Using clusters to address emerging industries and services

CASE EXAMPLES

October 2012

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CASE EXAMPLE: Cluster policy in Catalonia (Spain)

http://www.gencat.cat/diue/doc/doc_11907125_3.pdf

In order to support successful transformation of cluster initiatives in traditional/established industries, the Catalan government has applied a new strategy based on a series of competitiveness reinforcement initiatives at cluster and sector levels. This innovative policy approach aimed at catalysing bottom-up identification of growth areas, has assumed evolution of cluster concept from industry centred to market/concept grouping, from geographically concentrated to territorially diffused and from industry specific to cross-sectoral. Evolving and flexible concept of a cluster has been regarded an effective tool for designing and implementing competitiveness reinforcement initiatives. For the purpose of this approach, cluster initiatives have not been defined by sector or technology but rather by a common strategy, market trend, end-user market, etc. with strong cross-industry focus, transnational dimension and temporary limited co-funding decreasing with time.

In the framework of this strategy, the Catalan government has implemented different competitiveness reinforcement initiatives with various scope and objectives. Some of those initiatives have been targeted at groups of companies defined by alternative criteria (e.g. market, strategy concept, etc.). A good example of such initiative is KidsCluster, which brings together companies and agents that have a common end user market offering large variety of products and services for children and representing very different sectors like food, toys, cosmetics, school equipment, leisure, education, etc. This innovative approach stimulates networking and cross-sectoral cooperation between businesses and other actors to develop new products and services like for instance advanced learning services for children involving learning by doing as well as innovative methodology for learning foreign languages.

Another Catalonian case is apparel and textile cluster, for which the government has undertaken series of competitiveness reinforcement initiatives at cluster level to offset serious decrease in employment and decline in the industry which was historically based on manufacturing. One of such initiatives was aimed at identifying sustainable strategies inside a cluster and defining areas of support for transformation process. This initiative resulted in specific recommendations for developing a new strategy based on new services like branding, franchising, logistics, market research, vocational training for retail personnel, etc. This government initiative facilitated a new strategy led by cluster companies. New services and products emerged from the new demand created because of a strategic change from manufacturing to brand and retail following transformation of the traditional cluster.

Industrial renewal of the textile-clothing cluster was supported through a competitiveness reinforcement initiative, which paved the way for a new cluster policy in Catalonia for 2009 onwards.

A need for re-thinking and re-formulating cluster policy occurred as a response to the emerging market trend called a “new industry”, understood as the integration of manufacturing and production related services. This “new industry” became a target for new competitiveness reinforcement initiatives based on clusters.

The new trend, not exclusive to textiles, resulted from changes in the world economy due to globalisation, technological and structural changes and pressure to achieve sustainable economic growth. These changes forced companies to modify their business strategies and models substantially in order to become or stay competitive. Industrial sectors became more

internally heterogeneous with an increased focus on outsourcing and a shift towards services. "New industries" were characterised by a higher level of productivity than the economy average, and a blurring of the boundaries between manufacturing and services.

New cluster policy consisted of a series of initiatives aimed at improving the competitive advantage of a group of companies through their strategic re-thinking and continuous adaptation to challenges of the global market. The new policy also used competitiveness reinforcement initiatives but compared to previous years, a modification was made in the policy scope and focus in order to include companies from production-related services as the policy targets. The process of "learning by doing" was applied, with clusters being regarded as a tool not a result, to design and implement competitiveness reinforcement initiatives in a more efficient way.

In 2006, the Directorate General for Industry of the Catalan government officially decided to launch a competitiveness reinforcement initiative for the textile-clothing sector, which was going through a major crisis. This was effectively a pilot initiative for the new cluster policy officially launched in 2009. The decision on which competitiveness reinforcement initiatives should be implemented was based on the information obtained through mapping of the local industrial production systems in Catalonia, carried out in previous years by the Observatory for Industrial Foresight (OPI), the unit operating under the Catalan Directorate General for Industry, specialising in competitiveness analysis.

The new competitive reinforcement initiative in the textile-clothing cluster was implemented through existing structures established earlier for cluster support. The Observatory already mentioned provided the analytical work for Industrial Foresight (OPI), while the implementation of the action plan was carried out by the public agency set up to support Catalan companies (ACC1Ó)

The textile-clothing industry was traditionally highly clustered; involving nine local production systems (micro-clusters) and a number of agents like trade associations, technology centres, university and training centres, etc.

This initiative was innovative from the outset in terms of focus, which for the first time in Catalan policy was not on firms that were from the same area of business but were those sharing the same strategy or business model. Moreover, its geographical scope was not a micro-cluster but the whole territory of Catalonia. This initiative, being more pro-active than reactive, aimed at identifying growth patterns of the most successful firms, analysing their strategies and understanding their future challenges, in order to inform the sector as a whole subsequently about this way of competing.

The analysis carried out in the first phase of the project by the OPI, provided information on key forces driving the change in operations of the textile-clothing sector. Various competitive strategies were identified that firms used to follow that time such as: off-shoring to low-cost countries like China, India, Pakistan, etc., reinforcing distribution channels, focus on brand distribution channels, etc.). The general orientation was towards the brand of both product and distribution, which became a key factor in competitiveness, whereas companies with a "brand-oriented" strategy were tending towards integrating distribution in order to obtain their profit margins. The analysis highlighted that 'branding & retail' was the most successful strategy, built around branding and controlling the distribution channel. The analysis also showed that this kind of competition based on brand and control of distribution had affected other businesses and business environments, opening up opportunities for agents active in

logistics, brand management, point of sales management and specialized training in these new competitive areas. The study revealed that 130 firms in Catalonia actually followed or could follow the branding & retail strategy, although with different options.

A branding & retail strategy identified major strategic challenges for the companies. One challenge was the availability of human resources with relevant professional profiles that were different from those required by companies opting for an essentially manufacturing strategy, including personnel specialising in design, branding, sales channel management, marketing, advanced logistics, market intelligence, developing in-house software, supply chain management, etc.

Another challenge was about finance, as investors did not find the sector attractive mainly due to their lack of knowledge.

Based on these challenges, an action plan for the textile-clothing cluster was proposed with focus on two aspects:

- horizontal initiatives aimed at improving competitiveness of the environment in which firms operated

- specific actions to support companies wishing to re-direct their business towards a strategic model based on branding and retail

The unit responsible for promotion under the Catalan government agency for supporting enterprises (ACC1Ó) then implemented the action plan.

Competitiveness reinforcement initiative for the textiles-fashion cluster
Action plan

Market intelligence	• Spreading the use of market surveys and carrying out studies for groups of firms
New professional profiles	• Agreements with agents from the training environment • Encouraging public-private training initiatives
Shop location and management	• Scheme to reinforce brand distribution • Support for the installation of Information Systems
Purchasing and logistics	• Improvement of global purchasing (new profiles) • Promotion of collaboration among firms
Brand management	• Diffusion of environment agents (branding) • Brand programme (brand distribution channel)
Internationalisation	• Support for international market studies and entering new national markets • Collaboration in finding international agents
Financing growth	• Search for venture capital for growth strategies

Source: OPI, ACC1Ó and Cluster Development
Cited after: Clusters and Competitiveness, the Case of Catalonia 1993-2010

In the case of the textile and apparel cluster in Catalonia, new services did not emerge from planned policy actions but resulted from those bottom-up activities performed by the leading companies in the cluster to respond to major challenges. The role of public administration was to catalyse and reinforce these new services and make them available to other firms in the

cluster thus accelerating the transformation process. Such actions performed by the Catalan government included specific training sessions for the companies supporting strategic change and funding horizontal initiatives. The role of the regional government was to identify changes of business models and market trends through intelligence activities and accelerate what the market had already initiated.

With support received from regional authorities, the inward-looking traditional textile-clothing cluster became capable of successful transition into an outward-looking consumer-driven fashion cluster.

Lessons and experiences obtained from the textile industry have since been applied to other significant sectors in Catalonia, such as furniture and jewellery, which were facing similar problems and challenges.

CASE EXAMPLE: turisTEC Cluster, Balearic Islands (Spain)

http://www.turistec.org

turisTEC is a new cluster, which has built upon existing Balearic tourism cluster and booking system services. The new growth area, namely ICT specialized services offering ICT solutions for all tourism sub-sectors, has emerged bottom-up from specialized needs. The new ICT based service cluster is a spinning-out activity from existing cluster taking advantage of sophisticated and specialized demand. turisTEC has gained international reach as some companies have already started their internationalization activities following expansion of their main clients to such markets as Dominican Republic, Peru, Mexico, Russia, etc.

CASE EXAMPLE: Northwest Region of England (UK)

The Cluster Development Programme was launched in the framework of the Northwest Development Agency (NWDA) Regional Economic Strategy. The Programme was dedicated to priority sectors with the major objective to increase value added and productivity and to stimulate future growth opportunities resulting from converging markets/technologies. The priority sectors were identified in the Regional Economic Strategy, following significant evidence gathering and thorough assessment of how the whole region and sub-regions had been performing. Consultation process involved a wide range of stakeholders. A Regional Advisory Group was set up and involved in the process of strategy drafting. In addition, a range of consultation events was held to help the Region debate the document. A Draft Strategy was published and made available for public consultations and after feedback; a revised version of the Strategy was produced and launched following endorsement by the government.

Fourteen key sectors were identified with seven being named as emerging while the other seven as established ones.

Sectors named as emerging under the Strategy:

- biomedical/life sciences
- medical equipment and technology
- ICT/new media
- environmental technologies
- financial and professional services
- creative industries
- tourism

Sectors named as established:

- chemicals
- textiles
- aerospace
- automotive
- mechanical and other engineering
- food and drink
- energy

Initially NWDA planned for the Cluster Development Programme to focus only on the emerging sectors. However, experts argued that parts of the established sectors had similar

characteristics to the emerging sectors and therefore offered considerable potential for growth through combination of new market demands and new technology opportunities. The decision was therefore made to support all fourteen sectors in the Programme.

Northwest England policy recognized different cluster development stages. For emerging clusters, support was offered to regional cluster organisations to create networks, to reach a critical mass of active participants, to help the cluster achieve growth and make clustered companies perform better than their non-clustered counterparts.

After the growing stage, policy support became more focused on heterogeneity and diversity, to maintain the effectiveness of the networks, to identify and manage any cluster decline, and to help identify new growth areas and opportunities for renewal.

The NWDA policy instrument, the Northwest Cluster Development Programme, provided financing levels that were not pre-defined but were determined by needs and opportunities. This meant that there were no differences in financing levels and duration or in the process support for emerging sectors/clusters compared to established ones.

Regional cluster organisations received financial support from the Northwest Development Agency (NWDA) under the Cluster Development Programme.

Services provided by those organisations to cluster constituents to improve sustainability and competitiveness of the cluster/industry included:

Networking

- initiating collaboration with other cluster groups in the region and organisations across UK to link the cluster companies with other sectors to seek complementary competencies

- initiating and guiding discussions of issues and problems (discussion fora)

- organisation of matchmaking and networking events and thematic conferences

Knowledge Base

Innovation

- bringing together key resources and facilitating resource sharing

- promoting user-driven innovation, initiating projects and initiatives for user involvement in innovation processes and connecting to virtual platforms and resources like test beds for new products/services and qualifications

- delivering one-to-one consultations for business improvement

- assisting companies with strategic business plans

Raising Awareness

- disseminating information, updating members on the latest developments from government, public sector and other industry bodies and highlighting business opportunities (e.g. through communications, newsletters, access to webinars, etc.)

- transferring good practices

- providing access to data bases and directories

Marketing & Branding

- support for product showcasing at exhibitions and trade fairs and facilitating participation in foreign trade missions

- promoting member profiles

Representation including Lobbying

- sector representation and lobbying to national and regional government and industry bodies to ensure that the voice of companies is heard

Skills

- providing training (including vocational and workplace training) in collaboration with professional organisations

- improving availability of skilled workforce by influencing training and educational programmes and curricula in the region

- advertising job vacancies

Access to Finance

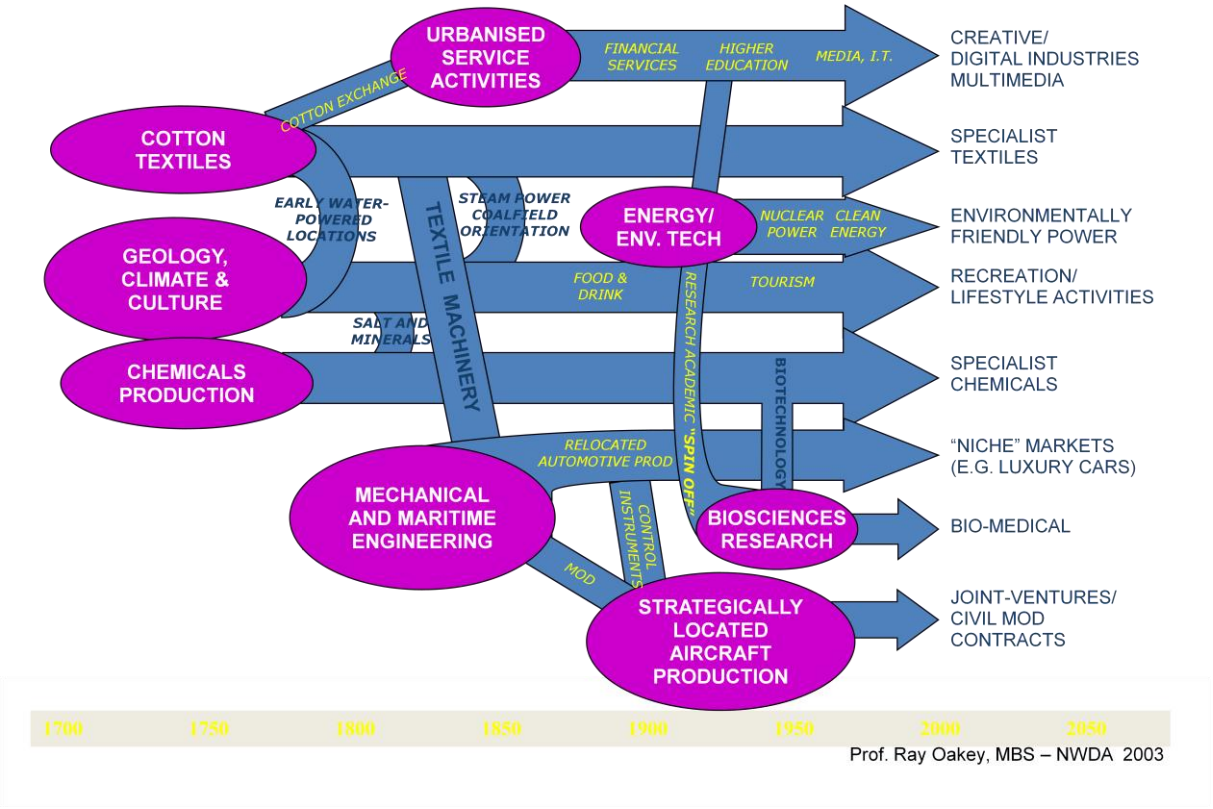
- help with accessing grants and applying for project funding

Project Management

- assisting in project management

In order to complement their direct support for cluster initiatives in the region, NWDA accomplished a mapping of cluster evolution over last several hundred years in Northwest England. It was a learning exercise undertaken in collaboration with Manchester Business School, University of Manchester, to discover some processes and patterns of growth that could help anticipate future trends. The is an example of how policy actions can explore the past to better understand the future.

Cluster Evolution In Northwest England: 1700 Onwards



Overview

The diagram is based on the analysis of cluster evolution in San Diego (USA) by Prof Michael Porter. In 2003, Prof Ray Oakey of Manchester Business School produced the diagram for Northwest England on behalf of the Northwest Regional Development Agency (NWDA). The diagram covers the period from the early 18th Century, which was the start of the Industrial Revolution in the UK, to the present day. The diagram focuses on the major clusters and the key changes that have occurred in the Northwest region. It omits the small clusters, e.g. the Clock & Watch cluster in Prescot.

Aims

- To understand how the clusters in Northwest England have evolved to produce the present-day cluster portfolio.
- To understand what factors and what types of factors have influenced this evolution.
- To understand therefore what factors could influence the future cluster in Northwest England.

Key Factors

- The industries in the early 18th Century in the Northwest were those that made use of local natural resources.

- Even when the early industries grew into major clusters, there was still considerable specialisation in the region.

- The major clusters have all changed over time and many have developed strong niche specialities.

- The early adoption of the factory system led to the rapid growth of urban services (utilities, banking & finance, healthcare, education, media & administration) and food processing.

- These urban services have all evolved over time due to the introduction of new technologies.

- Virtually all the higher educational establishments in the Northwest region have their origins in the early 19th century in universities and colleges funded by local industrialists. Many of the large companies in the region set up research centres. This created a significant research base for many of the clusters in the region.

- External interventions have affected particular industries.

- Early industrialisation created environmental problems that have led to the development of businesses in environmental technologies with the expertise and capacity to provide solutions.

Conclusions

- The present day clusters in the Northwest have emerged from earlier industries and from the overlaps between earlier industries

- Change is constant

- Clusters evolve; they do not appear from nowhere

- Initially clusters are driven by the availability of raw materials and skills

- Changing demand, in particular at local level, drives change

- New technologies can be applied in several different clusters

- External forces can influence industrial change

- Cluster growth comes mainly through the growth of niche specialities

- It is likely that the next generation of clusters in the Northwest will come from existing sub-clusters and overlaps between existing clusters. However, the impacts of disruptive technologies and external events have to be considered.

CASE EXAMPLE: VINNVÄXT Programme (Sweden)

http://www.vinnova.se/upload/EPiStorePDF/vr-11-17.pdf

Emerging industries have been a subject of the third call for proposals, *Initiatives in early stages*, under the Swedish VINNVÄXT Programme. Contrary to previous calls targeted at more mature clusters; this call has been dedicated to new cluster initiatives in emerging industries. No sectors have been pre-defined for the call by the Swedish agency Vinnova, the Programme owner. Although it has been decided that growth areas will be identified in a bottom-up process, specific requirements, reflected in the criteria, have been applied in the call in order to filter out cross-sectoral initiatives with excellent competence, renewal perspective and potential to become internationally competitive. One objective of the programme as a whole was that the winners should develop bottom-up their international competitive advantage based on their respective assets and areas of strength and this approach is similar to the concept of smart specializations.

Through evaluation procedure, the following four regional initiatives have been awarded as winners 2008:

• The Biorefinery of the Future (biorefineries based on forest raw materials and energy crops)

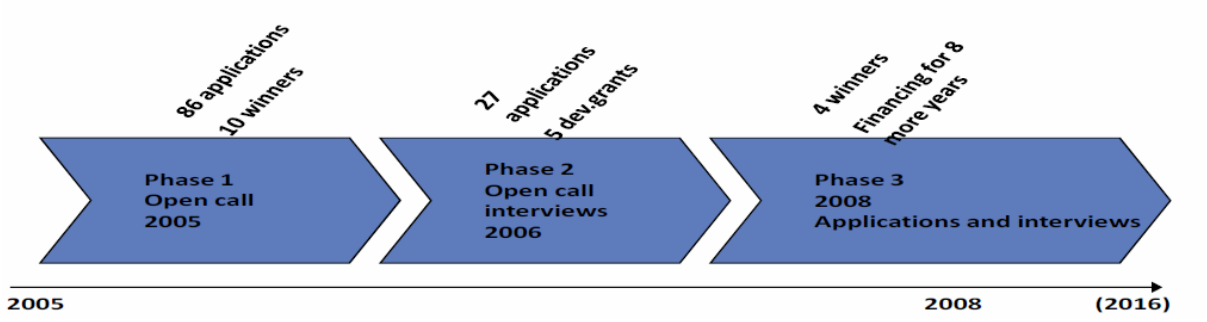
• Peak Innovation (research and business development in winter sports, tourism and outdoor pursuits)

• Printed Electronics Arena; PEA (commercialisation and exploitation of printed electronics)

• Smart Textiles (design, development and production of next generation textile products).

The example of the Swedish VINNVÄXT Programme, *Initiatives in early stages*, dedicated to new cluster initiatives in emerging industries, shows that application and support processes differ when compared to established industries. As it was very difficult to select early stage cluster initiatives that could be successful in the future, the call procedure was divided into three stages. In the first stage, implemented as an open call, project ideas were evaluated and ten applicants were selected out of eighty-six for financing in the form of minor grants. After one year, the second stage call was open to any applicants (not just those who received stage one grants). Five applicants were selected out of twenty-seven and granted a larger amount of funding (SEK 2m ≈ € 240k each for two years). The final stage of the application procedure resulted in the selection of four cluster initiatives out of the earlier five, which received funding for another eight years. The winning cluster initiatives were subject to assessment every third year and recommendations from the evaluation team formed the basis for a decision on continuation or termination of funding. The second and third stages involved interviews with applicants to obtain a picture of the initiative in its home milieu and to meet the other actors in the region.

More extensive process support was offered to cluster initiatives when compared to previous VINNVÄXT calls dedicated to more mature clusters. Process support included capacity building and leadership. Cluster organisations and managers received different course modules and individual coaching to help them mobilize different people and organisations to share the same strategic idea. There were also workshops and individual coaching on communication, visibility and branding. Some other supporting activities were provided to a broader group of regional stakeholders.



Source: Vinnova

Roles that cluster organisations actually have, or are expected to play, under the Programme can be summarized as follows:

Networking

- building a critical mass of interdependent firms
- inspiring and exploring collaboration opportunities with other industries
- support to enhance the scope of cluster activities
- initiating cooperation with other VINNVÄXT initiatives
- facilitating links between local firms and graduates/trainees at local universities/technical colleges (e.g. through locating summer secondments for students, developing internship programmes for supervised undergraduates to be working within local firms, etc.)
- benchmarking against other similar clusters operating globally

Knowledge Base

- university-industry bridging within and beyond the cluster (e.g. attracting complementary local companies and contacting them with universities)

Innovation

- establishing, operating and coordinating open innovation and meeting arenas (e.g. test beds, prototype factories, business labs, collaboration platforms, etc.) and linking national partners through arenas
- providing high-level coordination and filling any competency gaps that are not covered by other cluster members
- supporting commercialisation and entrepreneurship (e.g. help establish spin-outs from university as well as support for commercialisation of market driven innovations in existing companies)

Raising Awareness

Marketing & Branding

- cluster branding and PR
- attracting foreign investors

Representation including Lobbying

- reaching politicians and senior government officials and widening the cluster's influence

Skills

Access to Finance

- provision of funding and resources
- matching high growth companies with private investors (e.g. facilitating contacts between companies and individual investors willing to take equity positions, especially in firms located in close proximity)

Project Management

CASE EXAMPLE: STARS Programme of Baltic Sea Region

http://www.bsrstars.se/

In the case of Baltic Sea Region periodical reports and analyses on existing strongholds mostly relaying on historical employment and productivity data, have not provided a basis for identifying future growth areas. Therefore, Baltic Sea Region Stars Programme has identified four broad cross-sector themes that encompass existing industrial potential and emerging growth areas while also providing relevance to societal challenges experienced by many BSR countries that need to be addressed. The priority themes include:

1) Cleantech and Future Energy
2) Wellbeing and Health
3) Future Transport
4) Digital Business and Services and Ubiquitous Solutions

CASE EXAMPLE: Innovative public procurement in Skåne Region (Sweden)

Innovative public procurement of meal delivery services for elderly people is an example of how the regional government policy in the Swedish region of Skåne addresses specific societal challenge. Elderly people represent a growing share of the Swedish population and many of them live independent lives in their homes. A problem has been identified of an increasing amount of elderly suffering from malnutrition during their final years, which results in health deterioration and necessity to transfer them to nursing homes. The general objective of the innovative procurement project was to reduce costs of elderly care and provide them better quality of life. The project has addressed a challenge of how to provide home-based elderly with proper nutrition and keep them healthy as long as possible thus prolonging their independent lives without additional care or assistance and reducing the cost of care in nursing homes. As a result of innovative public procurement, a business-driven answer to the specific challenge has been provided with the public sector having a role of a change agent. New services have been developed and implemented to supply ready-made frozen meals to homes of elderly people on a weekly basis.

The new area of growth/market niche has been identified through extensive discussion and consultation with relevant experts and stakeholders in the region, including staff members working with elderly people and with the involvement of a Working Group set up specifically for this purpose. Structured approach has been applied starting from a specific problem and careful investigation of end users' needs and through to feasibility and demonstration of market potential. An open requirement specification has helped provide suppliers with the necessary incentive to get involved in the development process and come up with new ideas and concepts.

The innovative procurement of food for elderly people in the Swedish region of Skåne is one of a number of pilot policy initiatives aimed at stimulating private sector to develop specific solutions that can catalyse the emergence of new products and/or services and market niches. The project was launched by Skåne Region in collaboration with the regional cluster, Food Innovation Network, and co-financed jointly by the regional government and the national agency Vinnova through the Innovative Procurement Programme.

The initial objective of the project was to investigate the possibilities and barriers associated with implementing innovative procurement of meal services for the elderly, as well as to test public procurement as a tool to boost innovation. It was expected that the innovative procurement of meal services would help expand the number of suppliers, as large companies mostly dominated the meal service market in Sweden. Another assumption was that allowing SMEs and innovative start-ups into the procurement process could result in new concepts and novel ideas. Using suppliers of different sizes working together created a better potential for new meal service solutions.

During the project a series of activities were implemented, such as the investigation of needs, skills gathering, and bringing relevant companies and clusters to address a shared challenge. The project started with the definition of a specific problem for which new products/services needed to be developed to address the specific requirements of elderly people. The public procurement process was carried out in three stages. The first stage, consisting in the identification of needs, was done through a dialogue between procurers and staff members working with elderly people and supported by a feasibility study. During the second stage, aimed at tender development, an outline of a procurement specification was prepared as well as recommendations on possible alternative approaches, e.g. the possibility of joint

procurement or collaboration with other Nordic countries. Unlike in existing products or services, a very open approach to procurement specification was preferred to encourage potential suppliers to become involved in the development process. Such an approach allowed for obtaining feedback on technical feasibility and availability, and better alignment of service development with user needs. Early supplier involvement was a form of incentive to bid for the procurement in the tender launched on a competitive basis. The implementation stage of the procurement included evaluation of developed solutions and dissemination. The whole process resulted in the development of a commercially ready solution, which was then purchased by Skåne Region acting as the first customer.

Through the innovative procurement initiative, the Skåne regional government supported a group of companies/cluster that wanted to be a part of a common initiative (or platform) formed to develop new services.

The role of the Skåne regional government in innovative procurement was to define the problem, build partnerships and seek involvement of different suppliers including leading cluster and other stakeholders, provide a critical mass on demand side and ensure through proper requirements that all potential bidders had equal chances in order to allow smaller local producers to compete.

Other policy actions implemented by the region to stimulate involvement of SMEs in innovative procurement include support for capacity building and skills development. As different industries and skills are needed to develop together products/services of tomorrow, the Skåne regional government supports enterprises, especially SMEs, to prepare for competitive bidding for public procurement. This includes improving their capabilities to cooperate and create partnerships through projects that bring together companies and clusters from various sectors with the objective to find partners for developing joint solutions and setting up projects.

Such a smart policy stimulates the demand side of innovation more pro-actively, encouraging high potential start-ups and growth companies to engage in innovation processes.

CASE EXAMPLE: Veneto Region (Italy)

http://innovetionvalley.com

Veneto region in Italy is the example of how economic structure of the region has been transformed from manufacturing industries to a creative hub. Veneto is a home for such traditional clusters and industries like furniture, shoe manufacturing, textiles, ceramics and mechanics.

New growth areas have been identified through bottom-up activities of mature companies wishing to renew and upgrade manufacturing activities through investments aimed at valorising existing skills and other intangible values (e.g. design, communication, new media, branding and marketing, etc.). In order to increase awareness of such competencies, link together and connect business with specialised research organizations as well as adequately communicate the industrial renewal process, enterprises from different sectors organized themselves into a common platform called INNOVeTION Valley. The platform has a role of strategically planning and activating creativity-based innovation to help local economy achieve a strong competitiveness in a globalized context. Outcomes of the initiative include a new generation of service companies that actively support building these valuable competencies that allow the transformation of existing businesses.

INNOVeTION Valley in Veneto region, a bottom-up initiative with the objective of shifting the focus from manufacturing to creative industries, has created a network of private and public organizations around the following shared vision statement: *"North-East of Italy is the area with the highest degree of creativity in the world"*. Regional and provincial administrations have taken the role of sponsors of this self-funded initiative by providing minor financing for the implementation of this shared vision for re-branding of the region as a creative hub far from the traditional manufacturing image. As well as improving public perception by conferring credibility and legitimacy, public administrations are including the initiative in their policy agendas linking effectively the set of company-driven actions to their policy instruments. Public organizations also help communicate the shared identity of the region and promote it internationally thus strengthening the "Made in Italy" brand.

CASE EXAMPLE: SPITZENCLUSTER Leading-Edge Programme (Germany)

http://www.bmbf.de/en/10726.php

The Leading-Edge Cluster Competition 2008-2015 (LECC) is a support measure launched by the Federal Ministry of Education and Research (BMBF) under the slogan *Germany's Leading Edge Clusters - more innovation, more growth, more employment*. Being a flagship initiative of *High-tech Strategy 2020 for Germany*, the competition has the objective to further advance technology and innovation capacity of the country through high-performance clusters formed by strategic partnerships between business and science.

LECC allows for bottom-up identification of new areas of growth as it has no specific theme focus being open to all industries and research fields. However, projects have to be relevant to one of the five following broad demand areas:

1) Climate and energy
2) Health and nutrition
3) Mobility
4) Security
5) Communication

Above demand areas, corresponding to global challenges, have been pre-defined in the *High-Tech Strategy 2020 for German"* which has involved all key stakeholders around a common idea.

The German Leading-Edge Cluster Competition (LECC) is an example of a direct support measure dedicated to research-driven clusters. The Programme supports collaboration and knowledge exchange across disciplines, technologies and institutions with the major goal of facilitating emerging industries. The idea behind the Programme is to bring together all key players from the innovation landscape in Germany in a cross-sector approach targeting global challenges and new market needs. Selected clusters are expected to contribute to tackling major global social and economic challenges, thereby bridging the gap between science and industry to shorten time to market and providing internationally competitive products, technologies and/or services.

The selection process was based on an assessment of common strategic goals and future development projects defined in a particular area of technology. In order to be successful, projects had to show the involvement of key players in the region's innovation and value-added chains. Applicants with the best strategies for future markets in their respective sectors were selected after being assessed against the following criteria:

- Significant financial involvement of industry (min. 50%),

- Planned projects build on existing strengths and lead to sustainable changes,

- Potential to increase in innovative capability and strengthen market presence in order to attain or consolidate a leading international position,

- Measures to develop and try out innovative forms of co-operation,

- Professional cluster management,

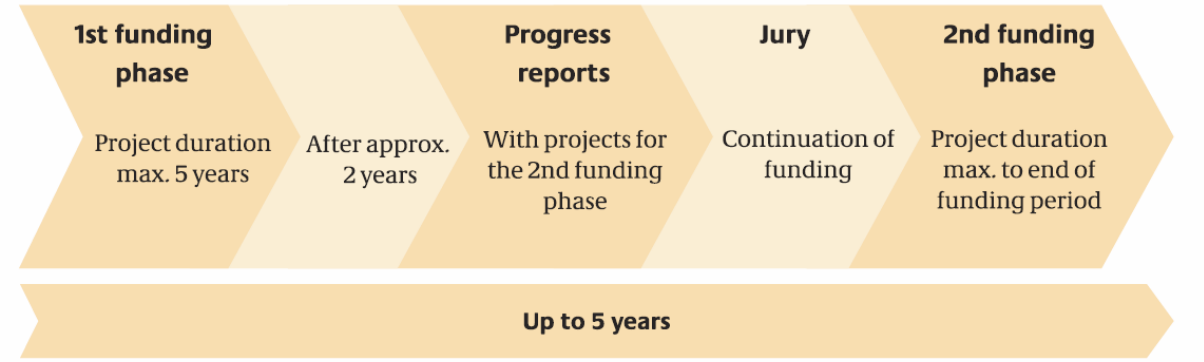
- Cluster-specific training, qualification and promotion of young talent.

The competition was organized in three successive rounds with the third round being successfully completed at the beginning of 2012. Each round resulted in five clusters being awarded leading-edge status. All fifteen winners were each provided with funding of €40 m from the Federal Ministry of Education and Research for a period of five years for the implementation of their strategies.

A two-step selection process was applied, with project outlines being requested in the first step. Following assessment of project outlines by the jury, fifteen applicants were asked to submit their strategies and descriptions of planned projects. The jury selected up to five out of fifteen applicants as leading-edge clusters. The winners were offered two-phase funding for up to five years with continuation depending on the results of progress evaluation after about two years.

SELECTION PROCESS

FUNDING PROCESS



Source: Bundesministerium für Bildung und Forschung

No specific process support was offered for the selected leading-edge clusters, however as with other calls under the Spitzencluster Programme, the winners received promotion by the Federal Ministry of Education and Research in a form of brochure presenting the winners as well as presence and information on the official website of the Ministry.

Apart from national funding, some winning clusters have received additional financing from relevant federal states. Moreover, it is expected that the projects that failed on the national level will be funded from policy support instruments on the federal state level.

According to the schedule, five winners of the first round have been due for interim evaluation. All of them have successfully undergone the interim evaluation thus being eligible for funding continuation. German authorities have been very happy with the evaluation outputs that have shown significant progress in terms of cooperation within clusters, performance on their joint research projects and implementation of innovative training programmes.

While very positive feedback about the LECC has been received from all involved, a proper impact assessment of the programme on the policy and cluster levels is still expected. However, some preliminary findings show that there is room for improvement. In particular, the programme needs to go beyond intraregional focus to increase interregional collaboration, networking and learning. Closer coordination of the strategy is needed with regard to internationalisation. Some improvement proposals are to include SMEs more effectively in the project results and give them support for entering international markets.

In addition, there is a need to combine the support available under LECC with improvement of the relevant framework conditions.

Examples of services provided and roles undertaken by cluster organisations in the framework of Germany's leading-edge clusters have been summarized below:

Networking

- networking, partner search and matchmaking, organisation of events
- seeking partnerships with strategic national and European research institutions and projects

Knowledge Base

- identifying cross-sector trends and themes
- creating cluster-specific technology roadmaps

Innovation

- rendering specific services for start-ups and spin-offs (including business incubation)

Raising Awareness

- spreading information and knowledge
- provision of databases

Marketing & Branding

- increasing cluster/region attractiveness for national and international investors
- providing sales and marketing support
- supporting cluster members to go global

Representation including Lobbying

- representing the cluster in national and European industry associations/bodies
- advocating to public authorities and lobbying
- coordinating representation of cluster members at international events, industry associations, expert committees and in the political arena

Skills

Access to Finance

- identifying funding opportunities at regional, national and EU levels

Project Management

- initiating, evaluating, coordinating and managing projects undertaken jointly by cluster members

The one-stop-shop approach is preferred with some services being rendered by cluster organisations themselves, while some other highly-specialized services needed for every phase of product lifecycle are sought from other entities through long-term collaboration networks (e.g. early stage financing, financial advice, technology advice, drafting business plans, validation of new solutions, specialized studies and analyses, patenting and patent management, etc.).

CASE EXAMPLE: Cluster programmes, Baden–Württemberg Region (Germany)

Cluster Initiative Competition is a regional cluster support measure launched by the Ministry of Finance and Economic Affairs in Baden-Württemberg federal state to strengthen regional clusters with best potential for the future. The programme objective is to promote innovation and boost regional competitiveness through cooperation between industry and academia and with other innovation actors such as business support organizations at regional level. The programme allows clusters for a bottom-up identification of growth areas since there is no pre-defined thematic focus of the competition and clusters in all fields are eligible. Apart from this programme, there have been several thematic calls for state-wide networks and cluster initiatives, mostly in traditional fields but also in those regarded as emerging industries.

On the other hand, the Ministry of Finance and Economic Affairs of Baden-Württemberg has commissioned from consulting professionals to provide a structured insight into most promising growth areas both in established and emerging industries. As a result, 18 sustainable target fields, subdivided in two groups, have been recommended as cluster policy focus for the region.

Recommended established industries:

1) Medical engineering
2) Information technology
3) IT applications and enterprise software
4) Automotive
5) Production technology (mechanical engineering)
6) Photonics (optical technologies)
7) Pharmaceutical industry
8) Microsystem technology/nanotechnology
9) Knowledge industry/business-related services
10) Biotechnology

Recommended emerging industries:

1) New materials/surfaces
2) Media, culture and creative industries
3) Logistics including intralogistics
4) Aerospace
5) Satellite navigation
6) Security technology

7) Telecommunication

8) Energy

In the Baden-Württemberg federal state of Germany where eighteen sustainable growth fields have been selected, policy measures include direct support by setting up funding programmes on state and regional/local levels. Such programmes have been launched for state-wide cluster initiatives in some of the identified fields, for example Media, Culture and Creative Industries, while for local/regional cluster initiatives there is no thematic focus.

It seems that direct support mechanisms for emerging fields in the Baden-Württemberg region do not differ when compared to established sectors in either financing levels or process support. However, Baden-Württemberg cluster policy recognises and focuses on emerging industries by offering a number of initiatives and instruments operated by the regional government agency, the Innovation Agency for ICT and Media (MFG). Some of such initiatives, relevant to both clusters and emerging industries, are listed below.

1) Baden-Württemberg: Connected (bwcon) is a European technology network connecting the business community with research institutes. The major focus is on the cross-sectoral use of technologies and interdisciplinary cooperation.

2) The European Creative Cluster Lab (ECCL) is a think tank and beta site for new approaches and processes related to creative cluster management in creative and traditional industries in Europe. The main objectives include testing and experimenting on new creative cluster management concepts, instruments and infrastructure in a lab environment through the following activities:

- *Incubation, Innovation and Creativity*: Performing analyses and studies of innovation processes in creative industries with relevance to clusters.

- *New Collaboration Approaches between Creative Clusters*: Testing concepts and process schemes for new collaboration approaches between Creative Clusters.

- *Cross-Sector Collaboration between Creative and Traditional Industries*: Developing concepts and process schemes for new collaboration approaches between Creative Clusters and traditional industries.

- *Managing Creativity and Creative Teams*: Designing and validating training concepts and coaching process schemes dedicated to managers of creative clusters and tailored to innovation processes in creative industries.

3) Creative Industries Network Baden-Württemberg is a networking initiative undertaken by ICT and creative sectors/clusters to support innovations that occur in the cross-section of different disciplines and user industries. The objective is to strengthen the sector-specific interdisciplinary exchange and dialogue and also to establish dialogues with and between different sectors. The Network provides an opportunity for enterprises from IT, media and creative industries to initiate effective collaboration with partners on joint development and marketing of new products and services, thus optimising their existing value creation processes.

4) Visual Computing Baden-Württemberg initiative boosts and strengthens links between universities, research and development institutes and industries from the region in

those fields of visualisation and simulation technologies that represent significant innovation potential for many sectors. The aim is to accelerate innovation by providing dynamic cross-sectoral exchange of information and fostering efficient collaboration between scientists and users.

5) MFG Visual Experience Lab brings together universities, companies and talents from the region with the objective of exploring current applications and technologies in the field of visualisation, simulation and animation.

To stimulate new cross-sector and cross-cluster initiatives and projects, MFG offers a space with proper guidance, facilitation and management, where different communities and people can come together and work creatively. Cross-fertilization platforms, think tanks and labs facilitate analyses and studies, information exchange and sharing, and enable development, experimenting, testing, validating and exploring of new ideas, concepts, approaches, processes, etc. The prime focus is on the ICT and creative industries/clusters that represent a huge potential for renewal and transformation of other sectors.

CASE EXAMPLE: Roadmap for energy research in Upper Austria

In the *Strategic Economic and Research Programme – Innovative Upper Austria 2010plus* a strategic focus has been put on the definition and strengthening research priorities and identification of new research areas.

Identification process consisted of the following steps:

- study on potential research fields in energy related technologies
- analyses and presentation of scientific and economic strengths of Upper Austria (study commissioned by the regional government)
- selection of research areas resulting from matching scientific and economic strengths of the region
- defining specific research topics in working groups on the basis of areas of strengths and potential research fields in energy related technologies

As a result of this process, following three new research areas have been identified for Upper Austria:

1) energy efficiency,
2) energy management,
3) renewable energies

CASE EXAMPLE: Technology Strategy Board - TSB (UK)

www.innovateuk.org

TSB is a public innovation agency established by the UK government with the aim to *accelerate economic growth by stimulating and supporting business-led innovation*. The TSB three-year corporate strategy 2008-2011 was aimed at driving innovation by connecting and catalysing, being focused on three themes: challenge-led innovation, technology-inspired innovation and the innovation climate. The current TSB strategy for business innovation 2011-2015 *Concept to commercialization* concentrates on five following areas:

• Accelerating the journey between concept and commercialisation

• Connecting the innovation landscape

• Turning government action into business opportunity

• Investing in priority areas based on potential

• Continuously improving TSB capability.

TSB has identified eighteen application and technology areas of interest for most of which separate strategies have been developed. *Emerging Technologies and Industries Strategy 2010-2013* is a part of this approach. Contrary to some prevailing broad concepts of emerging industries, this strategy pursues rather narrow approach focusing on technologies with disruptive innovation potential with the ambition *to help create entirely new UK industries from emerging technologies* or to help industrial transformation and renewal by developing *completely new markets for existing industries in the UK*.

The Strategy proposes no specific sectoral focus or thematic areas and concentration of efforts on industries that can emerge from disruptive technologies. All technologies arising from any field of research can be considered and assessed against the following four specific criteria:

- the UK has the capability to develop and exploit the technology (especially UK's competitive position globally and the ability to realise value from the resulting innovations)
- the technology has the right impact potential in the right timeframe (i.e. technologies that can enable disruptive innovations with market impact within seven-fifteen15 years)
- the technology has a global market potential (can lead to completely new value propositions of global significance)
- there is a clear role for the TSB to add value (to help accelerate the early stages of technology demonstration and commercialization to lay the foundation of new industries for the UK)

Instead of applying sector specific approach, TSB is focused on disruptive technologies and their potential to be adopted by existing industries as well as to result in new industries. Emerging Technologies and Industries Steering Group has been set up to help agree priorities and agendas with different UK bodies and allocate resources. Such coordination and national consensus building will form a basis for entirely new UK-based industries, strengthening existing ones and attracting foreign investment.

Clusters are mentioned in the Strategy in the context of achieving a critical mass of science, enterprise and investment and facilitating emerging industries through matching technologies with market opportunities.

Apart from a separate strategy for emerging industries, individual strategies developed for identified application and technology areas mentioned above are very much related to emergence of totally new industries and renewal of certain established ones.

The *Emerging Technologies and Industries Strategy 2010-2013*defines the connecting and catalysing role for TSB with the aim of turning the emerging technologies of today into the growth sectors of tomorrow for UK businesses.

TSB has identified specific issues that must be addressed to speed up commercialization of emerging technologies and shorten time to market thus providing a springboard for emergence of entirely new business sectors. In particular, their activities consist in improving support for early-stage, pre-investment, proof of concept work and helping researchers to find the best route to the market for disruptive ideas.

TSB has the role of coordinating the various actions of UK agencies under the Emerging Technology Programme to build a competitive position for the UK businesses in new high-growth industries based on new disruptive technologies. TSB strives to align existing support across various public bodies to ensure investments are made in the technologies that have the greatest national potential.

The focus of TSB is to:

- invest in technology demonstration

- build critical mass

- create a coordinated programme

- build and nurture capability.

The role of TSB is to bridge the gap between the various types of technology demonstrators and the market through the Innovation and Knowledge Centres (IKCs) that form an innovation ecosystem in which researchers, potential customers and skilled professionals from both academia and business can work side-by-side to scope applications, business models and routes to market. IKCs are centres of excellence that accelerate and promote business exploitation of an emerging research and technology fields. They provide a shared space and entrepreneurial environment as well as linkages with existing industry and investors in order to match technology with market opportunities.

TSB works closely with UK government departments to identify key areas of future procurement related to emerging technologies and industries that will be targeted under the Small Business Research Initiative Programme (SBRI). The SBRI is one of the instruments operated by TSB that is aimed at driving innovation through pre-commercial public procurement. Competitions under SBRI are based on the needs of specific government departments or other public sector bodies. Companies can bid to obtain fully funded development contracts with government departments. The two-phased development approach to procurement process starts with initial feasibility and can then move on to more detailed product development, supporting projects through the stages of feasibility and prototyping.

This phased approach helps minimize the risk that is shared by both the public body and the company. The whole process of pre-commercial procurement should result in a commercially ready product or service to be purchased by the government department.

Working closely with the investment community, TSB aims to help bridge the equity funding gap for early stage investment in new entrants like start-ups and spin-outs active in disruptive technologies. Instead of creating new sources of funding, TSB intends to help lower the risk and increase deal flow through support for high-quality demonstrator and IKC programmes.

TSB is committed to monitor its interventions and investment and perform impact assessment on the emergence of new industries and the upgrade of existing ones.

TSB also undertakes the tasks of defining requirements, and identifying gaps and needs for the improvement of skills and competencies.

Under the new strategy *Concept to Commercialisation: A strategy for business innovation, 2011-2015*, TSB implements mechanisms and tools supporting the renewal of established industries and emergence of totally new ones. Examples of such policy measures include: Knowledge Transfer Networks (KTN), SMART programme and CATAPULT centres all of which are hosted on _connect, a networking platform provided by TSB to facilitate open innovation, enable people to network, share information and knowledge and work together.

1) **Knowledge Transfer Networks**

   KTNs bring together people from businesses, universities, research, finance and technology organisations to form networks that are effectively national clusters in the identified fields of technology or business application. KTNs stimulate innovation through knowledge flow within, in and out of related communities as well as through the flow of people and experience between business and the science-base and across different sectors. KTNs link the supply and demand sides of technology-enabled markets driving new collaborations between enterprises with different backgrounds. KTNs offer networking and partnering opportunities for companies through targeted events, meetings and Special Interest Groups. Firms have free access to up-to-date knowledge and information on markets, technologies and funding opportunities through on-line services such as reports, newsletters, webinars/e-training, events diaries, e-conferencing, collaboration tools, general sector/application specific information, etc. KTNs provide a forum for an influential business voice where companies can communicate between their community and with government and EU institutions thus having the opportunity to influence national and European policies and regulations.

2) **SMART**

   SMART is a dedicated funding scheme for small and medium-sized enterprises (SMEs) to assist them to engage in R&D projects in the strategically important areas of science, engineering and technology.

   Successful projects must have the potential for boosting the UK economy through the development of new products, services and processes. Applicants have to prove that the project pushes the boundaries over and beyond current leading-edge world science and technology and/or is looking to apply existing technologies in new areas that are

relevant to emerging industries. To be eligible for funding, the project must be industry focused and present market prospects for economic benefits. Business opportunity has to be clearly outlined and the applicant should assess the extent to which the project is innovative from the commercial and technical points of view. Grants are available for three types of projects namely:

- proof of market,
- proof of concept
- development of prototype.

The scheme offers a certain degree of flexibility and opportunity to finance different phases of the project allowing the applicant in one category to apply later for funding for the same idea under another category.

Calls for proposals have been organised in responsive mode with no sector limitations, being open to proposals representing any research and development topic or technology area. In the future, the TSB may also consider using the scheme for themed competitions aligned with their priority areas.

While SMART grants are available only to single companies, including pre start-ups, start-ups and spin-outs, the scheme can provide a good inspiration for policy makers who may consider the development of a similar programme dedicated to groups of companies/clusters with funding possibly channelled through cluster organizations.

3) CATAPULT Centres Development Programme

Catapults are a rapidly growing network of seven technology and innovation centres, established and overseen by the Technology Strategy Board with over £200 million (€250m) of UK government investment over five years.

Catapults are centres of excellence to bridge the gap between business, academia, research and government. By promoting collaboration and knowledge exchange, the Catapults will enable progressive businesses and organisations to build new partnerships with reduced risks and to develop their businesses in a wide range of markets. They will use excellent university research to accelerate the commercialisation of new and emerging manufacturing technologies.

When the Catapults are fully established, it is intended that they will generate their funding broadly equally from three sources:

- Business-funded R&D contracts (i.e. contract research) won competitively

- Collaboratively applied R&D projects funded jointly by the public and private sector, again won competitively

- Core public funding for investment in the capabilities, know how, expertise and skills and long-term capital assets of the centre.

The Technology Strategy Board is establishing seven Catapults in the following areas:

- high value manufacturing

- cell therapy
- offshore renewable energy
- satellite applications
- connected digital economy
- future cities
- transport systems

All the Catapults are expected to be operational by 2013. Each Catapult will bring together a number of existing centres from across the UK, covering a broad range of technologies and expertise.

The High Value Manufacturing Catapult was the first to open in October 2011. There are seven partners who cover all forms of manufacture using metals and composites, in addition to process manufacturing technologies and bio-processing.

High Value Manufacturing Catapult Partners	Key Competencies:
Advanced Manufacturing Research Centre (University of Sheffield), Sheffield	High performance machining; Automated assembly; Advanced composites including Hybrid and MMCs and automated processes; Structural integrity testing; Virtual reality modelling of processes and systems
Nuclear Advanced Manufacturing Research Centre (Universities of Manchester and Sheffield)	Fabrication of civil nuclear components
Manufacturing Technology Centre, Coventry	Net shape manufacture; Intelligent automation; Advanced tooling and fixturing; Advanced joining techniques; Electronics assembly; System modelling and operational efficiency
Advanced Forming Research Centre (University of Strathclyde), Glasgow	Billet forging; sheet forming; precision forging
National Composites Centre (University of Bristol), Bristol	Design and manufacture of composites
Centre for Process Innovation, Wilton and Sedgefield	Chemical processing; biotechnology; printable electronics
Warwick Manufacturing Group (University of Warwick), Coventry	Lightweight product system optimisation; energy storage and management; digital verification and validation

The Cell Therapy Catapult will be based at Guy's Hospital in London. It will bring together leading academic researchers in Universities including Cambridge, Edinburgh, Newcastle, Loughborough and University College London as partners.

Cell therapies are best defined as the use of living cells as, or incorporated into, a medicinal product and they can have numerous uses including:

- Enabling regeneration of cells, tissues or organs (regenerative medicine)

- Delivery vehicles for other treatments (e.g. gene therapy)

- Modulating the immune system to treat cancers and infections

The Satellite Applications Catapult will be based at Harwell Oxford, the science, innovation and business campus in South Oxfordshire. The partners are the International Space Innovation Centre (ISIC), UKspace and the University of Surrey, in collaboration with a consortium of industry pioneers including; Surrey Satellite Technology Ltd (SSTL), Logica, Astrium GEO-Information Services, Nottingham Scientific Ltd (NSL) and Inmarsat Navigation Ventures Ltd.

Activities will initially focus on working with the SME community and end users to help them develop market leading satellite-based applications. The Catapult partners, based upon a broad consultation and available evidence, have identified four market sectors that are likely to provide an initial focus for the Catapult's activities: Traffic Management; Natural Resources Management; Disaster Prevention & Relief and Security & Civil Protection. Further market sectors will be added once the Catapult becomes operational.

The Offshore Renewable Energy Catapult will be headquartered in Glasgow alongside a number of organisations with complementary interests in the International Technology and Renewable Energy Zone (ITREZ) and will have an operational centre in the North East of England (Northumberland). The partners are the Carbon Trust, the National Renewable Energy Centre (NAREC) and Ocean Energy Innovation. The Catapult will also build strong links with centres of excellence in the UK such as the European Marine Energy Centre, Wave Hub, and the recently announced marine energy park in the South West of England.

The Catapult will focus on technologies applicable to offshore wind, tidal and wave power, in particular:

- Establishing a sustainable supply chain for the more established offshore wind sector in the UK

- Developing capabilities in marine power (tidal and wave) that will help UK business bring new products to market and export new technologies

Key Findings

- The focus of the Catapults is on commercialisation as well as developing new technologies.

- Existing centres with relevant expertise from across the UK are being brought together to create critical mass. It will be interesting to see if links are made in the future with complimentary centres elsewhere in Europe or outside Europe.

- The TSB online networking tool, _econnect, is being used to engage with businesses and academics.

- The areas covered by each Catapult appear to be broad but there will be a focus on niche areas within them. The areas have been selected based on technological expertise, market opportunity and the interest of the partners, especially businesses. They all build on UK centres of excellence with a track record of achievement.

- All the Catapults are technology based but four of them are about new services rather than manufacturing.

- The core funding is quite modest, as each Catapult will have several partners. The Catapults will need to leverage additional funding from a variety of sources.

- The involvement of businesses is very positive but this needs to be extended to include a significant number of SMEs.

4) Small Business Research Initiative Programme (SBRI)

SBRI is a programme that supports development of innovative solutions to specific needs of the public sector. Two-phased development approach starts with identifying a specific challenge and initial feasibility and is followed by a competition for new technologies and ideas that is open to the broad business community. After the assessment of all submitted ideas, those judged to be the most promising are awarded initial development contracts. Then it can move on to more detailed product development and should result in a commercial product or service. It is a fast track, simplified process that allows government departments and other public bodies to engage with business, especially SMEs and early stage companies, and provide funding for the critical stage of product development. A public sector body acts as the lead customer and is instrumental in helping the business develop its product or technology. The intellectual property is retained by the company, with certain rights of use held by the public body. The public sector can use SBRI to find innovative solutions by reaching out to organisations from different sectors. It is a recognised process that supports the public sector in procuring the development of new technical solutions and accelerating technology adoption. New ideas can be explored as the risk is managed through a phased development programme running a portfolio of the most promising projects. This is then turned into an open competition for new technologies and ideas that is open to the broad business community. The role of TSB is to provide technical support with competitions and help reach innovative businesses. This first feasibility phase contracts, Following a second assessment stage, a subset of these ideas may be awarded a second phase contract will generally be for the development of a prototype or demonstrator. After completion of the second phase, companies are expected to commercialise the resulting product or service which is taken to market and open to competitive procurement.

5) _connect

_connect is a platform for open innovation that provides an effective and secure way for online collaboration, networking and knowledge sharing between different innovation actors within specific communities and beyond. The networks created on _connect offer updates on funding opportunities, events, articles and publications. Using the online tools users can work collaboratively and hold discussions on innovative ideas. The networks can help find potential business partners, entrepreneurs, collaborators, other innovators in specific industry, researchers and academics. All fifteen Knowledge Transfer Networks

are hosted on _connect as well as other focus groups including Special Interest Groups and Catapult Official Groups .

6) Innovation and Knowledge Centres (IKC)

IKCs effectively support innovation creating a shared space and highly entrepreneurial environment for researchers, potential customers and skilled professionals from both academia and business that can work together on technology applications, business models, prototypes, routes to market and development of market-led strategies for commercial exploitation. IKCs match innovations with customers in high potential, broad areas of technology and form the basis of innovation ‘ecosystems’, bringing together people with technical, business and commercialisation skills. Providing resources and high degree of freedom and flexibility, IKCs can enable strong connections with potential customers, existing industry and investors.

CASE EXAMPLE: Technological Research Institutes – IRTs (France)

http://www.agence-nationale-recherche.fr/investissementsdavenir/AAP-IRT-2010.html

IRT funding scheme forms a part of the strategy aimed at capacity development of French education and research organizations to help them become global players. This policy measure has been implemented under the bigger programme named *'Investments for the future' ('Investissements d'Avenir')*, enacted in March 2010 with a state budget of €35 billion for funding higher education, training, research, innovation and sustainable development projects in strategic sectors. €2 billion of this budget has been dedicated to IRTs which are implemented and monitored at the national level by the National Agency for Research subordinated to the Ministry for Higher Education and Research.

IRTs will reinforce existing competitiveness clusters in France through public-private partnerships on research, innovation and education, in order to help the country reach international level in certain economic fields, thus enabling growth and job creation.

Target beneficiaries of IRTs are: higher education institutions, research institutions, new technology based firms, new knowledge intensive service firms and other non-profit research organisations.

The measure does not target pre-defined research and technology fields or sectors and competitive calls have no specific thematic focus.

Projects with high potential for the economy and translating public research results into products and services of the future with the following selection criteria:

- forecast economic impact;
- quality of the project;
- degree of private financing;
- integration of the actions in a limited geographical area (one campus);
- quality of the governance structure;
- consistency of the project regarding the need of the sector.

All the projects are selected through phased procedure: projects get evaluated by an independent international jury, with the help of experts, and receive grades according to the specific grading system. The best projects are then subject for a review and decision of the steering committee, and finally the projects selected and recommended by the steering committee have to be accepted by the Prime Minister.

The scheme provides funding for IRT infrastructures (buildings and equipment) with co-funding from private sources being a mandatory pre-condition. No process or technical support has been envisaged for the beneficiaries.

It is planned that there will be 4 to 6 IRTs established through competitive calls. Following the first call for proposals, two technology research institutes have been recently awarded €460 million in the internet of the future and advanced systems engineering: the SystemX IRT has received funding for a software development for complex systems such as transport and energy grids and security data handling while the B-COM IRT is focused on the internet infrastructure and content.

CASE EXAMPLE: New Zealand Trade and Enterprise

http://www.nzte.govt.nz/Pages/default.aspx

In New Zealand, growth industries have been identified by New Zealand Trade and Enterprise (NZTE), a government economic development agency that operates on national level with a network of offices in the country and worldwide. Being very active in supporting individual firms and clusters, NZTE aims to improve international competitiveness and maintain profitability of New Zealand business by providing a broad range of services.

NZTE's role is early identification of emerging economic trends and alerting companies to help them take advantage of new business and market opportunities.

Emerging industries in New Zealand are understood as *those that are new, arising from and created by changes in technology, regulations, markets or society. Moreover, emerging industries may also be existing ones; those that are making a reappearance after a period of dormancy or ones that have been adjusted and adapted to fit the budding trends and, as a consequence, are making a surge in employment*.[1]

The following nine growth areas/industries have been identified by NZTE and remain in the focus of their activities:

1) Biotechnology
2) Creative
3) ICT technologies
4) Food and beverage
5) Specialised manufacturing
6) Wood, building and interiors
7) Education
8) Consultancy services
9) Tourism

New Zealand has achieved a competitive advantage in those industries that represent a strong potential for companies to expand to new markets and grow internationally. NZTE works closely with all listed industries offering assistance to companies and clusters in these industries to help them identify opportunities and assess their potential to go international. Global promotion of specific strengths of each of those sectors is provided and dissemination of knowledge specific to each industry as well as information on New Zealand achievements and international successes and global opportunities.

[1] Identifying Emerging Industries, Report to Ministry of Women's Affairs, Gender and Diversity Research Group, AUT University , http://www.mwa.govt.nz/news-and-pubs/publications/indentifying-emerging-industries.pdf

New Zealand Trade and Enterprise (NZTE), the national economic development agency for the New Zealand government, aims to improve international competitiveness and maintain profitability for New Zealand businesses by providing a broad range of services to individual firms and clusters. Such services include advice, search for partners and investors, matchmaking, business training and mentoring, access to specialized knowledge in the form of guides and tools, access to people, facilitating access to private funding, reference to resources, etc. There are no separate policy instruments dedicated to clusters only.

Some programmes and instruments operated by NZTE are open directly to enterprises, while participation in some others requires that the account manager is appointed by NZTE for the client company.

Direct grants for enterprises or clusters are not provided in the NZTE portfolio.

NZTE's role is the early identification of economic trends and alerting companies to help them take advantage of new business and market opportunities.

CASE EXAMPLE: Identification of emerging industries in Australia

In Australia, a different approach has been pursued as emerging industries are not understood as totally new sectors but those considered new to Australia. These include industries that manufacture products new to Australia or indigenous but unfamiliar to the market.

Consequently in the *New and Emerging Industries National Research, Development & Extension Strategy*, new and emerging industries (i.e. new to Australia) have been named as one of 14 primary industry sectors, while 7 cross-industry fields that are very related to new areas of growth have been defined separately as follows:

1) animal biosecurity
2) animal welfare
3) biofuels and bioenergy
4) climate change and variability
5) food and nutrition
6) plant biosecurity
7) water use in agriculture

Such an approach has been preferred by the Steering Committee, consisting of industry, research and university representatives, as well as regional and national government officials, established for the purpose of the *New and Emerging Industries National Research, Development & Extension Strategy*. This strategy is a component of the broader approach, National *Primary Industries Research, Development and Extension Framework*, endorsed by the Primary Industries Ministerial Council. The aim of the Framework is to make primary industry research, development and extension more efficient and effective through better coordination and collaboration.[2]

[2] http://www.daff.gov.au/__data/assets/pdf_file/0010/1873657/npi-new-emerging-ind.pdf