Regionale Entrepreneurship Infrastructures –

Synthesis report (draft)

The International Consortium
On Entrepreneurship (ICE)

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Introduction

The successful launch of a venture is a complicated endeavour, and the challenges of the global knowledge economy make it even more difficult. All entrepreneurs, no matter how experienced, have limitations. The pool of skills required for starting and growing a new venture surpasses that of the individual entrepreneur or team of entrepreneurs

At some point during the early stages most entrepreneurs and start-ups will require advice from specialists and will benefit from engaging in a dialogue with a variety of external business advisors such as technical experts, lawyers, accountants, consultants and venture capitalists. Good advisors act as a sounding board for new ideas, provide a valuable network of contacts, and offer complementary skills needed for the successful launch and growth og new companies.

Thus, a well-developed supply of knowledge in the local environment is an important prerequisite for the success of entrepreneurial companies.

In most regions entrepreneurs and new ventures are surrounded by a wide variety of commercial and non-commercial providers of business advisory services. Taken together the regional pool of firms and institutions, that directly or indirectly provide entrepreneurs and new firms with external business advice and knowledge can be termed a regions **entrepreneurship infrastructure**.

Evidence suggests that the scope and quality of entrepreneurship infrastructures vary across regions. High-growth regions such as Silicon Valley and Austin seem to be characterised by comprehensive, specialised, and highly effective entrepreneurship infrastructures consisting of broad supplies of specialised entrepreneurship advisors, investors and network institutions.

Across OECD-countries a wide variety of direct and indirect policy measures have been put in place to strengthen entrepreneurs access to external knowledge. However, little is known about the effect of the various types of policy interventions.

ICE study of entrepreneurship infrastructures

Despite the growing recognition of the importance of easing the access of entrepreneurs to high-quality external business advice and knowledge, the concept of entrepreneurship infrastructures has not yet gained systematic attention either from an academia or a policy perspective. Thus, no comparable data on the scope and quality of regional entrepreneurship infrastructures exist.

In the spring of 2005 the **International Consortium on Entrepreneurship** (ICE) initiated a study of entrepreneurship infrastructures in a number of high-growth regions in Europe and Canada.

The vision of the ICE is to be a critical demander and buyer of entrepreneurship data and policy analyses from respectable sources. ICE consists of eight countries and three international research institutions. ICE has two important tasks. First, it works to develop, update and improve entrepreneurship indicators. Second, ICE conducts qualitative research in specific policy areas relating to entrepreneurship.

The **study of regionale entrepreneurship infrastructures** is part of the second effort. It seeks to enhance the knowledge of policymakers on the firms, institutions and dynamics that constitute well-functioning and effective entrepreneurship infrastructures. It should furthermore serve as a source of inspiration for policymakers about what policy initiatives to employ if such infrastructures are to develop.

6 ICE-members choose to participate in the study each choosing one case region. The regions included in the study is:

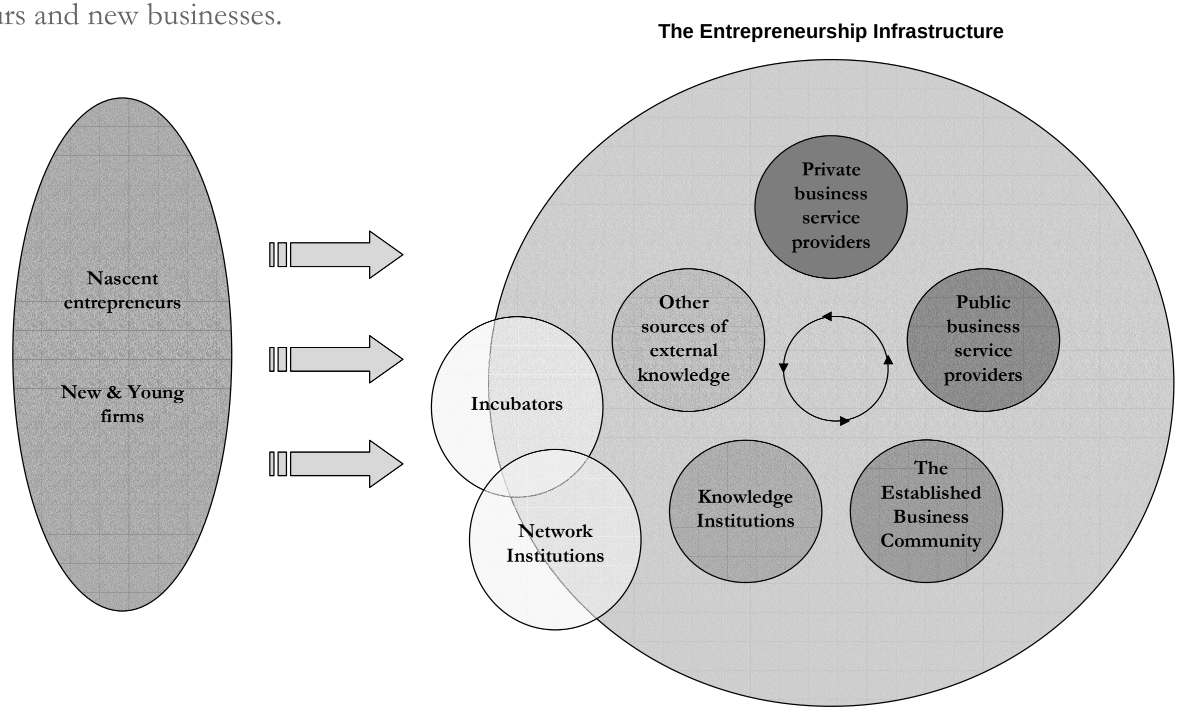
1. Kitchener-Waterloo (Ontario, Canada)
2. Southeast North-Brabant & North Limburg (Netherlands)
3. Jena (Thuringia, Germany)
4. Entre Douro e Vouga (Portugal)
5. Piedmont (Italy)
6. Northern Jutland (Denmark)

The entrepreneurship infrastructures in each of the six regions is described in separate regionale reports. This **synthesis report** puts forward the main findings from the regional reports and compares the entrepreneurship infrastructures across the regions included in the study. It furthermore outlines a number of critical policy issues and implications.

What is entrepreneurship infrastructures?

The definition of entrepreneurship infrastructures:

Entrepreneurship infrastructures are defined as the group of - and networking amongst - firms, organisations, and institutions that directly or indirectly provides business advise and knowledge to entrepreneurs and new businesses.



What is entrepreneurship infrastructures?

The supply side:

The group of firms, organisations, and institutions in the entrepreneurship infrastructure can be categorised along four dimensions:

1. Their *function* (provider, bridge builder, etc.)
2. Their *sectoral affiliation* (private, public, public-private)
3. Their *target group* (all entrepreneurs, high-tech start-ups, etc.)
4. Their *phase focus* (pre start-up, start-up, growth, etc.)

In this study we will primarily use the functional and sectoral affiliation to categorise the various types of business service providers. When exploring the supply side of the entrepreneurship infrastructure we will distinguish between 5 types of players:

1. *Private providers of business service and advice*
2. *The established business community, etc.*
3. *Governmental and semi-governmental organisations*
4. *Market facilitators* (networks, incubators, etc.)
5. *Knowledge institutions* (universities, vocational colleges, etc.)

The demand side:

The study focus on the infrastructure surrounding entrepreneurs and new firms. Nascent entrepreneurs and CEOs of new firms have to make difficult-to-reverse initial decisions that can have considerable influence on survival, growth and profitability of the new firm (Hannan & Freeman, 1989; Chrisman, 1999)

- *Entrepreneurs* are understood as individuals who intend to start-up a business, but have not yet done so (Chrisman 1999:43).

- *New firms* are firms that are less than 3 ½ years old. New firms are also known as start-up companies.

Approach

Choice of regions

The ICE-members decided to base their choice of regions on a set of common criterias. The most of these important criterias was that the regions to be included should be characterised by economic growth that has been at least partially driven by new entrepreneurial firms. Furthermore, there should be some qualitative evidence to suggest the existence of a high-quality entrepreneurship infrastructure in the regions.

Methodology

A primarily qualitative approach was chosen for the study of regional entrepreneurship infrastructures. The participating members of the ICE could choose between two levels of engagement – a *basic* model and an *extended* model. The extended model included the same elements as the basic model plus some additional elements.

The Netherlands and Denmark have used the extended model, while Canada, Germany, Portugal and Italy used the basic model.

An eclectic approach have been used, meaning that various methodologies have been used to carry out the study of the entrepreneurship infrastructures. Two methodologies where used in all regions:

1. *Literature survey*
   Extensive literature surveys where conducted to collect information on the regions and the various firms, organisations and institutions that constitute the entrepreneurship infrastructure.
2. *Expert interviews*
   15-20 key experts on the entrepreneurship infrastructure have been identified and interviewed in each of the six participating regions.

The Netherlands and Denmark furthermore used a third methodology to explore the entrepreneurship infrastructure:

3. *Surveys*
   Two internet-based surveys have been conducted; one among private suppliers of business services and one among the demanders of business services (entrepreneurs & new businesses)

Approach

The approach used in this study has **STRENGHTS** as well as limitations. On the one hand, it can increase our knowledge of the

- features and elements that constitute effective entrepreneurship infrastructures;
- type and number of actors involved in the entrepreneurship infrastructure and indications if their relative importance;
- entrepreneurial orientation among the actors (i.e. private business service providers, established businesses, and knowledge institutions);
- policy instruments and approaches used to improve entrepreneurs access to business advice and knowledge

In other words, the study can serve as a source of knowledge and inspiration to policymakers and policy officials when designing policy interventions aimed at improving entrepreneurs access to high-quality external knowledge resources.

However, the approach chosen also has some **LIMITATIONS**. To mention a few of them, the methodological design render it impossible to measure or test the

- existence or size of failures in the market for entrepreneurship and small business advisory service;
- effect/value added of various types of policy approaches and interventions;
- relationship between the quality and scope of the regionale entrepreneurship infrastructures, on the one hand, and the performance of entrepreneurs, new firms and the economy as a whole, on the other hand;

Why study regional entrepreneurship infrastructures? Theoretical and empirical background

But why study regional entrepreneurship infrastructures? First and foremost, there seems to be some theoretical and empirical evidence suggesting that suppliers of business services can have a substantial impact on the performance of the individual entrepreneurs as well as on the regional economic performance.

Secondly, it is commonly assumed that market imperfections hamper new and small firms access to information and business advice. Thus, in almost all western economies public authorities have intervened in the market to obviate the market failures.

Linking the entrepreneurship infrastructure to economic performance

The entrepreneurship infrastructure has not directly been linked to economic performance in any studies, whereas several studies examine the business service sector. The business service sector represents a large subset of the entrepreneurship infrastructure.

The business service sector has been expanding over the last decades in most OECD countries. The expansion has had positive impact on the economy in at least tree ways.

First, a larger business service sector represents a move up the value chain for an economy when its production moves to low wage countries.

Second, firm level studies suggest that business service directly impacts the productive of its costumers.

Third, the business service sector can indirectly raises productivity in the economy by the knowledge spill-overs it generates nationally and regionally. The first reason does not directly relate to this study and will not be discussed further whereas the other two reasons will be discussed in the following.

However, the expanding business service sectors have also caused some concern, as its productivity growth has been low and in some countries even negative. For example, the labour-intensive production in business service may reduce the potential for productivity growth.

Why study regional entrepreneurship infrastructures? Theoretical and empirical background

The high share of small firms in the business service sector reduces investments in innovation within the sector. Finally, Baumol et al. (1989) has argued that the business service sector might have an unrealised potential for labour-saving mainly due to regulations and lack of competition. These aspects of the business service sector will not be discussed further but any policy intervention should consider these problems relating to the business sector.

Business service and its directly impacts on customers

Many firm level studies show a positive effect of business service. For example, Antonelli (2000) finds that the effect of use of business services on value added of client industries: a 1% increase in business service inputs caused value added to increase by on average 2.6 to 4.2%. Greenhalgh and Gregory (2000) conclude that the business services sector is the key sector for productivity growth during 1980s, causing large labour saving in other industries. Business services are also important player in the forward transmission of rising product quality. Finally, Katsoulacos and Tsounis (1998) find that there is a strong correlation between TFP levels and growth and the use of business services

Muller and Zenker (2001) have analysed innovation-related interactions between knowledge-intensive business services (KIBS) and manufacturing small- and medium-sized enterprises (SMEs). According to Muller and Zenker, KIBS firms enhance innovation capacities of clients' firms and receive stimuli from them for innovations of their own. Besides, KIBS contribute to the development of innovations potentials at the regional level.

Furthermore, Chrisman (1999) finds strong support that outsider assistance positively influencing the likelihood that individuals with entrepreneurial intentions will start a business. Depending on the definition of nascent firms, roughly 60 till 78 percent of nascent entrepreneurs who seek outsider assistance actually start a business. Using a cross-section research design O'Farrell and Moffat try to quantify the effect of external services upon client performance, although almost half of all investigates services (i.e. new product design, etc.) could not be quantified. All in all, they observe that individual external service inputs have resulted in improvements in various dimensions of firm performance.

Why study regional entrepreneurship infrastructures? Theoretical and empirical background

Business service, spill-overs and its indirect economic impact

Business service providers can beside their direct effects affect productivity through three main mechanisms (Kox, 2004). First, firms in some business services are innovators themselves, e.g. software, engineering and contract research. Firms in other business services also contribute to innovation by generating non-technological innovations, e.g. organisational development, firm strategy, human resource management and marketing.

Second, service providers in several branches can more easily conceptualise to more common business problems, because of their broad view. With regard to many competence areas, business service providers thus lead client firms to the relevant efficiency frontier.

Third, the supply of knowledge-intensive business services reduces firm-specific economies of scale. Even small client firms nowadays have access to specialist knowledge and specialist skills that once were the domain of universities and large firms (see also Chesbrough, 2003).

A new strand of literature also emphasises the importance of entrepreneurship infrastructure for growth. For example, Acs *et al.* (2003, 2005) developed a new growth theory that builds on the idea that knowledge needs to spill-over into commercial activities in order to affect growth. They conceptualise the factors that restrict knowledge spill-over as being a *'knowledge filter'*. The general idea is that not all generated knowledge created is economically useful. As already stated to transform knowledge into knowledge useful to a firm (firm-specific knowledge) involves costs. Indeed, firms have to penetrate this so-called knowledge filter in order adjust knowledge into economically relevant knowledge. Entrepreneurship is a driving force behind the penetration of the knowledge filter.

The adjusted growth model by Acs *et al.* implies that growth to a large extent is determined by the thickness of the knowledge filter on a local level. One important element that could significantly reduce the filter is a well-developed entrepreneurship infrastructure. Indeed, efficient diffusion of knowledge by external business advisors could well function as an important engine behind local knowledge spillovers.

Why study regional entrepreneurship infrastructures? Theoretical and empirical background

Most of the literature on spillovers emphasises the local dimension as Feldman and Audretsch (1999) note, "new economic knowledge may spill over, but the geographical extent of such knowledge spillovers is bounded". The idea is that knowledge created through R&D activities is, at least partly, tacit (Nelson and Winter 1982). Tacit knowledge, in turn, is the type of knowledge that is 'sticky', i.e. difficult and costly to transfer (von Hippel 1994).

The regional aspect is also the main focus of the analysis presented in this report. Many studies support the choice of the region as the focus of the analysis. Chrisman (1999) finds evidence that regions with strong flows and stocks of resources will be more likely to show high start-up rates than regions lacking such resources. Birley and Westhead (1992) and Hitchens and O'Farrell (1987, 1991) have compared the performance and growth of new firms in 'non-assisted' as well as 'assisted' areas. Birley and Westhead (1992) conclude that firms in assisted areas had a significantly greater propensity to have used both more than one source of finance during the start-up period and public sources including local and government grants.

Another result is that start-up grants, industry-related grants, low-interest loans and tax-free zones as well as 'soft' support including local enterprise support were all important ingredients in the successful start of the firms in the assisted areas.

Market failures in the supply and demand for business service

Business service can affect growth but the access to business service is however problematic. Several market failures exist both on the demand and supply side. Five general market failures can be identified in the market for business service:

- Some SME and entrepreneurs are "ignorant" and therefore unwilling to use external advice, which they tend to perceive as expensive and of limited relevance (Wren and Storey, 2002). This failure can be corrected for example through information about the effects of advice or by giving an "introduction subsidy" to small firms buying business services.

Why study regional entrepreneurship infrastructures? Theoretical and empirical background

- New and young firms could potentially also be seems as disfavoured because of their small size (Hjalmarsson and Johansson, 2003). In general, they lack the revenues to hire external business advice. This reduces small firms' demand for consultancy services. This market failure is more linked to the capital market as firms should be able to borrow the needed resources.

- The market for business advice is characterised by Asymmetrical information (see Mole, 2004; Kox, 2004; Wren and Storey, 2002). The business advisor knows more about their capabilities than the buyer of the service. As a consequence, the buyers tend to underinvestment in external business advice (Mole, 2004). Interventions should aim at improving the transparency in the market through for example public brokerage or government-backed self-regulation.

- The asymmetrical information can also create problems in the supply side. Business service firms need to invest in the development of the skills needed to assist entrepreneurs if the demand after these skills is too low the investment in the needed skills will also tend to be too low, which will reduce the demand even further. Intervention should focus on creating network and building capabilities in the private market.

- Finally, the business services sector has an important role in generating spill-over effects. In terms of market failure, one would argue that the social benefits of business advice are greater than the private benefits to the firms. Hence, from a societal perspective there is less advice than is socially desirable (Mole, 2004). This market failure could be used as an argument for subsidising entrepreneurs' use of business services (at least in an introductory phase).

The five possible market failures can each be meet by various policy interventions some of which is mentioned above. However, interventions need to be designed carefully, as public support programmes can work an obstacle to private market parties (substitution effects) and be a hindrance to the dynamic development of a private service market. '

The following will examine the effect of some of these possible interventions.

Why study regional entrepreneurship infrastructures? Theoretical and empirical background

Impact of public business service provision

Public advisory service is a multi-billion dollar business. Virtually all industrialised countries utilize tax payers' money to offer various kinds of business services to entrepreneurs and SMEs. The services are provided directly through public agencies or indirectly through the subsidised private-sector consultants. Despite the considerable amount of money involved, the evaluation of the policies is remarkably underdeveloped (Wren & Storey, 2002). Furthermore, the literature is divided concerning the effects of public advisory services on firm performance. Some of the findings of the literature is summarised below:

- Outsider assistance has a positive influence on the relationship between entrepreneurial intensions and venture creation (Chrisman & McMullan, 1999)
- The public advisory services of the US Small Business Development Centres (SBDC) have a significant impact on the performance (sales and employment levels) of their clients (Chrisman & McMullan, 2000)
- The UK Enterprise Initiative (marketing advice) encourages the use of outsider assistance which altered the nature of the projects, and impacted positively upon the survival and growth rates of medium-sized firms. It had minimal impact on the performance of small firms and larger firms (Wren & Storey 2002).

However, most studies do not apply robust econometric techniques to control for selection bias and important factors such as age, size, industry, experience and education. The study of Wren & Storey (2002) is an exception.

Presentation of the case region:

1. Kitchener-Waterloo (Ontario, Canada)
2. Southeast North-Brabant & North Limburg (Netherlands)
3. Jena (Thuringia, Germany)
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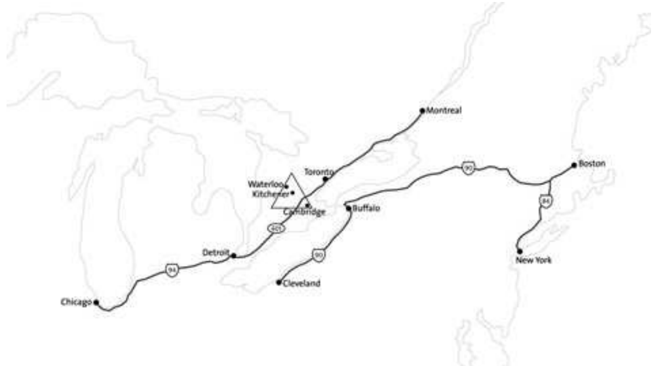
Case regions:
Kitchener-Waterloo (Ontario, Canada)



Regional characteristics:

The Kitchener-Waterloo region is situated 100 km southwest of Toronto, Ontario and includes four cities (Kitchener, Waterloo, Cambridge and Guelph) as well as four townships. The combined population in 2005 was about 500.000.

Manufacturing in the Kitchener-Waterloo region has been revitalized. Since the mid 1990s its economy has undergone significant changes. Traditional manufacturing (rubber, textile and leather) has declined while the technology sector has grown rapidly. Strong entrepreneurship combined with a collaborative culture ship have been the main drivers of this development. Multinationals such as RIM, Open Text and DALSA have developed and grown in the region.

Today it is one of the strongest regional economies in Canada. Its GDP pr. capita in 2003 was CAN$42.000 compared with CAN$38.500 for Canada.

Case regions:
Kitchener-Waterloo (Ontario, Canada)

Main actors in the regional entrepreneurship infrastructure

- *Communitech*, a regional network for technology entrepreneurs and business service providers;
- Successful *entrepreneurial firms* serve as role models and supporters of "new" entrepreneurs
- Universities and other *educational institutions* provide state-of-the-art technology training, coop programs and progressive IP policies
- A small number of large *business service firms*;
- Federal, provincial and local *government* through investment and various support programmes
- *Spin-off synergies* in electronics and automotive from the new Toyota plant

Distinctive features and drivers of the regional entrepreneurship infrastructure

Kitchener-Waterloo is one of the most connected communities in Canada. There is a presence of strong networks, especially within the technology sector, that brings together all the players in the region. A number of actors, e.g. the established business community, have shown a strong commitment to support entrepreneurs.

The entrepreneurial infrastructure has developed strongly with the emergence of the region as a dynamic growth cluster. However, the development has not been driven by service providers. Instead, the established business community (including new growth firms), universities, public authorities and a number of initiatives within the entrepreneurial sector have been the main drivers.

Case regions:
South-East Noord Brabant & Northern Limburg (NL)

Regional characteristics:

South-East Noord Brabant & Northern Limburg refers to parts of two provinces. It has a population of app. 1 mio. and it contains three major cities (Eindhoven, Helmond and Venlo)

The area forms the heart of one of the most dynamic regions in Europe with economic centres such as the Ruhrgebiet (Germany) nearby, and it is part of the international R&D triangle of Eindhoven-Leuven-Aachen. The majority of the most important clusters in the region involve high-technology industry. Several large high-tech multinationals is situated in the region, including Phillips, DAF Trucks, ASML and Océ.

South-East Noord Brabant & Northern Limburg is one of the most innovative regions in the Netherlands and Europe in terms of R&D and patent intensity.

Finally, the region performs about Dutch average on start-up rates.

Case regions:
South-East Noord Brabant & Northern Limburg (NL)

Main actors in the regional entrepreneurship infrastructure

- *Private BSPs*
- *Knowledge Institutions* (like Eindhoven University of Technology and TNO, the Dutch Organization for Applied Research), and their front-office United Brains
- *Established companies*; e.g. Philips through their High Tech Campus, Océ.
- *Government*. Four levels of government (EU, national, provincial and local) are involved in the entrepreneurship infrastructure. On several fields SRE, a cooperation among 22 municipalities, plays an important role
- *Regional Development Agencies* BOM, LIOF and REDE
- *Project agencies Horizon & Brainport*
- *Syntens,* a national innovation network for entrepreneurs
- *Chamber of Commerce*
- *Incubator3+, Team Venlo* and *Advanced Start-up Foundation;* regional networks for start-ups where high-tech entrepreneurs can access business service, training, coaching, peer networks and seed capital. Initiated and financially supported by government but run by entrepreneurs and private actors.

Distinctive features of the regional entrepreneurship infrastructure

The region is characterised by a high degree of cooperation between companies, knowledge institutions, intermediate suppliers and local governments (a triple helix approach).

Entrepreneurs can access external business advice through a variety of organisations and networks. Regional or local government play a huge role as direct providers of business service and as facilitators of entrepreneurship initiatives. However, the entrepreneurship infrastructure faces three key challenges. Evidence suggest, that there is

1. a *lack of competition* in the private business service market due to market imperfections such as a lack of transparency.
2. *organisational problems* related to the current way that public authorities intervene in the market for external business advice. Among other things the public business service network is too fragmented and the public service providers do not fulfil their role as market facilitators effectively.
3. a *crowding-out of private business activities* due to the comprehensive public market interventions

Case regions:
South-East Noord Brabant & Noord Limburg (NL)

Drivers of the regional entrepreneurship infrastructure

There have been three main drivers behind the development of the infrastructure:

1. Heavy cutback and downsizing in the 90s created a *sense of urgency* among all actors in the region. A number of sustainable regional networks was created through a triple helix approach. Furthermore, the downsizing led to new independent providers of business services as well as other start-up activities.
2. An *open-minded corporate culture*. The inhabitants of the region have an open mind and a social, pragmatic culture which is reflected in the corporate culture.
3. *Government* has been an important initiator and facilitator of entrepreneurship activities within the region.

Results from survey of the supply of private business service

- Nascent entrepreneurs and young firms (less than 3 ½ year) constitute app. 20 % of the customer portfolio of private business service providers.
- Only very few private business service providers (app. 10 %) offer specially designed services, information materials or procedures for entrepreneurs and new firms. However, a considerable share of the private business service providers offers some kind of free services (26 %) - typically one or two hours - or discounts for new and young firms.
- Start-ups and young firms are considered to be risky assets, as they have yet to establish a track record or realize their market potential. Furthermore, new and young firms tend to purchase only the basic services, which do not generate significant revenues.

Case regions:
South-East Noord Brabant & Noord Limburg (NL)

Results from survey of demand for external business service among new and young firms

- 70 % of the respondents use private business service providers. The business service providers are mostly used in relation with more basic tasks (e.g. accountancy and funding), and to a far lesser extent in relation with strategic issues (e.g. marketing and headhunting). 58 % of firms would like to use private business services more often but consider the services too expensive
- Only a very limited percentage of the respondents state that they have received business advice from public business services (12 %), higher educational institutions (10 %) and established companies (7 %).
- 28 % of the respondents have used experienced entrepreneurs as business advisors. Most often experienced entrepreneurs are used in relation with financing and fiscal advice, marketing and more long-term issues.

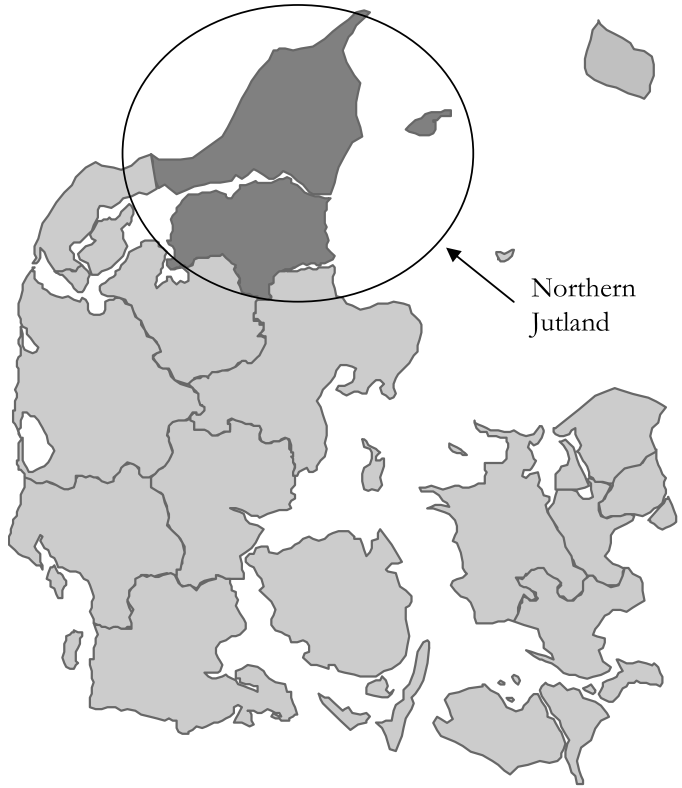
Case regions:
Northern Jutland (Denmark)

Regional characteristics:

Northern Jutland has a population of app. 500.000 inhabitants. The biggest city is Aalborg (163.231).

The region is characterised by a diversified economy dominated by SMEs. A restructuring process is taking place. The traditional manufacturing base is under increasing pressure. At the same time new small but vibrant high tech clusters are developing within ICT and bio-medico.

Northern Jutland is characterised by an entrepreneurship paradox. In general, the region has good entrepreneurship framework conditions but the entrepreneurship performance does not follow suit. Especially the growth in new firms lacks behind other Danish regions. However, intra-regional differences exist. Parts of the region, especially the southern parts, perform excellent compared to national standards.



Case regions:
Northern Jutland (Denmark)

Main actors in the regional entrepreneurship infrastructure

- *Government*: A wide array of entrepreneurship initiatives and organisations have been funded and in other ways facilitated by EU, national, regional and local government.
- *Publicly-backed chambers of commerce*: The chambers of commerce are connected within a virtual network called Northern Jutland Entrepreneurship Network (NiN). NiN offers information, guidance and subsidised private business service to all entrepreneurs in Northern Jutland.
- *Entrepreneurship networks*: A wide variety of peer networks exist in the region. KIVIN, a network for female entrepreneurs, has app. 400 members.
- *Incubators and science parks*: A large number of incubators have been established. Typically, they offer flexible rents and a selection of services. However, only a few have the necessary critical mass.
- *University of Aalborg*: The university offers a selection of activities targeted at knowledge-intensive entrepreneurs.
- *NOVI A/S*: An incubator and venture capitalist firm that focus on knowledge-intensive firms. NOVI is located at the University of Aalborg and houses more than 60 tenants.

Distinctive features and drivers of the entrepreneurship infrastructure

Northern Jutland has a comprehensive entrepreneurship infrastructure. Entrepreneurs and new firms in the region can get access to business service through a wide array of organisations and activities.

The local chambers of commerce serve as an important source of start-up information and guidance. Furthermore, they act as important broker organisations by providing the broad group of more traditional entrepreneurs access to subsidised private business service.

There's a broad selection of private business service providers in the region. Established firms are their main target group. However, since the economy primarily consists of SMEs, entrepreneurs and new firms can quite easily find qualified advisors. At the same time there are many fiery souls among the business service advisors, who are interested in offering more informal types of support to entrepreneurs.

Furthermore, the entrepreneurs and new firms in Northern Jutland have access to a wide array of peer networks and incubators. The majority of networks and incubators have been facilitated by public authorities but are run by private actors.

Case regions:
Northern Jutland (Denmark)

Distinctive features and drivers of the entrepreneurship infrastructure (continued)

An entrepreneurship infrastructure oriented towards the high-tech entrepreneurs have developed around the University of Aalborg and NOVI. Beside being a science park, NOVI is also a venture capitalist.

The majority of the entrepreneurship activities have been initiated, funded or in other ways enabled by public authorities. EU-funds in particular, have played a major role in the development of the infrastructure.

The influence of EU-funds is both good and bad. It has enabled the development of entrepreneurship activities. However, there are some clear drawbacks too. First, the EU-money is focused at building institutions and organisations. A lot of money and energy are put into this process, but many organisations are not viable in the long run. Second, the focus are mostly on the pre-start and start-up phases and on the broad group of more traditional, regionally oriented entrepreneurs. The growth phases and growth-oriented entrepreneurs barely get attention.

Results from survey of private business service supply

- Nascent entrepreneurs and young firms (less than 3 ½ year) constitute 22 % of the customer portfolio of private business service providers (app. the same as in the Dutch region).
- A significant share of the providers of private business services offer specially designed services (45 %), information materials (25 %) and procedures (28 %) for entrepreneurs and new firms. The reason might be that quite a large part of the providers are units of national or even international groups which have developed such services, procedures and materials. This is especially pronounced among the banks and the accountancy firms.

Case regions:
Jena Region (Thuringia, Germany)

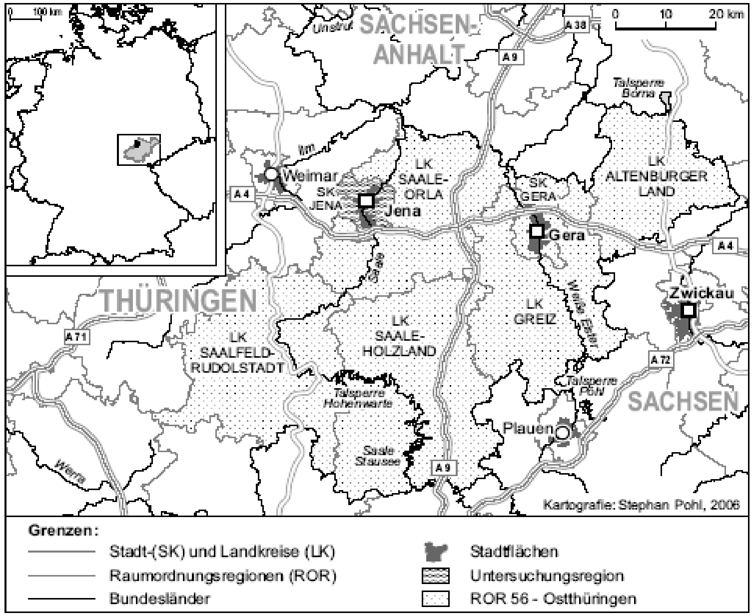
Regional characteristics:

Jena is a city situated in Thüringia, one of five Eastern German states. It has a population of 60.000 inhabitants. Thüringia has app. 2.3 mio. inhabitants. Jena is situated close to the regional capitol Erfurt and with major economic centres such as Berlin and Frankfurt am Main within a few hundred kilometres distance.

Jena is an innovate city region with a strong base of knowledge intensive industries; e.g. the patent density is two times higher than the German average. The most innovative sectors is optics followed by biotechnology; third is medical engineering, then measurement engineering, and pharmaceuticals. The regional specialisation in optics and the glass industry goes back to the biggest and oldest companies located in Jena: Carl Zeiss Jena and Schott were both founded in the 19th century in Jena.

The entrepreneurial dynamics in Jena is characterised by a high degree of turbulence with a lot of entry and exits. Though Jenas start-up rate is lower than elsewhere in Eastern Germany evidence suggest that the quality of the new firms in Jena is higher.

The higher levels of start-up in other parts of Eastern Germany is mostly due to necessity entrepreneurship. In Jena innovative start-ups appear much more often.



Case regions:
Jena Region (Thuringia, Germany)

Main actors in the regional entrepreneurship infrastructure

- *Established companies*; e.g. Jenoptik - a large producer of precision mechanics and optical instruments - have been a key player in the development of business services and networks.
- *Government*. Four levels of government (EU, national, Länder, and municipalities) all play a role, often through joint programs. Especially the federal level has played an important role by funding and facilitating regional networks between firms, research/educational institutions and policymakers through a bottom-up approach.
- *Regional Networks of competence*: Publicly sparked networks such as Get-Up, BioInstrumente© and Optonet play a major role in supporting knowledge-based entrepreneurs.
- *Universities and research institutions*: Two universities and several research institutions are situated in the city. Furthermore, they have been extremely influential in triggering a number of entrepreneurship activities, and they are integral parts of networks for knowledge-intensive entrepreneurs.

Distinctive features and drivers of the regional entrepreneurship infrastructure

Until 1990 no private market for business services existed. Since the fall of the Wall and the reunification of Germany a strong infrastructure has developed to support entrepreneurs and new businesses in Jena.

Entrepreneurship in Jena has been sparked by a strong entrepreneurship policy framework that was mainly designed at the national level. Open networks between traditional and also new industry clusters and the universities have been a major factor in Jena. The majority of networks has been sparked by government, often through competitions financed by the federal government.

There is a good infrastructure of private business service providers available for entrepreneurs in Jena. The business services in Jena mainly serve the needs of entrepreneurs in addition to their main field of activity - entrepreneurs have too limited resources to be a main target group. Nevertheless, a number of business service providers have specialised in the most important entrepreneurial clusters. Entrepreneurs can access them through the networks and incubators which provide the main infrastructure.

Case regions: Piedmont (Italy)

Regional characteristics:

Piedmont is located in the North-west of Italy. It has a population of 4.330.172 inhabitants. Half the population is located in Turin, the capital city.

The Piedmont economy has recently experienced a strong process of restructuring. The local economy is developing from the old manufacturing sectors towards a new post-industrial economy. Among other sectors this has affected the automotive sector (e.g. the Fiat group) where employment has decreased strongly in recent years. Instead, the service sector is becoming stronger and stronger.

The role of entrepreneurship is very important in the region and in Italy in general. In all Italian regions the entrepreneurship intensity is higher than EU average. However, the number of firms per million inhabitants in Piedmont is lower than the Italian average. This is due to the role that large firms has played in the past. The presence of large firms such as Fiat and Olivetti reduced the number of entrepreneurs.

The regional entrepreneurship infrastructure

The business service sector in Piedmont had a dramatic increase in the last decades. This means that the supply of private business is very good. However, in general business service providers are specialized for established firms, and not for start-ups. They are neither specialised in entrepreneurship nor have they developed special services for entrepreneurs and new firms.

There are a lot of public programs for entrepreneurs. They are mainly supported by the national or the regional government. Experts in the region assess that there are too many programs. A study found more than 160 programs operated by more than 20 different agencies. Typically, the programmes are too small and often they are in direct contradiction with each other.

Beside the many public authorities involved in entrepreneurship there are also some associations and chambers of commerce that provides information to entrepreneurs and seeks to ease the access to business service.

Case regions:
Entre Douro e Vouga (North region, Portugal)

Regional characteristics:

The Entre Douro e Vouga region is located in the north of Portugal near Porto metropolitan area. The region consists of five municipalities and has a population of 284.000.

The region is characterized by some asymmetries between urban and rural areas. Parts of the territory is very industrialized while other parts, primarily in the interior, have more rural characteristics.

Manufacturing makes up 21 % of all firms and it is in a top position in the regional ranking in terms of productivity and export. Cork, shoes, leather and metallurgic are the most important economic clusters representing 73 % of the total industry.

The region has a lower start-up rate than other parts of Portugal. However, other parts of Portugal are characterised by a high degree of necessity entrepreneurship.

The regional entrepreneurship infrastructure

No institution is solely responsible for the entrepreneurship policy in the region. Several institutions, both public and private, are involved in initiatives that seeks to promote entrepreneurship. Most of the projects are joint ventures with several partners.

The entrepreneurship infrastructure in Entre Douro e Vouga consists of several networks and non-profit organisations. Entrepreneurship associations seem to be key players in the support of entrepreneurs.

Private as well as public organisations have played a role in the development of the entrepreneurship infrastructure in the region. The entrepreneurship infrastructure is of recent date and it doesn't seem very developed. In the beginning of 2000 some regional associations started to implement and develop projects in the field of entrepreneurship and business creation. EU-support have played a major role.

Main actors in regional entrepreneurship infrastructures:

1. *Private providers of business service and advice*
2. *The established business community, etc.*
3. *Governmental and semi-governmental organisations*
4. *Market facilitators* (networks, incubators, etc.)
5. *Knowledge institutions* (universities, vocational colleges, etc.)

Main actors in regional entrepreneurship infrastructures: Private providers of business service and advice

Evidence suggest that entrepreneurs and new firms benefit from good access to a broad selection of external business service providers. The private market for business service constitutes a key source of information and knowledge.

The study have attempted to answer a number of questions regarding the supply of private business advice:

- Do firms have access to a sufficiently developed supply of private business advice (quantity, quality and degree of specialisation)?
- How is the supply of business service providers distributed among the various types of services?
- Does entrepreneurs and new firms constitute an important group of customers to the private providers of business service?
- Do private business services providers offer any kind of services, materials or payment methods to accommodate the special needs and challenges of entrepreneurs and new firms?

Focus has been on the *knowledge-intensive business services* that can help firms grow and develop. Barbers, cleaning companies and similar sorts of businesses have been left aside. The study has distinguished between five types of private BSPs:

1. *Marketing services* (market research, PR, advertising, etc.)
2. *Legal services* (authorisation & licenses, legal advisory service, Patenting, etc.)
3. *Financial-management services* (accounting and bookkeeping, tax Consultancy, banking, etc.)
4. *Business-management services* (organisational consulting, search & selection, business management consultancy, etc.)
5. *Internationalisation services* (export advice, outsourcing of production, international market analysis, etc.)
6. *Engineering & technical services* (industrial design, IT-services)

The general trend is that **the supply of business services is considered sufficient**. In most of the regions the business service market is growing. Even though suppliers of the most specialised types of services can only be found at the national level, most types of services are usually available regionally.

While the regional reports provides a relatively good picture of the general supply of business services available to firms, the assessments of the quality, specialisation and "entrepreneurship preparedness" is much more difficult to estimate. Caution is therefore demanded when interpreting the results.

Main actors in regional entrepreneurship infrastructures: Private providers of business service and advice

While the regional reports provides a relatively good picture of the general supply of business services available to firms, the assessments of the quality, specialisation and "entrepreneurship preparedness" is much more difficult to estimate. Caution is therefore demanded when interpreting the results.

However, overall the results indicate that the providers of private business services predominantly focus on larger, established businesses. The surveys conducted in the Dutch and Danish region showed that nascent entrepreneurs and new firms constitute 21 and 22 % respectively. Given their share of the total population of firms this result is not surprising.

Private BSPs do not seem to take much action to enlarge their market towards new and nascent firms. The main reason seems to be that these firms have little money to spend on business service. Entrepreneurs and new firms are also regarded as risky assets, since they do not have a track record yet and still have to realise their market potential.

The literature as well as the regional reports indicate that it is important to distinguish between standardised (operational) services, and more specialised (strategic) services (Hjalmarsson & Johansson, 2003).

Standardised services seems to be readily available to entrepreneurs in most of the regions studied. Standardised services are relatively 'objective' in sense that they have a straightforward, clear and undisputed. This type of services include accounting, bookkeeping and other services that are unavoidable for the entrepreneurs. The providers act as experts in the interaction with the clients.

The bigger providers of standardised services have often developed special services and materials targeted at entrepreneurs. In Northern Jutland, for example, some of the big accountancy and lawyer firms have developed instruction leaflets and various kinds of standardised materials (budget sheets, standard contracts, etc.) to help entrepreneurs. These materials are typically available free of charge on the internet. Furthermore, private BSPs have shown a great willingness to participate as 'teachers' in workshops, seminars and other entrepreneurship activities in the region without receiving fees.

Furthermore, national associations of business service providers have taken steps to ease the access of entrepreneurs and new firms to standardised business services. One example is the German association of tax consultants (*DATEV*) that offers a comprehensive package to support the consulting of entrepreneurs. The main components included in the package are: check lists, database information and special software for the consultant-entrepreneur conversations.

Main actors in regional entrepreneurship infrastructures: Private providers of business service and advice

The supply and use of specialised and strategic entrepreneurship services are more limited. Strategic services such as marketing, human resources and management services are more 'subjective' and discretionary. The information is tacit and embedded in the relationship and the context in which the service takes place. Providers of specialised services act as 'sounding board', rather than as experts.

Entrepreneurs are often resistant to paying for strategic services. This probably has to do with the market price of strategic (customised) service as well as a assessment of own needs. It is easy for entrepreneurs to be unclear about whether they need strategic services. Entrepreneurs seem to understand that the advice the consultants provide them depends on what the entrepreneurs tell them. Many entrepreneurs therefore conclude that they can figure it out for themselves since they are working with the same information.

The study indicates that entrepreneurs seeking strategic and specialised advice prefer to use peers and experienced mentors.

When entrepreneurs seek strategic advice networks or incubator organisations often serve as the main channel. Through these types of organisations entrepreneurs get access to peer groups and experienced mentors. Sometimes the networks include private BSPs as well. This is the case with Communitech (Kitchener-Waterloo) and Incubator3+ (South-East Noord-Brabant & Noord Limburg) (See chapter on market facilitators).

The regional studies indicate that there's a **limited flexibility among the private BSPs with regard to payment and fees**. To the extent that private BSPs accepts flexible types of payment it is typically limited to either a free preliminary identification and preparation of the advisory needs of the entrepreneurs or a cut in fees for the first couple of consulting hours.

However, there are exceptions to this rule. One can be found in Northern Jutland. Here several private business service providers have agreed to provide entrepreneurs four hours of *"almost free" advice*. The advice typically takes the form of more standardised advice.

Main actors in regional entrepreneurship infrastructures: The established business community

A high level of commitment among the established business community seem to be an important factor in the development of a well-functioning entrepreneurship infrastructure. Established companies, CEOs and experienced entrepreneurs have played a role in all regions studied, but their specific role and importance varies from region to region.

Chambers of Commerce are well-established business community institutions in all the regional entrepreneurship infrastructures. Beside representing the interest of their members - the business community - they also offer various types of services relevant to entrepreneurs (e.g. start-up consulting) and act as important venues for networking and cooperation among established and new companies.

Large, established companies also seem to play a role in most of the regions. Their role extend to the generation of networks, business service institutions, technology infrastructures and mentoring institutions. Three examples are worth mentioning.

In the Jena region Jenoptik - a producer of optical equipment - has played a huge role in developing the micro-infrastructure after the reunification of the two Germanys in the beginning of the 90's. Jenoptik opened an Investment Center, which provided information and business service for investors, entrepreneurs and established firms. It has also been a key driver in the creation of networks among research institutions, established firms and entrepreneurs.

In the Noord-Brabant & Noord Limburg region Phillips - the multinational high-tech company - plays a pivotal role. Through downsizing in the 90s Phillips has played a key role in the generation of new businesses and the development of a business service infrastructure. In recent years the company has furthermore been a driving force in the regional innovation system through their open innovation model. Among other initiatives the former Phillips research campus has now been developed into an open innovation campus where outsiders can settle and use Phillips' and each others research facilities and knowledge.

In Kitchener-Waterloo home-grown multinational high-tech companies like RIM have made major contributions to the region. The contribution have focused on strengthening the regional technology infrastructure through university grants and less on direct support of entrepreneurs through mentoring and encouragement of employee entrepreneurship.

Main actors in regional entrepreneurship infrastructures: The established business community

Finally, the studies show that **CEOs of established businesses** and **successful serial entrepreneurs** constitute an important source of external business advice to entrepreneurs and new firms.

There seems to be a great willingness of resourceful business leaders to help and support entrepreneurs. Network and mentoring institutions exist in most of the regions.

In Kitchener-Waterloo prominent local tech entrepreneurs have been the driving force behind Communitech - a vast network that brings together virtually everyone who has a stake in the regional tech sector. Communitech runs +20 peer groups for CEOs or key executives in tech companies.

In Northern Jutland experienced entrepreneurs and CEOs of established companies have shown a great willingness to act as mentors through the government initiative EnterpriseCoaching and through the Kickstart-programme that is run by the University of Aalborg.

Network and mentoring institutions seems to serve as important channel through which entrepreneurs can get access to sparring and business advice from CEOs of established companies and experienced entrepreneurs. Evidence suggest that entrepreneurs value this particular type of advice very highly.

Main actors in regional entrepreneurship infrastructures: Governmental and semi-governmental organisations

Governments play a crucial role in the entrepreneurship infrastructure in all regions studied.

However, the **depth of public involvement** vary from region to region. The entrepreneurship infrastructure in Northern Jutland, Jena and Noord Brabant & Noord Limburg is characterised by a comprehensive public involvement whereas the degree of public intervention in Kitchener-Waterloo is more limited.

In most regions there seems to be a **coordination issue**. A wide variety of publicly supported organisations from various strands of government - supranational, national, regional, local - are involved in the entrepreneurship infrastructure. A lack of coordination between the operation and services seems to be a general theme.

Variation also exist with regard to the instruments employed. Typically, national (or regional) governments have established **online one-stop-shops** where entrepreneurs and new firms have easy access to all relevant types of start-up information. The Danish Startguide.dk (www.startguiden.dk) is one of several examples.

Governmental organisations only seldom act as direct providers of business service to entrepreneurs and new firms. Instead, governmental organisations often act as **facilitators**. The regional reports reveal that governmental organisations play a huge role in the initiation, funding and control of programs (chambers of commerce, networks, incubators, etc.) that provides entrepreneurs access to business service.

Federal policy in Germany serves as an interesting example on how governments can facilitate the creation of an infrastructure conducive to entrepreneurship. The German Federal government has allocated funding through regional competitions (fx "Entrepreneurial Regions"). Regional actors have to apply for funding by handing in a economic development concept. The best concepts then win the competition and the funding. Jena has won several competitions.

Main actors in regional entrepreneurship infrastructures: Governmental and semi-governmental organisations

Governmental organisations can also take a **broker role**. The brokerage model imply that governments seek to bridge the gab between entrepreneurs and private providers of business service.

The Enterprise Centre and the local chambers of commerce in Northern Jutland serve as good examples. Entrepreneurs are offered four hours free-of-charge guidance. The guidance is intended to clarify the entrepreneurs' challenges and advisory needs. The need-clarification is followed by an referral to private providers who then do the advisory service. The first four hours of private advisory service is subsidised by the government.

Vouchers are a third type of policy instrument. Among other things vouchers are employed to lower the cost of private business service to entrepreneurs thereby increasing the usage of business service.

Vouchers are fx used in Jena (an the rest of Thüringia). Students and unemployed who want to start their own business have access to a "consulting passport". The passport is worth up to EUR 1500 and can be used to buy private business service. The entrepreneur has to introduce his/her idea to a consultant from the local chamber of commerce who then in cooperation with the entrepreneur develop an individual program.

The program eases the access of entrepreneurs to start-up business service. However, the program has meet substantial criticism lately. The main criticism is that there is a lack of entrepreneurial substance among the new businesses. Furthermore, the public subsidies have attracted "low quality" consultants making it difficult for entrepreneurs to identify the good ones from the bad ones.

Main actors in regional entrepreneurship infrastructures: Market Facilitators (Networks)

Even though the literature provides no straightforward picture, the bulk of empirical evidence indicates that entrepreneurs who are able to draw on broad and diverse social networks are more successful in terms of growth and innovation than are entre-preneurs who do not have access to such networks.

Networks can contribute to the successful launch and growth of businesses through various mechanisms including

- *Social relationships and contacts*:

  Through networking with peers entrepreneurs can get access valuable information and knowledge (fx to identify good business service providers).
- *Professional relationships*:

  Networks can provide access to customers and suppliers as well as to business service providers.
- *Gaining legitimacy*:

  Networks are helpful in providing legitimacy to emerging firms.

Entrepreneurs will also benefit from a certain degree of networking among the providers of advisory services who have entrepreneurs as customers.

Linkages among various providers facilitates circulation, sharing and diffusion of relevant knowledge about entrepreneurs and the challenges that young dynamic firms face. Networking among the providers, furthermore, makes it easier for the entrepreneurs and their advisors to put together a highly qualified board.

A general theme in all the regional studies is the **presence and importance of formal and informal networks** in the entrepreneurship infrastructure. In every region several networks exist providing entrepreneurs, new firms as well as more established firms access to business information, advice and coaching.

Even though networks exist in all regions there are considerable **variation in the configuration** of the networks. The networks vary on a number of dimensions including:

Main actors in regional entrepreneurship infrastructures: Market Facilitators (Networks)

- *Target group*:

  Some networks are targeted towards all people, who plans to start - or are in the process of starting – a new business while others are targeted at entrepreneurs with specific characteristics (gender, industry, employment status, growth potential, etc.).
- *Size*

  Some networks consist of a small group of CEOs and are characterised by a high degree of confidentiality while others are open and include a wide variety of players such as entrepreneurs, BSPs, universities and established firms.
- *Purpose*:

  Some networks serve a "social" purpose while others serve as a way to provide entrepreneurs access to various sources of knowledge and learning.
- *Facilitator*:

  Some networks have been started and are operated by entrepreneurs themselves while public organisations have been the driving force behind others.

It is impossible from this study to make any clear-cut conclusions about the effectiveness and value of various types of networks. It is however possible to put forward some networks that have been praised in the regional reports.

Communitech is in the Canadian report described as the most important initiative of all in the Kitchener-Waterloo region. Communitech was established by local entrepreneurs in 1997 .Today it is the hub of the technology sector - virtually everyone with a stake in the technology sector belongs to the network. The network provides entrepreneurs access to established technology firms, investors, educational institutions and business service providers.

Among other things Communitech runs more than peer groups where CEOs in technology firms can network with like-minded. It also runs a Boot Camp - a training program for entrepreneurs - and Viatech - a program where the feasibility of entrepreneurs' business plans are assessed.

Main actors in regional entrepreneurship infrastructures: Market Facilitators (Networks)

The German **BioInstrumente ©** network constitutes a second interesting case. The network origins back to 1995 when about 20 local biologists, physicians and businessmen developed a regional concept to commercialise biotechnology. The idea was to develop a network within biotech instruments.

What makes BioInstrumente © an interesting case is the way it was formed. A federal government competition call BioRegio was the main impetus of the network. The Jena-network was formed to enter the competition and it won a grant of DM 30 mio. Today the network has 56 members and it has developed into a small cluster centered around the Beutenberg Campus at which there's also an incubator.

A third interesting case is the **CONNECT** network. CONNECT was first established in San Diego in the US but has since spread to a number of European countries, Denmark among them (from year 2000).

CONNECT Denmark is a privately run, not-for-profit organisation. It consists of a large network of private business service providers, large, established companies, entrepreneurs, investors, knowledge institutions, and public organisations. The members pay a sponsor-fee to take part in the network.

CONNECT provide knowledge-based entrepreneurs access to a number of activities of which springboards are the central. Springboards are events where entrepreneurs have the opportunity to present his/her business plan to a panel of specially chosen experts from the network. After the presentation the panel members provide feedback and advice on how the plan can be strengthened.

CONNECT's network constitutes a unique knowledge resource to entrepreneurs. At the same time it constitutes a resource that is undergoing an continuously development and strengthening through the members' participation in "springboards", "meet-the-researcher" arrangements and "board-of-directors" networks.

Main actors in regional entrepreneurship infrastructures: Market Facilitators (Business incubators)

Business incubators are a second type of market facilitators. The regional reports show that business incubators have been established in all regions. It is, however, very difficult to draw any clear conclusions about the effects of the incubators.

Business incubators are typically characterised by two common features:

1. *Flexible tenancy*:

   Typically, business incubators provide entrepreneurs and businesses access to individually adapted office space with flexible rental conditions.

2. *Common facilities and services*:

   In most incubators tenants have access to a number of facilities such as conference- and meeting rooms, front desk, and broadband infrastructure. Furthermore, incubators typically offers services such as cleaning, switchboards and mail delivery.

However, beside these common features considerable differences exist with regard to the size and configuration of business incubators.

Some business incubators are located at university campuses and are targeted especially towards high-tech and knowledge intensive start-ups and companies. NOVI in Northern Jutland, Technology & Innovation Park in Jena and the Research and Technology Park in Kitchener-Waterloo are good examples of such incubators. This type of incubators typically has a double purpose. They seek to ease the access of entrepreneurs to university-based knowledge and to support the commercialisation of university research.

Other business incubators focus more broadly. Their tenants are not necessarily knowledge-intensive firms. Often they merely offer cheap and flexible renting space.

In general, business incubators can provide value for entrepreneurs in at least six ways; through

- flexible rental conditions;
- access to common facilities and services;
- closeness to (and networking with) other entrepreneurs;
- access to advice from experienced management and staff;
- access to research and knowledge from associated knowledge institutions;
- access to the public business service system.

Main actors in regional entrepreneurship infrastructures: Knowledge Institutions

Universities and other knowledge institutions are emphasized as important players in all regions. The study point to three ways in which universities play a supporting role for entrepreneurs and new businesses.

Universities **produce skilled graduates**. Access to talented and well-educated people is a prerequisite business growth. Furthermore, it is important that universities instil entrepreneurial spirit and skills in their graduates. There is a huge growth in the number of entrepreneurship programs all over the world.

University research are an important basis of new knowledge-based start-ups (**spin-offs**). Research from universities and other knowledge institutions spills over into society through technology transfer and commercialisation.

Universities are important **network facilitators and participants**. Through a number of outreach programmes universities and other knowledge institutions facilitate and participate in network. Their network participation constitutes an important source of knowledge for entrepreneurs, new and established businesses as well as business service providers.

The depth of the study prevents us from going deeper into the discussion of the role of knowledge institutions in the entrepreneurship infrastructures. However, it is possible to put forward some examples from the regional studies of how universities can support entrepreneurs and businesses.

In Kitchener-Waterloo the educational institutions are pointed out as the single most important element in the success of the region. First and foremost, the four educational institutions produce a high number of high quality graduates. They are ranked among the best institutions in Canada.

Furthermore, the institutions produce an impressive number of knowledge-based spin-offs. One of the factors behind the high level spin-off activity is a policy of intellectual property liberalism that is practiced at the University of Waterloo. The policy allows professors who develop a new technology in the university's labs to own that technology and to create a spin-off commercial enterprise.

Main actors in regional entrepreneurship infrastructures: Knowledge institutions

Another example is the role played by the universities in the Jena region. In the year after the reunification of Germany the universities in the region where very influential in triggering the development of the entrepreneurship infrastructure. They have been the impetus behind - and serves as integral parts of - several networks.

The GET-UP network serves as a good example. In 1999 five universities in the region entered a Federal government competition named Exist with a proposal for the creation of an university infrastructure for knowledge-based start-ups in the region. They won the government funding and have since build a strong and comprehensive university-based infrastructure including entrepreneurship education, programs for the commercialisation of research and a number of outreach programs.

Overall findings and public policy implications

Overall findings and conclusions

The study has shown that regional entrepreneurship infrastructures are typically characterised by a broad variety of actors - private as well as public.

Entrepreneurship infrastructures first and foremost consist of providers of business service. Thus, *private business service market* are typically at the center of infrastructures. Private providers seem to be the main source of external advice to new as well as established firms. However, the private market are usually supplemented by other actors.

As mentors and coaches *experienced entrepreneurs*, *CEOs of large, established companies* and other *business leaders* constitute an important source of external advice to entrepreneurs and new firms.

Universities and knowledge institutions also seem to play an important role. They have usually established an infrastructure (courses, networks, incubators, etc.) to support knowledge-based entrepreneurship among researchers and students.

Finally, in most regions *governmental organisations* offer some forms of basic/general information and business service to entrepreneurs and new firms.

At the same time entrepreneurship infrastructures are typically characterised by a number of network organisations and incubators that are trying to ease the access of entrepreneurs and new firms to external information and advice. Often these *market facilitator organisations* are partly facilitated by governmental organisations.

Aside from these regional similarities, major interregional differences exist with regard to drivers, configurations and dynamics of the regional entrepreneurship infrastructures. Some of these differences have been outlined in this report.

In the light of these overall findings the next pages will sketch some overall policy implications.

Public Policy Implications and Learning's:

The main purpose of the study has been to enhance the knowledge of policymakers on the institutions and dynamics of entrepreneurship infrastructures. So what are the main learning's and implications for public policy?

First of all, there seem to be a clear tendency with regard to the characteristics of public intervention in the entrepreneurship infrastructure. Interventions made by governmental organisations increasingly take the form of **facilitation and brokerage rather than direct provision** of business service to entrepreneurs.

In all regions governments are involved in facilitating the access of entrepreneurs and new firms to information, advice and training from professional providers, business leaders or universities. Network organisations, incubators and other market facilitating organisations have been set up in all regions. Often they are initiated and funded by government but run by private actors.

In several cases the facilitating institutions have been initiated by private actors and only later on received public support. This is the case with Communitech in Kitchener-Waterloo as well as with Connect in Denmark.

The facilitation approach is generally conceived as an effective way of supporting entrepreneurs. It eases the access of entrepreneurs to peers as well as experienced and knowledgeable mentors. People that are typically trusted by the entrepreneurs. At the same time it mobilises creativity, know-how and resources additional to those of the public sector.

But this type of policy approach also raises some questions. One is whether the facilitating role is a permanent function or whether subsidies for networks, incubators and the like should only be temporary?

A second policy issue that is revealed in some of the regional studies is the **need for continuity**. The framework conditions for entrepreneurs have received a lot of attention in recent years. Public officials are continuously met with a political demand for new and strengthened initiatives.

When new initiatives are based on evaluation of strength and weaknesses of old programmes and leads to a strengthening of the entrepreneurship infrastructure this is of course beneficial. To often, however, new initiatives are the result of a political demand for new symbolic initiatives rather than a fact-based assessment. The result is often discontinuity, noise in the market and confusion among entrepreneurs.

Public Policy Implications and Learning's:

Thirdly, some of the regional studies reveal a need for **streamlining** among the governmental and semi-governmental organisations involved in the regional entrepreneurship infrastructure. They furthermore reveal a need to develop a higher level of **transparency**.

A wide variety of help desks exist, e.g. the Dutch study identified 26 governmental or semi-governmental organisations involved in supporting entrepreneurs and new firms. The many organisations involved in supporting entrepreneurs carry a real risk. From the perspective of the entrepreneur the many organisations easily seem like a confusing, non-transparent jungle. This calls for streamlining of the public involvement and creation of more transparency.

Fourthly, there is a policy issue concerning the **target and focus** of public entrepreneurship initiatives. Should public interventions be general or should it be targeted towards a specific group of entrepreneurs (high-tech, growth-oriented, etc.)?

There might be a need for a little of both. On the one hand, the group of entrepreneurs is very heterogeneous and so is there needs. The same "size" can therefore not be expected to fit all!

On the other hand, programs focusing on high-tech entrepreneurs and other attempts to "pick the winners" have met considerable criticism.

The study illustrates that the regional entrepreneurship infrastructures are typically characterised by a combination of the two approaches. Usually some kind of publicly-supported general service are available to all entrepreneurs at the same time as various more targeted programs exist for special groups of entrepreneurs, typically high-tech entrepreneurs.

As previously mentioned the configuration and challenges of the entrepreneurship infrastructure vary significantly from region to region. However, the entrepreneurship infrastructure in Northern Jutland can serve as an interesting example of some of the challenges related to the focus of entrepreneurship support systems.

In Northern Jutland there seems to have been put to much effort into developing programs targeted at the broad group of traditional entrepreneurs and toward the pre-start and start-up phase. On the other hand, almost no attention have been paid to the growth phases of new firms. The result seems to be a satisfactory survival rate but a low growth among the new firms.

Public Policy Implications and Learning's:

A fifth policy issue concerns the development of "**entrepreneurship competencies**" among business service providers. Surprisingly few initiatives are targeted toward the continuous development of providers' knowledge about entrepreneurship and the issues that entrepreneurs face.

Of course business service providers learn by doing and by participating in the activities of entrepreneurship organisations. CONNECT Denmark is a good example of this kind of learning process. However, the study leaves the general impression that there is room for a more focused approach to the strengthening of entrepreneurship competencies among business service providers.

A way forward could be to learn from the German approach where the bar association and DATEV, the association of tax consultants, play a huge role in arranging seminars and in developing packages that can be used to strengthen the consulting of entrepreneurs and new firms.

A final policy issue concern the limits of regional entrepreneurship infrastructures. The question is whether infrastructures might become too regional? It seems that in a global knowledge-economy there might be a need for **strong international linkages**.

Doubtless, a certain degree of local connectivity is beneficial. Local/regional anchored networks among key persons often seem to be determining prerequisites in the development of strong entrepreneurship infrastructures. It seems, however, equally important that the regional networks are strengthened with linkages to global networks. This seems especially important to the group of born-global entrepreneurs.

Entrepreneurs with a global growth potential often need very specialised advisory services that will only be available in a few highly developed clusters in the world. It is impossible for every region to develop all types of highly specialised business service providers. Therefore, it seems necessary to create access to those providers where they are located.