

Country report: Denmark

Introduction


This report has been written as a part of the Europe INNOVA Cluster Mapping Project. One part of the project is a mapping of cluster policies, cluster institutions and cluster programmes in European Countries.

For each country, a separate report has been written. Oxford Research AS in Norway has been responsible for the mapping of cluster policies. Oxford Research has developed the structure of the mapping and prepared the final reports. Most of the work has however been done by research institutes or consultancies in the different countries. These organisations are members of “The European Network for Social and Economic Research – ENSR” or partners in the Europe INNOVA Cluster Mapping Project.

Based on the national reports, the main findings have been summarised by Oxford Research in a separate report.

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Please find more information about the Cluster Mapping Project and the Authors of this report on:

www.clusterobservatory.eu

www.oxfordresearch.eu

www.ensr-net.com

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Main ministries responsible for implementing cluster policy	Finance/ Economy	Science/ Research	Trade/ Industry	Interior	Other
		X	x		x
Key agencies responsible for implementing cluster policy	The National Agency for Enterprise and Construction (NAEC), The Danish Forest and Nature Agency (DFNA), The Danish Agency for Science, Technology and Innovation (DASTI), The Danish Council for Technology and Innovation (part of DASTI)				
	Is cluster policy their only task?	Yes		No	x

Are there any national cluster programmes?	Yes	x	No		Number of programmes	1
Are there any regional cluster programmes?	Yes	x	No			3

Source of financing	National programmes	Regional programmes
National ministries	X	
EU structural fund		x
Regional budget		x
Business		
Other		x

Importance of cluster policy		Low	Medium	High
	National level	x		
	Regional level			x
Policy papers on national level	Yes		No	x
Cluster policy over time	Increased importance		Reduced importance	Shifted
				x
Since when has cluster policy been used?	1990-95	1995-2000	2000-05	2005-
	x			
Cluster development related to a particular person/organization?	Yes	x	No	
	Individual	x	Business org.	
	Political party		Agency	
	Research inst.			
Successful cluster programmes	The Competence Cluster programme in the County of Viborg, The 4-front region programme in Funen, The Øresund Science Region			

Is there a cluster or competitive council?	Yes	No	A general council exists
			x
Degree of obstacles when building cluster policy	No/Low	Medium	Important
General assessments of competitiveness?	Yes	x	No

Role of clusters as framework in policy areas	Low	Medium	High
Business network policy			
FDI attraction policy		x	
Export promotion policy			
Sectoral industry policy			
Science and education policy			x
Competition and marked integration			

Source: Oxford Research

1. Terminology

1.1 What is a cluster in Denmark?

In each country there will be one or possibly several **terms** or **phrases** used to describe clusters. In some cases, different terms represent “competing” perspectives on clusters and, as perspectives change over time, one term may gradually replace another.

In Denmark they are describing clusters in this way:

1. Clusters.

“Clusters” or “klynger” (in Danish) has historically not been used very much at a policy level. Today the term is becoming more and more recognized but still it is not used very much when we are talking about official national policy. At regional level the term cluster is today widely used when designing regional policies and regional strategies.

2. Competence clusters.

“Competence clusters” or “kompetenceklynger” (in Danish) was used in the 1990’s both at regional and national level. The term is not used very often anymore, as it has been replaced by the term clusters.

There have been a general confusion about the use of terms in Denmark – Competence clusters have in many ways been used synonymously with cluster – but in some senses the term Competence Clusters refers to a slightly different area closer to what, in the Porter theories, are called “Clusters of Competitiveness”

Today clusters are the dominant term – but the term is generally used in many different ways covering a wide aspect of regional industrial networks.

3. Resource-areas (National clusters based on selected NACE-codes).

The National Statistics Department and the National Agency For Enterprise and Construction used the term “Ressourceområder”/Resource-areas during the 1990’s. It was an attempt to start the building of a national based cluster policy oriented towards 8 overarching national clusters. Every 8 resource-areas were analysed at national and regional level. The outcome of the analysis was very broad studies - and partly because of this very broad approach to clusters the resource-area approach is no longer used in Denmark

1.2 What is a region in Denmark?

Denmark is a country with approximately 5.4 mio. inhabitants. The Country is divided into 5 administrative Regions – this level is in terms of regional development called the “regional” level in Denmark.

Below regional level Denmark is divided into 98 municipalities - this level is in terms of regional development the local level in Denmark.

2. Cluster development programmes and cluster organisations

In many countries, there are programmes set up specifically to promote cluster development. Such programmes can be carried out by existing **actors** (for example a government agency), or new actors can be set up to run them. Often, one of the purposes of such programmes is to help initiate **cluster organisations**, that is, the programme provides financing or otherwise promotes the formation of cluster-specific organisations, typically in some form of public-private partnership. A country can have many (even hundreds) of such cluster-level organisations in operation.

Below is a description of cluster agencies and cluster programmes at the national and regional level in Denmark.

2.2.1 Agencies for cluster policy implementation

Denmark has three main ministries, which are responsible for the formulation of cluster policies at national level: the Ministry of Science, Technology and Innovation; the Danish Ministry of the Environment; and the Danish Ministry of Economic and Business Affairs. Each of the ministries consists of numerous agencies.

The agencies responsible for cluster policies or initiatives are: the National Agency For Enterprise and Construction (NAEC) under the Danish Ministry of Economic and Business Affairs; The Danish Forest and Nature Agency (DFNA), which is part of the Danish Ministry for the Environment; the Danish Agency for Science Technology and Innovation (DASTI) under the Ministry of Science, Technology and Innovation; the Danish Council for Technology and Innovation, which is apart of DASTI.

The Spatial Planning Department under the DFNA is responsible for the National Planning Report (NPR), which outlines the government's spatial vision for the country. The previous NPRs of 2000 and 2003 recommended that communes and local districts [DK=egne] should develop spatial planning aimed directly at facilitating business-clusters. However, this recommendation has been modified in the NPR of 2006, where it is stated that not all business clusters have guaranteed positive prospect for the future, and not all places should be basing their foundation of living solely on existing clusters. (NPR 2006, p. 60).

The Globalization strategy of the government constitutes the national strategy to meet the challenges from the global competition and Denmark's demographic development. Despite its position as the central strategy in Denmark it has no explicit cluster elements. However, some components of the strategy have cluster-characteristics i.e. the strengthening of the cooperation between research-institutions and business enterprises. The Globalization Strategy is implemented through partnerships between the government and the regional growth forums.

However, none of the ministries or agencies mentioned above has national cluster development as their task per se. They have many focal points, which primarily have different centres of attention than cluster development. Nonetheless, there are links between these agencies and the cluster initiatives at regional level.

NAEC is responsible for enterprise and construction. It is working at developing a competitive growth-environment for Danish cooperation. The NEAC is divided into five focus areas, where the Centre on Regional Development is accountable for the Regional Growth Forums – and functions as advisor

DFNA works to promote sustainability in the administration of Denmark's historical and natural heritage. The DFNA is divided into six divisions, where the Spatial Planning Department (SPD) is responsible for the National Planning Report (NPR).

The objective of DASTI is to promote research and innovation of high international standards. Hence DASTI's intent is to create the best possible environment for research and innovation in Denmark and to disseminate it internationally. DASTI activities are, among other things, to improve the interaction between knowledge institutions and the business community. DASTI is involved in implementing the Globalisation Strategy. The agency also functions as a secretariat to a number of councils, commissions and committees. The Danish Council for Technology and Innovation (DCTI) is connected to DASTI in this way. DCTI promotes the dissemination and collaboration between research institution and the business community. Under DCTI there exists numerous innovation programmes – and as will be explained later one of them can be termed a national cluster programme.

The regional growth forums (RGF) on the other hand, are working with cluster development at regional level. One of the central tasks of the RGFs is to compile a regional strategy for business development, which is not a specific cluster development plan, but it might contain elements that supports cluster. The implementation of the strategy is done by other independent judicial units e.g. cluster organisations, entrepreneurial support organisations, the communal authorities.

Presently Denmark has six RGFs (One for each Region and one extra for the Island of Bornholm), which all compose of representatives from the business community, knowledge- and educational-institutions, local and regional authorities, and the unions and the employer's organisations.

2.2.2 National cluster programmes

If by national is meant support for clusters on a national scale it is fair to say that no cluster programmes exists today. In the 1990's the National Agency For Enterprise and Construction (NAEC) under the Danish Ministry of Economic and Business Affairs started up a range of analyses and strategies for the so called resource areas (8 national cluster defined by NACE codes), but this work never turned into real programmes and it is now terminated.

If by national is meant national support schemes for regional clusters there is one new programme under The Council for Technology and Innovation which can be termed a cluster-programme. (It is not called a cluster programme by the ministry).

The programme goes by the name “Regional Centres of Technology” (RCT)– and it is a follow-up programme to an earlier programme called “Regional Growth Environments”

The Council for Technology and Innovation administers numerous other initiatives facilitating innovation and dissemination of knowledge, but only the RCT can be classified as a cluster programme.

2.2.2.1. Programme name: Regional Centres of Technology

The RCT – programme is a national support-programme which facilitates supports to 13 regional centres of technology (RCT).

The RCTs are cooperation between business, institutes of education, knowledge mediators and other relevant actors within a specifically defined professional and geographical area.

- **Financing:**
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): the Ministry of Science Technology and Innovation finances 60 % during a period of two-four years. Through arrangements with local industry and local authorities the RTCs procure the remaining 40 % of their budget.
 - Budget: 74 Mio. in support from the Ministry in a 2-4 year period
 - Time horizon: 2-4 years
- **Actor:**
 - Programme initiator (who started it?) : Council for Technology and Innovation (administrator)
 - Carried out by which actor?: Council for Technology and Innovation (administrator)
 - Was the actor formed for this purpose, and if so, when? : No
 - Does the actor have other tasks apart from this programme?: Yes
 - Organisational set up at programme and project level: The RTCs are established by a consortium from the existing partners within the sphere of the centre. The overall responsibility for the consortium lies within in the board, which are liable for the strategic development. The secretary is responsible for the daily operation of the centre.
- **Scope and target:**
 - Geographic coverage: Local or regional coverage. Regions outside the bigger cities. Ambition of national coverage in the long term.
 - Policy focus (please see the table at p. 17 from the OECD report in the end of this document and relate your comments to this): The Policy focus can best be described as a mixture of the new regional policy approach and the new science and technology approach from the table. It is partly about building competitive regions and partle about creating networks between research and industri.
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining)? No.

- **Programme contents:**
 - What – give a short description?: The RTCs are working to consolidate the cooperation between research and the local business community. Furthermore, it is the goal that institutes of education should play a bigger part in the development of regional business. The establishment of fertile environments of competences and knowledge, which can facilitate growth in business areas, where the region has particular strengths and development potentials.
 - Activities – what are the prioritised areas?: No specific sectors are prioritised – what is prioritised is creating better business-research relations at a regional level – the selected areas are very much a result of the existing research institutes and the existing companies in the different regions. (Eg Tourism at Bornholm, Mobile Technology in Aalborg etc.)
 - **Ambitions/goals:**
 - More companies in the region should be part of development-cooperation jointly with institutes of research and knowledge.
 - Establishment of lasting connections between industry and institutes of research and knowledge, which will ensure future cooperation.
 - The initiated activities participate in the creation of innovation and growth in the regional firms.
 - The construction of specialised competences, which make the centres attractive and pertinent partners for firms throughout Denmark within their specific field of expertise.
 - The centres should have a central role in the regional business development and should be continued after the public financing has ceased.
 - **Target group:** SME's and R&D institutions
 - Is there a particular focus on SMEs? Yes. Especially support of innovation and development of, among other things, products, processes and staff-competences.
 - Level of R&D involvement: Knowledge transfer is very central to the programme. R&D institutions are important parts of all the technology centres
 - What does the programme offer the projects? (i.e. financial support, training): Financial support
 - Do the programme have any cross-country/interregional activity?: No cross-country activities, but possible for interregional cooperation.
- **Process:**
 - Based on applications or appointments?: Applications.
 - Top down or bottom-up approach in selection of clusters to support?: Bottom-up approach with applications
 - Main elements in applications if that is used:
 - 1) Regional initiatives – with the business community as a involved partner.
 - 2) A focus aim based on competences and development potential.
 - 3) Partly financing from regional actors is a requirement.
 - 4) Cooperation between leading knowledge institutions.
 - 5) Effective and visible dissemination of knowledge.

- **Evaluation:**
 - Results so far/conclusions from evaluations: New programme. Hence no evaluations presently. The programme predecessor “The Regional Growth Environments” has been evaluated. Information about this evaluation can be seen at this website: <http://fst.dk/site/forside/innovation/regional-innovation/regionale-vækstmiljøer>
 - Planned future: Running the programme

Websites for the national data:

<http://videnskabsministeriet.dk/site/frontpage> (Ministry of Science, Technology and Innovation)

<http://fst.dk/site/english> (The Danish Agency for Science, Technology and Innovation)

<http://fst.dk/site/english/councils-commissions-committees/the-danish-council-for-technology-and-innovation> (The Danish Council for Technology and Innovation)

<http://www.mim.dk/eng/> (Ministry of the Environment)

<http://www.skovognatur.dk/English/> (The Danish Forest and Nature Agency)

<http://www.skovognatur.dk/Emne/Planlaegning/> (Spatial Planning Department (only in dansk))

<http://www.skovognatur.dk/Udgivelser/2006/The-national-planning-report.htm> (The National Planning Report)

<http://www.oem.dk/sw184.asp> (The Danish Ministry of Economic and Business Affairs)

<http://www.naec.dk/> (The National Agency for Enterprise and Construction)

<http://www.globalisering.dk/page.dsp?area=52> (Denmark in the global economy)

[http://www.vibamt.dk/Farkiver/VAArkiv.nsf/a19479282c0e4bf7c1256bcd0023b7c0/163e65d1c8e8749dc1256fcb00348c3d/\\$FILE/teknologicentre.pdf](http://www.vibamt.dk/Farkiver/VAArkiv.nsf/a19479282c0e4bf7c1256bcd0023b7c0/163e65d1c8e8749dc1256fcb00348c3d/$FILE/teknologicentre.pdf) (Note: Draft - Regional Technology centres)

2.2.3 Regional cluster programmes

At regional level in Denmark the whole institutional setup is very new – a huge structural reform took place during 2006-2007. The newly established “regional growth forums” all have cluster strategies as a very important part of their regional development strategies. The growth forums are a new invention in Denmark, they have been working since 2006 but they really first start up in 2007. Because of this limited time aspect it is not easy to distinguish between the policy level and the programme level at the regional level in Denmark.

While the national cluster policies in Denmark appears rather weak the new tendencies at the regional level is that a very strong cluster focus appears. We have therefore spent some resources describing each of the recently formulated regional development strategies in Denmark (6). The strategies are formulated by the 6 regional growth forums, which were set up in Denmark during 2006. Some of the growth Forums has formulated specific cluster-programmes in addition to their strategies – but not all of the growth-forums have reached the point of making cluster programmes at this early stage.

We start off by describing the growth forums in general and afterwards we describe the strategies and the programme elements of each growth forum.

2.2.3.1 General information about the regional growth forums

At regional level in Denmark 6 new regional development actors were formed in 2006. It is a part of the new administrative structure, where the former 14 counties were merged into 5 administrative regions. However, in terms of regional development the Capital Region has two growth forums (Copenhagen and Bornholm). Hence, today Denmark has 6 growth forums responsible for the regional development.

Development of local growth is today anchored in the regions which have the obligation to involve local trade and industry, local governments, the labour market parties and the knowledge institutions in a growth environment. In this way the regional efforts within business development is meant to get a strong and broad local ownership.

The municipalities will be responsible for local business service where closeness and daily contact with the users are a priority. The regional business effort, including tourism, will be anchored in growth forums in the five new regions in which a number of stakeholders will participate. Central government continues to be responsible for the general growth policy, including cross coordination between business, education, transport and employment policies within the framework of the national growth strategy.

The growth forums consist of up to 20 representatives from the region, the municipalities, local trade and industry, knowledge institutions and the labour market parties. It is important that local trade and industry and the knowledge institutions are strongly represented in the groups. The regions have the rights to establish several growth forums within the same region (Which is the case with Copenhagen and Bornholm) and two regions are allowed to establish growth forums together. The regions decide whether the chairman of the growth forum should be an elected rep-

representative from the region (e.g. the chairman of the regional council) or a representative from the business sector. The regions provide secretarial service for the growth forums.

The growth forums must:

- Prepare a regional business development strategy based on the strengths and weaknesses of the region in relation to the business structure and the central growth environment. The strategy is part of the basis for the regional council's development plan and via the region; it constitutes an element in the national growth strategy.
- Continuously monitor the development of the regional growth environment to facilitate preparation and adjustment of the business development strategy.
- Develop and prioritise initiatives that improve the local growth environment, including development of the outlying areas by submitting recommendations to the region on how to use the available funds in the region for business purposes and to the state on how to prioritise EU structural funds.

2.2.3.2 South Denmark

Policy

The overarching vision in Region of Southern Denmark's strategy for business development is based on a strong focus on cluster development. Cluster development is the first of six focus areas and has three main objectives:

- Continuation of the transformation-process in the strong business-areas and in the established clusters.
- Development of new clusters.
- Cluster- and network-initiatives shall be developed through a strong engagement of firms in cooperation with institutes of knowledge and the regional authorities.

Programme

The Growth Forum of Southern Denmark has developed its cluster strategy as the centre of rotation in their strategy for business development for 2007-2008. Further, it is one of six focus areas, which also contain cluster elements. This cluster development plan will follow the path of three initiatives:

1. **Positions of strengths in Southern Denmark:** Support of lighthouse-projects, which can strengthen readjustment and renewal in the mature clusters i.e. access to new technology, development of competence, research- and innovation-activities etc. The effort will have special focus on clusters in the outskirts-areas.
2. **Emerging clusters:** Support of emerging clusters, which can develop into future positions of strengths. Co-financing of cluster-activities for emerging clusters organised according to their individual needs i.e. screening activities, access to new technology, collective branding etc.

Joint secretariat for emerging and potential clusters: Securing of the development possibilities of potential clusters. Collective and coordinated effort to give potential clusters tools and help to develop their cooperation through knowledge exchange, education etc. The secretariat shall function as the connec-

tion between potential cluster and innovation environments, entrepreneurs and research and educational environments nationally and internationally.

The Growth Forum decided in December 2006 to establish a cluster-programme for the region. The above-mentioned initiatives constitute the three central parts of the cluster-programme. However, the programmes shall collaborate to a degree, where they appear as one single system of cluster development, which deals with the different cluster-phases.

The clusters that will be part of Southern Denmark's cluster programme will be chosen after an invitation to tender. Presently the growth forum is in the midst of selecting among the applicants, which constitute the mature clusters within the regional positions of strength. They will be chosen during the summer 2007.

The process of choosing the clusters is a bottom-up procedure, where the applicant accounts for its own resources, competences and linkage to institutions of knowledge and the business community. The applications will be measured according to the following parameters:

- The foundation of resources in the cluster.
- The maturity of the internal relations in the cluster.
- Level of innovation and international orientation in the cluster.

These parameters are used to diagnose the condition of the cluster to a degree, which will ensure that future activities will be targeting the weaknesses in the clusters.

The next step for the applicants is to outline the scope of a project that they wish to file a petition of funding for. This project and the project management will have legitimate leadership of the cluster.

An external adjudication committee will evaluate the applications – each parameter will be judged on a point scale ranging from 1 to 7.

References:

Region South Denmark's Strategy for business development:

<http://www.regionsyddanmark.dk/wm205627>

Region South Denmark's Action Plan:

<http://www.regionsyddanmark.dk/wm205628>

Region South Denmark's Growth Forum's Cluster programme:

<http://www.regionsyddanmark.dk/wm211252&searchWord=klyngeprogram>

2.2.3.3 Central Jutland

Policy

Cluster policies plays an important role in the Region of Central Jutland, which is originates in a historical strong position for cluster development. However, the re-

gional strategy for business development is not drawn up as a cluster-strategy per se, but it contains numerous cluster-elements, which allows it to be characterized as a cluster-strategy. Moreover, 18 cluster projects have been chosen among the existing clusters in a top-down procedure.

The very recent development in the Region is the formulation of a cluster programme called The Central Jutland Cluster programme or The Regional Cluster Taskforce. This is meant to serve as the organizational centre of rotation in the development of potential and existing clusters.

Up till now the programme consists of two main elements: The Advanced Manufacturing Cluster Project and support for the defence industry cluster Centec.

The project “Advanced Manufacturing Cluster Project” stands out as it entails the development of new and existing industrial clusters throughout the region.

Programme

- Programme name: The Central Jutland cluster programme.
- Financing (in MDKK):
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): Regional 3, EU 2, Private 2, the government 3
 - Budget: 11 mio. Dkk.
 - Time horizon: Initiated primo 2007.
- **Actor:**
 - Programme initiator (who started it?): The Region of Central Jutland.
 - Carried out by which actor?: The regional cluster task force.
 - Was the actor formed for this purpose, and if so, when?: Yes. Was formed during the preparatory phase of the project.
 - Does the actor have other tasks apart from this programme?: No.
 - Organisational set up at programme and project level: The region cluster task force is cooperation between the regional authorities, the system for business service/growth house. A relevant actor in The advanced manufacturing project is the Australian industrial strategist Rodin Genoff.
- **Scope and target:**
 - Geographic coverage: Region of Central Jutland.
 - Policy focus: The approach is a mixture between the new approaches and the cluster approaches to science and technology policy and regional development policies. The focus is on both large and small firms and a very large focus on creating networks between companies and knowledge institutions.. More, there is emphasis on the support for start-ups of new clusters. The sector has a very big high-technological focus.
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining)? Embryonic, emerging and mature clusters are the targets.
- **Programme contents:**

The Advanced Manufacturing project is very innovative in the sense that a foreign industrial strategist is performing interviews and building cooperate strategies based on very detailed supply-chain analysis. The methodology, which has been a huge success in Playford, Australia, is for the first time implemented at a large scale in Denmark.

References:

Strategy for business development in Region Central Jutland:

http://www.regionmidtjylland.dk/files/Regional%20udvikling/Vækstforum/Publikationer/strategi_web_med_forside.pdf

Action Plan for Region Central Jutland:

http://www.regionmidtjylland.dk/files/Regional%20udvikling/Vækstforum/Publikationer/handlingsplan_web_med_forside.pdf

2.2.3.4 Northern Jutland

Policy

Clusters play a key role in the Growth Forum of North Jutland's business development strategy. The region has no cluster programme but cluster policies still play a main role in the strategic development. The Growth Forum underlines that clusters have a main importance for the region today. Furthermore, the last couple of years have seen the strengthening of some of the most important clusters in the region as well as the emergence of some promising clusters in the making.

Clusters within a number of sectors have been pointed out as an important strength in a SWOT analysis of North Jutland. The following sectors are emphasised:

- ICT.
- Food.
- Building materials.
- Metal.
- Tourism.

Clusters are treated as a priority subject in order to support their creation and development. The focus is on two different areas:

- The region will seek to support existing clusters within *the traditional industries* e.g. the food industry. It will also support the establishment of a cluster within industries, which are related to the sea in some way including fisheries and cargo transportation.
- The region wishes to maintain its privileged position within ICT and the formation of other high technology clusters is also a prioritised area. Health technology is an example of a possible stronghold in the future.

A number of concrete needs for several of the clusters mentioned above have been identified in the work leading up to the creation of the business development strategy.

- *The food sector.* Three main challenges exist for the food cluster:
 - Better cooperation with R&D institutions.
 - Creation of commercial networks.
 - Improvement of the ability to attract high-qualified labour and specialists.Efficient cluster cooperation will assist the region in achieving these goals. There is a need for a more coordinated cluster effort within the food area in North Jutland.
- *The building sector.* Traditionally there has been a lack of cooperation between the different agents within the building sector in North Jutland. The negative consequences of this lack become increasingly severe with a growing demand for innovation. The need for cooperation with especially universities and other higher education institutions is growing. Those collaborations, which have taken place, have led to positive experiences. Further cooperation should therefore be prioritised.
- *The maritime sector.* The cluster initiatives have revealed a need for cluster development. Steps towards this should be taken.
- *The ICT sector.* A number of challenges exist for the successful ICT cluster in North Jutland:
 - Difficulties regarding the ability to attract and maintain high-qualified labour.
 - Lack of knowledge of relevant collaborators.
 - Lack of tradition for cooperation in product development.
 - Lack of cooperation with other clusters in the region.It may be stated again that efficient cluster cooperation will assist the region in achieving these goals.
- *The health sector.* There is a cluster in the making within this area, but the institutional set-up is not very developed. Therefore, it is a prioritised area to establish better conditions for cooperation and knowledge sharing which also involves SME's.
- *Tourism/the experience economy.* As with some of the other sectors, an important challenge is to create a platform for cooperation. However this problem has been addressed by restructuring the organisation VisitNordjylland.dk. The organisation will in the future coordinate initiatives with relevance for this area.

Overall, the goal concerning cluster development is to strengthen the ability of firms to cooperate in business clusters and commercial networks. This will lead to an increased number of firms cooperating with regard to innovation.

References:

Strategy for business development Region Northern Jutland:

http://www.rn.dk/NR/rdonlyres/D8F67074-BCF3-46D9-9960-7FFB099D38A0/0/Vaekst_Balance_2007_final72.pdf

2.2.3.5 Zealand

Policy

Cluster policies play a different role in the Region of Zealand compared to the other Danish regions. A main reason for this is that there only is one solid cluster in the region: Seed-growing and processing. However, The Growth Forum of Zealand has pointed a number of prioritised areas, but none of these can be characterised as clusters.

The Growth Forum seeks in the first place to extent networks and cooperation between agents in the region – cluster development is seen in a longer perspective. The prioritised areas are the following:

- Energy and environment.
- Medico-health.
- Traditional industries – e.g. the metal industry.
- Tourism and the experience economy.

Though, it is worth noticing that the Growth Forum seeks to promote “cluster thinking” in the region of Zealand. Again, this is however not an actual cluster initiative, but rather an initiative targeted towards industries which contains cluster potential. The idea of establishing “cluster secretariats” is also considered as a future possibility.

It is fair to say that the growth forum of Zealand have a large focus on clusters, but due to the lack of functional clusters in the region the activities supported are more in terms of what can be called “clustering activities”

Sources:

The Growth Forum of Zealand: Business Development Strategy 2007-2010.

The Growth Forum of the Zealand: Plan of action 2007.

2.2.3.6 The Capital Region – The Copenhagen Region

Policy

Cluster development is one of the principles behind the business development strategy in the Capital Region. Cluster support has therefore been pointed out as the first of seven focus areas in the region. Clusters constitute a smaller part of the economic activity in the region compared to similar cities such as Helsinki and Stockholm, even though the region has a number of well developed clusters e.g. IT-service, biotech, telecommunication, FIRE (Finance, Insurance, Real Estate) and tourism. Strengthening new and existing clusters is therefore a priority for the region. Due to this, a number of goals have been set:

- The Capital Region shall be the leading growth centre in Northern Europe within fields with international potential.
- The importance of clusters in the economy shall increase.
- The cooperation between clusters and R&D institutions shall be improved.

- Embryonic clusters must be identified earlier and their importance for the economy and the employment shall increase.
- The region shall improve its ability to attract foreign companies and investment.

The Capital Region has no cluster programme but it has given priority to a number of initiatives:

1. A world class IT growth environment: Entrepreneurship within the IT sector must be improved in order to increase the importance of the sector for the economic development in region.
2. The interactive house: The object is to take advantage of the success of the Danish gaming industry by establishing a foundation for the further development of the cluster, but also for cooperation across clusters.
3. A centre for mobile and wireless communication: The region wishes to improve the mobile and wireless communication cluster by improving the connections between the industry and R&D institutions – both within the region, but also externally.
4. The IT business – a cluster analysis: The IT business is a stronghold in the Capital Region, but a more detailed analysis of the industry is needed in order to improve the growth conditions for the sectors.
5. The Bio-health cluster: This cluster has a substantial potential but improved tech-trans units are needed in order to fulfil it.
6. An international movie environment in the Capital: The region seeks to improve the framework conditions for the movie industry in order to make Copenhagen an international centre for movie production.
7. The fifth international fashion cluster: Copenhagen has potential to become the fifth international fashion cluster alongside New York, Paris, London and Milan. Knowledge centres, better educational opportunities and a more strategic use of user driven innovation are key areas.
8. Better interaction between the medico industry and the health sector: Cooperation must be improved if the Regions position is going to be sustained.
9. Development of the logistic and trade hub of Northern Europe: The number of firms and research institutions within this sector is significant in the Capital Region. There is however a lack of networks between the agents and this must therefore be improved.
10. ECO-innovation – Environment and energy technology innovation: Networks need to be strengthened within this sector like it is seen in the area of logistics. It is sought to create a platform for cooperation.
11. Foodstuffs, nutrition and health: An analysis of the potential for a cluster concerned with interaction between these areas is needed.
12. Innovative cooperation between the clusters in the region: The existence of clusters in the region is well documented. Though, an analysis of the potential for cooperation between different clusters is needed in order to get the most out of the clusters.

Sources:

The Growth Forum of the Capital Region: Business Development Strategy.

The Growth Forum of the Capital Region: Prioritised initiatives.

2.2.3.7 Bornholm

Bornholm is not a region in Denmark – it is an island with the population of about 40.000 people. Because of the remote character the Island has its own growth Forum – and although it covers a small population we will in the following describe the cluster strategies and the cluster programme of Bornholm.

Policy

Clusters are a central part of the business strategy of the Growth Forum of Bornholm. The strategy identifies four sources of growth (human resources, innovation, use of technology and entrepreneurship) and three framework conditions (transport infrastructure, a coordinated business effort and marketing), which are important in pursuit of economic development at Bornholm. These conditions and structures are to be utilized through the creation of clusters. The motivation for this strategy is threefold:

- The involvement of firms is regarded as important.
- It has been empirically proved that clusters create growth.
- There is a need to place the responsibility for creation of growth.

The business strategy will be followed up by a yearly plan of action.

Programme

The Growth Forum of Bornholm has drawn up the following cluster strategy on the basis of the strategy for business development:

- Programme name: Growth at Bornholm through clusters.
- Financing:
 - Source of programme financing:
The National Agency for Enterprise and Construction (50 %).
Regional funding (50 %).
 - Budget: 2.000.000 DKK.
 - Time horizon: January 1st 2007 – June 30th 2008.
- Actor:
 - Programme initiator: The Growth Forum of Bornholm.
 - Carried out by which actor: The Growth Forum of Bornholm
 - Was the actor formed for this purpose, and if so, when? No.
 - Does the actor have other tasks apart from this programme? Yes.
 - Organisational set up at programme and project level: Six work groups have been created:
 1. Regional articles of food.
 2. Agricultural business.
 3. Tourism.
 4. Experience economy.
 5. Engineering and technical science.
 6. Construction.

- Scope and target:
 - Geographic coverage: Bornholm.
 - Policy focus: Regional policy. To make the clusters at Bornholm independent with regard to economy and administration.
 - Are clusters in a certain stage of the lifecycle targeted? Only embryonic and emerging clusters are found at Bornholm.
- Programme contents:
 - A short description of the programme and its activities:
The programme consists of four parts:
 1. Cluster development programme. The aim of this part of the programme is to make the Growth Forum of Bornholm able to assist cluster creation. The Growth Forum will support embryonic clusters through conferences, meetings and learning processes. Clusters in a more developed phase will be supported through the facilitation of conferences which reaches across different clusters. The purpose is to support cooperation between different clusters.
 2. Information programme. The aim is to improve the accessibility to information concerning the cluster programmes and Bornholms business in general – both towards the firms at Bornholm and towards agents located outside the region.
 3. Subjects with relevance for all clusters. The lack of qualified labour is a problem for firms at Bornholm. The programme wishes to address this problem through a campaign.
 4. Facilitation of clusters. A facilitator will be attached to each cluster in order to support the development.
 - Ambitions/goals: It is the ambition to make 1-3 clusters that are administrative and economically independent.
 - Target group: All possible clusters at Bornholm.
 - Is there a particular focus on SMEs? Part 4 of the programme is expected to be of particular use for SMEs.
 - Level of R&D involvement: Low.
 - What does the programme offer the projects? Training, networking, marketing and guidance.
 - Do the programme have any cross-country/interregional activity? No.
- Process:
 - Based on applications or appointments? A chairman for each cluster has been appointed. This chairman has afterwards appointed the working group.
 - Top down or bottom-up approach in selection of clusters to support? Top down.
- Evaluation:
 - Results so far/conclusions from evaluations: No evaluations have been carried out so far, but some positive results have been observed – e.g. increased cooperation regarding education and employees between firms.
- Planned future: The cluster programme has just started.

Sources:

The Growth Forum of Bornholm: Business Development Strategy 2007-2010.

The Growth Forum of Bornholm: Project description of cluster development.

2.2.4 Successful cluster programmes

In a country there may be one or a few cluster programmes which are considered to be particularly significant or successful and are often referred to when cluster policies are discussed.

In Denmark no particular cluster programmes are widely recognized as being particularly significant or successful. The following cluster-programmes are worth mentioning:

1. *The Competence Cluster programme in the County of Viborg from 2002-2005.* (Today this County is a part of the Midjutland Region). This cluster programme is recognized as being very advanced regarding the monitoring and measurement system. For the first time in Denmark a comprehensive base-line study was implemented in order to make room for a result and effect-oriented evaluation after the programme – period. The advanced methodology has been used in building up the methodology for monitoring the Norwegian NCE-cluster programme.

Source: Presentations at the methodological working group for the NCE-programme in Norway, <http://www.erhverv.viborgamt.dk/sw15358.asp>

2. *The South Denmark Cluster programme* (Very new programme).

This programme is widely recognized as being among the most ambitious in the new regional development structure in Denmark. The programme is based on a bottom-up approach, which means that potential cluster organisation has to make comprehensive applications to the regional growth forum if they want to receive regional funding. It is a very broad approach – it is basically up to the cluster organisation themselves to define why they should be recognized as a cluster-organization and to present strategic perspectives that make it is worthwhile gaining support from the regional funding.

It is really too early to regard this programme as a success, but it is worth mentioning because of the effect the bottom-up approach has had on the forming of cluster organisations in the region. The application period has just ended (March 2007) and in this period the region has experienced a very large focus on “cluster organisation building” and development of cluster strategies from the newly build organisation.

Source: Different presentations and discussions with the Development Manager of the South Denmark Region (Kjeld Zacho Jørgensen) And the responsible for the South Denmark Cluster Programme (Stefan Brendstrup)

3. *The 4-front region programme in Funen.* (Now a part of The Region South Denmark)

The 4Frontregion, situated in Southern Denmark, is in the vanguard of innovation in four key areas: biotechnology and life sciences, robotics and production technology, communication and IT, and horticulture.

The 4Frontregion offers a unique environment for a flourishing collaboration be-

tween research institutions, companies and public authorities. Our region exemplifies innovation from Denmark - from science to business.

The 4Frontregion has as a cluster umbrella organisation in Denmark been relative successful because they have made it possible for 4 small emerging clusters to develop in a positive manner – these 4 cluster organisations have been operating and developing for 6-7 years.

Source : <http://www.brobyggerprojektet.dk/wm108312>

4. The Øresund Science Region

Øresund Science Region is a cross-border initiative that aims to bring together regional authorities, businesses and universities. This so-called 'triple-helix' model is a focused approach to cooperation between universities and the surrounding society. The aim is to promote a knowledge-based economic development in the region

This is an umbrella cluster organisation building transnational links between the Copenhagen Region and the Skåne Region in Sweden. The organisation is widely recognized as very successful in the matter of creating one common research and knowledge market across national borders.

Source: <http://www.oresundscienceregion.org/sw6563.asp>

5. The mobile and Wireless Cluster organisations in Northern Jutland

In the Northern part of Jutland there has in the last 15 years been an ongoing focus on IT, mobile phone technologies, wireless technologies etc. Different types of cluster organisations have in this period created an ongoing flow from the University of Aalborg to the local business environment, which is above the normal in Denmark. It is not possible to point out one significant successful organisations – but the combined cluster/triple helix approach is widely recognized as a success in what is now called the North Jutland Region

Source: <http://www.4frontregion.dk/wm1>

2.3 Cluster policies

Above the level of agencies and programmes is the policy level. On the policy level, plans and strategies are developed in the form of policy documents, directives and legislation, rather than concrete programmes and organisations.

There may be one overarching policy for clusters, a “cluster policy”, outlining specifically how cluster development should be pursued. In addition, clusters may form a framework in a long range of policy fields. Primarily, this is often the case in three key areas: innovation and technology policies, regional economic development policy, and entrepreneurship/SME policy. However, it can also occur in many other policy areas.

2.3.1 Overarching cluster policy

At national level cluster policy is not very high on the agenda. At regional level the situation is just the opposite – the newly established “regional growth forums” all have cluster strategies, which are very important parts of their regional development strategies. The Growth Forums are a new invention in Denmark, they have been working since 2006 but they really first start up in 2007. Because of this time aspect it is not at all easy to distinguish between the policy level and the programme level in the Danish Regions. In dot 2.2 we have therefore summarized the main parts of the strategies made by the 6 regional growth forums in Denmark. Some of the growth Forums have formulated specific cluster-programmes in addition to their strategies – but not all of the growth-forums have reach the point of making cluster programmes at this early stage.

Published policy papers on national level, public and/or official studies and reports i.e. where the cluster approach is as part of innovation policy:

In April 2005, the Government set up a Globalisation Council comprising representatives of all sections of society with the task of advising the Government on a strategy for Denmark in the global economy. On the Council, the Government has put together important groups in society across traditional divides: employers together with trade unions, and representatives of the major educational and research areas and companies alongside each other. In a total of 14 meetings, the Council has heard contributions from 48 international and Danish speakers and held discussions with 111 representatives of organisations and other individuals specially invited to the meetings.

In 2006 the Danish Government launched an ambitious and pro-active strategy to gear Denmark for the future: “The globalisation strategy”, which was published in April 2006. It contains 350 specific initiatives, which entail extensive reforms of education and training programmes as well as research and entrepreneurship, and also

substantial improvements in the framework conditions for growth and innovation in all areas of society. The main report of the strategy - “Fremgang, fornyelse og trykghed”- is available only in Danish. The publication, “Progress, Innovation and Cohesion Strategy for Denmark in the Global Economy - Summary”, is a translation of the summary of the strategy. The globalisation strategy is a result of the work in the Globalisation Council, set up a year earlier.

The Globalisation strategy of the government constitutes the national strategy to meet the challenges from the global competition and Denmark’s demographic development. Despite its position as the central strategy in Denmark it has no explicit cluster elements. However, some components of the strategy have cluster-characteristics i.e. the strengthening of the cooperation between research-institutions and business enterprises. The Globalisation Strategy is implemented through partnerships between the government and the regional growth forums.

Source: <http://www.globalisering.dk>

Main aim of the state in the design of any cluster policy :

As earlier mentioned cluster policies at national level is not much used in Denmark today. The cluster-elements that can be seen in the overall growth strategy are aimed at different issues. Clusters are seen as a mean to create more focused innovation in various regions and various sectors.

In the beginning of the 1990’s the industrial policy makers in Denmark started working with a framework-oriented approach to regional development. Working with the industry environment/ industry frameworks (DK=rammevilkår) was very much inspired by the theories developed by Michael Porter. Since then clusters, resource-areas, competence-clusters, innovation milieus etc. have played a continuous role in the regional development policy in Denmark

2.3.2 Clusters as framework in three key policy areas

Innovation and technology policy at the national level is located in two agencies under the Ministry of Science, Technology and Innovation: 1) The Danish Agency for Science Technology and Innovation (DASTI); 2) The Danish Council for Technology and Innovation, which is a part of the Danish Agency for Science Technology and Innovation.

The policy orientation is partly the new approach (Financing of collaborative research involving networks with industry and link with commercialisation), and partly the Cluster programme approach (Usually high technology focus; Both take advantage of and reinforce the spatial impacts of R&D investment; Promote collaborative R&D instruments to support commercialisation; Include both large and small firms; can emphasise support for spin-off s tart ups).

The nature of the “New policy approach” is very much seen in the main programme called “Innovation Milieus” (DK=Innovationsmiljøerne). In this programme the

ministry spends approximately MDKK 155/year in the co-financing of 7 innovation and research centres in Denmark. Often the innovation centres are associated with the universities. The 7 innovations centres aims at commercialising research and development. Making commercial innovation instead of only inventions! For companies the Innovation Milieus offer capital, advice, knowledge and counselling.

The cluster programme approach is seen in the programme “regional technology centres” which is described in 2.2.2.1. This programme was earlier called the “Regional growth environment” and has in this since been going on since the beginning of 2001.

At the regional level the innovation and technology policy is located with the 6 regional growth forums.

Regional economic development policy:

At a national level the regional economic development policy is carried out by the National Agency for Enterprise and Construction (NAEC) under the Danish Ministry of Economic and Business Affairs.

The main policy approach and the nature of the programme is very much formed by the new approach for regional development: E.g. Building competitive regions by bringing local actors and assets together.

The establishment of the regional growth forums was very much a result of this new approach – the growth forums are in their nature about bringing local actors together.

The Growth forums are in fact the main actors of regional development policy in Denmark – and it is therefore very much a decentralized decision whether clusters are a framework or not in the regional development policies.

As described in the 6 regional development strategies cluster play a very important role in all the new Danish Regions – but this is not a result of a targeted national policy

Entrepreneurship and SME policy:

The National Agency For Enterprise and Construction (NAEC) under the Danish Ministry of Economic and Business Affairs is responsible for the overall entrepreneurship policy and the SME policy. As it is the case for most of the other policies the structure is quite new at the moment.

In 2007 each of the five Danish Regions has started up what is called a Regional Growth House – partly supported financially by the NAEC and partly supported financially by the Regions.

The Growth Houses offers targeted professional support for entrepreneurs and growth oriented SME's. The Growth Houses are meant to act as a big brother to the local entrepreneurship policies performed by the 98 municipalities.

The Growth Houses are expected to focus on the higher technology and innovative entrepreneurs and because of this specialisation it can therefore be expected that they will in time develop a cluster-approach. But it is too early to say whether this will be the case.

The Growth Houses are meant to act as a support facilitator so that the best public and private counselling become visible for the entrepreneurs. It is very important that the Growth Houses have to cooperate with private counselling institutes as banks, consultancies etc.

The different cluster strategies of the Danish Regions /Growth Forums all have close connection the SME policies.

Source: <http://www.ebst.dk/Vaeksthuse>

2.3.3 Clusters as framework in various policy areas

In Denmark cluster play a role as a framework in the business network policy. Clusters also play an important role related to parts of the Danish Science policy. Commercialization of science is a major policy area in Denmark – and in this respect clusters play a very important role.

FDI attraction policy:

Invest in Denmark is part of the Danish Trade Council in the Ministry of Foreign Affairs of Denmark. It is a global organization, which overall goal is to attract foreign direct investment in an effort to improve competitiveness for the Danish business community and contribute to the creation of attractive jobs.

Invest in Denmark concentrates its effort within three focus areas, where Denmark has proven global strengths: Life Sciences, ICT, and Renewable Energy. Each of these focus areas is based on internationally competitive clusters e.g. the Danish MedTech cluster, the ICT cluster and Wind Energy.

In many ways this can be seen as a national cluster approach to attracting foreign direct investments. The arguments behind the strategy are that strong national clusters are more interesting for potential foreign investors.

Source: <http://www.investindk.com/default.asp?artikelID=9664>

2.4 Cluster or competitiveness councils

In some countries, councils have been set up to promote a dialogue about clusters and competitiveness. Often, these councils have representatives from the government sector as well as from the academic world and the business community.

There is not a cluster competitiveness council in Denmark at the moment – but the following two organisations could be categorised as such:

1. *The National Growth Council* (before 2006 this was called 'The National Business Council'). (In Danish: Danmarks Vækstråd – before 2006 Danmarks Erhvervsråd)

The National Growth council is a very new organisation and has really not yet started working. The objective of the growth council is to secure coordination between EU-regional policy, national policies and the development strategies of the Danish Regions. The Growth Council has as a main objective to give advices and support to the national ministries about growth and innovation. The other main objective is to act as forum of knowledge-transfer for the Regional Growth Forums.

The predecessor to the Growth Council (The National Business Council) has been very successful at putting focus on different aspects of innovation. "User driven innovation" has been a very important focus area in Danish innovation policy since 2004 – and The National Business Council has been a very important player in putting this high on the Danish Agenda.

Clusters has up till now not been an important issue in the Growth Council or at the earlier Business Council. But, as mentioned elsewhere, the newly established Danish regional growth forums all have clusters very high on the agenda. When the National Growth Forum starts working as a mediator between the regions and the national government it could be expected that the growth forum will try to put clusters higher on the national agenda.

The National Growth Forum consists of members from local, regional and national governance; Education institutes, private companies, unions and employers organisations.

Source: <http://www.ebst.dk/erhvervsraad>

2. *REG LAB*.

REG LAB is a private initiative set up by a group of Danish consultants with national expertise on innovation, regional development, clusters etc.

REG LAB is a laboratory for anyone working with regional business development. REG LAB gathers, develop and communicate methods, ideas and "best practice" within regional business development. REG LAB has more than 120 members including Danish regions, municipalities, universities, colleges, business advice centres, committed businesses, regional innovation organisations, and companies.

REG LAB has over the last two years played a very important role with regards to putting clusters high on the regional agenda in Denmark. REG LAB has brought best practise experts from abroad and has implemented and communicated different cluster analysis in Denmark.

REG LAB has a board consisting of representatives from local, regional and national governance; Education institutes and Private companies.

Source: <http://www.reglab.dk>

2.5 Other policy issues

Sometimes it is considered as useful to know about any other issues that have an impact on clusters in a country. Such issues could be, for example, any macro economic policies that may be relevant for clusters (tax regimes, etc), or if any general evaluation has been made about a country's competitiveness and barriers to competitiveness.

Other policy issues that is relevant for the development of clusters in Denmark:

A strict financial budget policy have played a very important role at the national level – and a possible explanation for the lack of national cluster policy programmes could be a lack of financial short term arguments for spending public money on cluster programmes.

Orientation of cluster policy:

Compared to the current situation described in the previous sections, the national focus has shifted to a regional focus.

Main obstacles to the process of building cluster policy in Denmark:

The political preferences in the central government have been central to the national development policies – and during the last 10 years market oriented approaches have dominated.

Since the 1990's clusters have played a very important role in the regional development policies. Many of the 14 Counties had clusters as an important part of their strategies and programmes. It is a central theme in most academic milieus. There are critics and supporters – but it is widely recognized that clusters are a very important driver for innovation.

General assessment of competitiveness or barriers to competitiveness:

The so-called flexicurity-model has in many international competitiveness studies been seen as a main source of the relative good Danish competitiveness.

One main challenge in Denmark is the lack of knowledge transfer from the universities to the businesses. Many of the “old universities” has traditionally had their focus solely on research and education – society/business relations has not been a separate goal.

2.6 A special note on tourism

The above descriptions of cluster programmes and cluster policies in Denmark have one very important exception: Tourism.

Tourism as a sector has traditionally been separated from the industrial policy and the regional development policy at national, regional and local levels in Denmark.

At national level the organisation “Visit Denmark” works generally to promote tourism in Denmark. It is a matter of definition – but this organisation could in a strict sense be regarded as a national cluster organisation. Tourism is in this regard the only policy sector, which gains massive support directly from national level in Denmark.

Also on the regional level and the local level tourism as a sector has historically been addressed separately from the other sectors. There are many tourist organisations at regional level in Denmark – and some might call these organisation cluster organisations as well.

In this Country Report we have chosen to keep the tourism organisation apart from the traditional cluster organisations. The reason for this is that they work in a different manner – the main task is to attract tourism not to develop business.