



Developing Successful Creative & Cultural Clusters

Measuring their outcomes and
impacts with new framework tools

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Summary

Cultural and creative industries (CCI) represent a significant, still growing industry in Europe. According to the European Cluster Observatory, more than 6,5 million employees work in this diverse industrial sector which is characterised by the continuous emergence of new sub-industries. Converging technologies and new applications are key drivers for innovations and new products in this industry. However, CCI are rather different from other industries in many respects. Consequently, it remains a difficult subject for policy-makers to find appropriate support actions, as it is cross-sectoral and relates more or less to any area of public policy.

Clusters are believed to become one of the key tools to renew European industry. Thus, clusters have already become the focal point of many policy initiatives in Europe within the last few years. But can conventional cluster support schemes also be applied for clusters from CCI? And how to measure outcomes and impacts of clusters and cluster initiatives in the CCI are?

The aim of this study is to analyse the key issues and challenges of clusters in CCI, and to develop a framework to measure outcomes and impacts of cluster initiatives in the field of creative and cultural industries (CCI) throughout Europe. Based on a better understanding on how and where clusters in CCI differ from those from traditional industries, more tailor-made and demand-oriented public support measures, aiming at the cluster approach as well as at the gathered actors, can be developed and implemented.

Based on a detailed comparison of clusters from CCI and from traditional industries, key characteristics have been identified that lead to a better understanding of similarities and differences. Even though CCI seem to be rather different from other industries in terms of key features, this study shows that both share relevant characteristics. The authors of this study argue that currently available frameworks to measure output, outcome and impact of non-CCI clusters are applicable to clusters from CCI. Despite the specificity and diversity of CCI there is no need for unique or even individual framework for each CCI sector. Instead a common and joint framework is proposed.

The product of this report is a proposal for a standardised approach to assess the results and outcomes of CCI clusters that can be applied to any type of CCI cluster independent from its field of action or regional roots. Nevertheless, the achieved results have to be interpreted with caution and always put into context of the specific regional situation or local value chain in which the respective cluster operates.

1 Introduction and aim of this report

Only recently the European Commission's Enterprise and Industry Directorate-General set up the cross-sectoral policy initiative "European Creative Industries Alliance" under the PRO INNO Europe® Initiative. This new initiative was officially launched in Milan on 26 February 2012 during the Innovation Festival Finale where 300 policy-makers and practitioners had gathered. The core of the European Creative Industries Alliance is built by 28 partner organisations from 12 countries. The new initiative combines policy learning with 8 concrete actions that include innovation vouchers (4 actions), measures to improve access to finance (2 actions) and to strengthen cluster cooperation (2 actions). The latter actions will be aimed at testing new cooperation approaches between creative industries' clusters and clusters from other industries. In addition, there will be a focus on activities such as training, coaching and mentoring of cluster managers and SME cooperating with creative industries. The initiative should serve as an open policy learning platform and test bed in order to develop better policies and tools for the creative and other emerging industries.

The impact of clusters and cluster initiatives is becoming more and more important for policy-makers and cluster management organisations. Policy-makers have to legitimise their public investments and to provide evidence to the potential cluster participants of why it is beneficiary to join and be engaged in clusters or cluster initiatives.

The Berlin Senatsverwaltung for Economy, Technology and Research assigned iit – Institute for Innovation and Technology (Berlin) to prepare a study on key issues and challenges of clusters in creative industries in Europe, with a special focus on the development of a framework to measure outcomes and impact of creative cluster initiatives. This report is part of the European Creative Industry Alliance's activities, a project funded in the cip – competitiveness and innovation framework programme 2007 – 2013. The study was carried out between May and November 2012.

Aims of this study

The aim of this study is to analyse the key issues and challenges of clusters of cultural and creative industries, and to develop a framework to measure outcomes and impact of cluster initiatives in the field of creative and cultural industries (CCI) throughout Europe.

Even though CCI seem to be rather different from other industries in terms of key features this study shows that both share relevant characteristics. The authors of this study argue that currently available frameworks to measure output, outcome and impact of non-CCI clusters are applicable to clusters from CCI. Despite the specificity and diversity of CCI, there is no need for unique or even individual framework for each CCI sector. Instead, a common and joint framework is proposed.

The product of this report is a standardised approach to assess the results and outcomes of CCI clusters that can be applied to any type of CCI cluster, independent from its field of action or regional roots. Nevertheless, the achieved results should be interpreted with caution and always put into context of the specific regional situation or local value chain in which the respective cluster operates.

The development of the framework concept was guided by the following principles:

- Focus on the specifics of CCIs and adaption to their requirements.
- A usable approach independent from field of action or regional roots (non-large urban regions versus big metropolis) throughout Europe.
- Development of a framework based on indicators that help to improve good practice and excellence of clusters.

A wide view of innovation is adopted in this study

In this study a wide view of innovation is adopted.¹ This emphasises the fact that innovation may occur everywhere in different form, and not only in the form of high technology development, investment in research or investments in the manufacturing sector. Particularly, this includes innovation through creative industries or social and service innovation, new business models and practice-based innovations. The innovations concept referred to encompasses innovation based on different types of knowledge leading to different modes of innovation:

- Science, technology, innovation based on analytical knowledge/basic research
- User-driven knowledge/applied research emphasizing product and process innovations
- Market-driven knowledge (doing, using and interacting) emphasizing competence building and organisational innovations

The innovation process is based on analytical (science-based), synthetic (engineering-based) or symbolic (art-based) know-how (see table).²

Analytical (science-based)	Synthetic (engineering-based)	Symbolic (art-based)
Developing new knowledge about natural systems by applying scientific laws; know why	Applying or combining existing knowledge in new ways; know how	Creating meaning, desire, aesthetic qualities, affect, intangibles, symbols, images; know who
Scientific knowledge, models, deductive	Problem-solving, custom production, inductive	Creative process
Collaboration within and between research units	Interactive learning with customers and suppliers	Experimentation in studios and project teams
Strong codified knowledge content, highly abstract, universal	Partially codified knowledge, strong tacit component, more context-specific	Importance of interpretation, creativity, cultural knowledge, sign values, implies strong context specificity
Meaning relatively constant between places	Meaning varies substantially between places	Meaning highly variable between place, class and gender
Drug development	Mechanical engineering	Cultural production, design, brands

Table 1: Typology of different knowledge bases

¹ This wider view is based on the understanding of innovation adopted by the EU, e.g. described in the RIS3 Guide – Smart Specialisation Platform, 12/12/2011.

² Cooke, P., Ahsheim et al. (2006), "Constructing Regional Advantage: principles, perspectives, policies" Report to the European Commission. The authors outlined a typology of differentiated knowledge bases.

2 Clusters as policy instruments to foster innovation and competitiveness

2.1 Clusters are understood as geographic concentrations of interconnected companies and institutions

In general, a cluster can be considered as a group of companies which have chosen to locate in the same economic region because that offers certain competitive advantages.

“Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions in particular fields that compete but also cooperate”.

Michael E. Porter in *On Competition* (1998)

Enterprises can operate in a cluster in the **same sector and compete for the same market** and therefore draw upon the same regional resources. As Michael E. Porter pointed out, companies can simultaneously compete and collaborate with each other, and both activities can enhance their competitiveness.

Clusters do not necessarily only consist of business enterprises. There are many examples of academia, public or semi-public knowledge and educational institutions locating in the same region as those

enterprises that are users of the knowledge and personnel (s. fig. 1). Clusters are understood as “geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions” (for example universities, media partner, architecture, design, film, music, venture capitalists, other financiers and trade associations, etc.) “in particular fields that compete but also cooperate.” The links between partners within a cluster are vertical, e.g. through buying and selling value chains, and horizontal, through complementary products and services. These linkages include social relationships or networks that produce benefits for the firms involved due to an intensive information and knowledge flow. The geographic area covered by clusters can vary; there may even be multiple operating scales, with regional, national and international dimensions to some clusters.

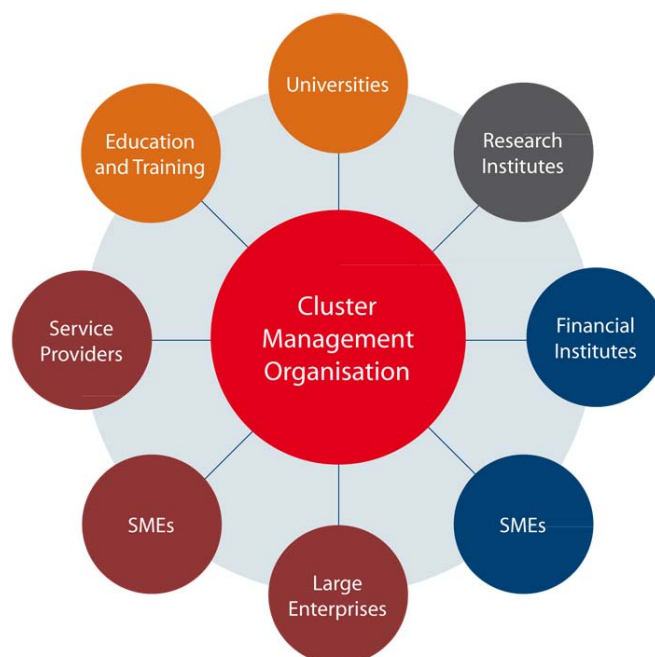


Figure 1: Main types of actors gathered in a cluster

2.2 Economic benefits stimulated by clusters

The competitiveness of nations and regions is nowadays not determined by single companies, but more and more by the innovative activities of entire industries and sectors. Therefore, regional and national competitiveness has become the central topic for the economic policy world-wide. Innovative firms grow faster and are more likely to survive during a recession. The benefits of innovation are not limited to the original innovator though; by its own nature the production of innovation creates knowledge spill-overs that allow other firms to benefit from the initial innovation in terms of increasing productivity. This can create the starting point for economic growth and prosperity.

Insufficient innovation is considered a major cause of Europe's disappointing growth performance.³ Stimulating the European Member States' innovation performance has become one of the main objectives of policy-makers. The aim is to achieve economic growth based on knowledge and innovation fostering high employment and delivering economic, social and territorial cohesion in Europe.

Investing more into research, innovation and entrepreneurship has become a fundamental part of Europe's 2020 strategy in order to find solutions to the economic crisis. Europe strives for strategic and integrated approaches to innovation to maximise the research and innovation potential on a regional, national and European level. Against this backdrop the Commission adopted the "Innovation Union" flagship initiative⁴ in October 2010 as an integral part of the Europe 2020 strategy. It sets out the innovation strategy for Europe to enhance Europe's capacity towards smart, sustainable and inclusive growth.

The European Commission highlights the concept of "smart specialisation" as key element for innovation policies.⁵ The Member States should adopt a strategic and integrated approach to innovation. In the future smart specialisation strategies, or regional innovation strategies should be designed and implemented. They will help the regions to develop their capacities and facilities to support innovation. The smart specialisation strategy (RIS3) *"aims at developing world class excellence clusters and providing arenas for related variety and cross sectoral links which drive specialised technological diversification aiming at increased connectivity between regions."*⁶ The smart specialisation concept also embraces a broader concept of innovation, not only investment in research or the manufacturing sector, but also building regional competitiveness through design and creative industries, social and service innovation.

Clusters have already become the focal point of many policy initiatives in Europe and elsewhere around the globe within the last few years.⁷ A precondition that needs to be fulfilled by Member States and regions to allocate structural funds is the existence of a national or regional innovation strategy for smart specialisation is. Thus, the role of clusters in Europe will become even more important as they are understood as primary part and key element of the "smart specialisation strategies".

The interest in clusters and networks is based on the ever increasing amount of statistical evidence that indicates a positive relationship between the presence of clusters and the prosperity of

³ Expert group of the European Commission (chaired by former Prime Minister of Finland Esko Aho), Report

⁴ http://ec.europa.eu/europea.eu/innovation-union/index_en.cfm

⁵ http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/documents/guide/draft_12_12_2011.pdf

⁶ http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/documents/guide/draft_12_12_2011.pdf

⁷ Sölvell, G., Ketels, C. et al., Cluster Greenbook, 2003, European Cluster Observatory, 2009, (www.clusterobservatory.eu).

regional economies.⁸ Clusters are increasingly understood as catalyst for supporting industrial transformation processes and for developing new regional competitive advantages. As a result, firm growth and job creation lead to growth and prosperity.

Policy-makers world-wide have turned to cluster policy because of a shift in priorities from macro- to microeconomic issues. Very targeted microeconomic efforts – often in a new partnership with the private sector, universities, and other institutions – are required to translate the macroeconomic achievements into real productive improvements in companies. Clusters turn out to be a useful way to organize these efforts and launch effective initiatives. Clusters provide a particularly fertile ground for innovations because they are well aligned with the current wider understanding of innovation: Innovation occurs in non-sequential interactions of different stakeholders at different levels (see also chapter 1).

It is no surprise that the EU Commissions' innovation strategy "Innovation Union" highlights clusters: *"Clusters and networks improve industrial competitiveness and innovation by bringing together resources and expertise, promoting cooperation among business, public authorities and universities.* Clusters and networks are critical tools for policy-makers. Recent benchmarking and evaluation studies of regional and national cluster policies revealed that those industrial sectors (represented in clusters and supported by specific publicly funded measures) benefited the most and gained competitive advantages. Therefore, identifying and supporting clusters can be considered as one of the most promising tools for national policy-makers to increase innovation capacities and stimulate economic growth.

2.3 Key factors to stimulate clusters

The development of clusters has been pursued by many players from the economy, science and politics. The cluster development plan is a complex task which demands a long-term perspective with success at different levels and phases. There are five major key factors that are crucial for a long-term efficient and, above all, successful network and cluster development⁹. These factors address the following cluster-specific aspects which are interrelated and influence the cluster's prospect for development:

- Long-term involvement and commitment of participants
- Financing
- Innovation dynamics and innovation management
- Focusing and expansion of sectors
- Regional development.

Long-term involvement and commitment of participants

Advantages as result by clusters are mainly based on the composition and type of cluster participants and their involvement. Companies differing in size, research and educational/training

⁸ Ketels, C. (2012): The impact of clusters and networks of firms on EU competitiveness, Final Report: Firm networks to the European Commission; See also for example: Delgado/Porter/Stern (2012), DG Enterprise and Industry (2007), and the overview in Ketels (forthcoming 2012).

⁹ See: Buhl, C. and Meier zu Köcker, G. (2010): Cluster Management Excellence – Volume II: Sustainability and Effectiveness of Clusters and Networks - <http://www.kompetenznetze.de/service/nachrichten/2011/medien/cluster-management-excellence-ii>

organisations as well as public institutions complement one another in their competences and resources.

This requires a mobilisation of the regional potential of players by continuously enlisting new ones, identifying and integrating additional competences in the cluster's value chain. **To ensure that the value chain is entirely covered the most relevant stakeholders in the region should show some interest in the participation in cluster activities and should become involved.**

The players involved are the nucleus of any cluster. They contribute the required tangible and intangible assets to the cluster.

Since much of the achievements in cluster activities are only accomplished in the course of the mid- to long-term existence of clusters, the cluster management must succeed in involving players in network processes on a long-term basis.

Therefore, the services offered by the cluster management and strategic aims have to be geared towards the special requirements and needs of players.¹⁰ E.g. it may also **be relevant for the cluster management to balance diverging interests between stakeholder groups** (e.g. financially strong versus financially weak companies).

The services allow the enterprises to save personnel, financial and material resources. Moreover, the services provide a chance to efficiently support both members and the cluster as a whole in their economic development.

Financing

Financing is one of the key factors which determine the long-term **sustainability** and the efficiency of a cluster. The availability of funding (private and public) decisively influences the cluster management's capacities and resources as well as its scope of activity, overall network processes and organisational structures. All aspects related to a cluster must be assessed in taking into account the cluster management's financial potential plus additional funds e.g. for collaborative projects.

Therefore, a solid financing plan that ensures sustainability is particularly important for clusters. Cluster managements need to continuously secure and raise new funds in order to have a financially balanced and stabilized cluster. This is true for both mainly privately financed networks as well as for clusters which primarily rely on public financing sources.

A financing model should be based on regular and variable income sources. This helps to reduce the dependency on only one source of financing, particularly if the latter is only available for a limited period of time. Examples for financing sources are:

- Membership fees, which could be flexibly adjusted e.g. to the scope of services, or fixed, depending on the kind and size of players
- Financial assistance for start-ups
- Sponsoring and donations
- Fee for services offered by the cluster management, available to members and non-members (e.g. training courses, meetings, measures of recruitment)

¹⁰ Buhl, C. und Meier zu Köcker, G. (2009): Cluster Management Excellence – Volume I: Network Services, www.kompetenznetze.de

- Benefit from income generated from patents and licences of the cluster
- Implementation of projects on behalf of the industry
- Public co-financing of activities, which has a positive impact on players and the cluster as well as on the entire region.

Clusters that are publicly funded should be allocated enough funds to secure financial stability over several years. Nevertheless, the cluster management should be kept motivated to become independent from public financing sources.

Innovation dynamics and innovation management

Innovative companies need reliable relations of cooperation with other partners from the economic and research community to maintain their competitive edge in the long run. Cluster networks are one answer to such needs. They have established themselves as an important innovation driver worldwide in the past few years. Research shows that high-tech companies engaged in clusters are more competitive and innovative than those which do not operate in such networks.

The opening of the innovation process within a cluster has been named “Open Innovation”. Open Innovation is designed to enhance the innovation potential of companies by obtaining external and broadening internal know-how because it is based on cooperation with others. Therefore, cluster managers are responsible for sharing out know-how to the target persons, enabling them to learn from each other. The relevance of clusters for companies’ innovative capacity can be traced to the capacity of network structures to encourage innovation, because networks within companies are also conducive to a better exchange of know-how.

Consequently, clusters see themselves confronted with the challenge to build up processes and structures capable of enhancing the binding character of cooperation and enabling a network-wide control of the innovation process by joint steps. It should be noted that control is not meant here as a centralistic regime that largely interferes with the network partners’ autonomy. Control rather denotes the process of a structured and systematic innovation management as the basis for joint and cross-company innovation activities (e. g. in technology and product development, but also in joint market introduction).

The challenge in this regard is notably to network themes and players horizontally and vertically, including the interdisciplinary discussion and analysis of themes. This process has to be moderated. Such a process will only succeed with well-placed efficient networks where interfaces can be formed at different spots along the value chain. This can be done sector-wise and functionally. Thus, the challenge is to transfer already existing forms of cooperation to other branches within the network and to find new common ground there. This means transferring already existing best-practice examples to new circumstances and to interlink them. To this end, workgroups and topic related groups can be set up.

Prioritisation and expansion of sectors

Clusters do not only bundle existing sector-specific competences, however, they contribute to the development and further evolvement of existing and new branches through their intra-network and cross-cluster interaction, by making it possible to overcome branch barriers or by widening the technological focus through the systematic joining of different branches.

Essential preconditions for a durable marketability are flexibility and mobility of the cluster itself and its partners. This makes a quick and adequate response to economic, technological and other

external changes possible. It also allows the development of new markets, also international ones, which make it necessary to intensify collaborative and interdisciplinary technology and product development.

In the long term, economic stagnation can be a result of an exclusive concentration on core competences within the network and the implementation of partial sequences of process chains. Therefore, it is necessary to implement intra-industry followed by cross-industry networks during the cluster development.

Alternatively, a change or complementation of the technological focus must be aimed at, because new cluster and network configurations can lead to high synergy effects. Networks and clusters are particularly capable of moderating this future development process, i.e. of branch prioritisation and expansion. This is due to the close communication and interaction which facilitate visions for the future to emerge, and processes of strategy formation to commence.

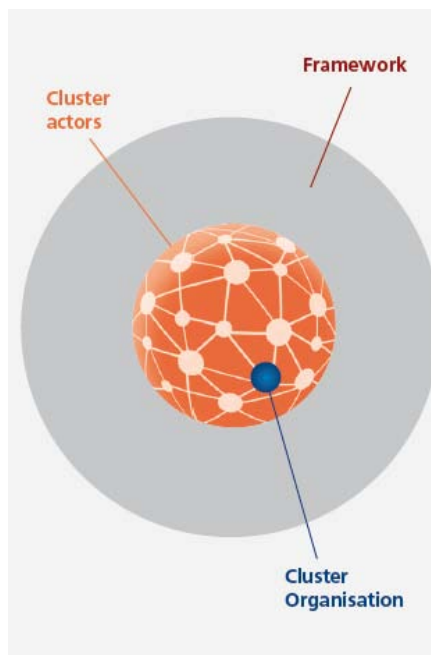
Regional development

An increase in economic efficiency, a rise of competitiveness and the national and international profiling of locations are not temporarily limited activities. They constitute a longstanding development project by bringing together different regional forces and initiatives. Clusters have the potential to influence a region's competitiveness through the increase of the productivity of local companies involved. This can be of economic benefit to the region, e.g. through a higher added value and more jobs, etc.

Regional networks are an instrument for the targeted development of bigger clusters or complete economic regions in this process by involving players in a long-term strategy process. An intensive constant interaction is crucial, apart from the presence of companies, R&D institutions and other organisations of one or several interrelated branches. - This process can be actively supported by network management. Another aspect concerns the need to overcome regional frontiers, as is practiced among other companies, through a faster and more complex regional development.

Stable relations of cooperation can be the result of already initiated network processes and may also lead to further structures and options for cooperation – e.g. in the fields of personnel, management, marketing, sales, and profiling of location, which positively influence regional development. The successful realisation of growth and employment effects (such as spin-offs, settlement of new companies and R&D institutions in the region, recruitment of qualified personnel) presupposes responsible action for the region by all regional players. In this context, joint dialogue and cooperation between the political, economic and scientific communities is crucial.

2.4 The dimensions of clusters and corresponding policy interventions



Three dimensions of policy interventions of clusters

The enterprises in clusters benefit from favourable “eco-systems” that foster competition as well as collaboration – thus providing gateways to knowledge, finance and markets. This “eco-system” concept describes three dimensions of a cluster which are of high importance for cluster development and should be addressed by (cluster) policy:

- **The dimension of framework conditions:**

In a competitive environment clusters need to develop within favourable framework conditions to support the activities of cluster companies. There are general framework conditions that are important for all clusters. Examples of such include specific infrastructures, supporting instruments, labour force skills or institutions, but also regulatory issues such as work migration or taxation. Stability-oriented macroeconomic reforms and structural reforms are also important elements of favourable framework conditions which, however, cannot be influenced on regional level.

- **The dimension of cluster actors:**

Within a cluster there have to be strong partners and strong interaction between the actors that constitute the cluster. This strength is a combination of critical mass of companies in a given geographical space, individual company characteristics and behaviour and the dynamics of interactions and cooperation between companies and other relevant stakeholders such as research institutions and universities.

- **The dimension of the cluster management organisation:**

The quality of cluster management is critical to support strong dynamics among companies and other relevant stakeholders of the cluster.

These three dimensions of clusters reflect a wider concept that aims at capturing the conditions that are conducive for the development of global competitive advantages. As a consequence, the European Commission, among others, has called for the creation of more “world-class clusters”.

2.5 Current discussion on cluster excellence in Europe

The EC states “that there is a need to develop more globally competitive clusters and networks” and stresses the need for better coordination of different cluster initiatives. The interest to promote cluster excellence has gained a lot of attention, political acceptance and widespread support from stakeholders in the context of the implementation of the EU’s innovation strategy.

The EU strives towards a “new strategy for globally competitive clusters and networks, including specific action to promote globally competitive clusters and networks in both traditional and emerging industries”. The upcoming strategy is expected to be released in 2012. The European Commission has supported a range of research and projects as well as set up specific advisory bodies that have analysed clusters, cluster policies and cluster organisations across Europe, e.g:

European Cluster Observatory, European Cluster Alliance, European Cluster Excellence Initiative, TACTICS group and European Cluster Policy Group.



Figure 2: Overview of some European projects and advisory bodies to support clusters

The cluster organisation and its interaction with the cluster participants have been underestimated over years. Many of the cluster programmes in Europe focused on the establishment and development of cluster organisations. Clear evidence has evolved in recent years that the cluster management's excellence plays a decisive role for the successful development of clusters.¹¹ In the context of "globally competitive clusters" the excellence of cluster managements mainly depends on:

- The existence and implementation of a strategy for the further development of the cluster
- The provision of professional services that address the needs of the cluster members through the cluster management
- Sustainable financing of the cluster organisation and appropriate staffing of the organisation.

Therefore, an excellent management of a cluster organisation is a prerequisite to achieve the desired effects of the cluster within a given creative, technological, industrial, regional, and legislative framework:

- For the cluster participants within their respective industrial sector
- For the development of regions.

Since 2009, the European Cluster Excellence Initiative (ECEI), initiated by the European Commission, DG Enterprise and Industry, aims for the development of methodologies and tools in order to support cluster organisations in improving their capabilities in the management of networks and clusters. The 13 project partners from 9 countries created a uniform set of quality indicators

¹¹ Lämmer-Gamp, T., Meier zu Köcker, G., Christensen, T. (2011): Clusters are Individuals. Creating Economic Growth through Cluster Policies for Cluster Management Excellence, Danish Ministry of Science, Technology and Innovation / Copenhagen/Berlin, ISBN 978-87-92776-21-1.

and developed a labelling system for professional cluster management. The methodology and proof of evidence should be accepted and recognised all over Europe.¹²

The “European Cluster Excellence Initiative (ECEI) (2012): The quality label for cluster organisations – criteria, processes, framework of implementation” describes that labelling clusters is not new as such. During the last few years, many Member States all over Europe have started setting up support programmes for clusters, which often focus on the most competitive cluster initiatives within the country. For example, in France, Germany, Hungary, and Sweden, a certain number of clusters have been selected for further support, due to their leading position. Being selected within such a programme is in itself some kind of quality label, since it expresses recognition as “excellent cluster” among the entire variety of clusters in a country. However, the applied selection mechanisms often follow national priorities or politically driven objectives.

The “Cluster Organisation Management Excellence Label (Quality Label)” developed by ECEI goes one step further. The overall approach is the creation of an independent, voluntary proof of cluster management excellence which is accepted and recognised across Europe, or even beyond. It is not primarily aimed at the distinction between “good” and “bad”. The aim is to motivate cluster managers to take part in an improvement process, to become better by comparing with others and learning from the best. Thus, the elements of “mutual learning” and “mutual benchmarking” play an important role, as highlighted by the recommendations of the European Cluster Policy Group in September 2010. As a certain kind of spin-off of ECEI, the European Secretary for Cluster Analysis (ESCA¹³) took over the actions after ECEI has been terminated in August 2012. For the purpose of achieving a broad international recognition, all concepts and methodologies developed are in-line with the methodologies of continuous improvement followed by EFQM, the European Foundation of Quality Management, www.efqm.org.

Key aspects of the Quality Label as stated from ECEI. The Quality label...

- 1 ...focuses on the cluster organisation and its management, not on the framework conditions or a cluster as such.
- 2 ...does neither stand for any new type of mandatory cluster certification nor for an official certification similar to “ISO 9000 for clusters”. However, it is possible and mandatory at a certain stage to as well achieve the label “Committed to Excellence” of EFQM, and by this an international accepted status, if desired.
- 3 ...and the participation in a labelling process is voluntary and intended for the cluster organisations which would like an independent third body to assess their excellence according to harmonised and transparent indicators (Quality Indicators).
- 4 ...should enable cluster managers to demonstrate their management excellence towards interested third parties, such as members, stakeholders, policy-makers, etc.
- 5 ...is based on a modular set of quality indicators and a transparent process of how to assess and benchmark them.
- 6 ... is applicable to a broad spectrum of types of clusters all over Europe and worldwide in any type of field.
- 7 ... is to be considered as a process: Having proven cluster management excellence and having implemented means of keeping this excellence level, and even improving further.

¹² See also: European Cluster Excellence Initiative (ECEI) (2012): The quality label for cluster organisations – criteria, processes, framework of implementation.

¹³ ESCA and its international team has conducted more than 300 cluster benchmarking exercises over the recent past. www.cluster-analysis.org

Indicators to measure the excellence of the cluster management

Quality Indicators cover the following dimensions (including 31 Quality Indicators):

- Structure of the cluster (level 2)
- Typology, governance, co-operation (levels 1 and 2)
- Financing cluster organisation management (level 1)
- Strategy, objectives, services (level 1)
- Achievements, recognition (level 1)

All in all, the Quality Label and the procedures to be awarded with such a label should increase the overall awareness for cluster management excellence, and they offer cluster managers the possibility of demonstrating such superiority to the interested public. Further, they demonstrate the implementation of processes for continuous improvement.

The Cluster Management Excellence Labels and the improvement approach

First step: The **BRONZE Label** is awarded to cluster organisations that consider improvements in a systematic way. This label documents their will to compare with the best and to improve activities and services. The BRONZE Label is awarded to cluster organisations having taken part in a cluster benchmarking exercise according to the “NGPExcellence-approach” (please refer to www.clusterexcellence.org and www.cluster-analysis.org). Such benchmarking provides a documented entry level into improvement processes for the cluster management and uses indicators similar to the Quality Indicators of ECEI. This means, any cluster can receive the BRONZE Label. It is no justification of an excellence status. The validity of the BRONZE label is limited to two years from the month of the benchmarking interview. So far, about 300 cluster organisations in Europe gained the BRONZE Label since they participated in benchmarking exercises. All of them are listed by www.cluster-analysis.org. The BRONZE Label is awarded by ESCA that has been entrusted by ECEI in 2011.

Second step: The **GOLD Label** certifies the excellence of cluster managements according to a harmonised approach of the European Cluster Excellence Initiative (ECEI) and the European Foundation of Quality Management (EFQM), meaning in particular:

- Excellence in cluster management is reached (ECEI)
- Additional further improvement and learning processes are successfully implemented (EFQM).

This label is awarded to cluster organisations that reached a cluster management excellence score of $\geq 80\%$ during an external expert assessment of the 31 Quality Indicators elaborated within the European Cluster Excellence Initiative. The GOLD label is valid for two years. Its validity is extended for another two years when improvement projects were successfully implemented in conformity with EFQM during the course of the first two years and validated according to „EFQM Committed to Excellence“.

The two labels allow the cluster manager to demonstrate the status reached regarding the improvement of cluster management. The following figure visualises the integration of the labels within an overall process of development of a cluster organisation and increasing cluster management quality:

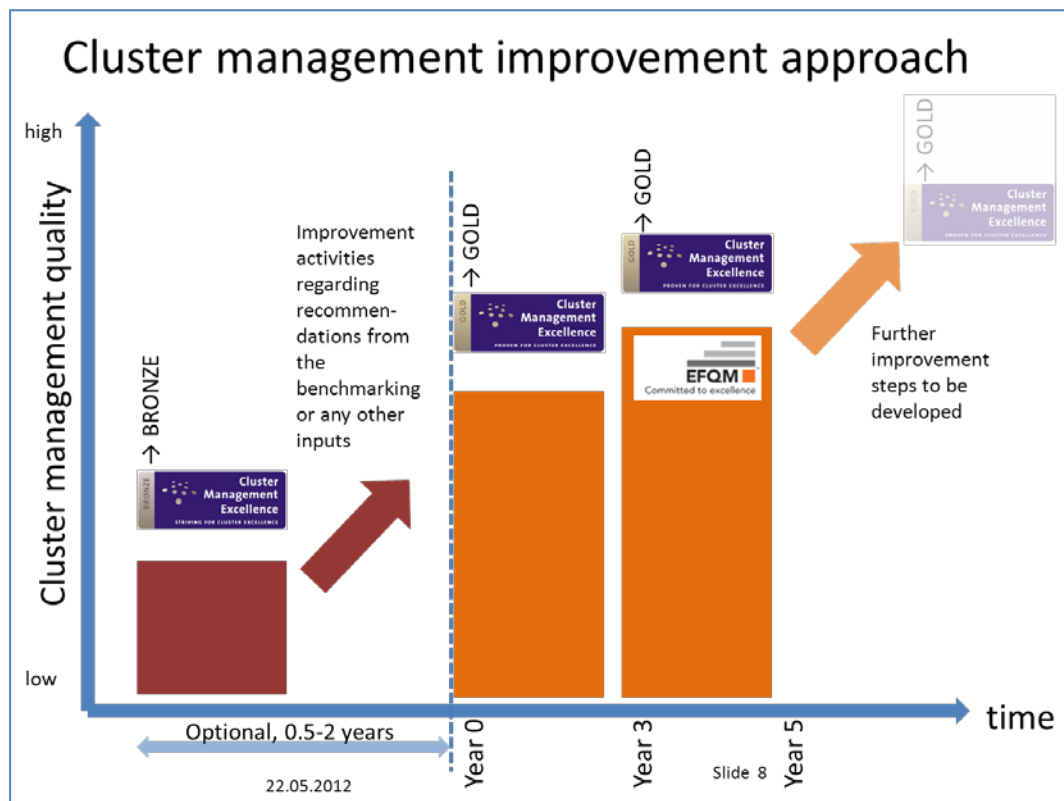


Figure 3: Cluster management improvement approach, Source: ECEI

3 Clusters in creative and cultural industries (CCI)

3.1 What is understood by CCI? – A conceptual definition

There have been numerous approaches and debates to define both terms “creative” and “cultural” industries with their significant differences and overlaps.¹⁴ Both terms are in some ways interchangeable and conceptually linked, and certain European countries have developed their own definitions.

The European Commission/DG Enterprise and Industry defines creative and cultural industries as follows:

*Creative and cultural industries are those concerned with the creation and provision of marketable outputs (goods, services and activities) that depend on creative and cultural inputs for their value.*¹⁵

Some European countries have adopted following the definition by the Conference of German Ministers of Economic Affairs:

“The Conference of German Ministers of Economic Affairs has defined CCI in the following way: Culture and creative industries comprise of all cultural and creative enterprises that are mainly market-oriented and deal with the creation, production, distribution and/or dissemination through the media of cultural/creative goods and services.

*The most important defining criterion is the market-orientation of the enterprises. This set of enterprises includes all market-oriented companies that are financed through the market, liable to pay turnover taxes or simply all those that want to earn money with art, culture and creativity.”*¹⁶

In summary, the creative and cultural industries (CCI) comprise those enterprises which are mainly profit-oriented and deal with the creation, production, distribution of cultural/creative goods and services. Another common core of CCI economic activities is a creative process that includes any artistic, literary, cultural or architectural act to develop products or services.

This study relies on the conceptual definition given in the “Priority Sector Report: Creative and Cultural Industries of the European Commission”. Creative and cultural industries combine and focus on the following activity areas:

- Music (aa1)
- Print media – books and press (aa2)
- Object d’art – glass, ceramics, cutlery, crafts, jewellery (aa3)
- Film (aa4)
- Broadcast media (aa5)

¹⁴ E.g. CMS (2001), Creative Industries Mapping Document 2001 (2 ed.), London, UK: Department of Culture, Media and Sport, retrieved 2007-05-26, DCMS (2006), Creative Industries Statistical Estimates Statistical Bulletin, London, UK: Department of Culture, Media and Sport, retrieved 2007-05-26.

Hesmondhalgh, D. (2002), The Cultural Industries, SAGE. Power, D. (2009). “Culture, creativity and experience in Nordic and Scandinavian cultural policy.” International Journal of Cultural Policy 15(4): 445 – 460.

¹⁵ European Commission Enterprise and Industry, April 2011: Priority Sector Report: Creative and Cultural Industries, The European Cluster Observatory, EUROPA INNOVA PAPER No 16.

¹⁶ Söndermann, M., Backes, C., Arndt, O. and Brünink, D. (2009). Final Report: Culture and Creative Industries in Germany Defining the Common Characteristics of the Heterogeneous Core Branches of the “Cultural Industries” from a Macro-economic Perspective. Cologne, Bremen, Berlin, Federal Ministry for Economy and Technology.

- The “finer” arts – literary, visual and performance arts (aa6)
- Architecture (aa7)
- Design – fashion design, graphic design, interior design, product design (aa8)
- Advertising (aa9)
- Games software, new media (aa10)
- Libraries, museums, heritage (aa11)
- Photography¹⁷ (aa12)

3.2 Stimulate and deploy CCI cluster potentials by public support measures

In chapter 2.3 the three different dimensions of clusters have been introduced: cluster organisation, cluster participants and framework conditions. Each dimension can be addressed by corresponding policy interventions which are not necessarily specific to CCI and therefore refer to different types of clusters – including CCI.

Policy measures can have a direct or indirect effect on the local economic or business development and they may include support measures to SME in general. Thus, beneficiaries of the support measures to CCI are diverse. Beneficiaries are not only CCI organisations or people working in the CC industries, but also other institutions (indirect beneficiaries), such as financial organisations, universities/research organisations and other players within the cluster or regional vicinity. These indirect beneficiaries also achieve competitive advantages by cooperating with the creative sector as a whole.

Support measures are tools to implement CCI strategies.¹⁸ The following description provides a brief overview of typical support measures that refer to the aforementioned dimensions proposed in chapter 2.3: framework conditions, cluster actors and cluster management. The supporting measures and given examples hereafter are all relevant to stimulate and deploy potentials of CCI clusters (but are not necessarily specific to CCI).

1) Support of CCI framework conditions:

Support measures in this dimension aim at the creation of physical or virtual infrastructure to facilitate business activities, gather creative talents and entrepreneurs.

Building CCI infrastructure by local or regional authorities that provide facilities and infrastructures to clusters, e.g. by low rent/free business spaces or facilities, availability or subsidised technological equipment, access to virtual support infrastructures (databases, WLAN, etc.).

2) Support of actors in CCI clusters:

¹⁷ Compared to the eleven sub-segments plus a twelfth sub-segment called “miscellaneous” defined by the Conference of German Ministers of Economic Affairs there are two main differences: The list includes libraries, museums and heritage on the one hand, on the other hand photography subsumed by miscellaneous in the German definition is stated here as a stand-alone sector.

¹⁸ The recently published report on “Measuring economic impact of CCI policies” gives an overview of typical public support measures to CCI and classifies four categories: Infrastructure and clusters/networks, People, competences and entrepreneurship, Incubation, Governance measures. See INTERREG IVC programme, Project CREA.RE – creative regions (April 2012): “Measuring economic impact of CCI policies – How to justify investment in cultural and creative assets” for a full description.

www.crea-re.eu/wp-content/uploads/2012/05/Measuring-economic-impact-of-CCIs-policies_final_CREARE.pdf

This dimension encompasses measures to encourage cooperation between creative stakeholders and other partners. The cooperation between creative enterprises, creative people and universities, R&D bodies, and non-CCI's businesses is encouraged to contribute to innovation in other industry sectors. Support measures in this dimension include for example (the list is not exhaustive):

Financing and access to financing

- Financial incentive/funding schemes to foster linkages between enterprises, universities and research centres at regional/national/international level (e.g. by collaborative projects, public funds). Incentives to encourage creative businesses (e.g. support for branding strategies in the design sector).
- Improved access to debt financing, equity and public financing.
- Measures to facilitate access to financing. Training for private investors such as business angels and financial institutions to better understand CCI requirements and to raise their awareness for issues in the creative sector. Implementation of investor groups to encourage matchmaking between CCI and potential investors. Training for creative entrepreneurs to better approach investors.

Room and working spaces

- Provision of focal spaces, such as incubators which offer co-working spaces and services with the aim to concentrate the existing firms in a region and help creative entrepreneurs to cooperate.
- Provision of spaces, such as labs/test beds etc. in order to attract creative enterprises and research centres with the aim to better develop new products or services.

Business competence and skill development

- Provision of trainings and expert advice to support the development of skills and competences of creative businesses and entrepreneurs. These fields of actions are diverse and encompass a broad variety of measures (e.g. writing business plans, coaching).
- Actions and incentive schemes to support business plan development (from idea and concept development, financing, realisation and testing to marketing and commercialisation). Provision of standard business knowledge on tax, law, accountancy and financial planning, etc.
- Support to exploit creative skills and improve creative skills of creative people as well as of the workforce in non-creative sectors.

3) Support of and by cluster management organisations in CCI clusters

This dimension aims at the implementation of a dedicated cluster management and the services provided to the CCI cluster participants. The cluster management is responsible for disseminating key information among the cluster participants and supports the creation of businesses. It helps to identify problems and solutions within the cluster. The cluster management in creative clusters closely interacts with the second dimension, the cluster actors.

The cluster management organises the network itself and offers specific services which are based on a clearly formulated strategy. Services are usually directed to certain target groups. Examples of services targeted to CCI are:

- Public relation efforts to promote the own cluster initiative and region
- Communication and knowledge exchange. The cluster management collects and processes information, organises workshops, conferences or seminars, provides/organises infrastructure such as premises, technical equipment, test-sites and IT platforms or databases
- Support to achieve better access to market information
- Broader signposting of programmes, services and funding to support creative businesses
- Matchmaking including internationalisation: Supporting the search for international cooperation partners (e.g. by networking with other international clusters)
- Funding of innovations and start-ups by facilitating the access to venture capitalists, sponsorships, business advisors (e.g. by coach & connect consulting concepts, organisation of the implementation of demo centres, matchmaking events to meet potential collaborative partners or investors).
- Recruiting of personnel and training of personnel to promote (young) talents and improve technical competencies of creative people (e.g. by web-based personnel data-bases or personnel pools, matchmaking events between employers and creative people; award for good-practice training concepts, summer school, training concepts).

3.3 Key issues and challenges to stimulate CCI clusters

The CCI sector remains a difficult subject for public policy because it is cross sectoral and relates more or less to any area of public policy. As a consequence, it becomes complicated for policy-makers as there is no single solution that fits to the entire CCI.¹⁹

In the following paragraphs the characteristics of CCI sectors are summarised and it is highlighted in what respect they differ from other industrial sectors. What are the characteristics in terms of actors, industry structure, and cooperation? Recent studies have already depicted the structural characteristics of CCI and compared to those of traditional industries.²⁰

The subsequent overview of the characteristic features of culture and creative industries is important to understand their economic mechanisms and specific requirements in particular when it comes to cluster policy. The idea is to point out the most important differences compared to more traditional sectors and how – against this backdrop – the heterogeneous CCI clusters can be stimulated by cluster policies or cluster management activities respectively. This overview of key issues and challenges all of which are important to stimulate CCI clusters (see also figure 4) builds the basis for the framework for outcome and impact assessment.

¹⁹ Ernst & Young (2011): The future of EU innovation policy to support market growth.

²⁰ See e.g.: Soendermann, M., Backes, C. et al. (2009): Culture and Creative Industries in Germany – Defining the Common Characteristics of the Heterogeneous Core Branches of the „Cultural Industries“ from a Macro-economic Perspective.



Figure 4: Cross-cutting nature of CCI clusters

Cross-cutting nature

Interdisciplinarity and overall complexity

Due to their diversity CCI sectors usually tend to act in an isolated way and do not necessarily cooperate in between CCI sectors. However, some CCI sectors seem to cooperate more than others, e.g. film and music or press and advertising are characterised by more linkages than the sectors performing arts and software/games). The CCI is not one single industry. Instead CCI comprises various sectors, each of which is complex and heterogeneous itself. There has been an extensive international debate on how to describe and define CCI. However, the cross-cutting nature is not specific to CCI as other sectors such, as media industries or interdisciplinary technologies (e.g. ICT or nanotechnology) share similar sector-overarching features.

- ➔ There is a need to support the dialogue not only across the different CCI sectors but also to sectors outside CCI in order to overcome boundaries. CCI clusters could provide an adequate platform to foster information and communication exchange.
- ➔ PR-campaigns initiated by the cluster management may help to become present in the media.
- ➔ Cluster managements can serve as an organisational structure to support cooperation and communication within the CCI sector, across CCI sectors and also across non-CCI sectors due to the heterogeneity of sectors and its cross-cutting nature. Therefore, cluster managers not only need to be open towards diverse industry sectors and have a certain degree of professional understanding of other sectors. It is common sense that cooperation across sectors and transdisciplinary projects will allow for synergetic and innovative potentials.

Lack of shared identity and low degree of lobbying

Until the concept of clusters was introduced the CCI suffered even more from a lack of self-perception as stand-alone sector. Clusters may help to support a common identity. CCI actors are characterised by rather diverging educational backgrounds and experiences. Moreover, the CCI sectors consist of a broader variety of enterprises and business models compared to traditional industries. Some of the CCI sectors even lack associations or lobbying groups that represent their sector and demand for interests.

There seems to be an information deficit due to the heterogeneity of CCI. The general public is not aware of the CCI's potential for society and economy, yet. As a consequence, the needs and requirements of CCI are still not well known and fully addressed by proper public measures.

- ➔ A cluster builds the base to improve communication among the different core sectors which is one possible way to improve a shared common identity. The cluster management as unifying organisation supports communication processes and helps to create a common culture and language. The organisation of CCI actors may also contribute to become better organised and respectively establish a political organisation or association.
- ➔ Clusters can contribute to unite and pool forces of CCI sectors with their particularly broad variety of different types of companies and high share of freelancers.

Work forms and business models

Project-related and network based work forms and often highly specialised business models

Compared to traditional sectors working methods in CCI sectors differ substantially. Some CCI sectors are focused towards production processes which are content-oriented and often require long, high-risk development phases. Small businesses in particular rather focus on the process of creating new things than on marketing and commercial exploitation of the results.

The production and development is often project-specific, and the nature of the creative “products” is frequently intangible or virtual. Some CCI sectors rather produce prototypes, individual works or small scale series than close-to-market products.

Many small businesses in the CCI sectors address niche markets so that their business models often are highly specialised.

However, some characteristics described in this paragraph can be observed in other emerging industries (e.g. biotechnology, nanotechnology, ICT), too.

- ➔ Clusters provide a suitable environment in which companies with specialised business models can find their customers and are able to address niche markets. The specialised companies are also important as they complement the value chain of the respective CCI sector.
- ➔ Clusters support project-related and network based work forms that are typical working methods for CCI. In this respect, clusters provide the perfect structure in which CCI actors may flourish. Risks and costs for joint process and product development can be shared and minimised.
- ➔ The clusters also help the cluster participants with regard to marketing and commercialisation issues, e.g. to find the right partners, to acquire the relevant skills and know-how, or to support the understanding of non-CCI actors for CCI specific requirements and to build business linkages.

Collaboration with R&D institutes and industry structures

Industry partners from traditional industries usually have strong links to research institutions. Compared to players from CCI, however, these still have fewer connections to research and knowledge organisations. Nevertheless, the design-oriented or technology-oriented CCI sectors such as games/software seem to cooperate more often with research institutes.

The CCI sectors face constantly changing environments as well as rapidly changing job structures. Due to their cross-cutting nature the CCI sectors have the opportunity to cooperate at the interfaces with any other industry sector. That demands a high flexibility and openness from both sides.

- ➔ Whereas some clusters are research-driven, others are industry-driven; the cooperation between research and industry partners as such is a common feature for any type of cluster. The cluster intensifies the cooperation between different groups of players and accelerates the transfer of knowledge, enabling cluster participants to profit from research results and to find a suitable research partner. In CCI clusters the cluster manager has an important task to initiate cooperation processes between CCI actors and research organisations to open up opportunities for mutual benefits.
- ➔ Clusters help to stabilise business environments in various ways. E.g. being part of a cluster may help the cluster participants to become informed about upcoming economic or societal changes ahead of others.

Not well-defined concept of innovation in creative sectors

Innovation occurs everywhere in different forms and is not limited to high technology development. E.g. in service industries innovation in CCI is often “hidden” and cannot be easily defined as such. This makes it difficult to measure and assess innovation activities and its effects and impacts.

Immaterial innovations or content-oriented processes that result in innovations are often not acknowledged as innovations. Particularly, this includes innovation through creative industries (as well as other industries) or social and service innovation, new business models and practice-based innovations.

- ➔ Innovation cycles happen more and more rapidly. Today, it is acknowledged that innovation is not a linear but a systematic process and often happens across the boundaries of disciplines or technical fields. Still it remains an open task to propagate the value of the “hidden” innovations created by CCI. The cluster structure will contribute to the diffusion of the CCI innovation across other technical and industrial fields and will also create openness of the CCI for the uptake of non-CCI influences.
- ➔ Clusters support non-technological innovations or combine technology and non-technology that will lead to great potential.

Access to financing

Lack of financing for CCI

The full exploitation of the commercial potential of CCI is limited by the lack of financing for innovation and growth for creative enterprises.

Underfinancing is a severe issue for entrepreneurial activities, e.g. for companies from music, film or games industries as they are seen as high-risk areas by investors. Another obstacle is the mode of work. The project-orientation rather than institutionalised cooperation seems to irritate investors. Moreover, specific financing instruments tailored to the specific needs of creative enterprises are scarcely available.

The lack of financing takes several forms. First of all, small amounts of seed capital to kick-start new ideas, in the range 5 T€ - 10 T€. These small sums are needed in different forms by different organisations; grants, conditional loans, match to a bank (who is persuaded to support the business *because* seed money has been risked from other financial sources. Secondly, VC funding at the lower end, 50 T€ - 250 T€ which often has to come from specialised financiers.

On the one hand, the banks have difficulties and lack the experience to understand and assess business ideas of creative enterprises and on the other hand some creative enterprises have problems in dealing with business plans and outlining business concepts to investors. As a consequence, financing is little or not granted.

- ➔ Access to financing opportunities is needed to improve the full economic exploitation of CCI sectors. Raising funds is not only necessary for CCI actors but also for the CCI cluster management in order to provide services. The more cluster participants lack financing the more the cluster organisation will depend on public funding. This is particularly true for CCI cluster management as the participants will probably not be able to provide sufficient private budget.
- ➔ The cluster management should provide CCI with specific services that are targeted to the different groups in CCI clusters, thereby assisting to receive funding for innovation and start-ups. Access to private (and) public investors is facilitated. In addition, the cluster management should contribute to strengthen the awareness and trust of financial investors in CCI. In this regard, the cluster management can develop tailored strategies to improve cooperation between those two groups.

Industry and business structure

Business structure: Micro businesses and freelance (semi-)professionals, high share of women

CCI can be seen as a complex of different sectors, each of which is characterised by specific structural features and different categories of enterprises, from freelancers, to small and large enterprises.

Sectors, in which major companies prevail, are e.g. the broadcasting industry or the book and press sector. Micro businesses are mainly represented in the design, art and performing industries whereas software and games industry are more or less composed by larger and smaller

companies.²¹ But this fact varies between countries. E.g. in the UK there are far more games and serious games companies at a micro-size 1-10 people compared to other countries.

All in all, it seems that the majority of CCI sectors becomes more and more characterised by micro and small companies.

A key feature of CCI is the substantial share of self-employed people among which are writers, composers, musicians, performing artist, film makers, etc. In a way creative people can be seen as individual players in networks.

It has to be stated that semi-professionals contribute to the competition among creative professionals. The digitisation also intensified the competition. E.g. new forms of music or film production require less expensive technical equipment and open up new domains for semi-professionals. Books and articles have become increasingly published on the internet.

Compared to other industry sectors, CCI sectors comprise an above-average share of women. In almost any of the CCI core sectors (except for games and software) there are more female than male employees. Even among the share of self-employed people the proportion of women is high.

- ➔ CCI clusters have to deal with a particularly high share of small and micro businesses as well as freelancers what demands for specialized management qualities of the cluster management organisation. Freelancers and micro business will definitely need more guidance and personalised support. CCI clusters are particularly capable to moderate the diverse partners and to facilitate communication and cooperation processes. It helps the professional players to organise, find synergies and better compete (against non-professionals).
- ➔ The high share of women is remarkable. It has still to be examined how this fact can be exploited, e.g. as a role model for other industries.

Interdependency of major enterprises from micro businesses

SME are known as drivers for innovation. Large enterprises depend on SME and often take advantage of the flexible and innovative processes that can only be realised in SME. This kind of dependency can be seen in CCI as well, where some major companies depend on small or micro companies to exploit their innovative capacity. This phenomenon is not exclusive for CCI and can also be observed in other industries such as the pharmaceutical industry that substantially depends on small and flexible biotech companies to take up novel technological procedures or products.

- ➔ The cluster bundles existing sector-specific competences and regional forces along the value chain regardless of the companies' size. Within the cluster the various actors complement the value chain. In this context SME can be judged as important players as large-scale companies. So the (inter-) dependency of major enterprises from small businesses is rather a mutual advantage than disadvantage. Nevertheless, the value chain should be fully covered and balanced.

²¹ Soendermann, M. (2012): Monitoring of selected business data on cultural and creative industries 2010 on behalf of the German Federal Ministry for Economy and Technology (in German).

Context of Recessionary Times

Most countries in Europe have seen support programmes cut back. In the UK the main advisory service to business has been abolished, being left as a (partially out-of-date) information signposting service only. So the framework conditions are more important than ever, with businesses in countries like the UK beginning to realise that they can no longer rely on tax payer programmes, but instead must be more ingenious than ever to move themselves forward. Thus, cluster organisations have an even greater role to help members overcome adverse framework conditions.

Accessibility of existing support programmes to innovative CCI

Existing support programmes have often not been sufficiently oriented towards the specific characteristics of CCI and therefore did not provide the required support. Technology-oriented sectors used to be targeted by specific support tools whereas this is not the case for the diverse CCI sectors. Some countries, such as the UK, tussle with the definition of ICT sectors versus CCI – often using a weighting to put a proportion of ICT *inside* the creative sector. These weighting considerations are necessary as CCI include a very large number of businesses with technical staff, such as programmers and developers. Classifying creatives under a banner of ‘digital media’ businesses can help to solve the eligibility issue that creative businesses can be seen as ineligible to technology or ICT related funding.

Besides the specificity of supporting schemes towards target groups there has been often a lack of information or other barriers that prevented CCI actors from participating in these support programmes.

The difficult definition of innovation in CCI prevents creative actors to fully participate in support programmes, as the concept of innovation understood in these support programmes often do not correspond to the way of working in CCI. For some time, to get funding for innovation required the implementation of a technological solution rather than the growing feeling now that innovation should be more loosely classified to include the widest possible range of ideas, techniques and approaches.

Due to the micro-structure and high proportion of freelancers the CCI will benefit significantly from more individual and personalised support, e.g. to improve professionalism of CCI actors. Funding instruments for the cluster management and/or cluster activities should be harmonised and consistent. A prerequisite for this is that different policy-makers in charge (ministries) communicate and find a common understanding.

➔ The above outlined aspects need to be considered when addressing CCI through support programmes. Public support of clusters and/or cluster organisations encompasses a broad variety of industrial and technological fields. This includes the support of CCI. Today, the share of CCI clusters in Europe is still small compared to the share of clusters in other industries. Public support directed to CCI needs to be flexible in terms of governance structures, target groups, content, amount of funding, funding period, etc. CCI cluster managements are able to provide more personalised support targeted e.g. to micro-sized enterprises or freelancers and to react to individual requirements. The CCI cluster management provides information and assists to overcome barriers that prevent CCI actors in participation of public support programmes. The cluster management organisation also plays a role in raising awareness of public authorities and policy-makers to the CCIs’ needs. Insofar, the cluster management contributes to the harmonisation of available public support instruments with the aim to gear

them towards the specific characteristics and diverging needs of the CCI. Cluster managers can also moderate discussion processes between political decision-makers with diverging interests.

Technological change – CCI has been strongly influenced by ICT

Technological change over the past decades has led to substantial economic impacts in general and also affected cultural and creative industries. The increasing use of information and communication technologies resulted in both positive and negative effects on CCI. Nevertheless, some negative development novel technologies are seen as main driver for the economic success of CCI. CCI in particular make use of information and communication technologies. A large number of workers in CCI are extremely IT literate, many being programmers and developers, many more having high level technical skills.

Not only by application and development of new (digital) technologies do the CCI in general have the potential to unlock and enter niche markets that often develop further.

- ➔ CCI clusters build the platform to support the uptake of new technologies and foster cross-cooperation between CCI and non-CCI sectors.

General framework conditions of CCI – copy rights in particular – influence the future economic development

Various framework factors such as education/training, taxation policies and law impose different challenges to CCI. As for any industry, the general framework conditions are important factors that determine the future development of an industry. The copy right law in particular has become of increasing importance to secure business activities in various fields of CCI.

- ➔ Clusters and its participants are influenced by the general framework conditions of which some are difficult to influence. As mentioned before, the cluster management organisation can bundle the cluster participants' interests and speak with one voice. The CCI cluster will have a positive effect that CCI get somewhat less neglected and are more strongly involved in policy decision-making processes.

Motivation

Idealistic motivation to create; focus on individual outcome

As pointed out earlier in chapter 3.1, all people and firms involved in CCI are concerned with the creation and provision of marketable outputs. The clear focus on profit-oriented enterprises is central for the understanding of CCI fields. Nevertheless, work of people in CCI is often characterised by idealistic goals that sometimes place individual outcomes above potential commercial profits. Creative work is characterised by individual artistic or creative skills and knowledge. It is not unusual that people working in CCI fields often find themselves in tight financial living circumstances.

Moreover, creative people often show non-linear employment histories compared to standard career paths that are more common in traditional industries, e.g. starting from school to academic education and afterwards climbing up a hierarchical ladder within an enterprise or by changing the organisation and taking on more and more responsibility. Instead, creative people often work as

freelancers in successive projects and may have been employed by plenty employers. Creative people often have obvious breaks in their CV, e.g. if they changed their field of activity or paused their work for certain reasons. Human resources manager judge non-linear biographies as rather negative. They interpret this as a lack of seriousness and commitment, and it is therefore seen critical by potential larger employers or investors.

- ➔ Personal networks are crucial to maintain and generate income sources. In this regard, clusters also provide a platform to foster mutual exchange and to build personal linkages between people.
- ➔ Cluster managers can help to ensure that breaks in the professional biography are not interpreted as a flaw. Therefore, it is necessary to raise the understanding of decision-makers with respect to the specific career paths of creative people.

Lack of business orientation of CCI actors

The CCI very often do not exploit innovations (e.g. innovative services, products, competencies or processes) to their economic optimum. This may be due to missing supply structures that are either non-existent or not market-oriented enough. Thus, economic potential remain unexploited.

Moreover, some creative people do not necessarily work towards commercialisation of their products or neglect customer perspectives and the rules of diverse markets. The focus of micro companies may sometimes be too strongly focused on the process of production with little concern about later commercialisation. Thus, the economic potential often remains unexploited due to a lack of commercialisation skills and/or the non-existence of adequate structures for distribution of creative outcomes.

- ➔ It should be one of the major tasks of CCI cluster managements to improve business skills and competencies of creative people (e.g. by training events or connecting creative people to advisors). It is necessary to raise the awareness of creative people for commercial exploitation and market-orientation of their work.

The cluster and its participants may provide the required supply structure to market CCI innovation to their optimum.

3.4 Key characteristics of CCI clusters

When thinking of clusters, the question of what constitutes a typical cluster, arises. A cluster can be characterised by certain key elements. The Cluster Policies Whitebook²² presented seven building blocks that constitute the core of any cluster:

- Geographic concentration
- The core and defining specialisation of clusters
- The actors
- Dynamics and linkages/competition and cooperation
- Critical mass
- Adaption over time: the cluster life cycle
- Innovation.

Not all of the above indicated elements have to be present in each cluster and the absence of one or more of them should not automatically be seen as a weakness.²³ It can be derived that these key elements will also be characteristic for CCI clusters.

Against this backdrop the main elements of creative and cultural clusters will be discussed using the seven building blocks as a reference. Differences and similarities with regard to the seven building blocks will be pointed out and challenges to stimulate cluster are discussed.

Geographic concentration: Regional clustering of CCI depends on the sector

Regional clustering and requirements for regional clustering very much depend on the CCI sector. The largest concentration of creative and cultural industries with regard to employees in CCI sectors in Europe are in the major urban areas. In particular bigger cities are known to be hubs and magnets for people working in cultural and creative industries, good examples are Paris, London or Berlin. Capital cities and larger urban areas provide good business opportunities for a creative culture. Those areas are for the most part inhabited by people with different ethnical backgrounds who contribute their multi-cultural way of life from all around the world. These areas are also characterised by the fact that universities and various business sectors are closely located that attract young people and employees.

Over the past decades technological change has led to substantial impact on cultural and creative industries and also influenced the dependency on work space. The increasing use of information and communication technologies resulted in the effect that music or film production requires less hardware than it used to be up to the 1990s. Now with regard to film and music production workspace is not necessarily bound to certain locations (e.g. simpler film and music production processes can be carried out on a laptop equipped with appropriate software and do not require a full equipped studio).

People are able to easily work globally due to the internet and available IT-infrastructure. Individuals in CCI are often not employed at one single company. They therefore work independently from location and standard working hours. They either work from home, travel to meet their partners/customers or spend some weeks or months at the city where the project is located. Also moving is less of an issue for individuals than for entire companies. This leads to a

²² Andersson, T. et. al., The Cluster Policies Whitebook (2004).

²³ Sölvell, Ö., Clusters. Balancing Evolutionary and Constructive Forces (2008).

stronger fragmentation of the CCI sectors, as individual players are more scattered across cities and regions as they work in more flexible networks compared to other industries.

Nevertheless, major companies e.g. from film or business industry, universities in the fields of arts, major shows or trade fairs serve as seed crystal that triggers the settlement of creative people working in the respective sectors.

Libraries, museums or bigger cultural and creative companies have a static organisational base by nature and their work staff is bound to this location.

The core and defining specialisation of clusters: CCI are not one unified industry

The CCI comprise a variety of different industries. The various industries gathered under the umbrella of CCI have to be understood as separate industries in their own rights. In many cases industries are strongly interlinked or interdependent (e.g. film and music) in other cases rather independent. Some of the CCI sectors hardly show any obvious connectivity (e.g. gaming software and fine arts).

The underlying logic of the combined industries is rather different with regard to business models and value chains, business partners, knowledge and infrastructure requirements, consumers, etc. The requirements for the architecture sector to become and maintain competitive are very different from the IT games sector. Thus, the CCI as a whole will show common similarities but also unique and different business dynamics for each single sector. There will be more or less prominent and successful regional clusters in each CCI industry sector.

Despite their obvious diversity they all share the creative process. Creativity within CCI describes a mental and social process that leads to new knowledge, ideas and concepts which eventually result in commercialised products or services.

The actors: Dis-proportionate number of small and micro businesses as well as freelancers

A typical cluster is comprised of companies, financial institutions, public bodies, academic bodies, financial institutions, media and other organisations that foster collaboration such as the cluster management organisation, trade organisations and other intermediaries.

The cultural and creative industries are fields where many micro businesses and freelancers are active. Micro and small sized companies are heavily represented. However, many of the people involved in cultural and creative industries are not employed. They work independently on an often temporary basis from one project to another. The number of these kinds of non-formal jobs is substantial and is not very well covered by statistics. Consequently, it is difficult to measure the true number of employees involved in creative and cultural industries.

Dynamics and linkages: Team-oriented work approach rather than cooperation between organisations

The connections and interrelations between the actors are crucial for a vital cluster. Typically these players, firms and individuals cooperate and compete at the same time.

People in CCI tend to work in flexible team-oriented structures as they are often not part of organisations. Thus, cooperation takes place on a more individual and informal basis rather than formalised between organisations with a permanent workforce and immobile working space.

Critical mass – probably easier to achieve in CCI compared to traditional industries

The concept of “critical mass” describes that a cluster needs a certain amount of actors to achieve economies of scale and scope based on adequate inner dynamics. It is the minimal concentration of players from various fields such as private companies, academia, financial institutions, etc. Only the critical mass of players allows for suitable interaction processes that result in learning and finally in innovation. While it is clear what is meant by the concept of critical mass (that means clusters need a critical mass to become viable), it is far less clear what critical mass is in practice. What does a critical mass look like for various industries? Who and how many players are required to achieve the desired impetus?

For many technology-related industries, such as automotive, pharma or biotechnology achieving a critical mass can be very demanding. Complex organisational, economic and societal structures need to be put in place and well established, e.g. specialized suppliers or service providers, academia institutions that generate skilled personnel or venture capitalist need to be available. Technology-related industries are usually an integral part of regional innovation systems.

In some CCI sectors the requirements to achieve a critical mass seem somewhat less demanding. The dependency on research partners typical in regional innovation systems is less (see also aspect on “innovation”).

The cluster life cycle – comparable development pathway like young and emerging industries

The clusters pass through a number of different stages during their development. The life cycle encompasses initiation/agglomeration, growth, maturity and transformation levels. There is no typical development or evolution pathway, and the required pace to step forward to the next level varies not only across industries but also within industries. Clusters in early development stages are more vulnerable to influencing factors than mature ones.

CCI clusters in principal share comparable characteristics referring to life cycles of other industries. Some of the CCI sectors are yet at an emerging level. Clusters of those emerging cultural and creative industries are still agglomerating.

Innovation – Innovativeness of CCI hard to measure

Creative firms in CCI clusters are said to build the source for innovation. Compared to other industries players from CCI may more often swim against the tide, strive to overcome well established societal structures and provide new ideas and concepts. These ideas may substantially influence societal and cultural developments, or even provoke response and demand for change from society eventually leading to innovations. It is common sense that the transfer of innovation from the creative sector to other sectors offers great potential.

In non-CCI industries innovation is strongly interlinked with and based on the cooperation of research institutes and private companies. Research institutes build the necessary know-how basis and companies turn this knowledge into innovative products and services. This classic definition of innovation is associated with research and development in a technological sense.

With regard to some CCI sectors, however, these seem to rely less on science and technology networks and infrastructure in order to constitute their creativity and create innovations. Innovations of CCI are immaterial and content-oriented and thus often not acknowledged as innovations in a traditional *technology* sense.

It is therefore not surprising that standard innovation performance indicators – such as RIS and patent data – seem hardly suitable to measure innovativeness of CCI. The science and technology performance indicators put strong emphasis on the science and technology basis of the region.

Even though results of CCI lead to substantial intellectual property and intangible assets, it is hardly ever patented. Thus, innovativeness of CCI cannot be reflected in the number of patent applications.

The questions remain open: What are suitable indicators to measure innovativeness of CCI? And how can innovations from creative industries become better understood and transferred to other industries?

Having discussed those key characteristics and taking into account the key differences of cultural and creative industries presented in chapter 4.3, it can be stated that CCI clusters indeed differ from conventional business clusters. They seem to be driven by different factors; they seem to pursue different objectives and show diverse structural features.

But despite their diversity: Are CCI clusters really as different from clusters in traditional industries as it is commonly assumed? And do they really need a different or specific “treatment” when it comes to cluster policy measures or impact measurement?

The next chapter will examine if CCI clusters do differ, and if so, in what ways CCI clusters deviate.

4 Are they really different? Comparison of CCI to non-CCI clusters

The aim of this report is to develop a benchmark framework for the evaluation and impact assessment of CCI clusters. The benchmark framework that is developed in the next chapters will be mainly based on a concept that has already been developed for the application in other industries than CCI. Therefore, the question is arising: Is it possible to adapt and apply the same frameworks for evaluation and impact assessment for clusters from other industries to CCI clusters? Or does the specificity and diversity of CCI described above demand for unique or even individual frameworks for each CCI sector?

In the following, results of an analysis carried out during this study will be presented.²⁴ Our analysis aimed at the comparison of CCI clusters to clusters from other industries in order to find answers to the following questions:

- What do clusters in CCI have in common with clusters from other industries?
- If they are different, in what respect do they differ?
- Are there any patterns which are more characteristic for clusters from CCI compared to other industries?
- Does the cluster management of clusters in CCI clusters operate differently compared to cluster managements from other industries?

The latter aspect with regard to cluster management organisations is important since cluster management or leadership excellence has been understood to be of very high importance²⁵ and has been put high on the agenda for many cluster programmes within Europe²⁶. Today, it is agreed that cluster management organisations can provide an excellent platform to better leverage existing assets in business environment. However, leadership practices provided by cluster organisations vary between clusters across technological domains. Thus, it can be assumed that there will be differences with regard to cluster management organisations and offered services in CCI clusters.

The chosen approach is to compare data on cluster characteristics and cluster management organisations from both CCI and other industries. The relevant data for this comparison were gathered by a benchmarking methodology. The methodology “benchmarking” is a comparative analysis of structures, processes, products and services of clusters. It compares an entity to peers in the same field of activity and/or to best practices from entities in other areas. The objective of benchmarking is to learn from better performing peers or other entities in order to improve own structures, processes, products and services. Benchmarking for cluster analysis is based on a personal interview with the manager of a cluster management organisation. The interview (which takes about three hours) is conducted by an impartial benchmarking expert and captures data on

²⁴ It has to be mentioned here that the subsequent analysis refers to the same data and applies the same methodological approach as used in the recently published study on “Similarities and differences of clusters in emerging and traditional industries” see: Meier zu Köcker, G. et. al. (2012) “Clusters in Emerging and Traditional Industries – Similarities and Differences”.

²⁵ Recommendations of the European Cluster Policy Group, 2010, <http://www.proinno-europe.eu/ecpg/newsroom/ecpg-final-recommendations>

Lämmer-Gamp, T., Meier zu Köcker, G., Christensen, T. (2011): Clusters Are Individuals. Creating Economic Growth through Cluster Policies for Cluster Management Excellence, Danish Ministry of Science, Technology and Innovation/Copenhagen/Berlin”, ISBN 978-87-92776-21-1,

the different dimensions of the cluster. In order to achieve the benchmarking the collected data is compared to a portfolio of more than 190 clusters from different European countries.²⁷

The benchmarking identifies best-performing entities (the benchmark) but it is neither a tool for rankings nor is it able to substitute evaluations. Today the benchmarking is a widely accepted methodology, which provides the opportunity for mutual learning through the comparison of quantitative indicators.

Each of the cluster management organisations represented in the portfolio has been benchmarked mainly with their peers from the same industry. By means of the collected data it has been possible to describe and analyse a cluster (management organisation) in terms of its structure, management and governance, financial aspects, and services which are offered by the cluster management as well as in terms of the achievements and recognition of the cluster management organisation respectively the cluster. The benchmarking approach usually covers five different dimensions comprising 34 indicators.

For this analysis only 16 out of these 34 indicators have been applied to analyse whether and how clusters from CCI differ from other industries.²⁸ The findings presented here are mainly based on a benchmarking exercise of about 150 European clusters and cluster management organisations that has been conducted in 2010 and 2011.

The comparative sample

For the analysis mainly matured cluster initiatives and cluster management organisations have been selected, most of them labelled as belonging to the best in their respective countries. This fact assured that clusters and cluster management organisations characterised by similar maturity and excellence levels were compared. A number of 86 cluster initiatives/cluster management organisations out of seven countries²⁹ have been analysed by the benchmarking approach (see table). 16 out of 86 cluster initiatives analysed belong to creative and cultural industries (see appendix C for more information)³⁰. For the comparative group clusters from both more conventional (Food, Materials and Chemistry, Production and Engineering) and emerging industries (Biotechnology & Health, ICT) were selected in order to achieve reliable results and avoid a certain bias towards a specific “type” of industry. The selection assures the representation of typical industry sectors in the comparative portfolio.

²⁷ www.cluster-analysis.org/esca-projects/ESCA_leaflet_March2012.pdf

²⁸ A full list of indicators can be found in the appendix to this report. For the argumentation why these 16 indicators had been chosen for analysis we refer also to Meier zu Köcker, G. et. al. (2012) “Clusters in Emerging and Traditional Industries – Similarities and Differences.” The appendix also includes a brief description of each selected indicator.

²⁹ Denmark, Germany, Iceland, Finland, Norway, Poland and Sweden

³⁰ The authors are fully aware that the selected 16 cluster initiatives do not fully represent CCI clusters in Europe, neither in terms of numbers nor in terms of diversity. They rather represent a small cluster sample group. Conclusions drawn are only based on this sample group and do not automatically stand for all CCI clusters in Europe. However, this sample can provide first impressions how CCI clusters are compared to clusters from other industries

Industry type	Number of analysed clusters
Creative industries	16
Biotechnology & Health	16
Food	11
ICT	15
Materials and Chemistry	11
Production and Engineering	17
Total	86

Table 2: Selected industries representing CCI and other industries

Main findings of this analysis with regard to similarities and differences of CCI clusters in comparison to other industries will be outlined and summarised in the following.

4.1 Structural factors

Ten structural factors had been selected that are known to have an effect on the cluster's performances³¹. These structural factors have been assessed based on the benchmarking results for the six selected industrial sectors and compared with data sets of the entire comparative portfolio in the benchmarking database (see table 3).

Structural Factors	Creative Industries	Biotech	ICT	Food	Materials/ Chemistry	Production	Average
Age of the cluster management	2006	2005	2004	2003	2005	2003	2005
Number of committed members/key actors	75	70	<u>95</u>	80	<u>90</u>	60	70
Regional concentration	<u>75 %</u>	<u>96 %</u>	90 %	80 %	<u>75 %</u>	90 %	90 %
Driving force within the cluster ³²	4,0	<u>2,85</u>	3,62	3,82	3,81	4,0	3,72
Degree of specialisation of the cluster ³³	3,4	2,8	2,7	3,5	3,4	2,8	n. a.
Legal form of the cluster ³⁴	<u>88 %</u>	<u>88 %</u>	77 %	<u>55 %</u>	83 %	72 %	77 %
Decentralised governance ³⁵	38 %	31 %	<u>60 %</u>	33 %	27 %	44 %	38 %
Public funding rate of the cluster management	62 %	<u>88 %</u>	66 %	64 %	60 %	<u>50 %</u>	61 %
Strategy and strategic planning of the cluster ³⁶	4,4	<u>3,3</u>	4,6	3,8	<u>4,7</u>	4,6	4,1
Number of values clearly diverging from the average	2	5	2	1	2	1	2

Table 3: Comparing structural data from CCI cluster to clusters from other industries. The underlined figures show values clearly diverging from the average.

³¹ For further description of the selected indicators see attachment to this report.

³² Scale 1: only research driven, 2: mainly research driven, 3: half-half, 4: mainly industry driven, 5: only industry driven.

³³ Scale 1: highly specialised, 2: specialisation given, 3: specialisation partly given, 4: broad scope (specialisation not really given), 5: very broad scope (no specialisation at all).

³⁴ Percentage of clusters belonging to a given technological domain having a certain given form.

³⁵ Percentage of clusters having a more decentralised governance in place.

³⁶ Scale 1: no strategy available, 2: strategy defined, 3: strategy defined and implemented, 4: strategy defined, implemented and reviewed, 5: strategy defined, implemented reviewed and adapted.

- **Age of the cluster management organisation:** Cluster management organisations are, on average, about six years old. CCI cluster managements have an average age of about five years that is even one year more than the overall average age of the analysed cluster management organisations. This shows that CCI cluster management organisations not necessarily tend to be much younger. However, it has to be noted that some of the cluster management organisations in the comparative portfolio are much younger, e.g. cluster management organisations from Denmark are younger compared to those from Germany. That is due to the fact that the founding of cluster initiatives had been set up later on.
- **Number of committed participants:** On average, clusters in Europe consist of about 70 (committed) participants. ICT and Materials / Chemistry clusters tend to be bigger in terms of size (about 90 committed participants on average) than clusters from the production area which yields the lowest values. Size seems to significantly vary across and within industries. CCI had a slightly higher average of 75 committed members/key actors compared to the overall average of 70 participants. CCI clusters do not stand out in terms of size; they are neither extraordinarily big nor small.
- **Regional concentration of the cluster actors:** It has to be stated here that objectives of cluster policy programmes differ. Some cluster programmes set a high regional concentration as prerequisite for funding (e.g. Norway or Iceland) others do not (e.g. Bavaria, Denmark). The comparison revealed that biotech clusters' agglomeration is the highest among all analysed industries. Clusters from the other industries slightly vary between 75 % and 90 %. Most of the clusters have an average of 90 % that means they are highly agglomerated. For CCI, however, regional concentration is significantly smaller (75 %) and is at the same level compared to the food cluster's regional concentration. CCI clusters seem to be characterised by a smaller degree of agglomeration.
- **Driving force within the cluster:** The main driving force of clusters either comes from R&D or from industry players. Results revealed that R&D is the main driver for biotech clusters, which means that the clusters' main objectives are dominated by R&D issues. For other industries business orientation seems of higher relevance than R&D. That is particularly true for CCI and production clusters. Beside clusters from the production sector, CCI clusters are the most industrial driven ones. This finding corresponds to the observation that CCI clusters may be less embedded in or dependent from R&D networks and R&D infrastructure. It also seems to contribute to the supposition that CCI clusters are indeed business-driven and profit-oriented.
- **Degree of specialisation of the cluster:** Specialisation describes the focus on certain domains of activities. There is no average value available for this indicator. Biotech, ICT as well as production technological clusters tend to be more specialised compared to others. CCI clusters showed only a slight tendency towards a smaller degree of specialisation. Even though CCI clusters are very diverse, they show an average degree with regard to specialisation.
- **Legal form of clusters:** The majority of the analysed clusters has a dedicated legal form. The average value is of around 77 %. That means 77 % of the analysed clusters selected a certain legal form of which a registered association prevails. Biotech and CCI clusters tend more strongly to a dedicated form (88 %) compared to other industries. In the food sector only 55 % of the clusters decided for a legal form. If a cluster initiative has decided to set up a certain legal form, this can be understood as a clear sign of strong commitment of the cluster actors. This is confirmed by the fact that CCI clusters have a relatively high number of committed participants.
- **Type of governance:** The governance of clusters can be described as more centralised (if the cluster management is the key facilitator initiating most of the networking activities) or more decentralised (when the cluster participants are more self-organised). Based on the findings, only 38 % of all clusters have a more decentralised governance structure. That means the majority is more centralised. ICT clusters are an exception and tend to be governed quite

decentralised (60 % of all ICT clusters) compared to total. Clusters from Materials/Chemistry sectors are the least decentralised (27 %). CCI clusters tend towards centralisation like the majority does. They are exactly in the average (38 %). Interestingly, there seems to be no significant relation between the age of the cluster organisation and the corresponding type of governance in the sense that older clusters are governed differently than younger ones.

- **Public funding rate of the cluster management organisations:** The public funding rate considerably differs among cluster management organisations across Europe. Some of them do not receive any public funding, others heavily depend on public money. Due to different objectives or the availability of regional or national funding schemes that could provide money, the share of private funding is considerably influenced and thus should not be considered as a quality or success criteria. The total average funding rate is 61 %. The cluster management organisations from biotech got significantly higher amounts of public funding (funding rate is 88 % on average), whereas cluster management organisations from the production area receive the fewest public funding (50 %). CCI clusters are with 62 % very close to the average. The data shows that CCI clusters do not significantly differ in their share of public funding compared to other clusters.
- **Strategy and strategic planning within clusters:** One of the most important tasks of cluster management organisations is to develop a clear and defined strategy. The findings show that the majority of the clusters pay high attention to this issue, which means they have defined and implemented such a strategy. The strategy is continuously reviewed and improved, since the index values and the average value are rated above 4 (see table). Compared to the average biotech clusters reveal significantly lower values around 3.3, which means that the most of these cluster managements have a strategy defined, but are just at the beginning of its implementation. For CCI clusters the value is 4.4 (strategy defined, implemented and reviewed) and slightly above average (4.1). They are only topped by clusters from the production sector (4.7). It may be noted that CCI clusters put strong emphasis on strategy development and its implementation.
- **Number of values clearly diverging from the average:** It was counted in how many values the analyzed industry sectors clearly diverged from the average. All of the industry sectors differed in one to five aspects, (two aspects on average). Interestingly, the biotech sector revealed the highest variability of structural factors while CCI clusters showed only two diverging ones. CCI clusters differed in a) regional concentration (significantly smaller than the average) and b) a tendency towards a more legal form of the cluster management organisation. In summary, it can be stated that with respect to structural factors CCI clusters show no distinct differences compared to the other analysed industries. With regard to the influence that both aspects will have on “how the cluster should be treated and analyzed” we have the following assumption: The structural factor “regional concentration” will probably be of somewhat higher relevance than the “legal form of the cluster management organisation”. The type of the cluster management’s “legal form” is considered to be important for clusters as a more dedicated form is considered to reflect a higher mutual commitment among cluster participants. This finding might reflect that CCI cluster participants are somewhat more strongly committed to each other than cluster participants in other industries. But this is a rather vague assumption and, as described above, the CCI clusters only deviate by 10 % from the average of 77%. In addition, CCI clusters are no exception with respect to a tendency towards a legal form of the cluster management. Also 88% of the biotech clusters had a legal form. The structural factor “regional concentration” however is significantly lower than the average (75 % compared to 90 %). But interestingly, the tendency towards “defragmentation” was also observable for clusters from Materials/Chemistry which also showed “only” 75 %.

Summary of findings:

Structural Factors	Creative industries
Age of the cluster management	CCI Clusters do not tend to be younger (or older).
Number of committed members / key actors	CCI clusters do not stand out in terms of size. CCI clusters show a slightly higher number than the average of committed participants.
Regional concentration	CCI cluster are significantly less regionally agglomerated than other clusters.
Driving force within the cluster	CCI clusters are strongly driven by industry partners.
Degree of specialisation of the cluster	CCI clusters do not tend to be particularly specialised.
Legal form of the cluster	CCI clusters strongly tend to a dedicated legal form.
Decentralised governance	CCI clusters slightly tend towards more centralised governance structures (like the majority).
Public funding rate of the cluster management	CCI clusters receive an average amount of public money compared to other clusters. They are neither more nor less dependent from public money than others.
Strategy and strategic planning of the cluster	CCI clusters put strong emphasis on strategy development and its implementation (as the majority of the others clusters does).
Number of values clearly diverging from the average	CCI clusters diverge in only two aspects (the average is two, biotech clusters diverged in five aspects).

The analysis above revealed that clusters differ across industries. It could be shown that CCI clusters differ with regard to structural factors, but only in some regards that are not limited to CCI. All in all, CCI clusters do not show any specific or outstanding structural features that can only be observed in CCI. CCI do not demonstrate a unique pattern.

After studying the structural factors, we are now focusing on the question whether or not there are different main objectives of clusters/cluster management organisations (chapter 4.2) and how offered services differ across industries (chapter 4.3). The last aspect we compared was about the estimated impact the clusters will have in the various industries (chapter 4.4).

4.2 Cluster management organisations' objectives

The further analysis focused on the question whether or not the main objectives of clusters/cluster management organisations differ between CCI and other industries. It was examined what kind of thematic priorities the cluster management organisations were aiming at when providing services for their actors. The following findings describe if there were similar patterns for CCI clusters or for clusters from other industries.

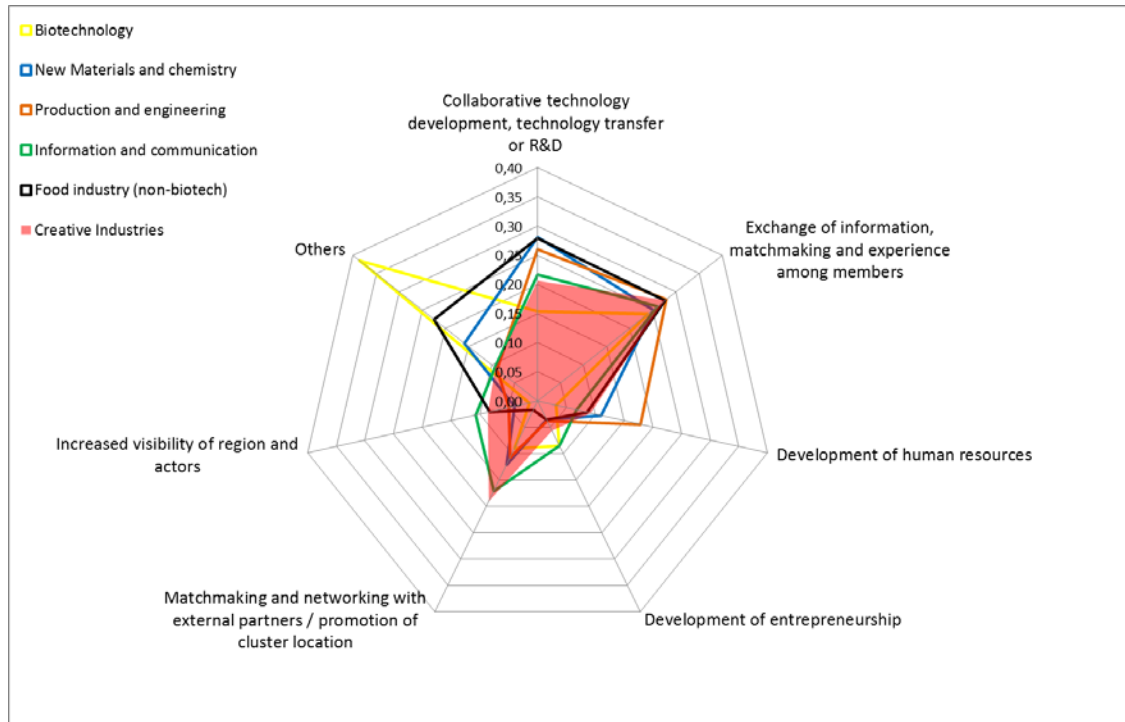


Figure 5: Pattern of main objectives of clusters/cluster management organisations from different industries

All of the analysed clusters show a quite similar picture with some exceptions. The main focus is on initiating collaborative technology and product development as well as on internal information or experience exchange/matchmaking. The CCI clusters show a rather similar picture to ICT cluster management organisations.

The CCI clusters, together with ICT and biotech clusters, however, reveal a slightly diverging pattern. They tend to pay less attention to initiate collaborative technology and technology transfer or R&D development rather than to focus on internal and external information or experience exchange/matchmaking.

In summary, when it comes to the objectives of the clusters those cluster management organisations from CCI, ICT and biotech show a somewhat different picture compared the clusters from Food, New Materials/Chemistry or Production/Engineering.

Summary of findings:

	Creative industries
Objectives of the cluster management organisation	CCI cluster management organisations show differences in terms of objectives but no distinct specific unique pattern.

Clusters or cluster participants together with their cluster management organisation respectively have defined different objectives and priorities for their task. Whereas some activities seem of relevance across all industries, some other tasks are of higher relevance to certain industries.

So it is not surprising that CCI cluster management organisations set priorities with regard to their agenda: They focus on the information exchange in and outside the cluster.

4.3 Types of cluster management services

It is well acknowledged that the cluster management organisation provides a platform to better leverage existing assets in the cluster's business environment. Cluster management organisations typically provide services in several categories which can provide added value. The next step in our analysis was to examine whether the intensity of different services offered by the cluster management organisations differed between CCI and other industries.

Services in the following fields were analysed which are known to be of high relevance:

- 1) Collaborative technology and product development
- 2) Support to acquire third party funding
- 3) Development of human resources
- 4) Matchmaking and networking with external partners
- 5) Entrepreneurial support
- 6) Internationalisation

Figure 6 displays the intensity of services in the above named service categories offered by the cluster management organisations.³⁷ When comparing the service spectrum among the clusters from different industries, it became obvious that there are slight industry specific differences, but not one single significant pattern for any industry.

In comparison, cluster management organisations from CCI were the least active in acquiring third party funds for their actors (composite service index values below 2.0), which seems not surprising

³⁷ Explanation of the composite indicator: In the benchmarking interviews mainly the diversity and the frequency of services by the cluster managements provided had been analysed in order to get a better picture whether cluster management organisations from various industries focus on different service categories or services (with different frequencies). The composite service indicator is based on the following scale:

- (4) Very large spectrum of services and/or very high frequency of services;
- (3) Large spectrum of services and/or high frequency of services;
- (2) Average spectrum of services and/or medium frequency of services;
- (1) Limited spectrum of services and/or less sufficient frequency of services;
- (0) No services offered.

because third party funds are often sought to realise major R&D projects what probably happens less in CCI.

When it comes to support measures for internationalization efforts, CCI cluster management organisations are fairly passive (composite service index values around 0,5), whereas those from the other sectors are more active, e.g. Food, ICT and Materials/Chemistry sector (composite service index values around 1.25).

Service intensities in the field of supporting entrepreneurs and human development are, compared to the other service categories in general, quite low. For cluster management organisations from CCI the composite service index values are low with around 1 and below, what reflects that entrepreneurship and human resources development seems not a prioritised objective (compare figure 5 and 6). However, those clusters from Food, New Materials/Chemistry, Production/Engineering are even more passive in the field of entrepreneurship (composite service index values below 0,5). In summary, the findings could not reveal any specific pattern related to the intensity of clusters management services in certain service categories for any of the industries.

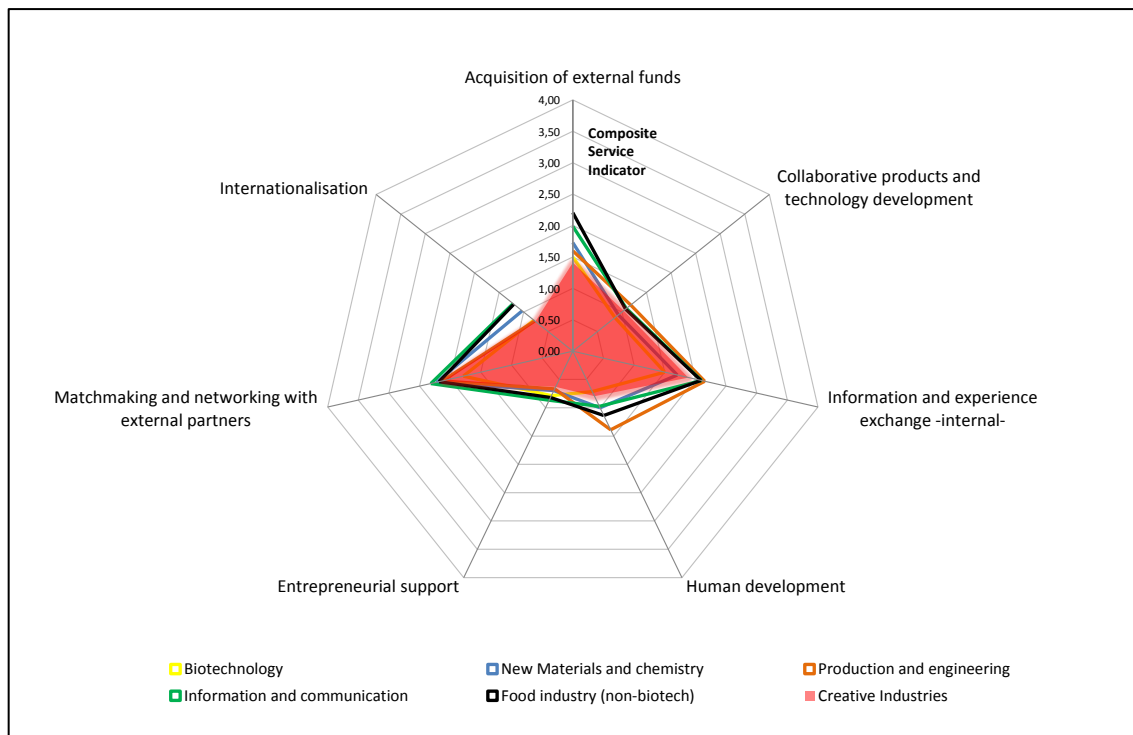


Figure 6: Intensity of services in service categories offered by cluster management organisations (high index values stand for high intensity of services offered)

1) Services spectrum of CCI in the field of collaborative technology and product development

The services spectrum and intensity offered by cluster management organisations within a particular service category was analysed in more detail in order to find out whether specific service patterns exist for clusters from CCI compared to other industries.

The service category “Collaborative technology and product development” comprises the following analysed activities:

- Organisation of task forces/working groups
- Initiating collaborative projects for cluster participants
- Services to jointly develop products, technologies or services
- Support in patents or licensing issues (generated by participants through cluster activities)
- Other services/activities

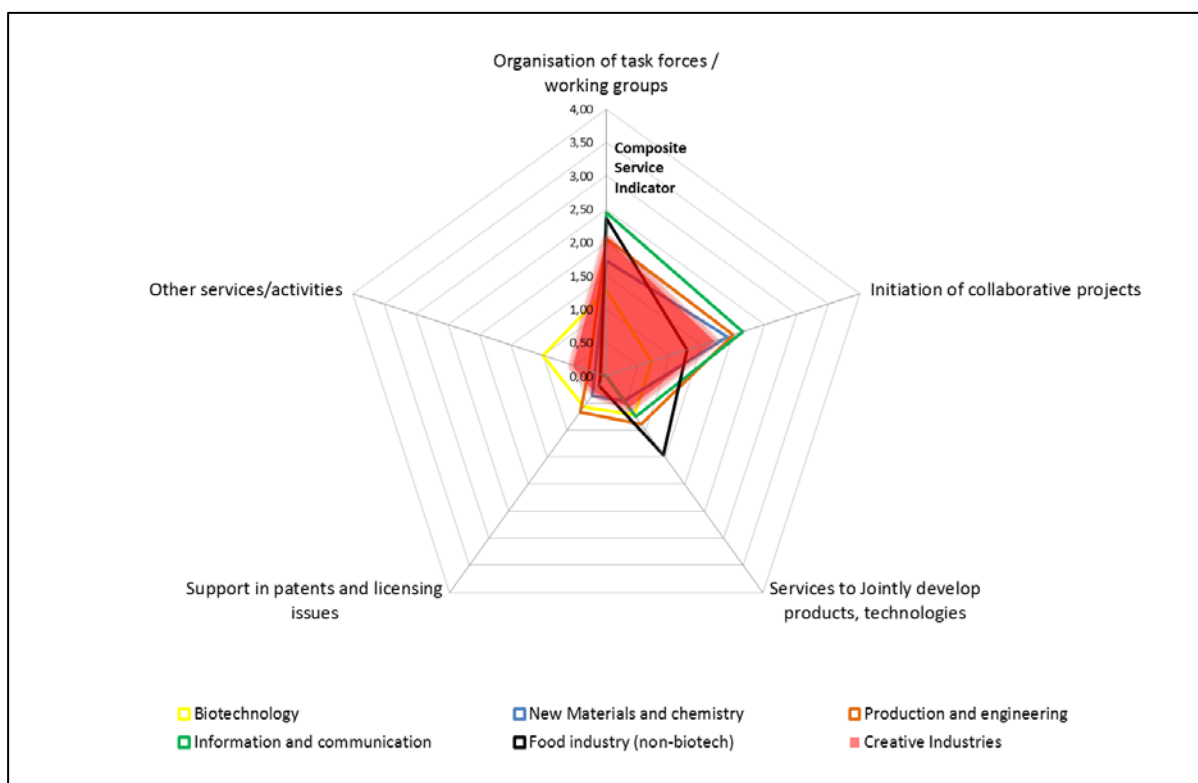


Figure 7: Intensity of services in the service category “collaborative technology and product development” offered by cluster management organisations from selected industries (high index values stand for high intensity of services offered)

According to Figure 7 there is no specific service in the field of collaborative technology and product development offered by cluster management organisations, which strongly dominates the others. Services, such as organising/co-ordinating working groups or task forces, initiating collaborative innovation projects and continuous support measures to develop technologies, products and innovative services are more actively offered by cluster management organisations from the production and engineering sector than by those from other industries. For CCI clusters it becomes obvious that they do not strongly support services to jointly develop products,

technologies or services. Instead, the emphasis is put on the organisation of task forces/working groups as well as activities that initiate many collaborative projects among their actors/members. The picture for clusters from ICT industries seems to be similar to CCI clusters. In summary the findings show that there is a CCI pattern detectable. However, besides biotech clusters CCI clusters offer more specific services compared to other industries (see indicator “Other services/activities”)

2) Services of CCI clusters to acquire third party funding

Many cluster management organisations offer a number of services to help their cluster actors with the acquisition of third party funding (e.g. public funding). Third party funding is often used to finance cost-intensive R&D projects, but there are also non R&D projects [e.g funds for internationalisation, cross-cluster co-operation, training and education etc]. Public bodies provide funding money in the context of R&D funding schemes. Cluster management organisations may not only help to form R&D teams from business and research partners but also to give support with writing tenders. Another task is to make information about funding programmes and other support possibilities available.

The service category “Acquisition of third party funding” comprises the following analysed activities:

- Support of third party funded R&D projects
- Third party funded non-R&D projects
- Other services/activities

The analysis on this topic revealed that cluster managements of the Food industry offer the most services (values vary between 2.2 and 3.5 in the main categories, see figure 8) followed by New Materials/Chemistry and ICT. The CCI cluster management organisations are less active in all three categories: Third party funded R&D projects, third party funded non R&D projects and distribution of information about funding programmes and possibilities. Surprisingly the values for biotech clusters are even lower except for the service to distribute information on funding opportunities. One could have expected that cluster organisations in the obvious R&D intensive biotech industries offered services in these fields more intensively. One yet unconfirmed explanation is that biotech players academia and companies are well familiar with the acquisition of funding and do less depend on additional support. Another explanation that applies to the somewhat more passive behaviour of CCI: There are only little opportunities to receive third party funding money. R&D funding schemes may be rare compared to other fields.

In summary, there are only slight differences between CCI and no clear industry specific pattern can be detected.

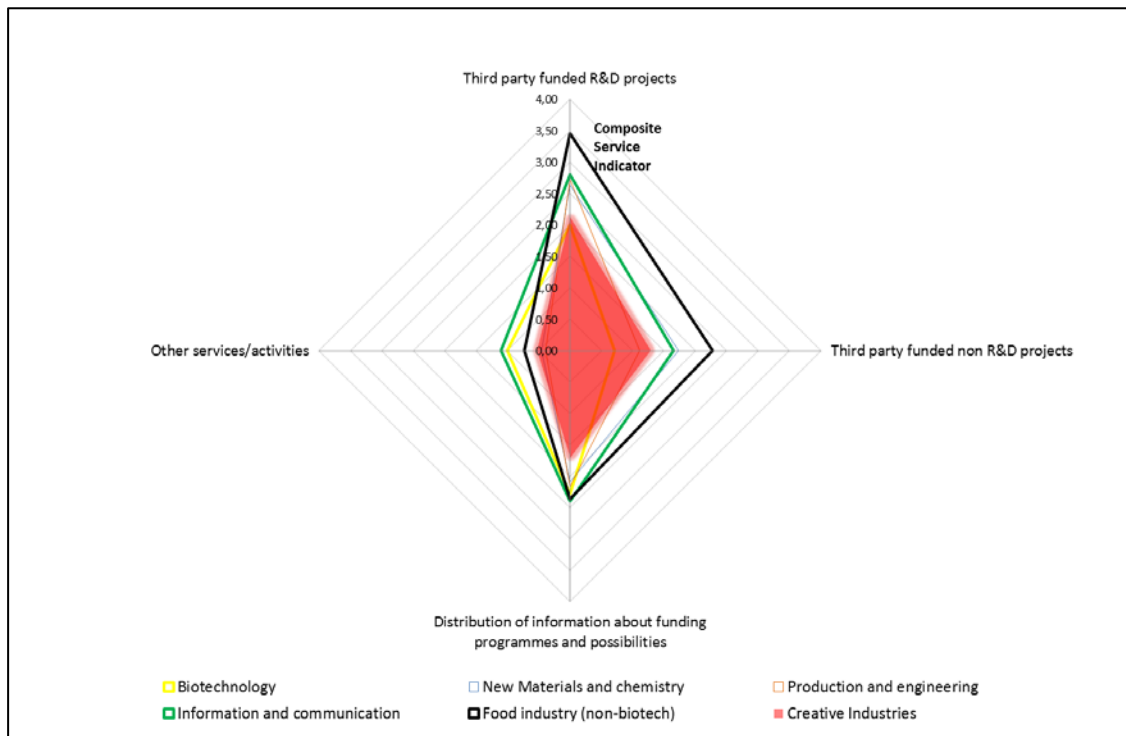


Figure 8: Services offered to acquire third party funding

3) Development of human resources (e.g. training and education, recruitment)

The availability of adequately skilled personnel is a prerequisite for a prospering cluster. The cluster management can significantly contribute to the availability and suitability of the people's skills and competences within the cluster. An exemplary task is the development of new vocational or academic training courses or the provision of tailor-made training courses for cluster participants. Additionally, the recruitment of specialist or experienced personnel, such as executive managers, is often a desired responsibility.

The service category "Development of human resources" comprises the following analysed activities:

- Significant contribution to the establishment of vocational training courses/study courses at universities
- Recruitment of specialists and executive managers for the members
- Personal development services intended for staff of cluster actors
- Other services/activities

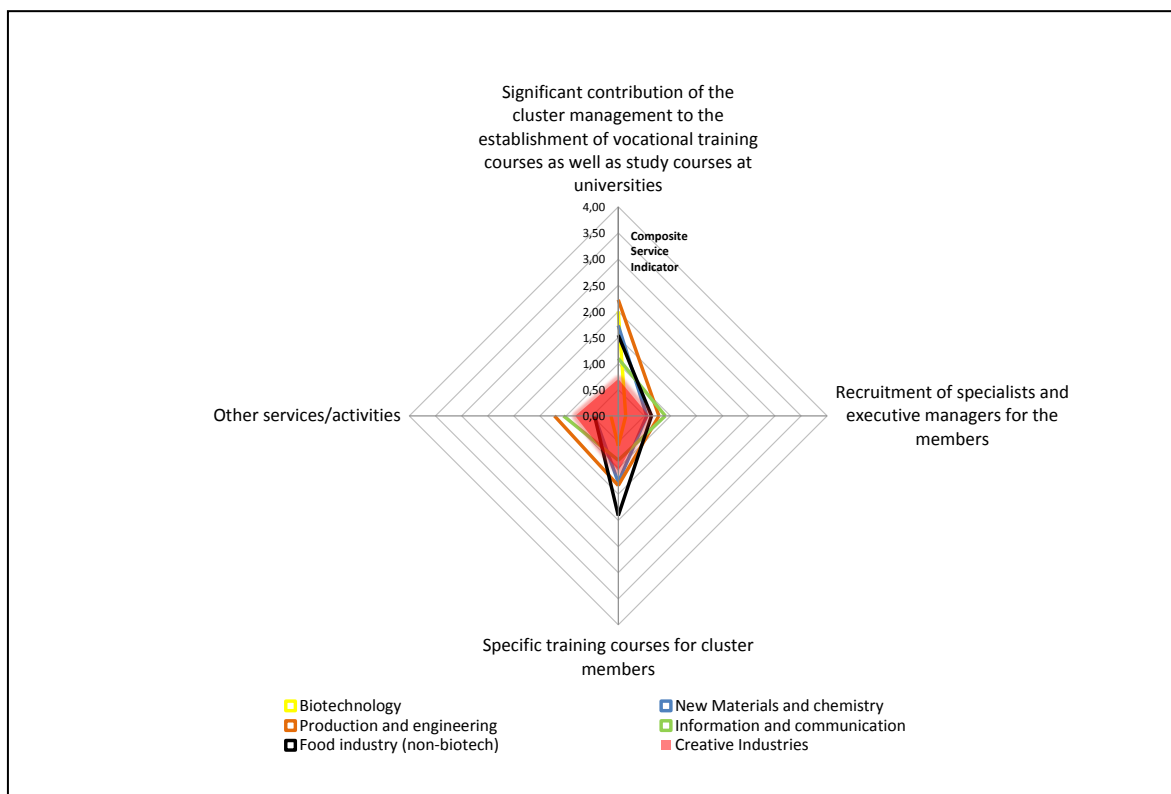


Figure 9: Services offered to develop human resources

The examination if CCI differ in their human resources related services revealed an interesting picture (see figure 9). The industry sector Productions Engineering is quite strong in the contribution of services in the fields of “contribution to the establishment of vocational training courses as well as study courses at universities” (2,2) followed by New Materials/Chemistry and Biotech (both 1,7) as well as Food (1,65). Regarding the service “specific training courses for cluster participants” Food (1,6) and New Materials/Chemistry (1,3) have the highest values. ICT is the first with regard to “Recruitment of specialists and executive managers for the participants” with a value of 0,9.

Interestingly, the results for CCI are among the lowest achieved, they vary between 0,6 and 1. The result indicates that services to support human resources offered by CCI cluster managements are less carried out. Even though there might be less demand for adapting vocational/study courses at universities it is not understandable why services for individual development are offered rather scarcely. Other services/activities do not seem to compensate for the lack in the other categories.

4) Services spectrum of CCI in the field of networking and matchmaking (with externals)

Cluster management organisations from all industries offer a number of services to stimulate the experience and information exchange as well as the matching among the members. A more detailed analysis of the spectrum of services belonging to this category revealed that the intensity of specific services diverges across different industries. In general, the intensity of services in the field of networking and matchmaking provided by cluster management organisations is higher compared to other service categories.

The service category “Support for matchmaking and networking” comprises the following analysed activities:

- Availability of up-to-date print/web material
- Press releases
- Presentation of the cluster and its members on trade fairs/congresses
- Specific events/workshops to present the cluster and cluster activities to externals
- Specific matchmaking/networking with external partners/other clusters
- Other services/activities

The analysis showed that electronic and printed information materials about the clusters and their actors are provided by almost all cluster management organisations (most values are between 2.5 and 3.0). There are quite a lot of activities to issue press releases about news of, or the developments within the clusters. Here CCI ranges among the highest values.



Figure 10: Intensity of services in the field of matchmaking and networking offered by cluster management organisations from selected industries (high index values stand for high intensity of services offered)

In comparison, CCI cluster management organisations do not pay very much attention to offer specific events to present the cluster and cluster activities to external players. The intensity to provide tailor-made services to match the cluster actors/members with other external partners is rather low with CCI clusters. This task seems to be high on the agenda for production/engineering as well as ICT cluster management organisations, but very low for creative industry clusters. On the contrary, CCI cluster management organisations are again quite active in the field of “others services”, meaning they offer very specific services that do not belong to any other standard service type under the service category “Networking and matchmaking with externals.” In summary, biotech and CCI clusters show slightly different pictures compared to the others.

5) Services spectrum of CCI in the field of entrepreneurial support

Entrepreneurial support measures are often considered to be typical services offered by cluster management organisations. The service category “entrepreneurial support” comprises the following analysed activities:

- Consulting and coaching of entrepreneurs
- Acquisition of financial sources on behalf of entrepreneurs
- Other services/activities

The examination of this service category revealed that entrepreneurial support measures in general seem to play a less significant role (composite service index values are 1.5 at maximum). That means services or support measures are mainly offered in exceptional cases. CCI clusters show their highest activity with respect to acquisition of financial sources on behalf of entrepreneurs (composite service index values of 0.73; nevertheless, the achieved value is low). Consulting and coaching of entrepreneurs rank at 1.2 and other services are marginally with 0.18. CCI clusters are characterised by high shares of SME. Moreover, like in ICT or biotech clusters, start-ups and entrepreneurs prevail in CCI clusters more than in other industries. Therefore, it is surprising that CCI clusters seem to put rather low emphasis on entrepreneurial services. In summary, the service intensity patterns for “entrepreneurial services” are quite similarly low for all cluster management organisations. CCI clusters do not show any specific activity levels in this field.

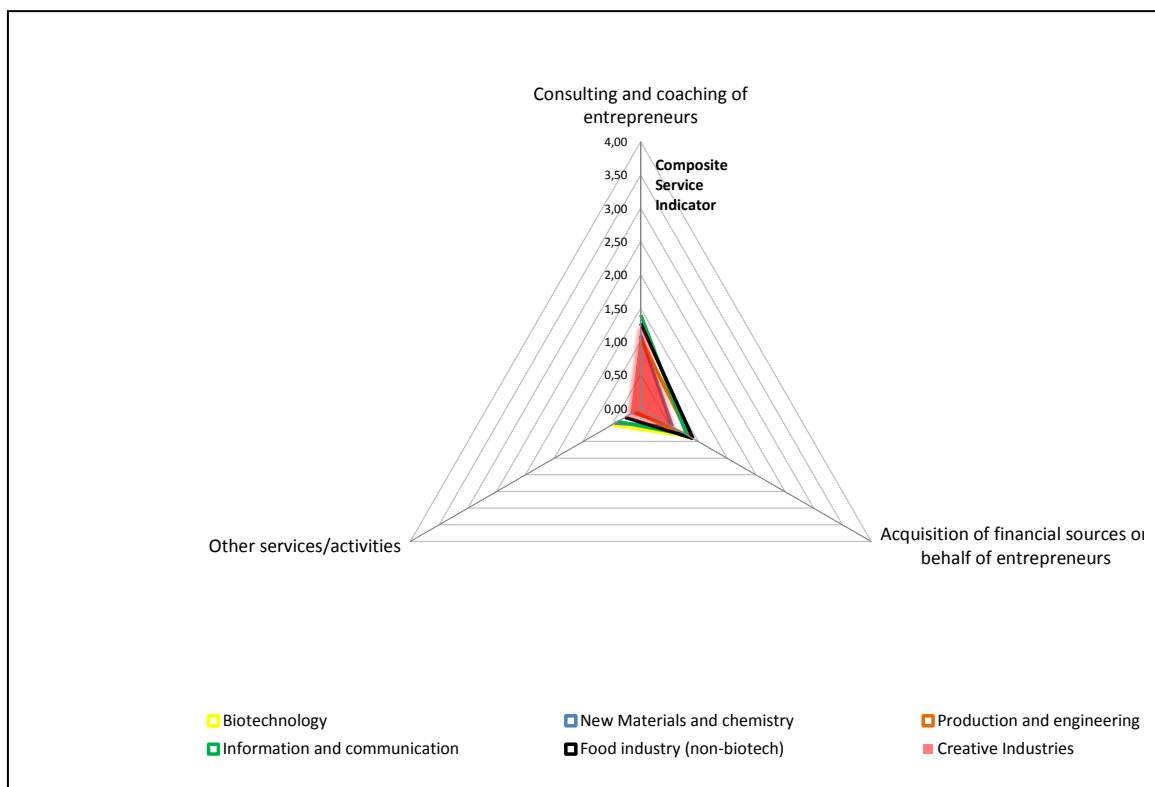


Figure 11: Intensity of services in the field of entrepreneurial support offered by cluster management organisations from selected emerging as well as of traditional industries (high index values stand for high intensity of services offered)

6) Services spectrum of CCI clusters in the field of supporting internationalisation

Supporting the internationalisation of the SME actors is also considered to be a typical domain for supporting measures of cluster management organisations. There are many different publications, pointing out how cluster managements in the past successfully supported SME to go international as well as what innovative and smart services could look like.^{38, 39}

The service category “Internationalisation” encompasses the following analysed activities:

- Availability of print/web information in foreign languages
- Participation of the cluster management in trade fairs/conferences abroad with own booth to present the cluster and its members
- Other activities by the cluster management for intensifying international contacts and co-operations with foreign partners or clusters
- Offices or other permanent representations of the cluster abroad
- Acquisition of international R&D projects that were mainly initiated by the cluster management
- Other services/activities

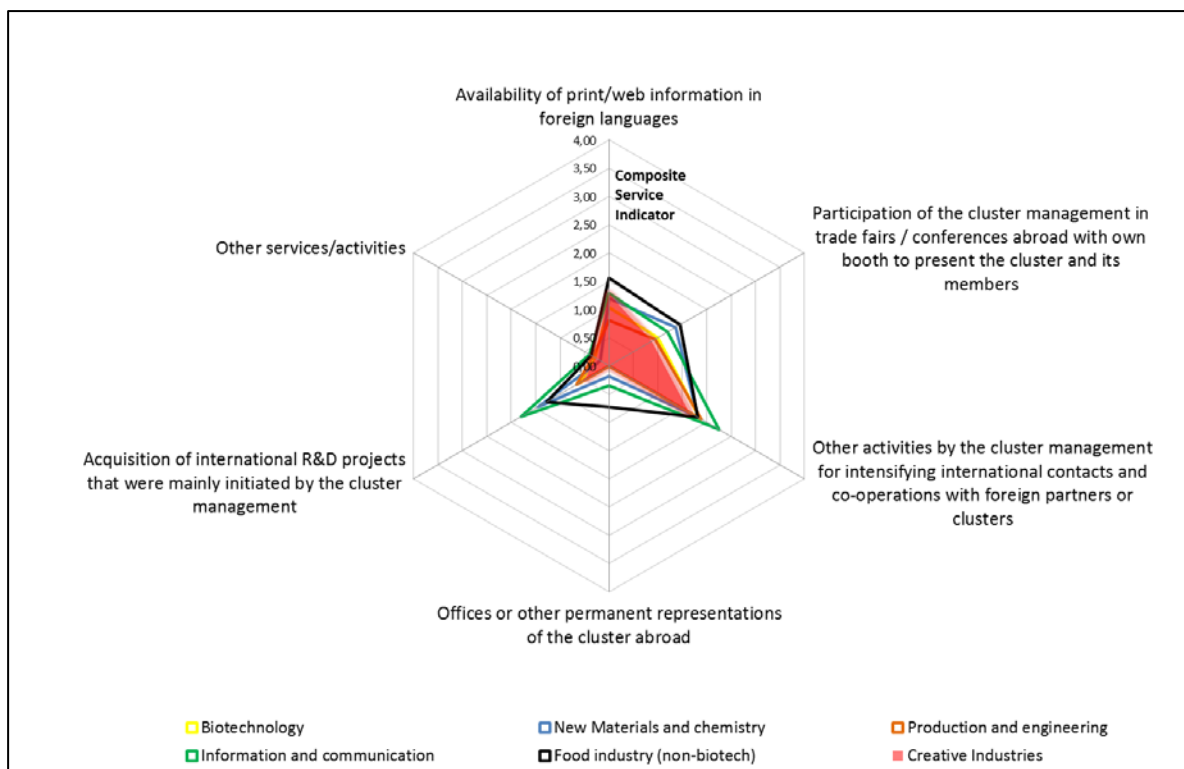


Figure 12: Intensity of services in the field of internationalisation offered by cluster management organisations from selected industries (high values stand for high intensity of services offered)

³⁸ Meier zu Köcker, G., Müller, L., Zombori, Z. (2011) Clusters go international, www.iit-berlin.de

³⁹ Huxham C; Vangen S (2004), Doing things collaboratively: Realizing the advantage or succumbing to inertia? Organizational Dynamics vol. 33 no. 2

This analysis revealed that cluster management organisations from the ICT, Food and Materials/Chemistry areas are very active in supporting their members to go international (see figure 12). They offer a broad spectrum of services. The CCI cluster management organisations seem to be less active with respect to internationalisation efforts for their clients in general. Both the “Acquisition of international R&D projects” and “Participation in trade fairs or conferences abroad” showed low values (0.8). It is surprising that print/web information in foreign languages seem only marginally offered. Permanent offices abroad are not part of the service spectrum for CCI clusters. Other activities by the CCI cluster management, however, for intensifying international contacts and co-operations with foreign partners or clusters rank higher (2.0). In comparison, the cluster management organisations from CCI industry seem to be somewhat less active in terms of internationalisation activities.

Summary of findings:

	Creative industries
Intensity and distribution of services in the service category ...	
...in general.	<p>No distinct pattern for CCI detectable</p> <p>CCI cluster management organisations show no distinct pattern with regard to intensity of offered services in certain service categories (neither do the other industries)</p>
...”collaborative technology and product development”.	<p>No distinct pattern for CCI detectable</p> <ul style="list-style-type: none"> • Some less support in patent or licensing issues/services to jointly develop products, technologies or services • Some more support in other services/activities
...”acquisition of third party funding”.	<p>No distinct pattern for CCI detectable</p> <p>The CCI cluster management organisations are rather passive in all three categories: Third party funded R&D projects, third party funded non R&D projects and distribution of information about funding programmes and possibilities</p>
...”development of human resources”	<p>CCI clusters show a certain pattern</p> <p>CCI cluster management organisations do significantly offer less services in order to develop human resources compared to other industries</p>
...”networking and matchmaking (with externals)”	<p>CCI clusters show a certain pattern</p> <p>CCI cluster management organisations do not pay very much attention to offer specific events to present the cluster and cluster activities to external players. Also the intensity to provide tailor-made services to match the cluster actors/members with other external partners is rather low. However, they release a high number of press releases and offer a substantial number other services</p>
...”entrepreneurial services”.	<p>No distinct pattern for CCI detectable</p> <p>CCI clusters offer only little support for entrepreneurs (such as the analysed clusters from other industries, too)</p>
...”internationalisation”.	<p>CCI clusters show a certain pattern</p> <p>CCI clusters offer less support for internationalisation processes compared to other industries.</p>

When comparing the services spectrum of CCI cluster management organisations to those of other industries CCI, clusters show differences and deviations but not necessarily a distinct unique pattern. There are only three services categories (“Development of human resources”, “Networking and matchmaking with externals” and “Internationalisation”) that should be highlighted here. In all of these three service categories CCI cluster management organisations offer somewhat less support to their participants than other industries. The reasons for this observation should be further analysed and given special consideration in the development of the benchmark framework.

4.4 Impact on the cluster participants’ business activities

The kind of impact a cluster management may have on the cluster and its participants may be manifold.

In the next step of our analysis we focussed on the question whether there is a difference in the impact on business development of cluster participants in the studied industries (Do the participants financially benefit by increasing their business?).

Therefore, we compared results obtained in the benchmarking approach on potential impacts on business activities.⁴⁰ The assessment covers different categories of cluster participants (SME, non-SME, universities, R&D organisations, and training and education providers). The indicator describes the relevance of the impact that is expected for the defined cluster participant categories, ranging from 0 (no impact yet) up to 4 (significant and sustainable impacts for a significant number of cluster participants).

Table 4 shows the specific values, which are compared in figure 13. In general the impact values range between 0.8 and 2.8 with an overall average of 1.7 for any industry and any category. The values vary between clusters from different industries. Quite high expected impacts for SME can be found in those clusters belonging to CCI, food, materials and chemistry and industries. The respective average impact values vary between 2.7 and 2.8, meaning the cluster managers expect significant and sustainable impacts for a reasonable number of SME. Lower values of impact on SME were reported for biotechnology and production/engineering clusters.

⁴⁰ In the benchmarking the cluster managers are asked to self-assess the effect of their work on business activities according to the following scale:

- (4) Significant and sustainable impacts for a significant number of cluster participants in the field of business development;
- (3) Significant and sustainable impacts for a reasonable number of cluster participants in the field of business development;
- (2) Measurable impacts for a certain number of cluster participants in the field of business development, but not yet really significant and/or sustainable;
- (1) Limited impacts on a small number of cluster participants in the field of business development;
- (0) No impact yet

Cluster participant category	Creative Industries	Biotech	ICT	Food	Materials / Chemistry	Production / Engineering	Average
SME	2.7	1.9	2.5	2.8	2.8	2.2	2.5
Non-SME	1.2	1.6	1.0	1.9	1.8	1.4	1.5
R&D institutions (incl. universities)	1.9	1.3	1.7	1.4	2.3	1.7	1.7
Training providers	1.5	0.8	1.3	0.8	1.6	1.6	1.3
Average	1.8	1.4	1.6	1.7	2.1	1.7	1.7

Table 4: Survey of assumed impact on business development for selected groups within clusters

The impact on non-SME firms, in general, is significantly less particularly in the ICT industries (1.0) and CCI (1.2). The observation that clusters only have modest effects on non-SME is not surprising, since SME are supposed to benefit more from cluster management services than non-SME. In addition to SME and non-SME, even R&D institutions and training providers seem to benefit from the cluster management service according to the values shown in the table above. Again, highest values can be found for R&D institutions in the material and chemistry area, whereas low values are detectable for those institutions belonging to biotechnology clusters. CCI clusters achieve a similar impact on different cluster participants like other industries do. The stated impacts of CCI clusters on different cluster participant categories are neither significantly below nor above average.

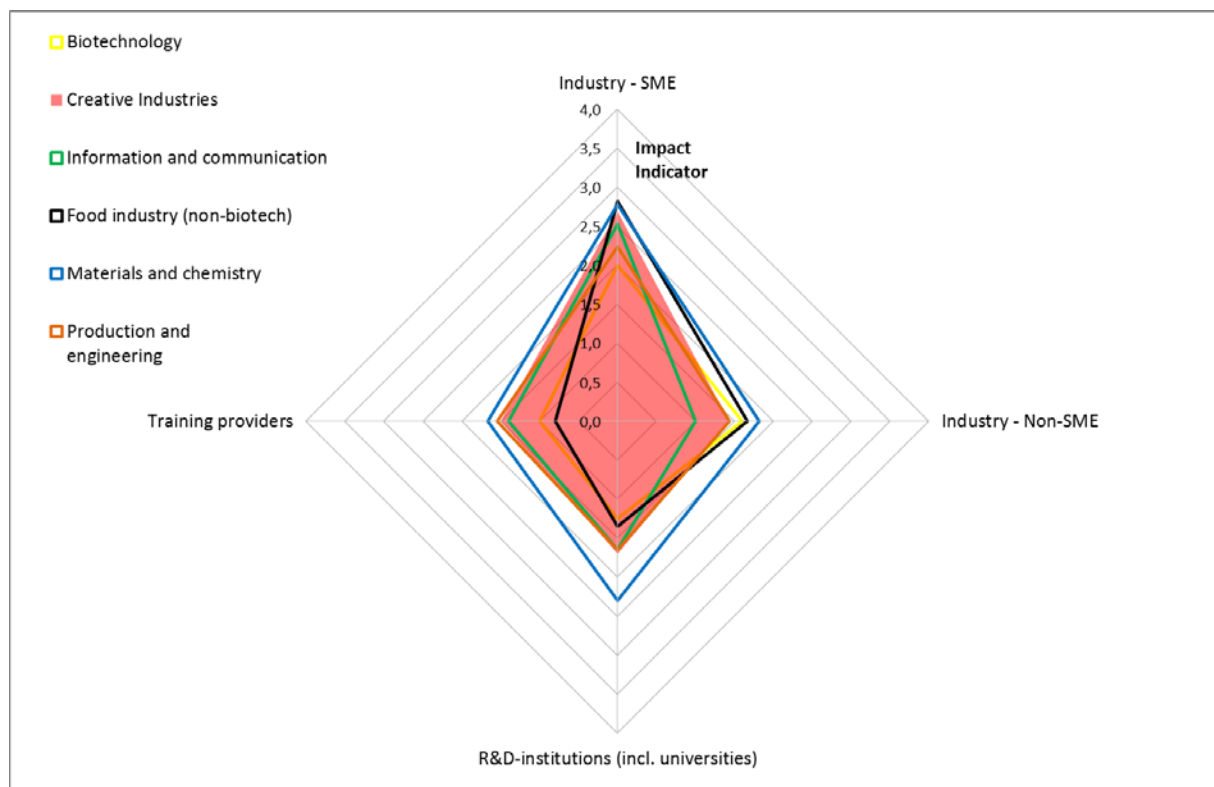


Figure 13: Impact of cluster initiatives and cluster organisations on business development of different groups of cluster actors

Summary of findings

	Creative industries
Impact on business development for selected cluster participant groups	CCI cluster have a comparable impact on their cluster participants like clusters from other industries

The analysis showed that CCI clusters do not stand out with respect to potential business impacts neither in a positive nor in a negative way.

4.5 CCI clusters differ – but far less than expected

It was examined in chapter 4 whether it is possible to transfer general frameworks for evaluation and impact assessment for clusters applicable in other industries to CCI clusters.

The question, in what ways CCI clusters differ and whether the identified differences are so substantial that they influence the development of a benchmark framework had to be answered.

An analysis was performed in which key structural features of clusters from CCI and five other industries were compared to each other. Moreover, intensities of service spectrums offered by cluster management organisations and the impact (self-assessed by cluster managers) on business development activities within the cluster were compared. At the end of each subchapter the main findings of this analysis have been summarised. On the basis of these summaries it has already been derived that CCI clusters differ less from each other than it was previously expected. Whereas from the outside CCI seem extremely diverse compared to other industries and in many ways appear to be characterised by very specific and different features. Our analysis, however, could show that from the inside CCI clusters with regard to key features differ only in a few details.

Nevertheless, there have been some differences detected and in the following it will be discussed to what extent these aspects will affect the conceptualisation of the desired assessment framework. What is relevant and what aspects should be given special attention to in upcoming assessments? The table below gives an overview of the essential differences that have been identified.

First the “Degree of agglomeration” of CCI clusters is discussed. Agglomeration seems to be slightly smaller compared to clusters of other industries. As described in previous chapters, fragmentation is a characteristic feature of CCI. However, it is not a characteristic that applies only to CCI clusters (e.g. clusters of the Materials/Chemistry area showed the same “small” degree of regional agglomeration). Therefore, it is argued that this feature only has little meaning in relation to the concept development and application of a CCI assessment framework.

A second aspect that differed could be shown in three different categories of services provided by the cluster management organisation. In these categories significantly fewer services are offered. These results will also have little or no influence on the framework concept to be developed. However, the intended benchmark framework should take into account these three aspects. Thus, it should be more in detail understood why these categories seem to have a somewhat minor importance in CCI clusters.

It can be noted that both aspects only have little or minor effects on the framework development but should not be completely neglected.

Essential diverging aspects		Expected influence on benchmarking framework	Effect on concept development
Structural factor	<ul style="list-style-type: none"> Smaller regional agglomeration 	<ul style="list-style-type: none"> Minor 	<ul style="list-style-type: none"> Should be considered in the implementation of the framework (e.g. access to community)
Service spectrum	<ul style="list-style-type: none"> ..."development of human resources" ..."networking and matchmaking (with externals)" ..."internationalisation" <p>Fewer services offered</p>	<ul style="list-style-type: none"> Minor 	<ul style="list-style-type: none"> Should be considered in concept development and implementation of framework (e.g. special attention to these aspects)

Table 5: Overview of most relevant diverging aspects of CCI clusters compared to other industries

Based on the performed analysis it can be concluded that CCI clusters, when compared to other industries, show more similarities than differences. Since they share the same common features of other industries CCI clusters and CCI cluster management organisations can and should be similarly treated with regard to assessments.

The comparison between clusters from CCI and five other industries could prove that frameworks applicable to clusters from conventional industries can be exploited to assess and benchmark CCI clusters (with minor adaptations in some respects).

Indeed there are some differences of CCI clusters / cluster management organisations, but these are minor and do not significantly affect the framework concept.

5 Framework to assess outcomes and impact of CCI clusters

In the previous chapter it could be shown that CCI clusters share the same essential features as clusters from other industries and only differ in minor aspects. These aspects should be considered in the implementation of assessment frameworks, but do not affect the overall design or implementation. Therefore, it is plausible that an assessment concept that is applicable to clusters in conventional industries also includes the application to clusters routed in CCI.

The framework concept that is presented here was developed by the Institute for Innovation and Technology (iit) in close cooperation with cluster policy-makers, programme owners and cluster managers including representatives from cultural and creative industries on an industry and policy level.⁴¹ It provides a practical approach applicable to different types of cluster programmes, clusters and networks throughout Europe.

The described concept aims at the evaluation and benchmarking of cluster policies, cluster initiatives and cluster management organisations. It encompasses the assessment of short and mid-term effects on various levels. In the following the concept is called “cluster assessment framework”. It is noted that this framework is not restricted to benchmarking alone. Instead, the concept also includes key elements of an evaluation and impact assessment. Therefore, in the following the terms “evaluation”, “assessment” and “analysis” are equally used. The benchmarking is a method in the overall “cluster assessment framework”.

5.1 Guiding principles of the cluster assessment framework

When analysing clusters and networks both the retrospective analysis (ex post) and the vision of the future are important as well as the accompanying analysis (formative) that often plays a decisive role to steer and control running processes.

The assessment framework should be applicable to clusters and networks from various industries throughout Europe. Such a concept or framework design respectively faces several challenges. It is mandatory to take into consideration prerequisites of clusters within their individual policy and geographical contexts as well as key structural characteristics. As outlined in chapter 1, exemplary features are: research-driven versus industry-driven; a small or large share of public funding; governance; size, age or stage in the cluster life cycle. The cluster assessment framework is based on the following considerations and principles:

- **Applicability and validity for the evaluation of any cluster.** The framework must be applicable to any cluster while taking into consideration their individual heterogeneity regarding such criteria as industry sector, size, age, structure, etc. The framework must therefore find a balance between individual cluster specific indicators and common overall indicators applicable to any cluster. Moreover, the differences within cluster sectors and their diversities must be detected and balanced. That is especially important for CCI clusters which are characterised by great diversity.

⁴¹ The concept aims at evaluation and benchmarking of clusters and networks. It was developed primarily in the context of the project “Expertise on developing a common evaluation/benchmarking system for all Hamburg clusters” for the Ministry of Economic Affairs, Transport and Innovation of the Free and Hanseatic City of Hamburg – Cluster Policy Department (IT3). This project was carried out between February and June 2011 by the iit – Institute for Innovation and Technology in cooperation with dsn Analysen & Strategien | Kooperationsmanagement.

- **Target of assessment.** The assessment framework should include different evaluation items: cluster policy, cluster initiatives with cluster management organisation and cluster participants. The cluster initiatives should be analysed along with the cluster management organisation. Reasons for this are the strong functional linkages between both entities. Indicators are often valid for the cluster initiative and their respective cluster management organisation. The cluster management is highly responsible for the strategic design, steering and implementation of the cluster initiative. The cluster itself, with its control structures (committees, advisory councils, member assemblies) influences the cluster management's resources and scope for action. An isolated view would be pointless.
- **Individual factors and flexibility.** Differences and specifics should be taken into consideration in the entire assessment process from the description of the initial situation to the interpretation of assessment results and recommendations. It is therefore advisable that the framework contains both general as well as individual indicators. That means the framework comprises general indicators valid for any cluster or cluster management organisation and is supplemented or excluded by specific indicators for single clusters.
- **Caution in the comparison of clusters.** Clusters often greatly differ in terms of history, age, objectives, and requirements of participants, availability of resources, governance structures or societal and economic settings. This applies to both clusters from the diverse CCI and other industries. Due to the existing heterogeneity of objectives and conditions one has to be cautious when comparing results and effects of clusters.
- **Transparency and acceptance of the evaluation process.** The evaluation process should be open and transparent right from the beginning to achieve the desired validity of results and acceptance of the people involved. Thus, relevant stakeholder groups should be included in processes such as the conception of questionnaires and interview guidelines.
- **Practical and feasible recommendations.** The evaluation system should lead to practical results and derive hands-on recommendations for cluster managers and policy-makers.
- **Appropriate mix of methodologies.** Both quantitative and qualitative indicators should be assessed in order to reveal the cluster's success and potential but also current issues. The findings should trigger learning, resulting in the improvement of processes among different stakeholder groups.
- **Compatibility to already existing monitoring/evaluation systems:** The framework should be compatible with already existing monitoring and evaluation systems or other monitoring concepts.
- **Tolerable effort – time and resources.** The effort for the assessment should be adequately in terms of time and resources requirements. Assessments should use existing data and avoid redundant surveys. The effort for the people involved should be reduced to a minimum. The effort must be weighed to obtain the "full picture" against the associated expenses caused by in-depth surveys.
- **Mutual learning.** The assessment should contribute to mutual learning within and across assessed clusters. In order to achieve mutual learning, the evaluation results should be discussed among programme owners, cluster managers and cluster participants. This information exchange should not be restricted to the people involved in the assessment process, however. The learning process could be more open and include the national and transnational perspective (e.g. workshops to discuss lessons learnt).

- **Frequency of assessment.** The frequency of assessments depends on many factors. E.g. it is determined by what kind of aspects should be analysed (Has there already been enough time passed to detect changes?) or the availability of resources. An assessment interval of about two years seems reasonable. It should be noted that also the time available for performing the assessment itself is crucial in order to obtain valid results.

The above-described considerations were taken into account in the development of the cluster framework. Some of these principles, however, can only be implemented by the future responsible while the assessment is being performed.

5.2 Outline of the cluster assessment framework

The general aim of the cluster assessment (evaluations or benchmarkings, etc.) is that clusters become more efficient, more effective and more sustainable. The assessment should contribute to mutual learning among all stakeholders involved in cluster processes like cluster management, cluster participants and policy-makers. The cluster assessment framework addresses two different “targets”: cluster policy and cluster management / cluster participants.

Cluster policies are designed and implemented by policy-makers and programme owners. The programmes in Europe cover a wide array of different rationales, objectives and instruments, but their common target is to develop clusters by setting adequate framework conditions and supporting the cluster management organisations. Cluster programmes are embedded in a wider policy context. Thus, other regional, national and international innovation and economic policies should be taken into account.

The cluster assessment framework will usually analyse the cluster management along with the cluster initiative due to the strong functional linkages between both entities. Indicators therefore often cover the cluster initiative and its participants as well as the cluster management organisation. The subsequently presented cluster assessment framework is based on the stated objectives and targets for analysis.

- Efficiency – referring to cluster policy and cluster initiatives / cluster management organisation
- Effectiveness – primarily referring to cluster initiatives / cluster management organisation
- Sustainability – primarily referring to cluster initiatives / cluster management organisation

The Figure 14 gives an overview of the different target levels for analysis and assessment. These are described more in detail in the following.

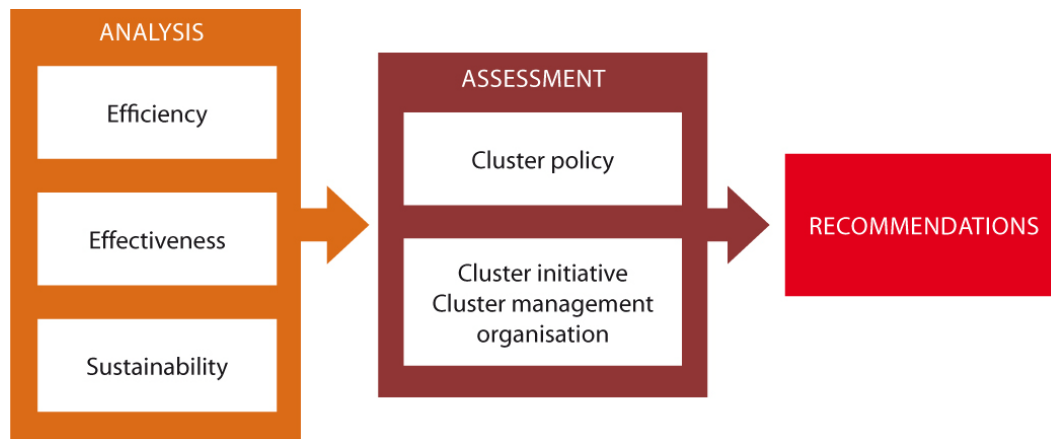


Figure 14: Levels of the cluster assessment framework, Source: iit (2011)

Assessment of cluster policies

The assessment of cluster policy takes place on a somewhat more abstract level compared to the assessment of the cluster initiative / cluster management organisation. On the one hand, the governance and organisational implementation of the cluster policy is analysed, on the other hand the embeddedness of the cluster policy within the innovation and economic policy context is examined. In addition, on this level, the overall findings of the analysis of the cluster initiative and the cluster management are summarised and recommendations for future adjustments of the cluster policy are derived.

Cluster policies are embedded in complex interdependent processes that very often cannot be influenced (e.g. overall economic situation, business cycles). Cluster policies also interact with other policy measures that either directly or indirectly influence the cluster initiative, e.g. qualification strategies within the region, tax, and infrastructure. Cluster policy analysis should analyse its fit to the specific innovation policy context and focus on at least three analytical levels that are briefly described hereafter:

- Consistency and coherence of cluster policy objectives and cluster initiatives
- Governance of cluster policy
- Strategy and future development including monitoring practices and accompanying measures.

Consistency and coherence of cluster policy objectives and cluster initiatives

It is analysed whether objectives of the cluster policy and cluster initiatives are congruent. In a first step the individual objectives are collected. A subsequent matching process should demonstrate if there are contradictions in the objectives of cluster initiatives to the overall objective.

In a further step the fit of the cluster policy to other economic and innovation policies at regional, national and international level can be studied.

Governance of cluster policy

It is examined how the cluster policy is embedded in organisational and institutional contexts and whether the existing governance structures are adequate for its purpose. It can be identified, whether better structures to improve integration and coordination between certain cluster participants / institutions are required. At this analytical level also the interaction with authorities from other local regions / states as well as the nation's overall political cluster strategy should be taken into account.

If existent a particular focus may be put on the assessment of the performance of governmental organisational units that are responsible for the implementation of cluster policies. The aim of this analysis is to create transparency for the involved stakeholder groups and to learn more about the provided support activities (such as counselling, central contact point, communication, etc.). The investigation should answer the question to what extent governmental units meet the needs of cluster managers or programme managers. Moreover, it can be revealed if there are structural barriers that limit decision-making or the scope of action.

Strategy and future development including monitoring practices and accompanying measures.

It is also important to get a general understanding of the "history" and starting situation of the cluster initiative and compare this to the current situation. However, this kind of analysis should mainly focus on significant changes since the start rather than to trace back and analyse the decision process, which led to the selection of the cluster initiative. That means neither an ex-post evaluation of the selection procedure is carried out nor the basic composition of the overall portfolio is questioned. (If this is desired, a different approach should be preferred.)

Another important aspect is the inventory of on-going monitoring and evaluation activities in each cluster initiative and the way in which learning processes between cluster managers are organized. The question in this context is, whether and to what extent measurable goals have been defined.

The assessment concludes with the consideration of results obtained from the analysis of the cluster management and cluster initiatives in order to derive options for action or recommendations.

At this point it is crucial to achieve a consensus among political actors in order to pave the way for future changes.

The relevant sets of indicators are described in chapter 6.

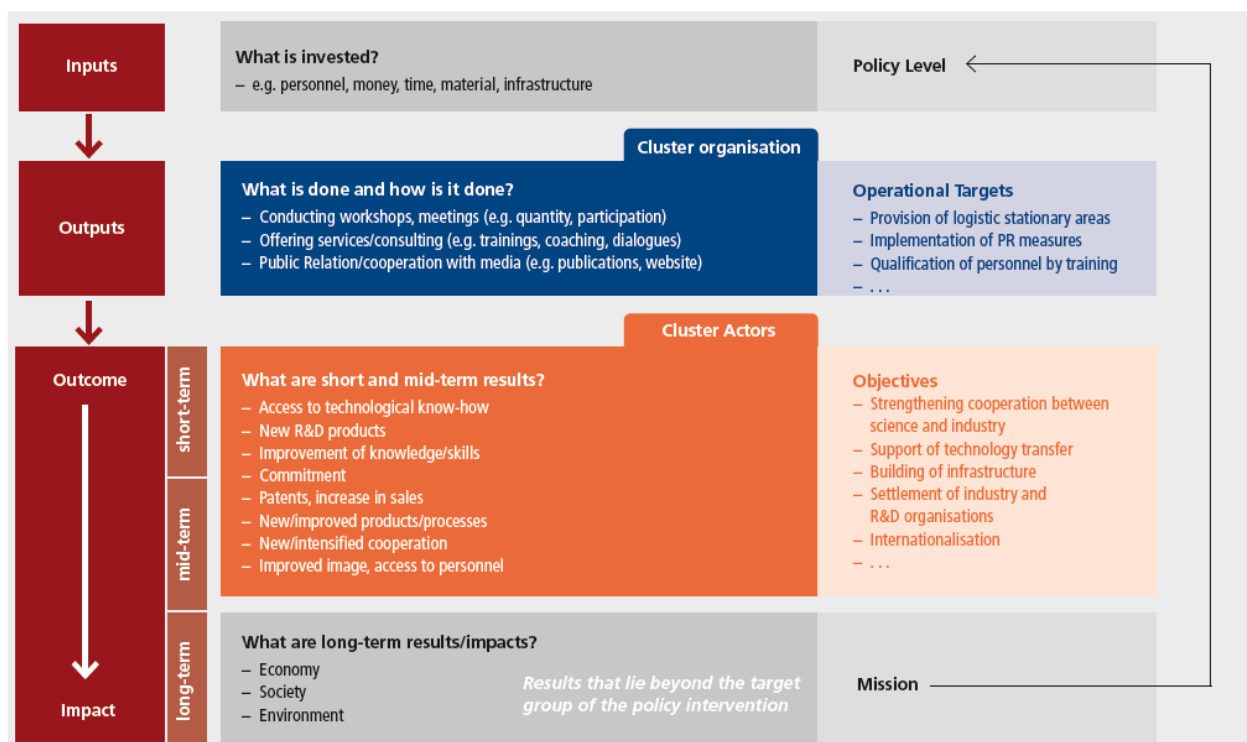


Figure 15: Cluster and Network Assessment Concept, Source: iit (2011)

Assessment of cluster initiative/cluster management organisation

The judgment of the effectiveness and efficiency of the cluster initiative and cluster management organisation is a crucial element of the cluster assessment framework. Key questions that will be answered are: How has the competitive (and innovative) capacity of the cluster participants developed over the past years and what was the contribution of cluster policy and cluster management?

Assessments such as evaluations are usually based on the assumption that there is a link between input (e.g. provided resources), activities directly linked to the measure (output) and intended results that occur within the target group (outcome). Results that are indirectly caused by the intervention and occur beyond the target group of the measure are called impacts.

The parameters described below are summarised in Figure 15 that serves as a theoretical concept for the assessment of cluster management organisations and cluster initiatives. The typical definition of input, output and outcome is as follows⁴²:

- **“Input”** encompasses financial, personnel and other resources that are invested. These kinds of input are variable to the extent that various types of cost (personnel cost versus material cost) or qualification of personnel (by targeted education measures) can be influenced. Main inputs in the cluster context are the competences and qualification of the personnel working within the cluster initiative and cluster management organisation as well as available budgets.
- **“Output”** encompasses any achievements or activities that are countable such as materials, goods, publications and particularly services that are produced by the assessed target (a programme, project, etc.). In the cluster context outputs are for example brochures, training activities, consulting services, meetings, conferences, etc.
- **“Outcome”** describes the results that were intended by the intervention, for example a change in attitude or behavior of the target group, as well as benefits for the target group. Unintended results that occur within the target group are not defined as outcome. The target group of the cluster policy is mainly the cluster initiative and its participants as well as the linked cluster management organisation.
- **“Impacts”** are the results caused by a policy intervention that do not occur in the target group. Impacts can only be measured (if at all) beyond the target group in so called social systems in particular in organisations, social areas (e.g. regions, neighbourhoods) or in networks of actors within policy fields (e.g. qualification system of a federal state, health system of a nation). Impacts in the contexts of clusters usually mean effects on the economy, society and/ or environment. In the common usage of language, however, impact often means more than that. Generally impact refers also to any results obtained which include those that have been described for “output” and “outcome”.

Usually it is hardly possible to draw direct cause and effect conclusions between the performance of the evaluation target and its impacts. This is mainly due to the fact that very often results occur in different timeframes and are influenced by numerous other, additional factors independent of the policy intervention.

This relevant set of indicators is described in chapter seven (set of indicators).

Analysis of effectiveness, efficiency and sustainability

In order to analyze effectiveness, efficiency and sustainability of cluster initiatives and cluster management a dual evaluation and benchmarking approach is proposed. The proposed benchmarking is the same methodology that has been described in chapter 5. Benchmarking is a comparative analysis of structures, processes, products and services. It compares an entity to

⁴² Univation (2005): Berichte zur Evaluation des Jahrs der Technik 2004 (German language)

peers that are active in the same or other areas on a national or international level (comparative portfolio). Cluster management organisations are benchmarked both with their peers from the same technology field and with the complete comparative portfolio (with about 300 benchmarked cluster initiatives). Benchmarking supplements the methodology mix in order to assess the performance of cluster managements and thereby the effectiveness, efficiency and sustainability of clusters. The other methods comprise surveys of cluster participants, stakeholder interviews, workshops and desk research (evaluation methods). The results obtained by benchmarking and evaluation can be used to assess the sustainability of the clusters and cluster policy initiatives. During the evaluation of the French Pôles de compétitivité in 2011 and 2012, benchmarking of the 71 Poles were included in the overall evaluation approach. It provided valuable insight views for all actors involved in the evaluation, policy-makers as well as cluster managers.

5.3 Overview of indicator groups and methodologies to assess clusters

The cluster assessment framework includes a broad set of indicators that can be summarised to “indicator groups” directly linked to the different observation levels of the assessment: cluster policy and context, cluster management organisation, and cluster actors. Last but not least the results can be compared to other clusters of the same or other cluster programmes. The Figure 16 gives a brief overview of relevant indicator groups and suitable methodologies.

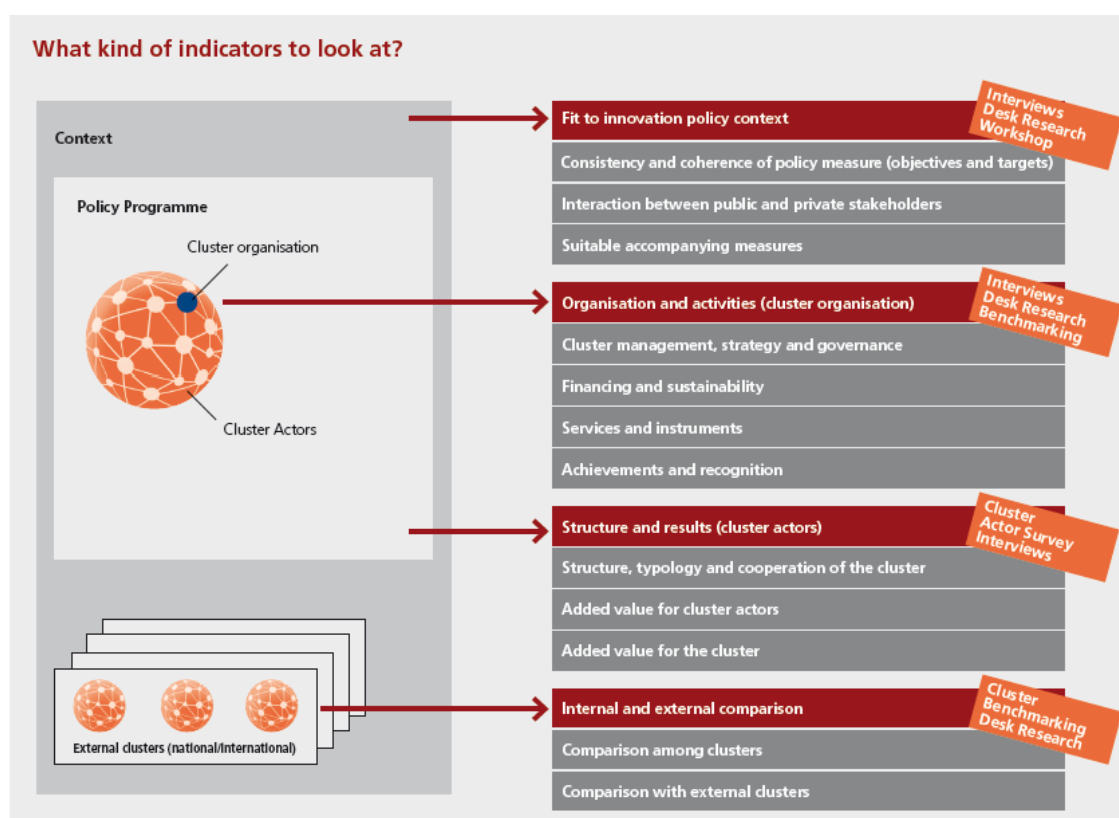


Figure 16: Indicator groups and methodologies for the assessment of clusters and networks, Source: iit (2011)

6 Put into practice: CCI benchmark framework operationalized

During the assessment process, the stakeholder groups involved will select the most relevant indicators out of a total set of available indicators. The applicability of any of these indicators to assess cluster policies or cluster managements / cluster initiatives is debatable. Some indicators will be more relevant than others. It is not necessary to take into account any of the indicators. Thus, the listed indicators should be considered as proposal from which criteria can be individually and voluntarily selected.

In this chapter each of the indicators is comprehensively described (chapter 7.1). Moreover, the target group to be addressed is linked to each indicator and a certain methodology is recommended. In addition, chapter 7.2 will also include a first estimation of the indicator's suitability for CCI cluster assessment. Indicator to assess cluster policies will not be described in this study in detail, since the focus was given on clusters, cluster initiatives and cluster organisations. They are listed in appendix D.

6.1 Possible indicators to assess CCI cluster initiatives/cluster organisations

1. Assessment of objectives of the cluster initiatives and cluster management	
1.1	Main objectives of the respective cluster initiative Cluster initiatives usually pursue certain objectives which have to be achieved by the cluster management in a specific period of time. They are the basis for the assessment of the degree of achievement. It has to be mentioned that main objectives vary among the cluster initiatives and thus, have to be individually evaluated.
1.2	Existence of quantitative and qualitative objectives Cluster initiatives often have defined specific indicator that relate to their objectives. In this regard it is interesting, which system was defined and how the indicators are defined and measured.
1.3	Plausibility of main objectives Here, the plausibility of the primary objectives and quantitative or qualitative objectives resp. is examined. Central issues are: Are the defined objectives realistic in terms of available financial and personnel resources? Are the objectives rather output-oriented or impact-oriented (not or only partly influenced by the cluster management).
1.4	Applied measures to achieve objectives Generally, the cluster management can apply a wide range of measures to achieve its objectives. It is interesting here, whether, from the evaluators' perspective, appropriate measures (quantitative and qualitative) have been used.
1.5	Strategy and implementation plan, monitoring system Generally, the cluster management formulates a strategy and implementation plan, based on the qualitative and quantitative objectives. A corresponding monitoring concept serves to monitor the implementation progress. This indicator shows, whether this kind of instruments are used.

1. Assessment of objectives of the cluster initiatives and cluster management	
1.6	Target/actual-comparison concerning achievement of objectives Based on the knowledge and analysis of the prior indicators, the degree of achievement is evaluated by a target/actual-comparison.

Table 6: Indicators and criteria to assess the degree of achievement of cluster initiatives and cluster managements – Set of indicators 1. Source: iit, 2011

In Table 7 potential indicators are described to assess the achievements and performance of cluster managements. Since there is not “good” and “bad”, it is recommended to apply a benchmarking approach in order to compare the values of the respective indicators with other cluster managements from the same industrial sector (s. chapter 4). The indicators presented are in conformity with the results of the ECEI initiative and can be considered as a would-be European standard, which guarantees for an easy integration of the assessment framework presented here. It should be noted that many indicators cannot be considered as quality related indicators as such. Only in comparison with reference groups from the comparative portfolio it is possible to justify whether this given indicator can be considered to be “above average” or “below average”, which then has a similar meaning like “good” or “bad”.

2. Assessment of the cluster initiatives and cluster managements' performance	
2.1	Age of the cluster initiative Cluster initiatives are characterised by a defined starting date, when the cluster management does coordinative work and networking for the first time. Thus, the age of the cluster initiative is often synonymous with the state of development of a cluster initiative. Is it a young cluster initiative, which is still in the phase of development and identification, or is it an established cluster initiative of an advanced age? Nevertheless, age does neither say anything on the quality of the cluster management, nor on the state of development of the cluster initiative. As it takes time to successfully develop and implement activities for a cluster, it is supposed that a cluster organisation needs at least four years to yield satisfying results.
2.2	Number of cluster participants Cluster participants are the main target group of a cluster initiative. The effects, desired by the cluster policy, are put into practice and realized by cluster participants. Cluster initiatives should have a sufficient critical mass of cluster participants available. The benchmark analysis concentrates on participants in the sense of committed participants. A cluster participant is committed if it actively contributes to the activities of the cluster through e.g. paying membership fees or providing financial support for the cluster management on a regular basis (this may also include in-kind contributions or staff working time), signing of a declaration of accession (letter of intent, partnership agreement, or a similar form of written commitment) or regularly participating in cluster projects or working groups. Commitment is not reflected by a registration for a newsletter or by a single participation in an event organised by the cluster organisation. A non-committed cluster participant is a passive participant who shows interest in the cluster's activities going beyond the mere registration for a newsletter or similar (e.g. through [more or less] regular participation in events), but does not contribute actively to any of the cluster's activities.

2. Assessment of the cluster initiatives and cluster managements' performance	
2.3	<p>Regional growth potential</p> <p>It is important that clusters achieve a critical mass with a high regional coverage in terms of committed membership. A critical mass is advantageous to ensure sufficient effects of cluster initiatives. This is a prerequisite for interactions among the cluster actors to become fully effective. The focus on regional participants should yield benefits from regional proximity of appropriate partners. The potential number of participants in the region could in this way contribute to the further development of the cluster. The indicator regional potential of actors shows the ratio cluster participants, who committed themselves to cooperation, and those, who are the potential target group of the respective cluster initiative in the region. This indicator shows, whether all potential participants have been reached, yet.</p>
2.4	<p>Composition of cluster participants</p> <p>Besides the number and a sufficient regional potential of actors, the composition of cluster participants is important for the performance of every cluster initiative. Bundling of different competences is one determinant for the facilitation of innovation and competitiveness of all cluster actors. If certain key actors and key competences are missing, this might have a negative impact on the innovation capability of the cluster. Composition is defined here as the relation of participants from industry (small, medium and large enterprises), science and education (research institutions, universities and educational institutions) as well as policy (incl. further actors of public authorities).</p>
2.5	<p>Regional focus of cluster participants</p> <p>A high agglomeration of the involved cluster participants, according to Michael E. Porter, is also relevant for the performance of clusters ("clusters are geographic concentrations of interconnected companies and institutions in a particular field")⁴³. Particularly this agglomeration results in the known advantages, clusters can create. This indicator describes the amount of cluster actors that are localised within a scope of 150 km, and thus create a regional focus of the cluster initiative. The idea behind this is, that a face-to-face meeting between the cluster management team and a committed member, as well as between participants, shall be possible with limited effort of around two hours travel time (by car, train, etc.).</p>
2.6	<p>Degree of specialisation versus thematic range</p> <p>A cluster can be highly specialised in a specific industry field (e. g. satellite technology) or can cover a broad range of different industries within the selected technology area(e. g. new materials). This indicator shows how thematically broad or narrow certain cluster initiatives are in comparison to the chosen benchmarking reference portfolio.</p>
2.7	<p>Driving forces concerning the cluster initiative's thematic priorities</p> <p>Due to an obvious dynamics within a cluster initiative, central substantial topics could be defined by different stakeholder groups, such as the cluster management, industrial partners or research players. The prioritized focus is often determined by the domination of individual groups of cluster participants.</p>

⁴³ Michael E. Porter, 1998: Clusters and the New Economics of Competition, in: Harvard Business Review, November 1998, p. 78

2.	Assessment of the cluster initiatives and cluster managements' performance
2.8	<p>Internationalisation – Share of foreign cluster actors</p> <p>A high share of foreign cluster actors could have a positive effect on the innovation potential of a cluster initiative. International cooperation is an opportunity for knowledge and technology transfer. It is therefore quite common for clusters to have committed international participants who participate in the work and activities of the cluster. Furthermore, it could be an indication of the international orientation of the cluster initiative and its international attractiveness. International participants are understood as participants that are headquartered abroad and do not have a branch office in the home country of the cluster. Local subsidiaries of international companies or other parties that are a cluster member are counted as a national/local member.</p>
2.9	<p>Legal form of the cluster initiative</p> <p>It is asked for the legal form of the cluster initiative. The presence and its form allow for conclusions on the intensity of the participants' own commitment to cluster work. The main reasons for a cluster organisation to adopt a legal form are most of the time to reach a higher commitment of its participants, shared risks and a higher exclusiveness of added value for the cluster participants. The most prevailing legal forms for cluster organisations are registered associations and limited liability companies.</p>
2.10	<p>Thematic focus</p> <p>Cluster initiatives often address sector-specific similar thematic focuses. This indicator compares the four main foci of networking that are considered as basis for a successful achievement of objectives by the cluster management.</p>
2.11	<p>Personnel resources for the cluster management</p> <p>This indicator shows available personnel resources (full-time equivalent) for the coordination of the cluster initiative by the cluster management. In case certain cluster participants make significant personnel resources available as well, these will also be taken into account.</p> <p>Higher capacities of the cluster organisation are expected to allow for the development and provision of more tailor-made and demand-oriented services or a better direct support for the cluster participants. Full-time equivalent employment (FTE) is the number of full-time equivalent jobs, defined as total hours worked divided by average annual hours worked in full-time jobs.</p> <p>In order to assess, whether the quantity of human resources of the cluster management is sufficient, the ratio of the number of cluster participants and the FTE in the cluster management staff is calculated, too.</p>
2.12	<p>Clear definition of roles</p> <p>A functioning cluster initiative has a clear definition of the tasks and responsibilities of the cluster manager, like team management, day-to-day business and strategic activities of the cluster, etc. This indicator shows the clarity of the allocation of roles concerning control process within the cluster initiative.</p>

2. Assessment of the cluster initiatives and cluster managements' performance	
<p>2.13 Nature of cooperation structures within a cluster initiative</p> <p>Cooperation in cluster initiatives can vary much in form and shape. These often function as indicator for the stage of development of a cluster initiative. These cooperation structures can (at one end of the scale) be organised in a much decentralised way, or (at the other end of the scale) they can also be organised in a much centralised way (all activities are initiated by the cluster management). The nature of cooperation between cluster participants and the role of the cluster management can be described as follows:</p> <p>External facilitator: The cluster management acts rather as an external facilitator and is rather detached from networking activities between cluster participants. The core function of the cluster management within the network can be described as administration (left bar in the figure).</p> <p>Decentralised: Cooperation among the cluster participants can be characterised as decentralised: cluster management has a significant influence, but it is not the main initiator of activities.</p> <p>Centralised: The cluster management is the hub of the cluster (considered as a star-shaped cooperative structure) and sets the agenda of the cluster activities. Cooperation between participants is primarily initiated by the cluster management (right bar in the figure).</p>	
<p>2.14 Service spectrum and generated additional value by the cluster managements</p> <p>One of the main aims of cluster organisations is to provide need-oriented structures of cooperation and to make cooperation between members in the innovation business more efficient. The success of clusters therefore also depends on the extent to which the cluster management succeeds in supporting the cluster participants with need-oriented services. The involved spectrum of services depends on individual foci and the maturity level of the respective cluster initiative. Quantity and quality of these services are decisive factors for the cluster managements' performance. This indicator compares the thematic diversity and the quantity of services by the cluster managements within the four priority areas that have been previously defined. Thus, cluster managements can precisely assess the way other cluster managements act.</p>	
<p>2.15 Personnel continuity and competences of the cluster management</p> <p>Personnel continuity and status of human resource development of the cluster organisation's staff is important for the cluster's success. Frequent personnel fluctuation can have a negative effect on the cluster managements' performance since cluster participants often have established a high level of trust in the key personnel of cluster managements, over a period of several years.</p> <p>Moreover, it is assessed whether there are training programmes and sufficient budget for the human resource development of the cluster organisation staff in place and carried out regularly.</p>	

2.	Assessment of the cluster initiatives and cluster managements' performance
2.16	<p>Long-term financial sustainability of cluster organisation</p> <p>The financial sustainability of the cluster organisation is an important aspect for the future perspectives and the existence of the cluster organisation. The cluster management needs to be based on a solid financial basis in order to concentrate on its mandate. Without a sustainable financial basis the cluster management has to spend significant resources on fundraising. Thus, these resources are not available for the development and provision of services for the cluster participants. Thus, a comparative evaluation of the long-term financial stability, considered ex-post and ex-ante, is an important indicator, which can be useful for the cluster managements to compare themselves to each other.</p>
2.17	<p>Share of public funding in the total budget of the cluster organisation</p> <p>Many cluster organisations were established with significant public support. As public support is mostly limited in time it is crucial for a cluster management to tap other sources of financing. The substitution of public funding by private means over time can indicate good cluster management practises as products and services are sold to cluster participants or other parties.</p> <p>The total budget of the cluster organisation includes budget dedicated to management tasks or activities performed by the cluster management organisation for cluster participants (staff and non-personnel expenses). It excludes the specific budget for R&D projects or any other projects</p> <p>The origin of the total budget of the cluster is split between the following categories: public funding, income generated from chargeable services, membership fees, as well as other private sources like private foundations or donations. In-kind contributions (non-cash contributions) are not represented.</p>
2.18	<p>Development of “Share of public funding in the total budget of the cluster organisation”</p> <p>This indicator deals with the development of the financing share beyond pure public funding in comparison to others over the last few years.</p>
2.19	<p>Strategy development</p> <p>The development and implementation of a cluster strategy in close cooperation with the cluster participants is an indicator for a good cluster management. Strategic planning and the corresponding implementation plan are key preconditions of successful work. It is recommended to develop and implement a cluster strategy in order to operate in a sustainable and successful way. The strategy should be documented and cover all relevant strategic issues, topics, timeframes, etc. The strategy has to be an outcome of an internal process in which the needs and expectations of the cluster stakeholders are discussed and translated into strategic measures.</p> <p>This process of strategy development and implementation is compared.</p>
2.20	<p>Extent of realization – Strategy</p> <p>Strategies of cluster initiatives can be characterised by very different levels of detail. These are compared with those of other cluster initiatives.</p>

2. Assessment of the cluster initiatives and cluster managements' performance	
2.21	<p>Extent of realisation – Implementation</p> <p>The implementation plans for the realisation of strategies of cluster initiatives can be characterised by very different levels of detail. The levels of detail of implementation plans are compared to each other.</p>
2.22	<p>Governance and decision making</p> <p>For a successful networking all cluster actors have to understand and respect their tasks and responsibilities. In collaboration with relevant cluster participants, the cluster management must define dedicated governance structures and turn them into practice</p> <p>Controlling processes and processes of decision making within a cluster initiative have to be clear and unambiguous. Thus, generally cluster initiatives implemented instruments and methods. These can be more or less precisely prepared and described. This is exactly where this indicator is positioned. It compares existing and used governance processes and processes of decision making.</p> <p>Existence of a governing body such as a steering committee or advisory board to conduct decision making and support the cluster management in implementing the action plan, survey and review the progress of the cluster work as well as the work of the cluster management. Its responsibilities are understood by all participants and meetings take place on a regular basis</p> <p>Degree of involvement of the participants of the cluster in the decision making and strategic orientation of the cluster organisation.</p>
2.23	<p>Strategy for media visibility and public relations</p> <p>A national and international perception of the cluster initiative and the cluster management is generally intended and important. This can be actively supported by a compelling communication strategy and public relations. Involved measures are compared by this indicator.</p>
2.24	<p>Degree of media visibility of the cluster</p> <p>Media visibility on regional, national and international level is important for clusters to attract partners, clients etc. Thus, the visibility of the cluster is assessed in terms of the frequency of media appearances.</p>
2.25	<p>Number of external cooperation requests received by the cluster</p> <p>The cluster initiative's work usually focuses on the networking and good cooperation inside the cluster. The recognition and visibility of a cluster is also reflected in a high number of external cooperation requests from relevant actors.</p> <p>The number of cooperation requests from external players that are received by the cluster initiative are evaluated by this indicator.</p>
2.26	<p>Quality of external cooperation requests received by the cluster</p> <p>This indicator deals with the quality of external cooperation requests. Those can be non-binding requests to network (for example simple exchange of information or invites to events) or even R&D projects or B2B cooperations.</p>

2.	Assessment of the cluster initiatives and cluster managements' performance
2.27	<p>Impact of the work of the cluster management on the cluster participants' competitiveness</p> <p>This indicator is based on a self-assessment by the cluster management, which have to evaluate the effect of their work. Several categories can be distinguished from each other:</p> <ul style="list-style-type: none"> • Impact of the Work of the Cluster Organisation on R&D Activities of the Cluster Participants • Impact of the Work of the Cluster Organisation on Business Activities of the Cluster Participants • Impact of the Business-oriented Services of the Cluster Organisation on SME Participants • Impact of the Work of the Cluster Organisation on International Activities of the Cluster Participants
2.28	<p>Significance of success stories</p> <p>For the cluster initiative's legitimization their success in the work with the cluster actors is key. This can easily be determined by looking at success stories. Those are categorized according to strategy and significance and then compared to each other.</p>
2.29	<p>Satisfaction of cluster members from the cluster management's point of view</p> <p>The satisfaction of cluster participants with the cluster management's work is an indicator for the quality of that cluster management. The level of that indicator has to be self-assessed by the cluster management according to several categories. (Due to the nature of self-assessment by cluster managers this does not substitute for a satisfactory survey carried out with cluster participants.)</p>

Table 7: Benchmarking indicators to assess the cluster's and cluster management's performance – Set of indicators 2. Source: iit, 2011

The impact of cluster initiatives and cluster organisation can be highly affected by different factors. Thus, the impact measurement is usually quite difficult, as illustrated in the beginning of chapter 7.2. A range of potential indicators and aspects, which will be useful for the assessment of cluster impacts are listed in the following, with a short explanation. Some of the mentioned items are of more complex nature (e.g. satisfaction with services or achieved benefits). These need to be further detailed which requires more in-depth analysis. This was not part of this report.

3. Assessment of the cluster initiatives and of cluster managements impacts	
3.1	<p>Duration of commitment</p> <p>As described above (indicator composition) cluster participant are committed if they actively contribute to the activities of the cluster. It is expected that the impact of a cluster on participants depends on the period of time that a participant is engaged and active in the cluster initiative.</p> <p>A measurable impact, independent of its kind, may only occur after a longer period of commitment. Thus, this indicator should not be applied to cluster initiatives, less than 3 years old at the time the assessment is being conducted.</p>
3.2	<p>Degree of activity</p> <p>The intensity of the cluster participants' engagement will also influence the possible impact of a cluster initiative on its participants. A measureable impact rather occurs when participants are active. This is a relevant indicator for the cluster management, as it illustrates the relationship between active and passive actors. This is the case even for young cluster initiatives, because a realistic impression is provided of who sees themselves as key player among the cluster actors / members.</p>
3.3	<p>Satisfaction with offered services</p> <p>Cluster managements offer a wide range of services, in order to provide their cluster participants with additional values. The frequency of usage and the kind of service is interesting in the context of the impact measurement. Services that are intensively used are an indication for a high demand orientation and quality. Cluster services need to be offered for at least 12 months before eligible for assessment.</p>
3.4	<p>Quality of workshops</p> <p>Workshops on specific topics do constitute an important instrument within the cluster initiative. They could have a rapid and high impact on a great number of participants. Thus, it is important to know whether participants are satisfied with the quality and quantity of workshops, or if there are further topics to be addressed. This indicator does not apply to young cluster initiatives that do not offer workshops for at least 12 months.</p>
3.5	<p>Achievement of benefits</p> <p>This deals with questions regarding the effects since the involvement in the cluster initiative, and if these effects might be the result of the engagement in the cluster. Where have these been particularly significant? How high was the profit for their company by the involvement in the cluster initiative? Here it should be measured which kind of benefits have been achieved by companies within the cluster and to what extent. Is the benefit congruent with prior objectives and foci of the cluster management? As benefits only occur after several years, question on this aspect should not be applied to cluster initiatives, less than 3 years old.</p>

3. Assessment of the cluster initiatives and of cluster managements impacts	
3.6	<p>“Return-on-Investment” / Monetary value</p> <p>Cluster participants make varying large investments by personnel and financial resources to become actively involved in the cluster. With respect to their “investments” their expectations concerning impacts are accordingly high. This indicator evaluates the achieved monetary impact, as estimated by the interviewee, in relation to the investments in cluster work. It is important whether the return is low, equal, high, or very high in comparison to the investment. This kind of estimation is more important here, than absolute numbers, which are usually not available. If a large share of the parties concerned estimates the return as high, in comparison to their investment, the indicator demonstrates the effectiveness of the cluster initiative.</p> <p>As benefits only occur after several years, this indicator should not be applied to cluster initiatives, less than 3 years old at the time the evaluation is being conducted</p>

Table 8: Indicators and aspects to assess the cluster and cluster management's impacts – Set of indicators 3.
Source: iit, 2011

6.2 Assessment of the eligibility of the outcome and impact assessment indicators for CCI application

In the framework of a public workshop with the ECIA Steering Committee on 7th of September 2012, about 50 experts from the CCI sector were (cluster actors, cluster managers, policy-makers and related practitioners from different European countries) asked to rate the eligibility and appropriateness of the indicators described in chapter 6.1. All experts were allowed to give a green point, if they considered a particular indicator as very suitable for applying at CCI clusters. Red points were given to indicators that appeared not to be appropriate for applying at CCI clusters. All experts were allowed to give up to three green and red points in total. The following table (table 9) gives an overview about the voting.

The following table displays the results. The values indicate how many green or red points have been given. As higher the values are as stronger is the voting that particular indicator is considered to be appropriate (green column) or not appropriate (red column). No value means that there was neither a green nor a red point given. This could be understood in that way that the given indicator is appropriate.

When having a closer look it become evident that there is quite a good common sense about the appropriateness or non-appropriateness of the proposed indicators. Only in one case, there were more than two green and red points given for the same indicator (indicator No. 6.6 return on investment). In general

The following indicators were rated comparable positive (at least four green points)

- No. 1.2 Existence of quantitative and qualitative objectives
- No. 1.5 Existence of strategy and implementation plan; monitoring system
- No. 2.14 Service spectrum and generated added-values by the cluster management
- No. 2.16 Long-term financial stability of the cluster management

- No. 2.27 Impact of the work of the cluster management on the cluster participants' competitive strength
- No. 3.3 Satisfaction with offered services
- No. 3.6 Return-on-investment / monetary added value

This result is not really surprising since these indicators are understood as “quality criteria” for good cluster management in many cases regards from which sector the particular cluster or cluster initiative is coming from.

The following indicators were rated comparable negative (at least four red points), meaning they are not considered to be appropriate to be applied for CCI clusters

- No. 1.1 Main objectives of the respective cluster initiative / cluster
- No. 2.1 Age of the cluster initiative / cluster organisation
- No. 2.2 Number of cluster actors
- No. 2.5 Regional focus of the cluster actors
- No. 2.6 Degree of specialisation vs. thematic range
- No. 2.9 Legal form of the cluster initiative
- No. 3.1 Duration of commitment of the cluster actors

When commenting on the negatively rated indicators, it became clear that it is not surprising that the indicators 2.1, 2.2, 2.6 and 3.1 are not really suitable for assessing neither the quality nor the outcomes, output or impacts of cluster organisations or cluster initiatives. Neither the age of a cluster organisation nor its size may be understood as a quality indicator. Sometimes these indicators are applied to get some background information about a given cluster or cluster initiative. Thus, as long as they are not applied to assess a cluster or cluster organisation, they can be applied for statistical reasons. Indicator 1.1 very much depends on the needs of the cluster actors and therefore is not a quality indicator itself.

When it comes to the two remaining indicators (No. 2.5 and 2.9) there are some hints in the literature that both might have an impact on the quality, output, outcome or impact of a cluster initiative. No. 2.5 (regional focus) deals with the core characteristics of a cluster as such, the regional proximity of actors (s. Porter's definition of cluster, page 6). However, this is not contradictory if a network is a little bit widespread compared to a cluster. Since there is even not definition concerning the proximity, this might led to a concern that this indicator is appropriate. The same is with indicator No. 2.9 (legal form of cluster initiatives). In the literature there are some weak indications that cluster initiative having a dedicated legal form tend to generate more outcome and a higher impact. But there is no clear evidence.

Summarizing the findings, the majority of the proposed indicators for assessing quality, output, outcomes or impact of cluster initiatives and cluster organisation have been agreed to be appropriate or very appropriate for applying at CCI clusters (about 85 %). The most of those indicators that were considered not to be appropriate can be understood more as statistical background indicators / information rather than for assessing cluster initiatives or cluster organisation. Thus, the expert group confirmed the opinion of the authors that the majority of the proposed indicators that have been developed cluster initiatives and cluster organisation from various sectors can also be applied for CCI clusters.

Indicators/criteria		Appropriateness to apply at CCI cluster	
		+	-
4.	Assessment of objectives of the cluster initiatives and cluster management		
4.1	Main objectives of the respective cluster initiative		4
4.2	Existence of quantitative and qualitative objectives	5	1
4.3	Plausibility of main objectives	3	1
4.4	Applied measures to achieve objectives	3	
4.5	Strategy and implementation plan, monitoring system	12	1
4.6	Target/actual-comparison concerning achievement of objectives	1	
5.	Assessment of the cluster initiatives and cluster management's performance		
5.1	Age of the cluster initiative		11
5.2	Number of cluster actors		8
5.3	Regional growth potential	2	
5.4	Composition of cluster participants	1	
5.5	Regional focus of cluster actors		9
5.6	Degree of specialization vs. thematic range		4
5.7	Driving forces concerning the cluster's thematic priorities	1	
5.8	Share of international cluster participants		
5.9	Legal form of the cluster initiative		9
5.10	Thematic focus of the cluster management		
5.11	Personnel resources in cluster management	2	
5.12	Clear definition of roles	2	2
5.13	Nature of cooperation structures within a cluster initiative		1
5.14	Service spectrum and generated additional value by the cluster management	7	

Indicators/criteria		Appropriateness to apply at CCI cluster	
		+	-
5.15	Personnel continuity and competences of the cluster management		
5.16	Long-term financial stability of the cluster management	4	
5.17	Share of public funding in the total budget of the cluster organisation		1
5.18	Development of “Share of public funding in the total budget of the cluster organisation”		1
5.19	Strategy development	3	
5.20	Extent of realisation – strategy		
5.21	Extent of realisation – implementation	1	
5.22	Governance and decision making	1	
5.23	Strategy for media visibility and public relation	1	
5.24	Degree of media visibility of the cluster	1	1
5.25	Number of external cooperation requests received by the cluster	1	
5.26	Quality of external cooperation requests		2
5.27	Impact of the work of the cluster management on the cluster participants' competitive strength	12	
5.28	Significance of success stories		
5.29	Satisfaction of cluster participants from the cluster management's point of view	1	1

Indicators/criteria		Appropriateness to apply at CCI cluster	
		+	-
6	Assessment of the cluster initiatives and of cluster managements impacts		
6.1	Duration of commitment	2	10
6.2	Degree of activity	3	
6.3	Satisfactions with offered services	9	
6.4	Quality of workshops		1
6.5	Achievement of benefits	3	
6.6	"Return-on-Investment" / Monetary value	9	3

Table 9: Results of the expert opinion about appropriateness of certain indicators to measure quality

outputs, outcomes and impact of cluster initiatives and cluster organization

Appendix A: Indicators used in benchmarking

Dimensions	Indicators
Structure of the cluster	Age of the cluster organisation
	Legal form of the cluster organisation
	Nature of the cluster: driving forces
	Nature of the cluster: degree of specialization
	Composition of the cluster membership (Committed members)
	Regional concentration of the cluster members (Committed members)
	Utilization of regional growth potential
	International members of the cluster
	Nature of cooperation between cluster members
Cluster management and governance/Strategy of the cluster organisation	Assignment of tasks/clarity of role definitions of the cluster management and the cluster members
	Number of cluster members per employee (full-time equivalents) of the cluster organisation
	Human resource competences and development in the cluster organisation
	Strategic planning and implementation processes
	Thematic and geographical priorities of the cluster strategy
Financing of the cluster management	Current sources of financing of the cluster organisation
	Share of private financing of the cluster organisation in relation to the age of the cluster
	Financial sustainability of the cluster organisation
Services provided by the cluster organisation (Spectrum and intensity)	Acquisition of third party funding
	Collaborative technology development, technology transfer or R&D without third party funding
	Information, matchmaking and exchange of experience
	Development of human resources
	Development of entrepreneurship
	Matchmaking and networking with external partners/promotion of cluster location
	Internationalization of cluster members
Achievements and recognition of the cluster organisation	Intensity of external requests for cooperation
	Origin of external cooperation requests
	Geographical dimension of the external cooperation requests
	Characteristics of cooperation with foreign clusters
	Media appearances
	Impact of the work of the cluster organisation on R&D activities of the cluster members
	Impact of the work of the cluster organisation on business activities of the cluster members
	Impact of business-oriented services of the cluster organisation on business activities of the SME members
	Degree of internationalization of cluster participants
	Impact of the work of the cluster organisation on international activities of the cluster members

Table 10: Dimensions and indicators used in the context of the benchmarking of cluster initiatives and cluster management organisations. The green boxes represent those 16 indicators chosen to perform the cluster comparison analysis for this report.

Appendix B: Description of structural factors for the cluster comparison analysis

Previous studies have shown that structural factors such as size, age, governance and the share of private funding of the cluster management organisation as well as the type of agenda setter (industry or research stakeholders) can have an effect on clusters. The following described indicators are used in the benchmarking:

- Age of the cluster management organisation
 - Since clusters can be considered as natural given agglomerations of cluster actors⁴⁴, we had focused on the age of a cluster management organisation, often in line with the development stage of a cluster initiative.
- Number of committed members / key actors
 - Whenever possible, we have counted the number of cluster actors that have committed themselves to actively contribute to the cluster. The kind of commitment (membership fee, LOI, etc.) was not of relevance. In those cases where there was no proven commitment available, the cluster management has been asked to assess the number of so called key actors who actively contributed over a longer period
- Regional concentration of the cluster actors
 - Regional proximity has clear advantages and the cluster approach as such is based on it. Thus it had been of interest how many percentage of the members/actors have been located within a radius of 150 km of the clusters.
- Driving force within the cluster
 - The objectives of a cluster (initiative) often depend on the driving forces. It could be R&D driven, industrial driven or something in between. Accordingly, the services provided by the cluster management organisations as well as the added-values generated for the cluster participants might vary considerably. Thus, the cluster managers have been asked to assess according to the given scale whether the cluster can be considered as strongly R&D driven (value 1), half-half (value 3) or strongly industrial driven (value 5)
- Degree of specialization of the cluster
 - The degree of specialization could be an important structural factor when it comes to the overall competitiveness of the cluster actors. It also has a strong impact on the size of clusters (highly specialized are smaller by nature than clusters without any specialization).
- Legal form of the cluster
 - The legal form of clusters (initiatives) is considered to be important when it comes to mutual commitment among the cluster participants. If a cluster initiative has decided to set up a certain legal form, this can be understood as a clear sign of strong commitment of the cluster actors. Thus, it is of interest whether clusters belonging to a certain industry tend to have more often a dedicated legal form than

⁴⁴ Sölvell, Ö., Lindqvist, G., Ketels, Ch. (2003) *The Cluster Initiative Greenbook*, ISBN 91-974783-1-8

others. It is also of interest, whether there is any significant difference among clusters from CCI and other industries.

- Type of governance
 - The governance of clusters can be more centralized (in this case, the cluster management organisation is the key facilitator who initiates the most networking activities) as well as more decentralized (meaning many networking activities and co-operations are self-organised by the cluster actors, the cluster organisation is still active, but does not play such a dominant role as facilitator)⁴⁵. There is no evidence which type is better than the other. Often it can be seen that the cluster management organisation of more matured clusters operates more decentralized since the key actors are used to co-operate together without any initiation of the cluster management. On the contrary embryonic clusters often have more centralized governance, since the cluster management organisation has to act as the main facilitator.
- Public funding rate of the cluster management organisation
 - Public funding plays a more and more relevant role in national and European cluster policies. There are very different approaches how to assure sustainable cluster management organisations. But the question, whether and how the public funding depends on the industries the cluster management organisations are active in, is still unanswered.
- Strategy and strategic planning of the cluster
 - Strategic planning and implementation is an important and necessary tool for cluster management organisations to operate according to specific objectives, which, in an ideal case, are confirmed and backed by the cluster participants. Clusters whose managements have successfully implemented their strategies are more successful than those, which are operating without any strategy⁴⁶.

⁴⁵ Meier zu Köcker, G. (2010) *Clusters in Germany – An empirical based insight view on emergence, financing, management and competitiveness of the most innovative clusters in Germany*, 2nd Edition, www.iit-berlin.de

⁴⁶ Meier zu Köcker, G., Müller, L., Zombori, Z. (2011) *Clusters go international*, www.iit-berlin.de

Appendix C: List of selected CCI clusters

CCI Cluster	Country	Number of cluster participants	Focus on activity area*	Share of SME [%]
Cluster Druck und Printmedien	Germany	92	aa2	35%
Cluster audiovisuelle Medien	Germany	293	aa4 / aa5	85%
Baden-Württemberg Connected e.V.	Germany	461	aa4 / aa5 / aa10 /	66%
Virtual Dimension Center Fellbach	Germany	60	aa8 / aa10	43%
The Packaging Arena	Sweden	60	aa8 / aa9	52%
NCE Tourism Fjord Norway	Norway	98	aa9 / aa10	62%
Innovative Experiences	Norway	36	aa4 / aa9 / aa10	86%
DIGIBUSINESS Finland	Finland	2893	aa4 / aa10	97%
Tourism and Experience Management	Finland	418	aa9 / aa10	71%
InViO – Innovation network for knowledge-based experience economy	Denmark	206	aa8 / aa9 / aa10	78%
Animation Hub	Denmark	50	aa4 / aa10	48%
Danish Sound Technology Network	Denmark	201	aa1 / aa4 / aa9 /	51%
Innovation Network for Lifestyle, Home and Clothing	Denmark	453	aa3 / aa8	71%
Printing and Advertising Cluster in Leszno	Poland	29	aa2 / aa9	72%
Mazovian Printing and Advertising Cluster - COLOURFUL VALLEY	Poland	14	aa2 / aa9	100%
MultiCluster - Cluster of Multimedia and Information Systems Association	Poland	71	aa4 / aa10	65%

- Creative and cultural industries combine and focus on the following activity areas:
- Music (aa1)
- Print media – Books and Press (aa2)
- Object d’art – Glass, ceramics, cutlery, crafts, jewellery (aa3)
- Film (aa4)
- Broadcast media (aa5)
- The “finer” arts – literary, visual and performance arts (aa6)
- Architecture (aa7)
- Design – Fashion design, graphic design, interior design, product design (aa8)
- Advertising (aa9)
- Games software, new media (aa10)
- Libraries, museums, heritage (aa11)
- Photography (aa12)

Appendix D: indicators to assess CCI related cluster policy

In the following tables the different indicators are presented, of which the most suitable may be selected for evaluation and benchmarking of CCI.

1.	Indicators to assess cluster policy
1.1	Governance structures and interaction between public and private bodies
1.1.1	Organisational implementation of cluster initiatives This deals with the areas of responsibility for cluster policy and cluster initiatives in the authorities. Furthermore, existing organisational administrative units that support cluster policy and cluster initiatives are considered. This analysis gives information on the responsibilities, their organisational complexity and the degree of formalisation.
1.1.2	Roles and task allocation at administrative level Based on the formal organisational location of cluster policy, there will be different role allocations between the responsible employees, e. g. administrative governmental units for cluster policy and the cluster management in different directorates. Possibly, certain special features can be observed in terms of role allocation (e. g. personal union at allocation of tasks). In this context, task allocation and the communication between the parties concerned might be of interest, too.
1.1.3	Instruments of cooperation and coordination This criterion refers to 1.1.2 and focuses on the deployed instruments for the cooperation and coordination on the level of cluster management and administration. These could be formalised processes, such as regular meetings and the use of task forces, or less formal proceedings, such as spontaneous coordination meetings. Furthermore, activities, such as workshops could be used as instruments as well as strategy papers and guidelines, which serve as guidance.
1.2	Interaction and performance of administrative units for cluster policy
1.2.1	Supportive services by administrative units for cluster policy Cluster programme makers, cluster managements and the overall strategy could all benefit from different services that are offered by the administrative units for cluster policy. This criterion deals with the inventory of different services and activities (e. g. consultancy, central point of contact, homepage). This also includes further supportive activities provided, such as the representation of interest in committees, or the initiation of cooperation projects.
1.2.2	Benefit of supportive services provided by administrative units for cluster policy Cluster programme makers and cluster managements should judge the benefits of the services and activities offered by administrative units for cluster policy. How useful are these for the own work? Are these services rather supply-led or demand-oriented? Which supportive measures have to be added? How is the benefit of services for the overall strategy being evaluated?
1.2.3	Adequacy of available resources for administrative units for cluster policy The administrative unit(s) for cluster policy coordinate and support strategic tasks, that may be of great importance. For this purpose adequate personnel and financial resources are necessary. Their adequacy has to be evaluated against the backdrop of the defined tasks and responsibilities.
1.3	Strategic and coordinating tasks of administrative unit(s) for cluster policy
1.3.1	Involvement of key actors Administrative units for cluster policy are involved in or even initiate numerous diverse discussions concerning strategic cluster related issues and questions. It is important that the proper stakeholders are involved in these processes. Hence it has to be asked who is involved and how often.

1.	Indicators to assess cluster policy
1.3.2	<p>Decision-making competences and political scope of action of the administrative unit(s) for cluster policy</p> <p>Decisions cannot be made without the necessary authority. There is a need to align the expectations on the administrative unit with the realistic possible outcome for cluster policy within their scope of action and resources.</p>
1.3.3	<p>Coordination across regions / Federal States</p> <p>Cluster policy is situated in an economic- and innovation-political context that does not stop in front of borders of federal states. In this sense an alignment with intentions of other federal states is helping to reveal overlapping as well as potentials of synergies.. Because the overall federal state collaboration in the level of cluster policy is part of the tasks of the staff positions it is included in in the evaluations system.</p>

2.	Coherence and Objectives of cluster policy
2.1	Objectives and priorities of the cluster policy
2.1.1	<p>Objective of the cluster policy</p> <p>For reaching its objectives cluster policy should have define them first. This criterion aims at the identification of formulated objectives like the overall mission and “sub-goals”.</p>
2.1.2	<p>Matching of the cluster initiative’s objectives with the overall cluster policy</p> <p>The cluster policy’s objectives will be compared with goals and priorities of each cluster initiative. Hereby the matching of the objectives will be verified. This equals a plausibility check and reveals potential contradictions.</p>
2.2	Integration and coherence
2.2.1	<p>Use of economic and innovation policy measures</p> <p>This indicator captures first diverse existing economic and innovation policy measures that are used to improve the framework requirement for cluster initiatives. The main focus will lie on regional actions which are likely the ones that can be influenced the most.</p>
2.2.2	<p>Coherence of economic and innovation policy measures</p> <p>This criterion examines the existing economic and innovation policy measures from 2.2.1. concerning their adjustment in time and content and how they fit cluster specific measures.</p>
2.2.3	<p>Trans-regional exchange on economic and innovation policy measures</p> <p>Regional measures should preferably not be looked at isolated but rather in their context. For this purpose it can be helpful to have a look across state borders and use the chance for a trans-regional exchange with responsible of other measures. The aim is to be aware of other practices and perhaps to learn from them. By that cluster specific measures can be aligned and synergies used.</p>
2.2.4	<p>Adaptation of cluster initiatives on current requirements</p> <p>The clusters responsible are challenged to adapt cluster initiatives on actual requirements. This criterion asks for the way of how this process of adaptation is assured as well as for the instruments and practices to do so. In this context it can be shown if established mechanisms for adjustment already exist or if the adaption takes place rather ad hoc.</p>
2.2.5	<p>Future plans by the cluster responsible</p> <p>This criterion is closely related to previous. The cluster responsible will be asked under 2.2.4. which resources and methods they use to assure the adaptation of the cluster initiative. The adaptation can happen reactive or proactive by pursuing plans for the future or by anticipating upcoming developments and threats that cluster initiatives need to be prepared to.</p>

3.	Strategy and future design of cluster policy
3.1	Determination of the starting basis of the cluster initiatives
3.1.1	Economic setting when cluster initiatives have been selected The cluster initiatives were chosen on basis of their potential with respect to economic growth and employment for the region. A review on the probably carried out economic potential-analysis shows the former assumption that led to their selection.
3.1.2	Changes since the cluster initiatives have started. Fundamental changes since the starting point of cluster initiatives can be detected. The possible changes refer to three different aspects: 1) Economic threats (e.g. financial crisis, insolvency of key players of the cluster), 2) technological threats (e.g. technical leaps) 3) social/societal threats (e. g. acceptance of technology)
3.1.3	Development status of cluster initiatives This criterion asks for the personal estimation of the cluster managers regarding the development of the cluster initiative. Cluster responsible are familiar with “their” cluster initiatives and advances in development. Hence cluster manager are able to give a realistic judgement. Further, the results of the cluster participant survey offer insight in the development status.
3.2	Evaluation and monitoring practice
3.2.1	On-going monitoring activities This criterion deals with an inventory of activities for on-going monitoring of cluster initiatives used by their cluster managers. Which indicators are collected during monitoring? What kinds of instruments are used for collecting (e.g. online platform)?
3.2.2	Use of previous evaluations/monitoring results The question arises how previous results collected through evaluation, benchmarking and on-going monitoring are used by cluster managers for the development of the cluster initiatives.
3.2.3	Measurable, operationalized objectives In order to measure the effectiveness of the cluster policy objectives need to be understandable, measurable and reachable (SMART = Specific Measurable Accepted Realistic Timely). The objectives should be operationalized and converted to activities. This should happen on the level of cluster policy as well as cluster management. In reality this is an ideal case and rarely seen. Occasionally objectives are in some ways operationalized though they differentiate immense among cluster initiatives. As a consequence objectives need to be qualified and evaluated in relation. Nevertheless, the questions to what extend cluster political objectives are existent and are operationalized in a concrete, measurable and timely form should be asked. This may be helpful for the future alignment of the overall strategy.
3.2.4	Consideration of future evaluation results by the administrative unit for cluster policy The cluster assessment framework shown in this report will be used to survey cluster initiatives and cluster managements. Guidance's for improving cluster policy, and accordingly cluster initiatives, are derived from this analysis. The question is how future evaluation results will be considered and implemented into the activities of the cluster responsible.

3.	Strategy and future design of cluster policy
3.3	Strategic alignment of the entire cluster strategy
3.3.1	<p>General economic- and innovation-political starting point for the establishment of the cluster initiative and the transformation since</p> <p>This criterion captures the results of the indicators 3.1.1. and 3.1.2. and puts them both in the context for the assessment of the overall strategy. Like already commented in 3.1.1. it should be no task of future assessments to look into the past. Neither the selection criteria nor the past potentials of the cluster initiatives should be taken into account. By contrast it may be important to acknowledge the main cluster specific economical, technological and societal challenges since the beginning of the initiatives in order to make a fair assessment.</p>
3.3.2	<p>Realistic impact possibilities of the cluster initiatives</p> <p>In this context cluster responsible will be asked whether the prospected achievements were realistic and plausible regarding the starting basis at the beginning of cluster initiatives. This again is important for a fair assessment of the cluster initiative's development.</p>
3.3.3	<p>Requirement for amendment of the overall strategy</p> <p>This criterion combines the results obtained from evaluation and benchmarking. The assessment constitutes the empirical basis for the identification of amendment requirements (results of measurement of effectiveness, efficiency and sustainability). In a consensus-oriented process recommendations for actions will be derived. This step helps to prevent a possible disagreement when implementing the strategy.</p>

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