deeply embedded in the history, culture, and institutions of a region.

Innovations are widely seen as the driving force of economic growth and competitiveness. The recent discussions about developing competitiveness and innovation capability have dealt with innovation systems. Depending on their context, they can be called "national innovation systems" (Freeman, 1987; Lundvall, 1992; Nelson 1993), "regional innovation systems" (Cooke *et al.* 1997, Maskell and Malmberg 1998, Doloreux 2002) or "sectoral innovation systems" (Breschi and Malerba 1997, Malerba 2002). Since the focus in this paper is on the regional innovation environment, the concept of a regional innovation system is closest to the scope of the study. However, understanding the national and sectoral systems of innovation is equally important in developing a regional innovation environment. Even though there is a notable resurgence of regional economies (Storper 1995), the innovation and technology policies and related resources are at, or often lead to, the national level. Therefore, regional innovation systems are embedded entities in national innovation systems and strongly influenced by the national level. Sectoral innovation systems play an important role in developing a regional innovation environment, while the sectoral or thematic innovation networks existing in a regional innovation system can and ought to be embedded in the global sectoral innovation systems. A very important issue is to keep the actors of regional innovation system up to date with the development in different technological trajectories.

The concept of regional innovation system provides a good framework for assessing the technology and innovation policies in the new regional innovation environment. At least three different schools have contributed a great deal to the assessment of a regional innovation environment: the Marshallian school of industrial districts (see Marshall 1916, 1932, Beccatini 1990, Pyke and Sengenberger 1992, etc), the school of new industrial spaces taking as their starting point the works of Coase and Williamson (see Coase 1937, Williamson 1979, Storper and Scott 1992, etc), and the mainly European GREMI-school emphasising the importance of the concept of an innovative milieu (see Aydalot and Keeble 1988, Camagni 1991, Crevoisier and Maillat 1991, etc).

The approaches mentioned above have some differences, but many characteristics are similar. Edqvist (1997) defines nine features that can be found in all the approaches: (i) innovations and learning are at the centre, (ii) assessments are holistic and interdisciplinary, (iii) a historical perspective is natural in them, (iv) differences between systems and non-optimality are present, (v) emphasis is on interdependence and non-linearity, (vi) approaches encompass product technology and organisational innovations, (vii) institutions are central, (viii) approaches are conceptually diffuse, (ix) approaches are conceptual frameworks rather than formal theories. These common features presented by Edqvist give a good overall picture of the approaches describing a regional environment where competitive advantage is created during the present techno-socio-economic paradigm. Much emphasis is placed on the role of institutions, interactivity and non-linearity of the development processes, collective learning and different characteristics of innovation processes.

Processing innovations deals with producing new knowledge or combining knowledge in new ways and making it into economically profitably products and processes. Innovations have different characters. Innovations can be called, for example, radical or incremental or they can be technical, process, social or organisational. The terms are partly overlapping, but each of them describes the nature of the innovation underlying them. Innovation processes can be categorised into two main types: linear or non-linear depending on the type of interaction in them. Recent development has emphasised the increasing role of non-linear innovation processes and incremental innovations in creating economic success.

The traditional linear model of innovation focuses on explicit knowledge developed in the research processes. Each level in the linear model produces outputs that are transferred to the next level as input (Schienstock and Hämäläinen 2002). The flow of knowledge is unidirectional, that is, later outputs do not provide inputs for earlier stages. The linear model of innovation is often connected with radical innovation processes. The processes are often caused by science push or market pull

effects. In the non-linear innovation processes, multi-directional information flows are emphasised in creating and combining knowledge. In the non-linear approach, innovation is a consequence of many learning processes embedded in various ordinary economic activities. Many different actors are involved in innovation processes. The non-linear model assumes that innovation can be triggered by various causes. Instead of understanding innovation as a linear process, the complicated feedback mechanisms and interactive relationships involving science, technology, learning, production and demand must be taken into account (Edquist 1997:1).

The regional innovation system consists of different innovation networks (Cooke and Wills 1999) aiming at increasing the innovativeness of the regional innovation environment. These networks have many different forms being defined by, for example, the origin, size, structure and objective of the networks (Harmaakorpi *et al*. 2003). However, some typical characteristics can be stated that most regional innovation networks fulfill. Regional innovation networks are often formed from a heterogeneous group of different actors including representatives of firms, universities, technology centres, and development organisations. Usually, the networks have been able to create a common vision and goals towards which they are striving. In comparison with the innovation networks in single companies, there are certain differences in regionally composed innovation networks. Regional innovation networks are looser structures than the innovation network of one company or even the innovation network formed by several company partners.

In the assessment of regional networks and clusters, the interregional relations are often neglected. However, regional innovation networks are by no means closed systems. In fact, it would be strongly misleading even to think they could be closed systems due to the multi-actor character of the networks. The company members of the network are typically involved in global competition and they belong to sectoral interregional networks. The research institutions are normally strongly networked with similar institutions globally. Regional innovation networks have to be open for the essential global information flows. An important question is how to process information between the innovation network and the outside world. It would be of crucial importance to get the essential information from the outside world to enhance the collective learning process of the network. In this connection, the main issue is to assess the absorptive capacity of the innovation network (Cohen and Levinthal 1990).

Since regional innovation networks are defined as loose multi-actor networks composed of many different actors, particular attention must be given to the relationships in the networks. In this context, the critical question is how is it possible to create a trusting atmosphere in the network, in order to achieve positive externalities in the interactive and joint learning processes. This leads to how social cohesion or social capital could be promoted in the innovation networks (see Tura and Harmaakorpi 2003). Since the innovation processes are highly co-operative, the actors of the innovation network “need to develop a common language and modes of interpretation and, above all, trust in order to overcome some of the uncertainties characterizing the innovation process” (Lundvall and Borras 1999). This point of view takes one near to building a common knowledge management system for the innovation network and sets one thinking about how and what kind of information to transmit in the network (Harmaakorpi, Melkas and Kivelä 2003).

According to Putnam (1995), social capital refers to features of social organisation, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions. Thus, social capital addresses the positive effects of the embedding of people in a relatively stable, community creating social relationships (Frombolt-Eisebith 2002). Inevitably, a certain amount of trust and common values are needed in innovation networks to ensure their reasonable functions. However, Sotarauta sees paradoxes and differences in networks as a driving force of the development process. He presents a term “creative tension” (Sotarauta 2002) as a counterbalance for social capital in a networked environment. Creative tension is needed, because regional development is moving toward an insecure and unknown future in a turbulent world. Actually, social capital and creative tension should not be seen as competing forces in regional innovation systems.

Both are needed and should complement each other in order keep sufficient social cohesion and creative drive in regional innovation networks.

3 Resource-Based View on Regional Development – Towards Regional Dynamic Capabilities

The crucial question in building regional development strategies is to form sustainable competitive advantage for a region. However, the first question to consider is whether the region is a reasonable unit to assess with terms like competitiveness. Krugman (1998) questions the whole idea of territorial competitiveness as being wrong and even dangerously misleading. According to Krugman, assessing competitiveness at a territorial level leads to the wrong kind of interventions in the markets affecting the detrimental allocation of resources. However, a great deal has been written on how the regional level is strongly increasing in importance as a reasonable entity in assessing economic growth and socio-institutional adjustment (see, for example, Florida 1995; Storper 1997, Scott 2000, Cooke *et al*., Nelson and Nelson 2002; Camagni 2002). These theorists emphasise the meaning of the local business environment for the success of companies. Companies, being the real competitors in the global business forums, are strongly embedded (see Granovetter 1985) in the territorial socio-institutional set-up, which affects them crucially in building their competitive advantage.

Porter (1990) poses the question as follows "why do some nations succeed better than others?" As defined earlier, sub-national regions are reasonable entities to assess following the same question. Regional success is widely seen to be based on an absolute competitive advantage rather than comparative competitive advantage in today's world (Camagni 2002). Building absolute competitiveness deals with non-price competitiveness rather than price competitiveness. Non-price competitiveness has to do with qualitative matters both in a concrete regional resource base and untraded interdependencies (Storper 1997). These factors are often quite abstract in nature and can be deeply embedded in the history, culture and institutions of a region. However, according to Porter (1998) the sustainable competitive advantage is finally achieved by productivity and innovativeness.

Regions are strongly dependent on their history in seeking new trajectories for future prosperity. The current position of a region is a result of the paths and trajectories it has travelled. Therefore, path dependency has to be considered one of the basic elements in regional development (Maskell and Malmberg 1998). This follows because learning tends to be local. That is, opportunities for learning will be "close in" to previous activities and, thus, will be transaction and production specific (Teece 1988). It is impossible to build any kind of sustainable regional strategies without a thorough assessment of regional assets and resource configurations (Scott 2000, Harmaakorpi and Pekkarinen 2003, Teece *et. al*. 1997).

Thus, competitive advantage is based on resource configurations, but these resource configurations have to be renewed over time in order to keep them competitive. The framework of dynamic capabilities (see eg. Teece *et al*. 1997; Eisenhardt and Martin 2000) focuses on these processes aiming to renew these resource configurations over time. The framework has its origin in the resource-based view of strategic management. According to the resource based view, a sustainable competitive advantage is mainly caused by valuable, rare, inimitable and non-substitutable resources. At the company level, dynamic capabilities are defined as "the firm's processes that use resources – specially the processes that integrate, reconfigure, gain and release resources – to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die." (Eisenhardt and Martin, 2000: 1107).

Long-term sustainable competitiveness is said to lie on resource configurations rather than on dynamic capabilities. Dynamic capabilities are seen not to be idiosyncratic in their nature as resources are and, therefore, there are best practices in dynamic capabilities that can be relatively easily imitated. (Eisenhardt and Martin 2000). We see, however, that there are notably idiosyncratic features in dynamic capabilities at the regional level. This conclusion is supported by the quite different success trajectories among regions with seemingly similar resource bases. At the regional level, we define dynamic capabilities as *the region's ability to generate in interaction competitive resource configurations in a turbulent environment. Dynamic capabilities aim to reform regional resources, capabilities, competences and core competences based on the history of the region and opportunities emerging from the techno-socio-economic development.* Inside the scope of this current paper, we focus on five dynamic capabilities considered to be important in a networked regional innovation environment: (i) innovative capability, (ii) learning capability, (iii) networking capability, (iv) leadership capability and (v) forecasting capability.

The term 'innovative capability' is associated with the capability of the organisation to sense the changes taking place outside and to exploit their existing resources and competencies so that innovation activities can create a competitive edge for the organisation (Teece & Pisano 1998). The innovation capability includes many factors, but the most important one is increasing the inner and exterior interaction of the organisation. In the regional context, an important success factor is the level of regional innovative capability. Regional innovative capability means the joint innovation capability of the enterprises and other organisations of the region. So, it is made up of the innovation capability of not only individual actors, but also of the entire innovation network, which at best can be much more than just the sum of its parts. The term 'regional innovative capability' refers to the ability of the regional innovation networks to (Kautonen and Sotarauta 1999): (i) perceive and process the changes in the operational environment, (ii) treat the available resources based on new information, (iii) acquire totally new resources, (iv) combine these resources with the competencies aiming to increase competitiveness and (v) transmit and process information and knowledge in large networks.

Interactive and collective learning are emphasised in non-linear innovation processes. Collective learning is a process of dynamic and cumulative knowledge creation, which has many synergy advantages due to its interactive character (Camagni 1995). Synergy advantages emerge because of knowledge spillovers and increasing trust in the collective learning process. The intensive process of interaction is included in the creation of new knowledge (Nonaka and Takeuchi 1995, Nonaka *et al* 2000). Lundvall and Borras define the learning economy as “an economy, where the ability to learn is decisive for the economic success of individuals, firms, regions and nations. Learning, in this context, does not just refer to the acquisition of information or access to the sources of information, but to the development of new areas of competence and new skills” (Lundvall and Borras, 1997: 29). In the concept of a learning economy, learning is set even above knowledge in creating competitiveness since “… what really matters for economic performance is the ability to learn (and forget) and not the stock of knowledge” (Lundvall and Borras, 1999: 35). Therefore, learning capability is seen as crucial in securing sustainable regional development.

In a turbulent world, some of the key words are flexibility and specialisation. Network–like organisations seem often to be more effective than hierarchical organisations. Building up flexibility, adaptation, and the ability to react to the changes, and at the same time remaining effective, have led to network structures. This process has been independent of the sector of life, making demands for regional networking capability. The essential points are the continuous change, speed and competition in the sector. Therefore, the networks are a phenomenon affecting, first and foremost, the sectors being influenced by quick change (Ollus *et al*. 1998). The network organisation can be an internally networked organisation like a decentralized organisation, or it can be formed from independent organisations. In a network organisation, each actor has its own role and functions. As Sotarauta (1999: 104-105) suggests, the actors of the network could have different motives for their co-operation: the network could be seen as a channel, a way to minimise expenses, or as a strategic tool. Interactions are supposed to be rich, and co-operation could be carried out in areas

of aims, strategy, products and customers. For the coherence of the network, it is essential that different actors share common values and the different parts integrate as a unit. A network is formed by the actors having shared goals. Essential features of the network are the distribution of knowledge and continuous learning from the other actors of the network. The communication and communication flows are essential for this. In this environment, regional networking capability is an essential success factor.

Understanding the opportunities given by path dependencies is one side of the coin, the other is to try break free of the damaging effects path dependency has in seeking new potential trajectories for regional development. Path dependency can, namely, lead to lock-ins preventing the development processes wished for. Cooke and Schienstock (1996) have defined three different lock-ins in regional context: (i) functional lock-ins , (ii) cognitive lock-ins, (iii) political lock-ins. The role of leadership capability becomes decisive when preventing lock-ins and trying to find new paths out of lock-in situations. (Kotter, 1988; Sotarauta, 1999). In the case of regional development, the role of leadership in a networked environment is particularly essential. Leadership in a networked regional development environment can be defined as actions steering the processes and resources of a regional development network in the desired direction. It can be defined as the ability to use external and internal resources. Network leadership can, as well, be defined as actions fostering the interaction processes of the development network and direct activities to explore reasonable objectives. Moreover, network leadership combines actions and actors.

The world economy meets shifts in the techno-economic paradigm in certain cycles caused by leaps in technological development and even inside a cycle business environment it can be turbulent. This current cycle is often described as the fifth Kondratieff wave based on development in technologies like microelectronics, digital telecommunications, biotechnology, robotics and information systems (Sokol 2003). The success of economic actors is strongly related to their adaptability to the emerging techno-economic environment. The competitiveness of these actors is based on their socio-economic starting point and their adjustment capacity on the changing techno-economic and socio-institutional paradigms (Abramovitz 1995; Lipsey 1997; Schienstock and Hämäläinen 2001). However, setting solid and rigid goals in the present turbulent world could be difficult and even dangerous. The regions are strongly dependant on their past and have to make continuously new decisions whilst insecure. This insecurity can be reduced using resource-based futures research and forecasting capability.

Thus, the competitive advantage of a region greatly depends on its innovation, learning, networking and leadership processes, shaped by its (specific) asset position, and the paths available to it (cf. Teece *et al.* 1997). The processes should lead to building regional capabilities, competences and core competences based on regional resources, in order to enhance a sustainable competitive advantage (Prahalad and Hamel 1990, Javidan 1998, Teece *et al.* 1997, Sotarauta 2000) leading to sustainable regional competitiveness characterised by high productivity and innovativeness.

4 Concept of Regional Development Platform

One important aspect affecting regional innovative capability and forms of regional innovation systems is agglomeration economies. Already Marshall (1916) emphasised location economies and the importance of production clusters behind the phenomenon. Other important scientists contributing to the theories of agglomeration from different points of view are, for example, Christaller (1933), Lösch (1954), Kaldor (1970) and Henderson (1985). Adam Smith in his time (1776) recognised the benefits of specialisation. Following on that Marshall considered the concept of the industrial atmosphere describing the characteristics of spatial industrial agglomerations. He found regions where this atmosphere was very beneficial for certain industries. An important observation was that the atmosphere had been developed over a long period and could not be moved. Marshall also saw that the interaction in an industrial district was not just buying and selling.

He called the interaction constructive co-operation, describing the multifaceted characteristics of the communication process. In the theory of industrial districts, the co-operation of small and medium size enterprises and the transparency of the regional actors are emphasised, as well as building a real service network for the enterprises. Such famous theorists as Porter with his cluster theory and diamond model (Porter 1990) and Krugman with his research into the agglomeration of business activities (Krugman 1991) have been influenced by Marshall's theories.

The advantages of agglomeration are, for example, (Cappelin and Steiner 2002, citing Marshall 1916, Chinitz 1961, and Porter 1995): (i) access to a maximum flow of information and ideas and the provision of shared or non-traded inputs specific to an industry, (ii) greater opportunities for collaboration, (iii) greater availability of specialist subcontractors/suppliers, (iv) greater availability and efficiency of particular local services such as venture capital, specialised property, education institutions, airports, ICT and other public goods and infrastructures, (v) development of a local pool of specialised labour related to the existence of specialist training institutions, (vi) less risk for firms and workers to locate in clusters than elsewhere, because their options are greater and (vii) greater customer choice.

There are some conceptual approaches based on the positive externalities achieved by agglomerations and networking. The phenomena can be assessed at least by the following approaches: (i) industry approach, (ii) cluster approach, (iii) technology regime (or trajectory) approach and (iv) development block approach. In the following lines, we take a brief look at the concepts mentioned and introduce a new concept to this discussion: regional development platform. We also try to explain why we see the regional development platform approach, at least in some cases, as a sound way of assessing regional development potential.

The industry approach, in spite of its limitations, is still maybe the most used in practical development discourse due the clarity of the concept. Industries can be seen as groupings of firms having the same position in the production chain. Other companies in the industry are seen as rivals and co-operation among competitors is rare. The industry approach neglects the importance of interaction between industries and between firms and public organisations. Clusters can be defined as geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass linked industries and other entities important to competition. They include, for example suppliers of specialised inputs such as components, machinery and services, as well as providers of specialised infrastructure. Many clusters include governmental institutions that provide specialised training, education, information, research and technical support. (Porter 1998.) The cluster approach emphasises the common interests of a cluster in enhancing productivity and competitiveness. Clusters are continuously seeking new synergies and combinations.

The technological regimes approach, again, is based on the importance of path dependency in firms' development trajectories (see Nelson and Winter, 1982; Dosi, 1988). Path dependency places limitations on the available future trajectories of a firm, while learned routines are often deeply embedded in an organisation. The innovation activities are quite similar among the firms in the same technological sector. This indicates that the factors related to technological trajectories play a notable role in innovation processes (Carlsson 1995) and, therefore, positive externalities can be achieved easier in the groupings of firms belonging to the same technological regime. The concept of development blocks is related to the concept of technological trajectories. Development blocks refer to "sequence of complementaries which by way of series of structural tensions, i.e. disequilibria, may result in a balanced situation" (Dahmén 1988, 5).

The regional development platform approach has somewhat different characteristics from the previous approaches. It has its intellectual roots in the frameworks of regional innovation systems and evolutionary economics. It is strongly bound to the institutional set-up of a region. Regional development platforms can be defined as *regional resource configurations based on the past development trajectories but presenting the future potential to produce a competitive advantage*

existing in the defined resource configurations. The possible competitive advantage is based on the business potential of the actors working for the platform. The actors of a regional development platform are the firms, technology centres, expertise centres, research centres, education organisations, etc. contributing to the defined development platform. A regional development platform must be separately defined each time. A development platform is often based on an industry, including the development organisations of the regional innovation system supporting the development of the defined platform. A development platform is connected with the past trajectories, but the concept is merely describing the future potential of the platform. Technological development may create totally new platforms. However, they are usually based on the work done on the existing platforms.

5 Regional Development Platform Method

When planning the sunrise regional innovation strategies and policies, and the tools helping the regional innovation system to improve, the following aspects should be emphasised: (i) understanding the phenomena of regional path-dependency and agglomeration, (ii) avoiding regional lock-ins, (iii) defining competitive regional resource configurations, (iv) forming multi-actor innovation networks to exploit the resource configurations, (v) enhancing the absorptive capacity of the innovation networks, (vi) creating sufficiently social capital and creative tension and (vi) promoting regional dynamic capabilities (for example, innovative, learning, networking, leadership and forecasting capabilities)

A.J. Scott sets the basis for regional development as follows: “In the light of the present analysis, any rational approach to strategic regional economic planning should no doubt begin with an exhaustive audit of local assets and their developmental possibilities in relation to the acquired competitive advantages of other regions. It should then focus intently on local institution building, paying special attention to the specific tasks and objectives enumerated earlier, and with a main eye always on the search for positive agglomeration economies and an appropriate steering mechanism. However, since every regional economy is in practice an idiosyncratic mix of present resources and future opportunities, there can be little in the way of routine approaches to actual implementation programs. Successful development programs must inevitably be judicious combinations of general principle and localized compromise, reflecting the actual geography and history of each individual region” (Scott 2000: 116).

The future innovation and technology strategies should, thus, be created on the regional strengths and potentials. In this current paper, the Regional Development Platform Method (RDPM) is presented as an organisational innovation for a regional innovation policy. The method helps to look for regional business potentials on which it is possible to build the future competitive advantage of a region. The dominating idea of developing the RDPM has been the importance of the individual regional development paths in designing development strategies. The strategies should be based on a thorough assessment of regional resources, capabilities and competencies, and future possibilities leading to business potentials able to give a region a competitive advantage. An essential part of the method is the so-called core process thinking, which is designed to form innovation networks aiming at exploiting the business potentials existing in the regional development platforms. Moreover, the RDPM can be seen as a network leadership tool helping the regional actors to interact during the development process and helping to promote the dynamic capabilities in a region.

In Figure 1, the principle of industries and areas of expertise forming the resource configurations in the Regional Development Platform Method is presented. Areas of expertise are formed by skills, capabilities and competencies supposed to be important independent of industry. Industries are marked in the column and the areas of expertise chosen for each individual study are marked in the

rows. The RDPM aims to define business potentials able to give the regional competitive advantage of the industries, areas of expertise and especially of their combinations.

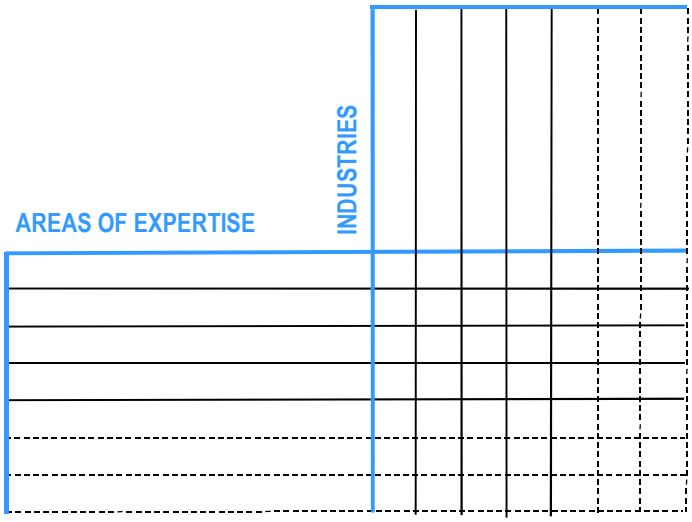

Figure 1. Principle of Industries and Areas of Expertise in the Regional Development Method.

Some central criteria occur when assessing different industries as part of a regional development platform system. They help to evaluate the industries' potential for the region. These criteria are, for example: the growth potential of the industry, the quantity, quality and structure of the industry, internationalisation of the industry, the innovative capability of the industry, the ability of the management in the industry, the quantity of the research conducted in the region, the quantity and quality of the education given in the region and the ability of the technology transfer organisations in the region. The following criteria can be used when assessing the areas of expertise in the region: the quantity and quality of the knowledge intensive business services (KIBS), the innovative capability of the expertise, the interregional networks of the expertise, the quantity and quality of the education given in the region and the ability of the technology transfer organisations in the region.

The RDPM consists of eight phases: (i) benchmarking through the assessment of regional innovation system theories, (ii) background study of the industries and areas of expertise in the region, (iii) expert panels, (iv) assessment of future scenarios, (v) analysis of statistical and empirical information, (vi) conceptualisation of the regional innovation system, (vii) search of core processes of the regional innovation system and (viii) definition of knowledge creation and management system.

It is important to learn from the past, compare what has been done in other regions, and try to do some benchmarking. Even though each region is individual, it is worth trying to find which practices might best suit one's own region. A study of the mainstream theories of the regional innovation system gives a good basis for future development. The background study of the industries and areas of expertise gives an idea of where the region currently stands. The main information source is the available statistical data. Supplementary information can be received, for example, from various reports and analysis. It is important to compare the information on one's own region with that of other regions to be able to get an idea of how the region is doing in competing with other regions. There is often much tacit knowledge about the development platforms in the region. This cannot be found in the statistics or reports, for example. Therefore, it is valuable to organise expert panels to obtain the "hidden" information. This panel can be organised by inviting groups which are supposed have a broad overview of the business life in the region (see more Harmaakorpi and Pekkarinen 2002).

The rapid technological development in the innovation-driven society is constantly changing the regional business environment. Old technologies and methods are dying and new ones springing up. Therefore, it is essential to look at the future. Some very potential development platforms for the region, according to the statistical information, could be in great difficulty under the future technological trajectories. On the other hand, some seemingly weak platforms could provide a good basis for prosperity in the future taking into account the opportunities of some new technologies. Among development trends that could be exploited in the future are, for instance: (i) change in material technologies, (ii) urbanisation, (iii) ageing of the population, (iv) environmental attitudes, (iv) changes in energy production, (v) increased use of biotechnology, (vi) change in production systems and methods, (vii) virtualisation and digitalisation and (vii) wireless data transfer. Each of these megatrends should be reflected in the regional entrepreneurial activity and the resource base of the regional innovation system in order to create new paths bringing a regional competitive advantage.

The fifth phase is to define the potential development platforms in the region. It is based on the statistical and empirical information including the futures research results. The analysis is concerned with comparing the statistical data with the empirical data gathered by the expert panels to see if the statistically promising industries also seem to have potential from the point of view of the experts. The most challenging part of the process is to find promising combinations of industries and areas of expertise while taking into account the possibilities offered by the visible technological development. The aim is to find the most fruitful regional development platforms where the scarce resources are put to good use in order to create regional prosperity. Our view is, however, very Porterian in the way that all the possible development platforms should be promoted and let the markets choose, which ones survive and prosper (Porter 1998). The scarcity of regional resources places, in practice, , strong limitations on regional innovation policies forcing them to prioritise the development incentives.

The sixth phase aims to conceptualise the regional innovation system. This phase is important in building a certain level of shared understanding of the environment where innovation policies are conducted. A shared vision is important due the actual programme and process-based development environment, where manifold strategies and programmes are simultaneously affecting the regional development environment. The roles of the players, strategies and programmes should be defined at least at the general level. This phase could be called the “institutional resource configuration”. The created framework is important in both intra-regional and inter-regional communication.

The seventh phase of the RDPM is the definition of the core processes. The core processes of the regional innovation system are defined as *processes aiming at exploiting the potential existing in the defined development platforms and enhancing dynamic capabilities in a region. The aim is to create and develop regional core competencies bringing a sustainable, competitive advantage for a region.* The core processes are based on the identified potential development platforms in a region. They can also include some phenomenon or future megatrend seeming to bring business opportunities for the companies in the region. They must be defined by the main actors of the region, and the actors must also be willing to invest resources to develop the core process. The core processes are actually thematic or sectoral regional innovation networks where the central objective is collective learning.

The core processes must fulfil certain conditions: (i) important regional enterprises must be among the exploiters of core processes, (ii) the core process must be able to create new business activity, (iii) there must be strong enough actors for each sector of the core process, (iv) it must be possible to name responsible organisations and people for each sector of the core process, (v) the actors of the core process should be able to agree on common goals and a course of action, (vi) the actors of the core process should be able to name a credible “owner” for the process.

In Figure 2, a principle of a core process formed by a combination of industries, areas of expertise, and future megatrends is described.

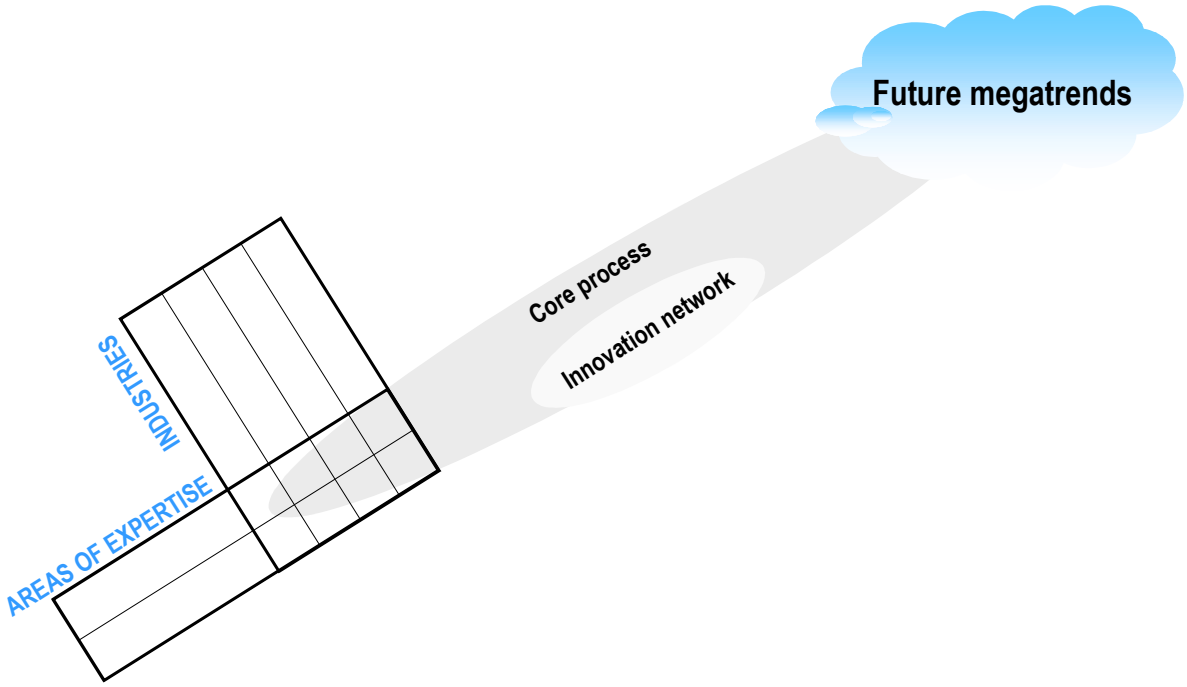

Figure 2. Principle Description of a Core Process

Clustering and networking are important factors in creating a regional competitive advantage. However, “both concepts, clusters and networks, describe important organisational aspects that are closer to the issue of infrastructure than to the issue of innovation. The proximity of various companies does not itself yield innovative results. Communication frequency between companies contained in vast networks does not guarantee innovation, either. Both concepts lack the sound foundation of the underlying resource: knowledge” (Nonaka and Reinmöller, 1998: 407). Thus, learning and knowledge are the driving forces of innovations leading to the competitive advantage of regions. Learning and knowledge creation are, however, too important questions to be left to occur spontaneously. According to Nonaka and Reinmöller (1998), in order to design knowledge-creating areas, all the processes, by which knowledge is converted, need to be supported within the region. Therefore, special attention should be directed at knowledge management at the regional level. That task is fulfilled in the last phase of the RDPM.

6 Experiences of Using the Regional Development Platform Method In the Lahti Region, Finland

The Lahti Region

The Lahti Region, also called the Region of Päijät-Häme, is situated in Southern Finland, about 100 km from the capital city of Helsinki. It has about 200,000 inhabitants, representing about four percent of the total Finnish population. The geographical and functional centre of the Lahti Region is the city of Lahti with about 98,000 inhabitants, making it the seventh largest city in Finland. The region comprises twelve municipalities. The differences in the municipalities in the Lahti Region are

considerable with regard to, for example, surface area, population density and industrial structure. In the Lahti Region, the population and industries, especially manufacturing, are concentrated around the cities of Lahti and Heinola. The rest of the region is characteristically rural and sparsely populated.

By the end of the 1990s, it had become quite clear in the Lahti Region that the region was having difficulty transforming itself from the industrial era to the information era. Following the collapse of the national economy at the beginning of the 1990s, the unemployment rate, in particular, has remained very high. Neither has the industrial modernisation been sufficiently successful. Irrespective of the fact that Lahti is situated only 100 km from Helsinki, which is one of the most dynamic economic centres in Europe, Lahti has not been able to create enough employment in the knowledge-intensive sectors in the area.

Among the main problems in the Lahti Region are the low number of highly educated people and the exceptionally low research and development spending in the region. Tertiary enrolment in education in the region was 38 per cent of the age group in 2000. The average in Finland was 66 per cent. In the Lahti Region, the research and development expenditure was less than one per cent of the Finnish total when the Lahti Region's population was about four per cent of the total national population. In 2000, the research and development spending in the Lahti Region was about 280 euros per person, while Finland's average was about 890 euros per person. Furthermore, the gap between the different regions in the country is growing constantly. The amount of the National Technology Agency (Tekes) funding in the Lahti Region grew 40 per cent during 2000 - 2002 while the corresponding average growth in Finland was 60 per cent. The low contribution to education and research retards business development in the Lahti Region.

Exploring the Resource Configurations for Regional Competitive Advantage

The first six phases of the Regional Development Platform Method (RDPM) were implemented in the Lahti Region in winter 2001-2002. (See more Harmaakorpi and Pekkarinen 2002). A theoretical assessment of regional innovation system theories was made, and then all the possible statistical and qualitative information concerning the industries and areas of expertise in the Lahti Region was gathered.

In the third phase, three expert panels were organised with a total of 30 participants. The idea was to assess the current situation of the industries, as well as the areas of expertise and the conditions they would offer for regional development. The panels were given four tables, each with two dimensions. Firstly, the panellists were asked to grade each industry and area of expertise from 1-10 according to each criterion: (i) amount of entrepreneurial activity and employment capacity, (ii) growth potential, (iii) balance of the entrepreneurial structure, (iv) internationality of entrepreneurial activity, (v) innovativeness of entrepreneurial activity, (vi) value added / know-how intensity of entrepreneurial activity, (vii) capability of the leadership of the top enterprises, (viii) regional adequacy of educational opportunities, (ix) regional research input and (x) regional technology transfer activities.

On the basis of the point averages for different criteria given by the panellists, the plastics industry (7.72) and the machine and metal products industry (7.22) proved to be among the most important industries, followed by the environmental industry and the furniture industry. The average scores given for each industry are depicted in Figure 3

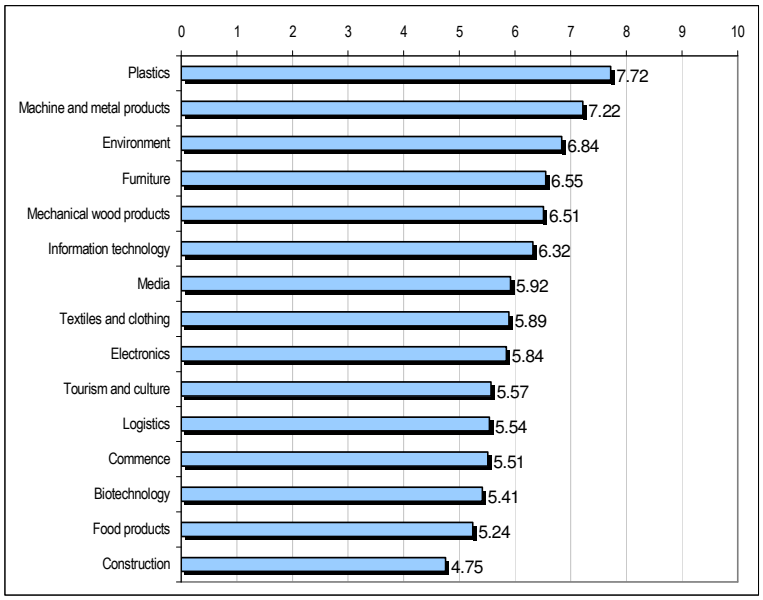

Figure 3. Points averages for the various industries in ten different categories.

Secondly, the different areas of expertise were assessed. Expertise in this study is defined as expertise independent of the different industries, which is necessary or essential for many industries. The criteria for assessing the areas of expertise were: (i) quantity and quality of entrepreneurial activity (Knowledge Intensive Business Services – KIBS), (ii) regional pioneering quality / innovativeness in the area of expertise, (iii) regional and interregional networking in the area of expertise, (iv) regional adequacy of educational opportunities, (v) regional technology transfer activities.

Among the areas of expertise, the top scores were received by design (average 7.40) and environmental technology and ecology (7.07). The areas of expertise of quality and mechatronics were almost 6.5 points, with the regional adequacy of the educational opportunities again being considered the most important strength. The average scores given for each area of expertise are depicted in Figure 4.

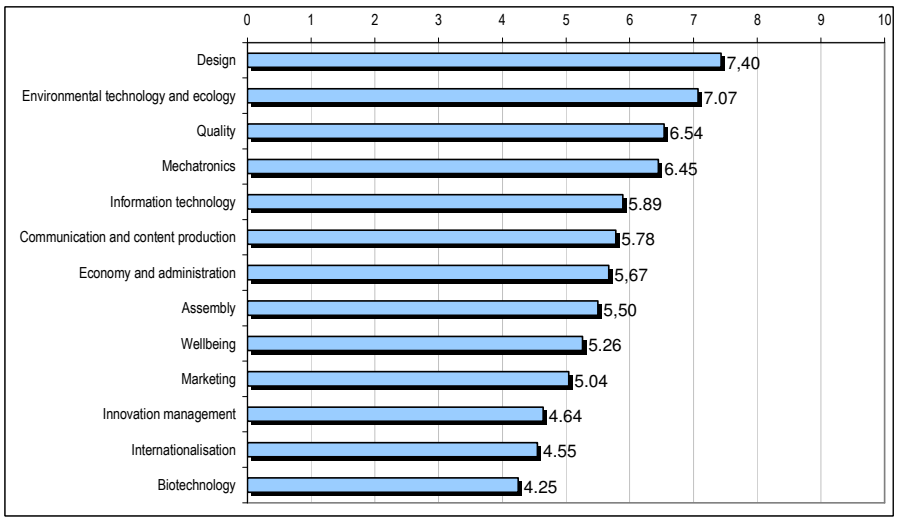

Figure 4. Averages of five criteria points given by the panellists to the areas of expertise.

Thirdly, after the industries and areas of expertise had been assessed on the basis of different criteria, the panellists evaluated the importance of the industries and areas of expertise to each other. Fourthly, the panellists compared the different industries with each other evaluating the mutual significance of the regional industries (see more Harmaakorpi and Pekkarinen 2002).

Analysis of statistical and empirical information was concerned with comparing the statistical data with the empirical data gathered at the expert panels. The regional statistical data of every industry was compared with the national data. The available statistical data consisted of the number of industrial units and personnel and the values of production and export in each industry in the Lahti Region and nationwide. In Figure 5, the field with two plus signs shows the industries in the Lahti Region which both statistically, and, from the point of view of the panellists, are above the median of all the industries. The field with +- describes the industries that statistically seem to be above the national level, but which, from the point of view of the regional panellists, have not enough credibility. In this study, no industry could clearly be defined in this field. The field with two minus signs is below the median both statistically and from the point of view of the panellists, whereas the industries with -+ are statistically below the median, but which the regional panellists, however, set higher.

On the basis of the above, the positions of the industries in the four tables are as depicted in Figure 5:

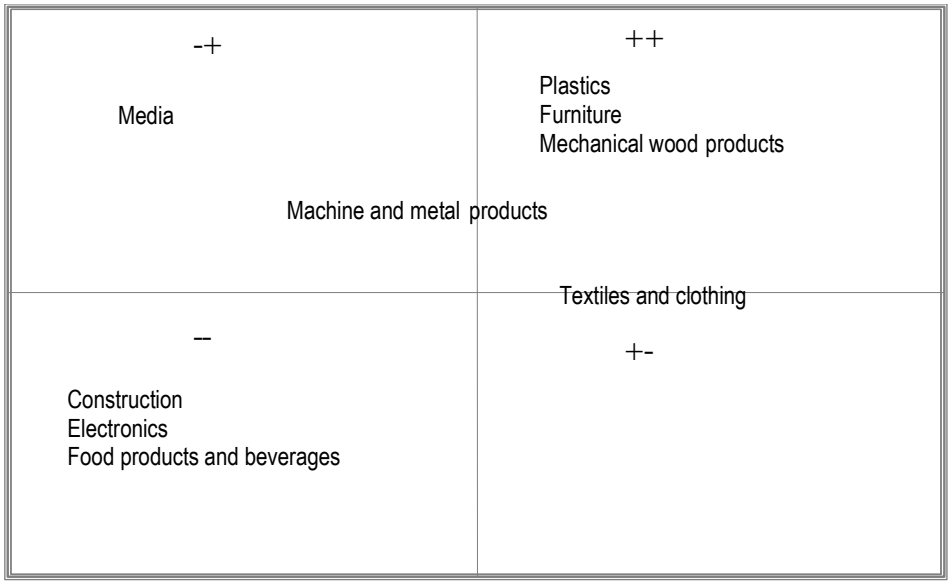

Figure 5. The analysis of the statistical and empirical information.

The study indicates that according to both the statistical and empirical information, the industries of plastics, furniture and mechanical wood products are above the median. Textiles and clothing are statistically above the median and empirically on the median level. Biotechnology, tourism and culture, logistics and commerce are, from the point of view of the panellists, below the median, but as there was insufficient statistical data on these industries, they were excluded from the four tables. Construction, electronics, as well as food products and beverages, are both statistically and empirically below the median. In the media industry, it is interesting to see that statistically it is below the median but the panellists valued it above the median. Machine and metal products are statistically on the same level as the median, and above the median according to the panellists. It is perhaps slightly surprising that the food products and beverages industry is both statistically and empirically below the median, as there are notable companies in this industry in the Lahti Region.

The analysis of statistical and empirical information sheds light on the status of the industries and areas of expertise and on their mutual significance in the Lahti Region. Scientific innovations and new international markets, however, will change the traditions of production in the region. The scientific and technological development, exerting an influence on the production of goods and services, is simultaneously advancing on two levels. Firstly, the most prominent research fields are: a) information and communication technology, b) biotechnology, c) materials and nanotechnology and d) energy technology. Secondly, these research fields are integrating with each other in many ways in concrete products and the markets. Thus, the results and expertise of different scientific fields are combined. For example, most scientific fields use information technology, and it is increasingly applied in society. In the same manner, in the materials technology, the materials being planned require a combination of expertise in chemistry, physics and biology.

Following the regional development analysis, the regional innovation system was conceptualised. The created conceptualisation of regional innovation system is depicted in Figure 6.

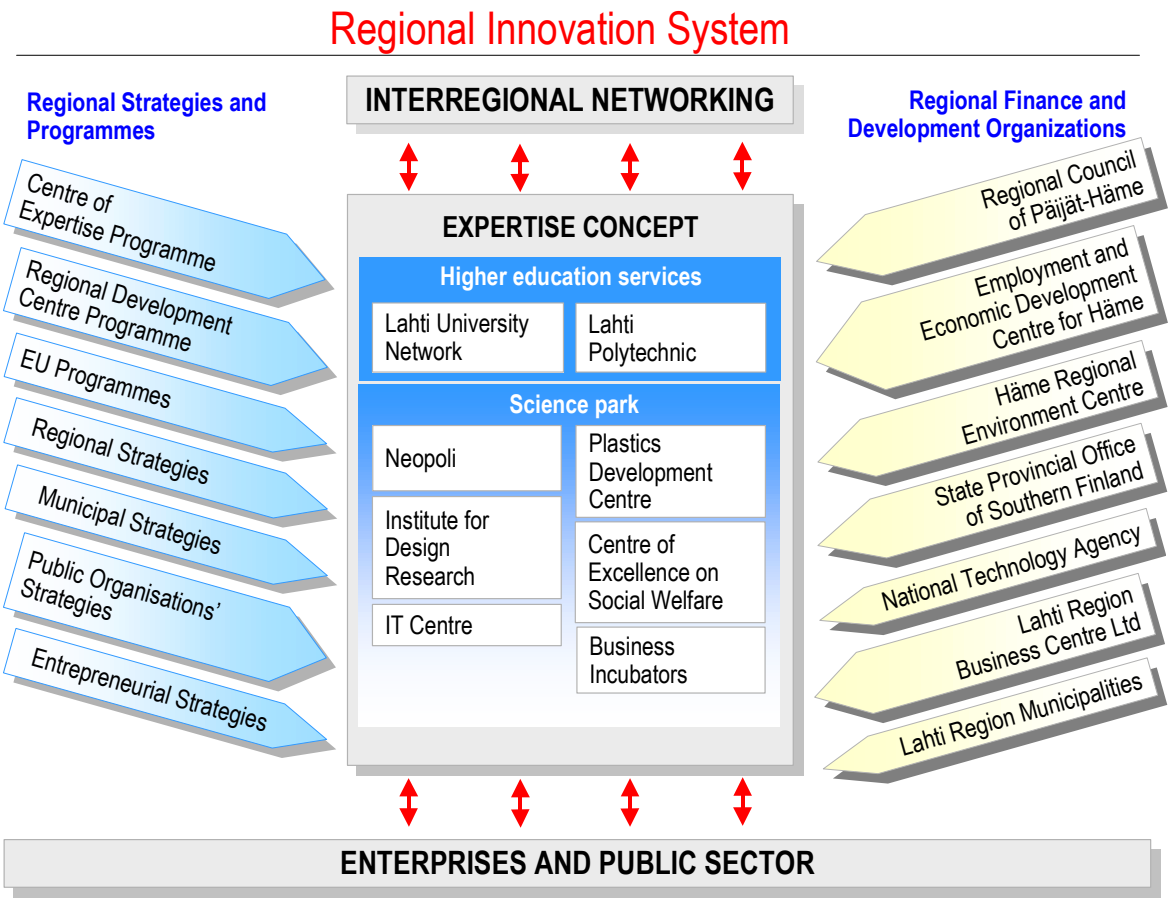

Figure 6: The conceptualisation of Lahti regional innovation system.

Defining and Starting the Core Processes. Case: The Age Business Core Process

After exploring the potential development platforms, the core processes to exploit the potential in the platforms was defined. In the Lahti Region, a total of 13 core processes were founded (see Harmaakorpi *et al.* 2003). In this study, the definition process of the so-called "age business core process" is used as a case example.

According to the conducted studies (Harmaakorpi and Pekkarinen 2003), the age business core process seems like a potential core process in the Lahti Region. This is supported especially by taking the wellbeing industry as the core of the Regional Development Centre Programme in the region. This creates the basis for both intellectual and financial resourcing of the core process. Indeed, it is quite a natural solution that the Regional Development Centre Programme, and, in practice, its director, be the owner of the age core process. The location of the Regional Development Centre Programme at the Neopoli Oy Corporation further supports this solution; Neopoli Oy is, namely, in charge of coordinating the Lahti Region science park.

The task of the owner of the core process is to keep its activity in motion and develop it further. Actors whose activities and interests may be quite different can participate in the process. This must be allowed. The owner of the core process, however, must take care he/she is able to gather around him/her a strong enough core group that keeps the process viable. A strong contribution to the activity of the group must be received at least from the organisations of higher learning and scientific park communities.

The core process is continuous and must create new business as a group action exploiting the ageing process of the population. Creation of business takes place, for instance, as a result of the product development projects emerging from the process. In the projects, there can be experts from different industries doing development work together for a new product or service. There can be, for example, a development project where a social worker, technology expert and marketing expert are designing a new product suitable for elderly people. Special attention also has to be paid to the enhancement of dynamic capabilities in the core process.

The central actors of the age business core process are presented in Figure 7.

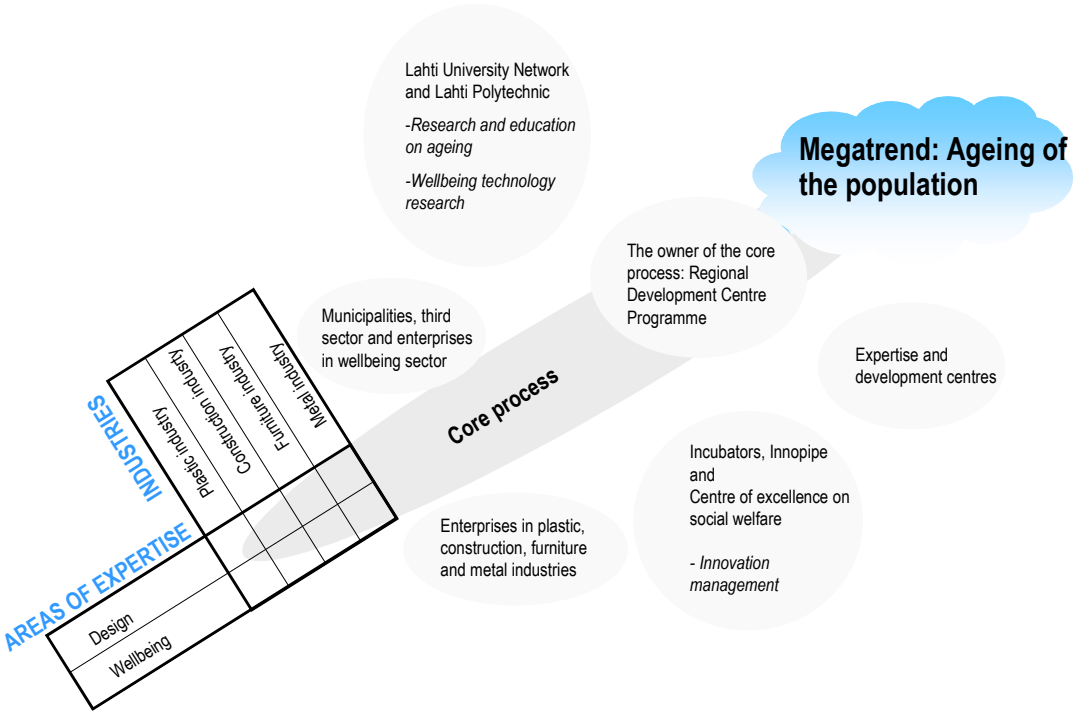

Figure 7. The central actors of the age business core process.

The Knowledge Management System of the Age Business Core Process

The actors of the age business core process are continuously producing information needed to promote the age business in the Lahti Region. Public research and educational organisations produce various reports containing valuable knowledge about ageing as a phenomenon and its consequences, as well as organise education to disseminate the knowledge achieved through the research. The public sector and private sector actors within the ageing sector gather experiences mostly by methods of learning-by-doing and learning-by-exploring, with the aim of enhancing their services and products.

Unfortunately, the manifold knowledge and information underlying the age business core process is fragmented and does not reach the members of the innovation network in the right amount, at the right moment and in the right form to enhance collective learning sufficiently. The main actors of the core process have clearly seen the need to promote the collective learning creation and management to reach the objectives set for the process. Therefore, during the starting phase of the core process, a knowledge management system has been designed to aid knowledge creation in the innovation network. The knowledge creation and management approach used is based on the SECI and *ba* models of Nonaka, Takeuchi and Konno (see Nonaka and Takeuchi 1995; Nonaka and Konno 1998; Kostiainen 2002) and its construction and features are described in detail elsewhere (see Harmaakorpi, Melkas and Kivelä 2003). However, the created model includes the learning spiral with tacit/explicit knowledge conversions (socialisation, externalisation, combination and internalisation) and *bas* where the knowledge conversions take place. The model also includes self-transcending (see Scharmer 2001) knowledge as a regional asset, which requires that we take into account two additional phases: (i) the conversion of self-transcending knowledge to tacit knowledge (embodiment) – "visualisation", and (ii) vice versa, the conversion of tacit knowledge to self-transcending knowledge – "potentialisation". Especial attention was also given to the matters concerning information quality in regional knowledge management. The created model is depicted in Figure 8.

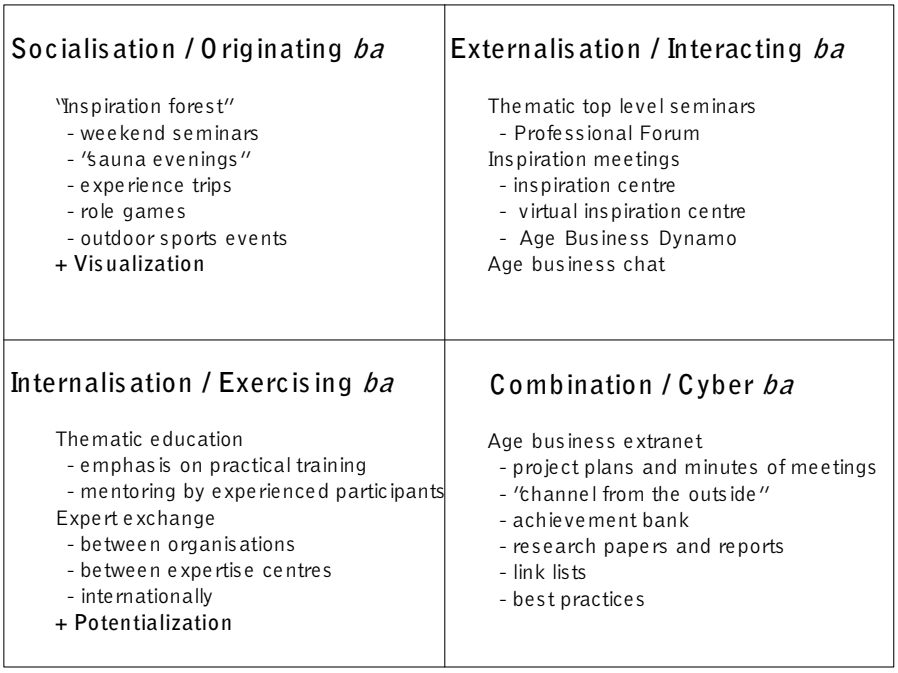

Figure 8. The potential *ba* within the age business core process (Harmaakorpi, Melkas, Kivelä 2003)

General Observations about the Process

In the Lahti Region, the start-up seminar for the age business core process was organised in August 2002. There were 66 participants from different actor groups. In the seminar, the core process thinking was presented and the opportunities offered by the age business to the Lahti Region were discussed. The participants considered the future of the age business to be promising and agreed to put the age business core process into practice in the Lahti Region. The participants were also asked to fill in a questionnaire that surveyed their opinions about core process thinking and the development of the age business core process. 32 questionnaires were returned.

The participants were asked, for example, to evaluate on a scale of 1-5 how well the core process thinking works in creating the age business network. The average value of the answers was 4.2. They were also asked, using the same scale, to evaluate the opportunities of the age business in the Lahti Region. The average of the answers to this question was 4.3. Based on this, core process thinking and the age business core process got an extremely favourable reception among the actors. All the respondents were willing to actively participate in the development of the age business core process or at least to follow the development of the process. The participants were asked also to evaluate, how suitable the selected criteria for evaluation of industries and areas of expertise were. The average of the answers to both questions was 3.5 indicating the necessity to develop the criteria further.

The RDPM has been constructed simultaneously with practical regional development processes in the Lahti Region during the last three years. Since the time perspective is still very short, it is hard to evaluate the soundness of the method. However, it has been well received in the region. For example, the regional higher education and research strategy written for the Finnish Ministry of Education and the regional science park strategy are based on development platforms and core processes. The Lahti Region belongs to the European Union objective 2 regions. Therefore, its development initiatives are largely resourced by European structural funds. The so-called “expertise program me agreement”, signed by the regional development actors, steering the objective 2 funding until 2006 is based on regional development platforms and core processes, as well. Therefore, the RDPM has notably influenced the development in the Lahti Region. However, the final results of the process still remain to be seen.

7 Conclusions

This paper emphasises the crucial importance of the individual assessment of each region in building regional innovation policies and strategies. No patent recipes or undisputed best practices for regions can be given due their strong path dependency. Regions have to build their competitive advantage based on absolute competitiveness rather than comparative advantage. Absolute competitive advantage is notably non-price competitiveness including merely very abstract factors being deeply embedded in the culture, history and institutions of a region.

Regional competitive advantage is based on valuable, rare, inimitable and non-substitutable resource configurations, but these resource configurations have to be renewed over time in order to keep them competitive. The framework of dynamic capabilities focuses on these processes aiming at renewing resource configurations over time. At the regional level, we define dynamic capabilities as the region's ability to generate interaction competitive resource configurations in a turbulent environment. Dynamic capabilities aim to reform regional resources, capabilities, competences and core competences based on the history of the region and opportunities emerging from the techno-socio-economic development. Inside the scope of this current paper, we focused on five dynamic capabilities considered to be important in a networked regional innovation

environment: (i) innovative capability, (ii) learning capability, (iii) networking capability, (iv) leadership capability and (v) forecasting capability.

This study emphasises the interactive nature of the innovation process. Innovation is often a consequence of many kinds of learning processes embedded in various ordinary economic and social activities and, therefore, interaction seems to be crucial to promote innovations. Future innovation policies should place more emphasis on the nature of these interaction processes than the old science and technology policies have done relying more on fostering scientific activities and building infrastructure. The sunrise innovation strategies should include: (i) understanding the phenomena of regional path-dependency and agglomeration, (ii) avoiding regional lock-ins, (iii) defining competitive regional resource configurations, (iv) forming multi-actor innovation networks to exploit the resource configurations, (v) enhancing the absorptive capacity of the innovation networks, (vi) creating sufficient social capital and creative tension and (vii) promoting regional dynamic capabilities (for example, innovative, learning, networking, leadership and forecasting capabilities)

The concept of a regional development platform is designed as a tool for assessing the regional development potential. Regional development platforms were defined to be regional resource configurations based on the past development trajectories, but presenting the future potential to produce competitive advantage existing in the defined resource configurations. Therefore, the concept gives a new, regional perspective on building agglomeration economies. The Regional Development Platform Method (RDPM) is presented as an organisational innovation for a regional innovation policy. The method helps to look for regional business potentials on which it is possible to build the future competitive advantage of a region. The dominating idea of developing the RDPM has been the importance of the individual regional development paths in designing development strategies and tackling the above-mentioned challenges for regional innovation policies. An essential part of the method is the so-called core process thinking, which is designed to form innovation networks aiming at exploiting the business potentials existing in the regional development platforms and promote regional dynamic capabilities. In the last phase of the RDPM, special attention is directed to regional knowledge creation and management. The RDPM has been piloted in the Lahti Region in Finland during the last three years and the experiences of the process have been encouraging.

REFERENCES

Aydalot P. and Keeble D. (eds). (1988). *High Technology, Industry and Innovation Environments: the European Experience.* London.

Beccatini G. (1990). The Marshallian industrial district as a socio economic notion. In Pyke F., Beccatini G. and Sengenberger W. (eds). *Industrial Districts and Inter-Firm Cooperation in Italy*: Geneva

Breschi S. and Malerba F. (1997). Sectoral Innovation Systems: Technological Regimes, Schumpeterian Dynamics, and Spatial Boundaries. In Edqvist C. (ed.) *Systems of Innovation: Technologies, Institutions and organizations*: *130-153.* Pinter, London.

Camagni R. (1991). Local "milieu", uncertainty and innovation networks: towards a new dynamic theory of economic space. In Camagni R. (ed). *Innovation networks: spatial perspectives*. London.

Gamagni R. (1995). Global Network and Local Milieu: Towards a Theory of Economic Space. In Conti S., Malecki E. and Oinas P. (eds*). The Industrial Enterprise and Its Environment: Spatial Perspectives*. Avebury, Aldershot.

Camagni R. (2002). *On the concept of territorial competitiveness: sound or misleading?* Conference Report. 42nd Congress of the European Regional Science Association (ERSA). Dortmund Germany, 27-31 August 2002.

Cappelin R. and Steiner M. (2002). *Enlarging the Scale of Knowledge in Innovation Networks: Theoretical Perspective and Policy Issues*. Conference Report. 42nd Congress of the European Regional Science Association (ERSA). Dortmund Germany, 27-31 August 2002.

Carlsson, B. (ed.) (1995). *Technological Systems and Economic Performance: The Case of Factory Automation.* Kluwer Academic Publishers, Dordrecht.

Castells M. (1996). *The Rise of the Network Society – The Information Age: Economy, Society and Culture*. Blackwell Publishers.

Chinitz B. (1961). Contrasts in Agglomeration: New York and Pittsburgh. *American Economic Review,* 51: 279-289.

Christaller W. (1933). *Die Zentralen Orte in Suddeutschland*. Gustav Fischer Verlag, Jena.

Coase R. H. (1937). The Nature of the Firm. *Economica* 4: 386–405.

Cohen W., and Levinthal L. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation*. Administrative Science Quarterly* 35: 128-152.

Cooke P. and Schienstock G. (1996). *Structural Competitiveness and Learning Regions*. Paper prepared for the EMOT Theme I Changing Forms of Organisation. Fourth workshop. "Economic Performance Outcomes in Europe: The Role of National Institutions and Forms of Economic Organisation. Berlin, 30 January -1 February 1996.

Cooke P. and Wills D. (1999). *Small Firms, Social Capital and Enhancement of Business Performance Through Innovation Programmes.* Small Business Economics 13: 219-234. Kluwer Academic Publishers, Netherlands.

Cooke P., Uranga M. and Etxebarria G. (1997). *Regional Innovation Systems: Institutional and Organisational Dimensions.* Research Policy, vol. 26, pp. 475-491.

Crevoisier O. and Maillat D. (1991). Milieu, industrial organisations and territorial production system: Towards a new theory of spatial development. In Camagni R. (ed). *Innovation networks: spatial perspectives*, London.

Dahmén E. (1998). *"Development Blocks" in Industrial Economics.* Scandinavian Economic History Review, XXXVI: 3-14.

Doloreux D. (2002). *What should we know about regional systems of innovation.* Technology in Society 24: 243-263.

Dosi G. (1988). *Sources, procedures and microeconomic effects of innovation.* Journal of Economic literature 26: 1126-1171.

Edqvist C. (1997). "Systems of Innovation Approaches – Their Emergence and Characteristics", in Edqvist C. (ed). *Systems of Innovation: Technologies, Institutions and Organizations, Chapter One*. Pinter Publishers, London and Washington.

Eisenhardt K. M. and Martin J. A. (2000). *Dynamic Capabilities: What Are They?* Strategic Management Journal 21: 1105-1121.

Freeman C. (1987). *Technology and Economic Performance: Lessons from Japan.* Printer Publishers. London.

Frissen P. H .A. (1999). *Politics, Governance and Technology. A Postmodern Narrative on the Virtual State*. Edward Elgar Publishing Limited.

Harmaakorpi V, Melkas H, and Kivelä R. (2003). *Knowledge Management and Information Quality in an Innovation Network of a Regional Innovation System.* Paper presented at the Conference of Regional Studies Association, Pisa Italy, 12-15 April 2002.

Harmaakorpi V, Niukkanen H, Kauranen I, and Haikonen A. (2003). *Network Leadership in Regional Development Networks. Case: Developing the Expertise Concept for the Lahti Region in Finland.* Paper presented at the Conference of Regional Studies Association, Pisa Italy, 12-15 April 2002.

Harmaakorpi V. and Pekkarinen S. (2002). *Regional Development Platform Analysis as a Tool for Regional Innovation Policy.* Conference Report. 42nd Congress of the European Regional Science Association (ERSA). Dortmund Germany, 27-31 August 2002.

Harmaakorpi V. and Pekkarinen S. (2003) *Defining a Core Process in a Regional Innovation System - Case: Lahti Age Business Core Process*. Paper presented at the Conference of Regional Studies Association 12th – 15th April, Pisa. Italy.

Henderson J. (1985). *Economic Theory and the Citi*es. Academic Press, Orlando.

Javadan M. (1998). *Core Competence: What Does it Mean in Practice?* Long Range Planning, Volume number 31, No 1: 60-71.

Kaldor H. (1970). *The case of regional policies.* Scottish Journal of Political Economy, Volume number 17.

Kautonen M. and Sotarauta M. (1999). Ei yliopistokaupunki ja alueellinen innovaatiojärjestelmä – Näkemyksiä Seinäjoen innovaatiokyvykkyydestä. In Sotarauta M. (ed). *Kaupunkiseutujen kilpailukyky ja johtaminen tietoyhteiskunnassa.* Suomen Kuntaliitto, Helsinki.

Kostiainen, J. (2002). *Urban Economic Development Policy in the Network Society. Tekniikan akateemisten liitto.* Tampere.

Kotter J. P. (1988). *The Leadership Factor*. Free Press. New York. USA.

Krugman P. (1991). *Geography and Trade*. The MIT Press, Gambridge, Massachusetts.

Lundvall B-Å. (ed.) (1992). *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning.* Pinter Publishers, London.

Lundvall B-Å. and Borras M. (1999). *The globalising learning economy: Implications for innovation policy*. Office for Official Publications of the European Communities, Luxembourg.

Lösch A. (1954). *The Economics of Location*. Yale University Press, New Haven.

Malerba F. (2002). *Sectoral systems of innovation and production.* Research Policy, 31: 247-264.

Marshall A. (1916). *The Principles of Economics.* Macmillan. London.

Marshall A. (1932*). Industry and Trade*. Macmillan. London.

Maskell P. and Malmberg A (1999). *Localized learning and industrial competitiveness.* Cambridge Journal of Economics Volume number 23, No 2: 167-186.

Nelson R. R. (ed.) (1993). *National Innovation Systems. A Comparative Analysis.* Oxford University Press, New York.

Nelson R. R. and Winter S. G. (1982). *An Evolutionary Theory of Economic Change.* Belknap Press, Cambridge, Massachusetts.

Nonaka I. and Takeuchi H. (1995). *The Knowledge Creating Company*. Oxford University Press.

Nonaka I, Toyama R, Nagata A. (2000). *A Firm as a Knowledge-Creating Entity: New Perspective on the Theory of a Firm.* Industrial and Corporate Change. Volume number 9: 1-20.

Ollus M., Ranta J., and Ylä-Anttila P.(1998). *Yritysverkostot – kilpailua tiedolla, nopeudella ja joustavuudella*. Sitra 202. Taloustieto Oy.

Porter M. E. (1990). *The Competitive Advantage of Nations*. Free Press, New York.

Porter M. E. (1995). *The competitive advantage of the inner city.* Harvard Business Review, Volume number 74: 61-78.

Porter M. E. (1998). *Clusters and the New Economics of Competition.* Harvard Business Review, November-December: 77-90.

Prahalad C. K. and Hamel G. (1990). *Core Competence of the Corporation.* Harvard Business Review, May/June, 79-61.

Putnam R. D. (1995). *Bowling alone: America's declining social capital.* Journal of Democracy, Volume Number 6, No 1: 65-78.

Pyke F. and Sengenberger W. (eds.) (1992). *Industrial Districts and Local Economic Regeneration.* International Institute for Labour Studies. Geneva.

Schienstock G. and Hämäläinen T. (2001). *Transformation of the Finnish innovation system. A network approach*. Sitra Reports series 7. Hakapaino Oy. Helsinki.

Scott A.J. (2000). *Regions and World Economy. The Coming Shape of Global Production, Competition and Political Order*. Oxford University Press. New York.

Smith A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*.

Sotarauta M. (1999). *Kaupunkiseutujen kilpailukyky ja johtaminen tietoyhteiskunnassa*. ACTA nro 106. Suomen Kuntaliitto.

Sotarauta M. (2000). Kaupunkiseudun ydinkompetenssien kehittäminen. In Kostiainen J. and Sotarauta M. (eds.) *Kaupungit innovatiivisina toimintaympäristöinä*. Tekniikan akateemisten liitto. Helsinki.

Storper M. (1995). *The Resurgence of Regional Economies, Ten Years Later: The region as Nexus of Untraded Interdependencies.* European Urban and Regional Studies 2: 191-221.

Storper M. and Scott A.J. (eds). (1992). *Pathways to Industrialization and Regional Development*. London, New York.

Teece D. J. (1988). Technological change and nature of the firm. In Dosi G., Freeman R., Nelson G., Silverberg G. and Soete L. (eds)., *Technical Change and Economic Theory*. Pinter Publishers, New York.

Teece D.J, Pisano G. and Shuen A. (1997). *Dynamic Capabilities and Strategic Management*. Strategic Management Journal, Volume number 18, No 7: 509-533.

Thompson G, Frances J, Levacics R and Michell J. (1991). *Markets, Hierarchies and Networks. The Coordination of Social Life*. SAGE Publications.

Tura T. and Harmaakorpi V. (2003). *Social Capital in Building Regional Innovative Capability: A Theoretical and Conceptual Assessment.* Conference Report. 43rd Congress of the European Regional Science Association (ERSA). Jyväskylä Finland, 27-30 August 2003.

Williamson O. E. (1979). *Transaction Cost Economics: the Governance of Contractual Relations.* Journal of Law and Economics. Volume Number 22: 233–262.