CLUSTER MANAGEMENT EXCELLENCE IN GERMANY

German clusters in comparison with European peers

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ESCA is the European Secretariat for Cluster Analysis. Based in Berlin and hosted by the Institute for Innovation and Technology (iit), a research organisation affiliated with VDI/VDE Innovation + Technik GmbH (VDI/VDE-IT), the secretariat supports in particular cluster managers and policy makers with advice on cluster development. ESCA experts have developed a methodology for cluster benchmarking that is acknowledged by both cluster managers and policy makers throughout Europe. Since 2008 more than 450 cluster management organisations have been benchmarked according to this methodology. Being also involved in the European Clusters Excellence Initiative (ECEI) from 2009-2012 ESCA experts and researchers of iit contribute to the development of tools that support cluster managers on their way towards excellence.

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1. SUMMARY

Many countries all over the world have developed cluster policies and programmes to enhance the impact of their research and innovation policies. Clusters provide governments with an excellent opportunity to address social and economic challenges through business development and innovation support programmes. However, clusters have to be considered as a tool not as an objective in itself.

Germany is the main precursor for cluster policy and cluster initiatives in Europe. One rationale behind Germany's policy for supporting small and medium-sized enterprises (SME) is to increase productivity and innovation due to close cooperation with regionally concentrated partners along the value chain. Thus, cluster policy in Germany started in the mid-1990s resulting in a number of support programs both from the national and federal state level (Figure 1). The German cluster landscape since then is continually changing in order to face new challenges. Both recent leading cluster support programmes on a national level (Leading-Edge Cluster Competition, http://www.bmbf.de/en/20741.php and go-cluster, www.go-cluster.de/en) consider cluster management excellence as one of the key success factors for the cluster approach.

Figure 1   Selection of German cluster support programmes (iit 2012)

Cluster management excellence is considered as a main prerequisite for a cluster organisation to achieve the highest impacts within a given technological, industrial, regional, and legislative framework for the cluster participants, the industrial sector in general, or the development of regions. The goal of this country report is to give an overview of the structure, governance, key objectives, prevailing services, and cluster management issues of the leading clusters in Germany.

The analysis is based on the results of benchmarking activities of the European Secretariat for Cluster Analysis (ESCA). A sample of 60 German clusters from both national cluster initiatives Kompetenznetze Deutschland (www.kompetenznetze.de, predecessor of go-cluster) and the Leading-Edge Cluster Competition, both representing the best clusters in Germany, are compared with European peers, in particular:

- the 71 French Pôles de compétitivité,

- 10 of the Norwegian Centres of Expertise (NCE Norway), and

- a European excellence portfolio consisting of 71 clusters, selected on the basis of composite excellence indicators within the ESCA reference portfolio.

The indicators for cluster management excellence and the three-level assessment approach used in this analysis are based on an internationally recognised framework of quality indicators, developed within the context of the European Cluster Excellence Initiative (ECEI)[1].

German clusters regarded in this report are mostly well-structured matured clusters, most of them having a dedicated regional focus. They have been confronted early with financing challenges, since most of the funding schemes in Germany are of declining nature. As a consequence, the diversity of financing origins enables a better sustainability of the cluster management by German clusters compared to the peers.

According to the comparisons made, German clusters reveal better results regarding the development of competences in the cluster management team than their European peers. However, efforts are necessary to preserve this competitive advantage.

Some of the German cluster organisations show certain weaknesses concerning their strategic setup. The strategy for the cluster and the related implementation is often developed without involvement of key actors of the cluster. Reviewing the strategy or consequently following-up its implementation is often a weak point, too.

Working groups are considered to be very important and effective manner of stimulating cooperation among the participants of a cluster. About 20 % of the German clusters lack a sufficient number of such groups. Additionally, the existing working groups often do not represent a high quality standard.

Finally, most of the German clusters should invest more in public relation efforts in order to increase their visibility and the awareness of interested parties about the cluster and its success. There are many success stories created within clusters or realised because of the close cooperation of the cluster management team and cluster actors, which remain unknown to policy makers and the public. This leads to unnecessary discussions about the real impact of the cluster approach in Germany.

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[1] The "European Cluster Excellence Initiative (ECEI)" (www.cluster-excellence.eu), a three-year project 2009-2012, co-funded by DG Enterprise and Industry of the European Commission within the PRO INNO Europe® initiative, aimed to develop methodologies and tools for improving the excellence of cluster organisation management.

2. FRAMEWORK FOR MEASURING CLUSTER MANAGE-MENT EXCELLENCE

German clusters from both leading national cluster programmes "go-cluster" and "Spitzencluster Wettbewerb (Leading–Edge Cluster Competition)" took part in the benchmarking activities of the European Secretariat for Cluster Analysis (ESCA). They represent a sample of the best clusters in Germany.

The aggregated results of the 60 analysed German cluster organisations are compared with selected European peers:

- 71 French Pôles de compétitivité (PdC) and

- 10 Norwegian Centres of Expertise (NCE).

Both cluster initiatives are based on excellence criteria according to national priorities and both comprise of the best clusters of their countries (national champions). The results of the German cluster organisations are also compared with an excellence portfolio consisting of 71 cluster organisations selected on the basis of composite excellence indicators within the ESCA reference portfolio.

The methodology developed by ESCA has been currently (since 10/2010) applied to more than 400 cluster organisations all over Europe, incorporating new insights and developments from the European Cluster Excellence Initiative, a project co-funded by the European Commission Directorate General Enterprise and Industry within the PRO INNO Europe® initiative (ECEI, www.clusterexcellence.eu).

For the purpose of this benchmarking activity, clusters are considered as networks of companies and research institutions (including universities) that have a thematic focus, are regionally concentrated, and are institutionally organised and managed by a cluster manager or a cluster management team. The cluster may also include other actors such as public agencies. The cluster management organisation is a management agency that coordinates activities of cluster participants. It is mandated by the cluster participants to represent the cluster, both internally and externally, and to develop and implement activities that support the development of the cluster and the activities of its participants (members).

Many countries all over the world have developed cluster policies and programmes to enhance the impact of their research and innovation policies. Clusters provide governments with an excellent strategic opportunity to address social and economic challenges through business development and innovation support programmes.

In this regard, cluster (management) excellence matters for many reasons: it contributes to more prosperity in regions, better competitiveness for companies, and more return on investment for investors.

Excellent management is considered as a main prerequisite for a cluster organisation to achieve the highest impacts within a given technological, industrial, regional, and legislative framework for the cluster participants, the industrial sector in general, or the development of regions. Furthermore, common standards for excellent cluster management also enable better mutual understanding necessary for transnational cooperation between cluster organisations and by this are important to promote successful international cluster cooperation for the benefit of the participating SMEs.

2.1 INDICATORS FOR MEASURING CLUSTER MANAGEMENT EXCELLENCE

The indicators for cluster management excellence are focussed on the cluster organisation which is responsible for managing the cluster and its activities, and – to a certain extent – on the community of the cluster actors.

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 specialisation
Composition of the cluster participants (Committed participants)
Geographical concentration of the cluster participants (Committed participants)
Utilisation of regional growth potential
International participants of the cluster
Nature of cooperation between cluster participants

CLUSTER MANAGEMENT AND GOVERNANCE / STRATEGY OF THE CLUSTER ORGANISATION
Clear definition of the roles of the cluster manager / Implementation of a governing body / Degree of involvement of the participants of the cluster in the decision making process.
Number of cluster participants 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
Repartition of the different financial sources (public funding, chargeable services, membership fees and other private sources) in the total budget 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 among participants
Development of human resources
Development of entrepreneurship
Matchmaking and networking with external partners / promotion of cluster location
Internationalisation of cluster participants

ACHIEVEMENTS AND RECOGNITION OF THE CLUSTER ORGANISATION
Number of external cooperation requests received by the cluster organisation
Institutional origin of external cooperation requests
Geographical origin of external cooperation requests
Characteristics of cooperation with other international clusters
Visibility in the press
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
Degree of internationalisation of cluster participants

Table 1   Benchmarking indicators according to the ESCA- and ECEI-approach

2.2 COMPARATIVE PORTFOLIOS

The 60 German cluster organisations have been compared in the European context with three different comparative portfolios:

- 71 French Pôles de compétitivité (PdC),
- 10 Norwegian Centres of Expertise (NCE),
- Excellence portfolio consisting of 71 cluster organisations from all over Europe.

The French and Norwegian cluster programmes are based on excellence criteria and comprise of the best clusters of their countries. Their overall objectives are to facilitate growth by generating and reinforcing cooperation-based innovation between knowledge institutions and industries as well as to increase the international competitiveness and visibility of national industries.

The cluster organisations of the excellence portfolio have been determined on the basis of selected indicators of ECEI. Clusters reaching a predefined score are integrated in the excellence portfolio.

The comparative portfolios result from data collected between October 2010 and October 2012 by ESCA. Table 2 shows the sectorial distribution of the portfolios.

TECHNOLOGY AREAS	Aviation and space	Biotechnology	Construction and building sector	Energy and environment	Food industry (non-biotech)	Health and medical science	Humanities, social sciences, media, design, service innovation	Information and communication	Micro, nano and optical technologies	New materials and chemistry	Production and engineering	Transportation and mobility	Total
Kompetenznetze and Spitzencluster (Germany)	2	10	0	5	4	3	0	11	10	4	8	3	**60**
Pôles de Compétitivité (France)	3	2	1	15	10	6	3	6	5	11	4	5	**71**
Norwegian Centres of Expertise (Norway)	0	0	0	2	1	1	1	0	2	0	3	0	**10**
Excellence Portfolio	5	2	2	11	5	5	6	13	4	7	7	4	**71**

Table 2   Sectorial repartition of the clusters (cluster organisations)

2.3 FORMATS OF PRESENTING THE BENCHMARKING RESULTS

As benchmarking results are based on information provided by the cluster manager to an external benchmarking expert without detailed justification, they have to be considered with a certain caution. The cluster manager is expected to provide fair answers in order to present a realistic view on the position of the cluster compared to the comparative portfolios. Nevertheless no proof of the collected information has been made.

Benchmarking is a self-assessment approach of the cluster manager only and therefore cannot be compared with and cannot replace an evaluation, where several stakeholders of the clusters would be involved.

The following two graphical formats are mainly used to present the results:

Boxplot

Boxplots display distributions of statistical data (Figure 2). The box represents 50 % of the statistical population (the interquartile range), 25 % higher and 25 % lower than the median value which is marked inside the box. The whiskers represent the lower quartile and the upper quartile of the data. For more homogeneity and representativeness of the results, the length of the whiskers is determined by the lowest and the highest value of the data being presented and shall not be larger than 1.5x the size of the interquartile range. By this, the whiskers include up to 25 % of the entire data, reduced by significant statistical outliers. Thus, very special individual values are not considered in the construction of the box and the whiskers.
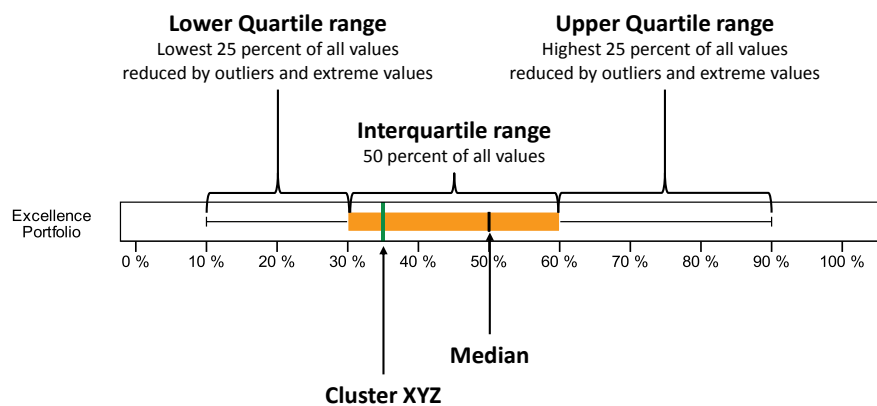

Figure 2   Presentation of results of the analysis of the benchmarking data through boxplots

Radar Chart

The radar chart (Figure 3) is a graphical method of displaying multivariate data in the form of a two-dimensional chart of quantitative variables represented on axes starting from the same point.
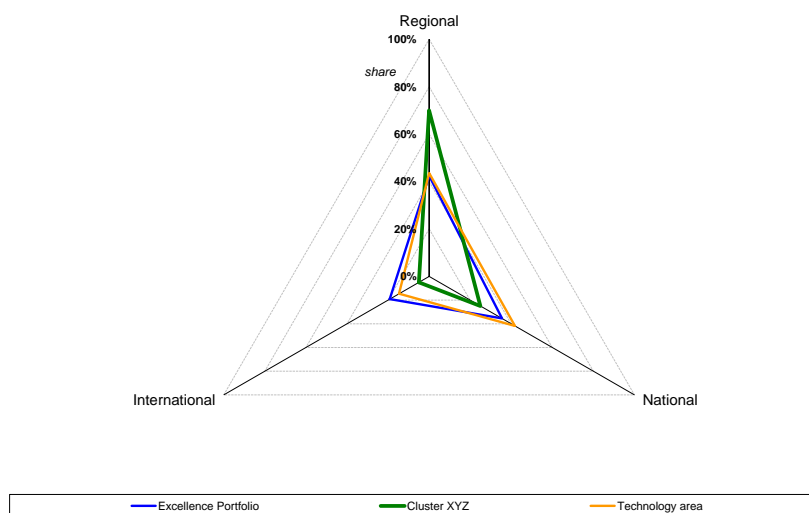

Figure 3   Presentation of results of the analysis of the benchmarking data through radar charts

3. GERMAN CLUSTERS IN COMPARISON WITH EUROPE-AN PEERS

3.1 STRUCTURES OF THE CLUSTERS

3.1.1 AGE OF THE CLUSTER ORGANISATION

Cluster policies in Germany initiated in the mid-1990s led to a number of support programmes being introduced both on the federal and regional level. Thus, the establishment of German cluster management organisations started already at the end of the 1990s. In other countries cluster policies were initiated rather late, at the beginning of the 2000s. As a result, cluster organisations from other European countries mostly have been established more recently.

The German and Norwegian cluster policies - even during the early policy phase - were dedicated to the further development of already existing clusters and cluster organisations. Their emergence was supported in several previous activities. That is the reason why the creation of cluster organisations in Germany and Norway are spread in time, while nearly all French PdC for example have been created in a very short timeframe (Figure 4). In France, there is a clear correlation between the inception of a national cluster policy and a related cluster funding programme and the establishment of cluster organisations.
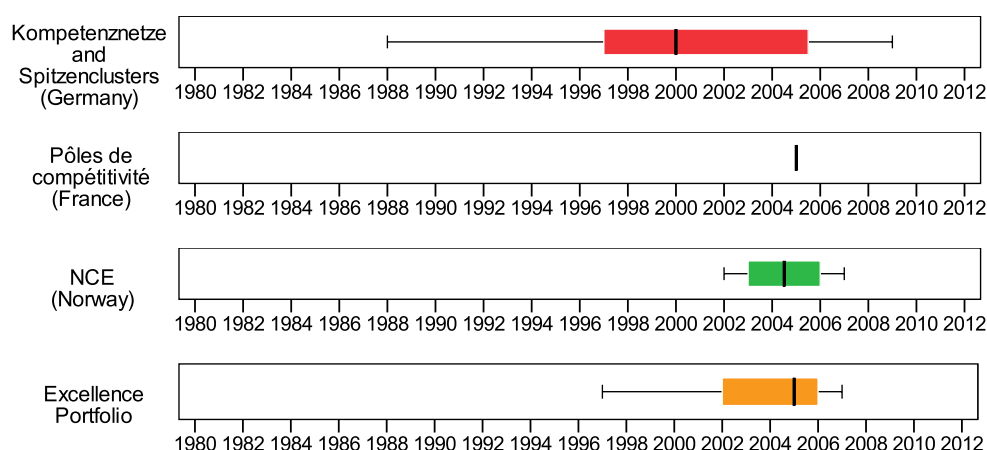

Figure 4   Year of establishment of the cluster organisations

The performance of a cluster organisation is often related to its age. It takes time to successfully develop and implement support activities for the cluster actors. Therefore a cluster organisation needs a couple of years to yield satisfying results.

3.1.2 LEGAL FORM

Most of the German cluster organisations are either established as associations or as limited liability companies. The models in Norway and France are very different. Whereas all French cluster organisations are associations, only 30 % of Norwegian clusters have a legal form (Figure 5). It is also interesting to see that 97 % of the cluster organisations belonging to the Excellence portfolio have a dedicated legal form. Therefore, cluster organisations established within a legal framework tend to be more successful than others[2].

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[2] This finding as well is supported by internal research activities of iit, not yet published

Long-term commitments of cluster participants as well as their active contributions to cluster activities are most frequently observed in legal frameworks where the cluster is established as a registered association.
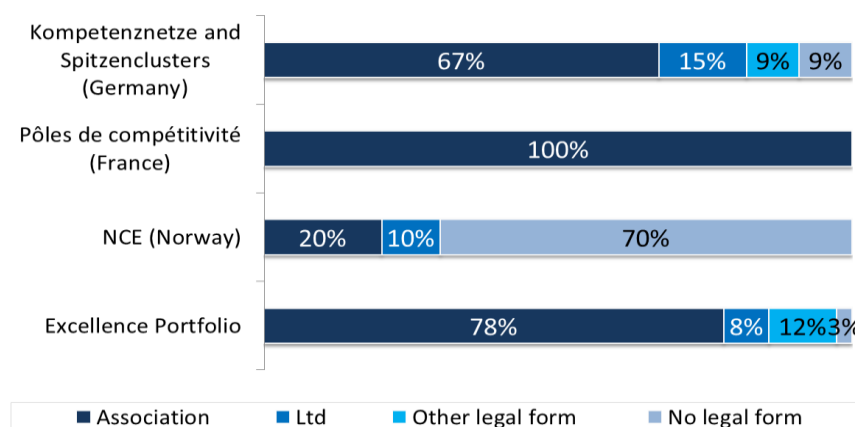

Figure 5   Legal form of clusters

3.1.3 DRIVING FORCES WITHIN CLUSTERS

Cluster participants influence the strategic priorities and key objectives of their cluster. This results in specific support actions implemented by the cluster management. In general, German and Norwegian clusters are mostly more influenced by the industry as the French clusters where research institutions and universities play a more significant role (Figure 6). This can be explained by the fact that the French cluster policy, namely the PdC programme, much more aims at and focuses on promoting (labelling) collaborative R&D projects between research organisations, universities and industry.
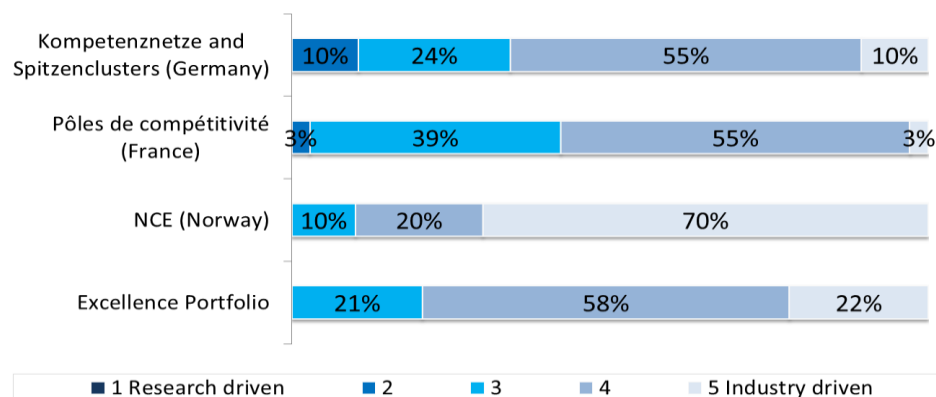

Figure 6   Influence of research versus industry in establishing the strategic priorities and activities of clusters

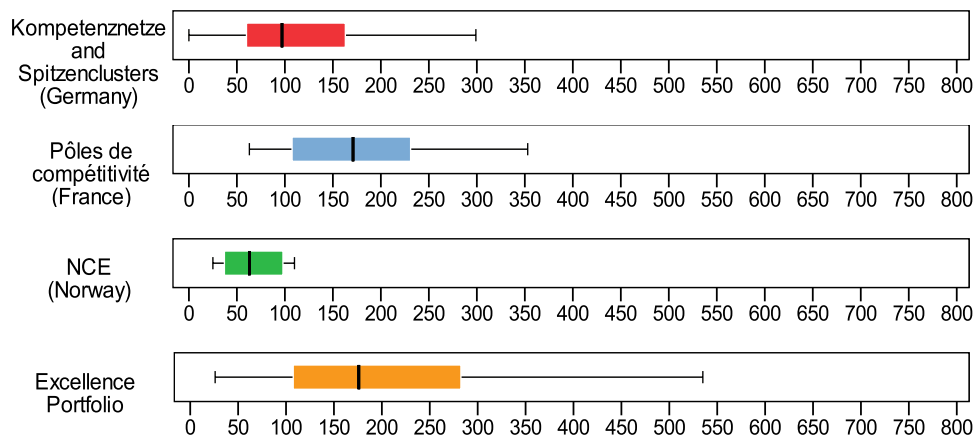### 3.1.4 COMPOSITION OF CLUSTER PARTICIPANTS

Figure 7   Total number of committed cluster participants

This analysis only refers to so-called "committed cluster participants". A cluster participant is characterised as "committed participant" if he/she 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) or regularly participating in cluster projects or working groups. Commitment is not reflected by a registration for a newsletter or by a singular participation in an event organised by the cluster organisation.

The number of committed cluster participants is a very important factor in order to reach certain critical mass (in the region) from which the entire cluster can benefit[3]. Clusters belonging to the excellence portfolio tend to be larger, counting between 110 and 280 participants compared to the German and the Norwegian ones (Figure 7).

Furthermore, the composition of the committed cluster participants is very important for a successful cluster work, too (Figure 8). Bundling of different competences is necessary 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. In all analysed clusters the share of industrial participants is predominant, and particularly the SME share.

It is interesting to see that the composition of German and French clusters seems to be quite similar. In Norwegian clusters less SMEs are participating, instead more global companies are present. On the contrary, the share of SMEs is significantly higher for the clusters belonging to the excellence portfolio.

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[3] 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/Competence Networks Germany, Copenhagen/Berlin.
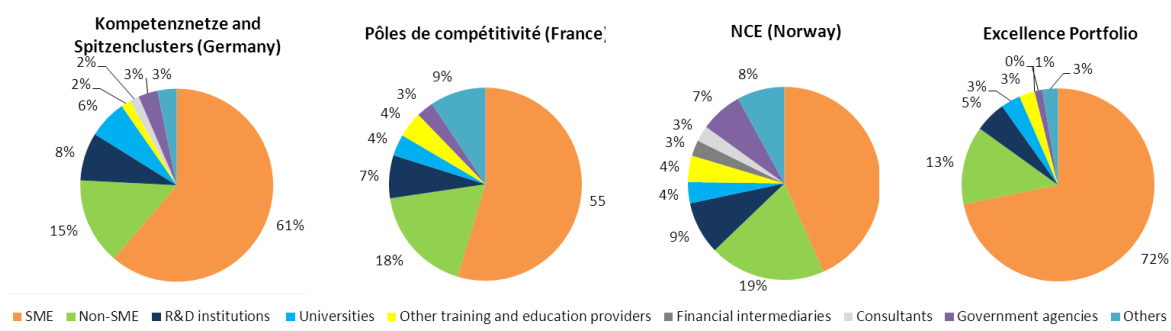
Figure 8   Composition of committed cluster participants

3.1.5 GEOGRAPHICAL CONCENTRATION

According to Michael E. Porter "clusters are geographic concentrations of interconnected companies and institutions in a particular field"[4]. The degree of geographical concentration is analysed.

Most of analysed clusters are regional initiatives. However, some of the German clusters are national initiatives, which often is a result of specific funding conditions. E.g. the Bavarian Cluster Support Scheme supports networks, which are widespread across Bavaria, but called a cluster (initiative). Also due to the specific funding conditions, the French PdC tend to be slightly more widespread regarding their geographical concentration than clusters from other countries (Figure 9).

The proximity of cluster participants is an important issue as personal contacts among the participants are more likely if travel time is rather short. Face-to-face meeting between the cluster management team participants should be easily possible with limited effort.
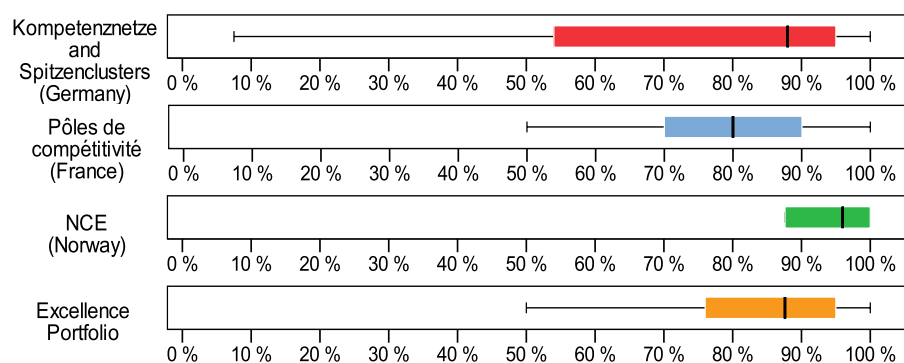

Figure 9   Percentage of committed cluster participants which are located within 150 km distance from the cluster manage-ment head office (or regional offices)

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[4] Porter, M. E. 1998: Clusters and the New Economics of Competition, in: Harvard Business Review, November 1998, p. 78.

3.2   CLUSTER MANAGEMENT AND GOVERNANCE

3.2.1 ORGANISATION OF GOVERNANCE

Cluster governance is an important issue as well. Tasks and responsibilities of the cluster manager and management team, as well as day-to-day business and strategic activities of the cluster should be well defined. A governing body such as a steering committee or advisory board should exist in order to conduct decision making and support the cluster management in implementing the action plan.
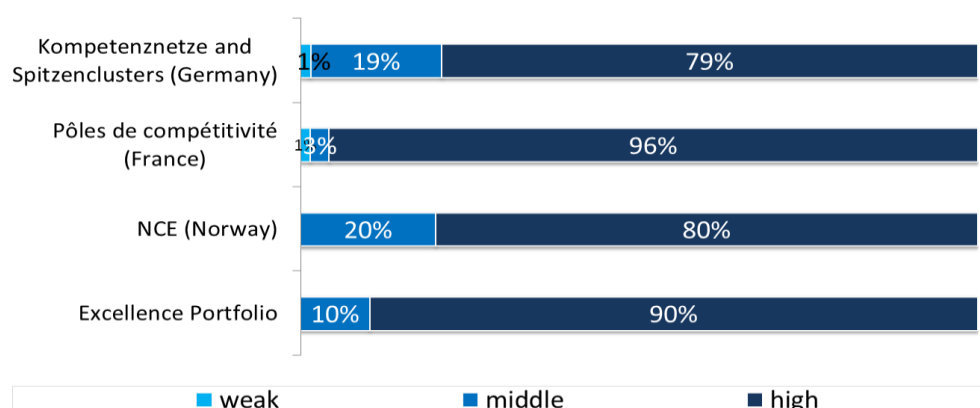

Figure 10   Organisation of governance

Figure 10 reveals that most of the cluster management organisations report that the governance of their cluster is on a high level.

3.2.2 CLUSTER MANAGEMENT TEAM

Sufficient human resources of the cluster management in terms of the number and the experience of staff should be available in order to provide appropriate support to the cluster participants. The development and implementation of tailor-made and demand-oriented services are often time consuming and their success depends on the professional implementation by the staff of the cluster management.
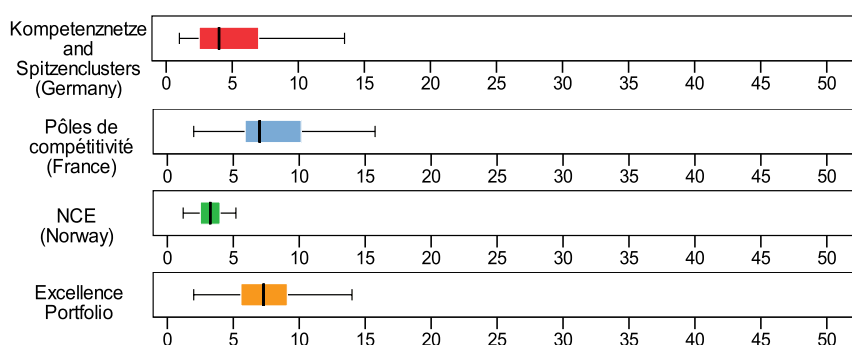

Figure 11   Number of employees in the cluster management team (FTE)

Looking at the number of staff of the cluster organisation alone is not sufficient; clusters vary in size significantly (Figure 11). A relevant factor of a cluster organisation - whether it is adequately staffed - therefore is the ratio of the number of cluster participants and the number of staff in the cluster management team. Number of staff is counted as "full-time equivalents (FTE[5])". Higher capacities of the

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[5] 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.

cluster organisation are expected to allow the development and provision of more tailor-made and demand-oriented services or a better direct support for the cluster participants. The number of participants per employee (FTE) of the cluster management team is quite the same for all represented clusters and reaches about 20-25 participants per FTE (Figure 12).
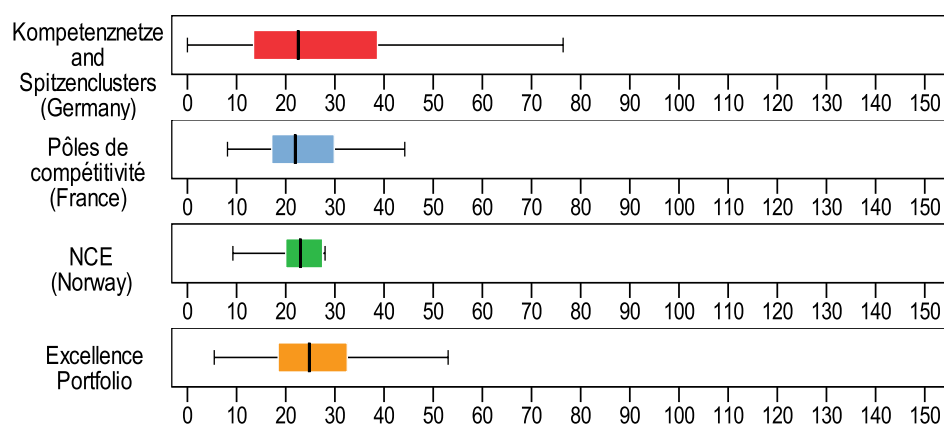

Figure 12   Number of participants per employee of the cluster management team (FTE)

Moreover, cluster management and other staff of the cluster organisation are continuously exposed to new challenges. The requirements of successful cluster management have changed over time. This is the reason why internal personnel development and continuous learning and training of the cluster management team are important elements of the successful cluster management. This might help to provide the staff with relevant up-to-date knowledge and experience. A regular analysis of the staff's training needs supports the development of a training programme for the cluster management team. Measures for such training should be implemented on a regular basis and based on a sufficient budget earmarked for this purpose. International work experience and language skills are also relevant criteria. Investing in the knowledge and management competences of the cluster management team should pay off through better services and tailor-made support of the cluster participants. Figure 13 displays that most cluster organisations have at least some human resources development and regarding development schemes in place.
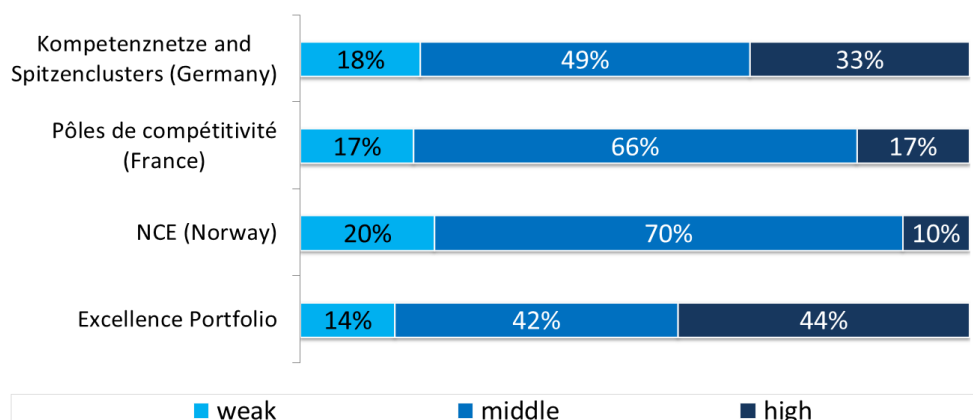

Figure 13   Level of human resources development schemes to further develop the competences in the cluster management team

3.3 FINANCING OF THE CLUSTER ORGANISATION

3.3.1 ORIGIN OF FINANCING

Since cluster initiatives have been established by means of public co-funding, there is an intensive on-going debate on how much public funding is to be recommended and for what period of time. European countries follow very different approaches.

Whereas the VINNVÄXT programme provides 100 % public funding for selected Swedish cluster organisations, both German cluster excellence programmes go-cluster and Leading-edge Cluster Competition, do not provide any funding for cluster organisations. So far, the "right" approach is still unknown and it is widely agreed that individual approaches are the best options. However, the share of private financing, coming mainly from membership fees or fee-based services, can be considered as a good indicator that the services provided by the cluster organisation have a certain value for the cluster participants spending money on their participation.

The total budget of the cluster organisations considered in this report includes budget dedicated to management tasks or activities performed by the cluster management organisation for cluster participants (personnel and non-personnel expenses). It excludes the specific budget for R&D projects or any other projects of cluster participants, which are not directly related to the cluster management tasks.

The origin of the total budget for cluster organisation is displayed in Figure 14. The following categories are distinguished:

- public funding;

- income generated from chargeable services;

- membership fees;

- other private sources like private foundations or donations and any in-kind contributions (non-cash).

It is considered that a certain part of the budget of the cluster organisation should come from private sources in order to provide a better financial sustainability for the medium and long term.
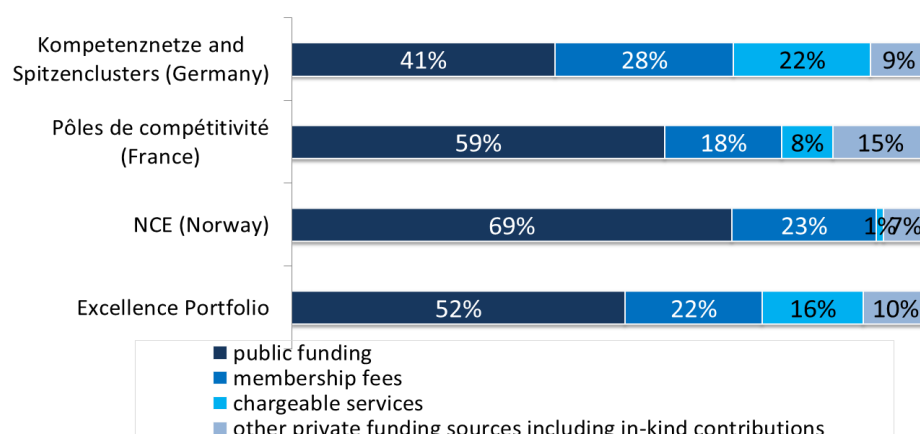

Figure 14 Share of private financing in the total budget of cluster organisations

Many European cluster organisations indeed were established with significant public support when they emerged. As public support is mostly limited in time it is crucial for the cluster management to tap other sources of financing. The substitution of public funding by private means can over time indicate

good cluster management practises, as products and services are sold to cluster participants or other parties.

As shown in Figure 14, German clusters reveal the lowest share of public funding (about 40 %). In addition, it is known, that in general in German funding schemes funding for clusters and/or cluster management is often declining.

In comparison, Norwegian excellence clusters receive around 70 % public money, mostly from the NCE programme, staying constant over time.

3.3.2 FINANCIAL SUSTAINABILITY OF CLUSTERS

As already indicated, cluster management requires a sustainable financial basis. Without this sustainable financial basis the cluster management has to spend a lot of resources on fundraising. In consequence these resources are not available for the development and provision of services for the cluster participants.

Stakeholders and key actors from industry, academia and of public authorities should be well aware of the financial situation of the cluster management and should be involved in securing funding. The development of fee-based services by the cluster organisation might be a solution. The identification of new financial sources should be part of the internal strategy process.
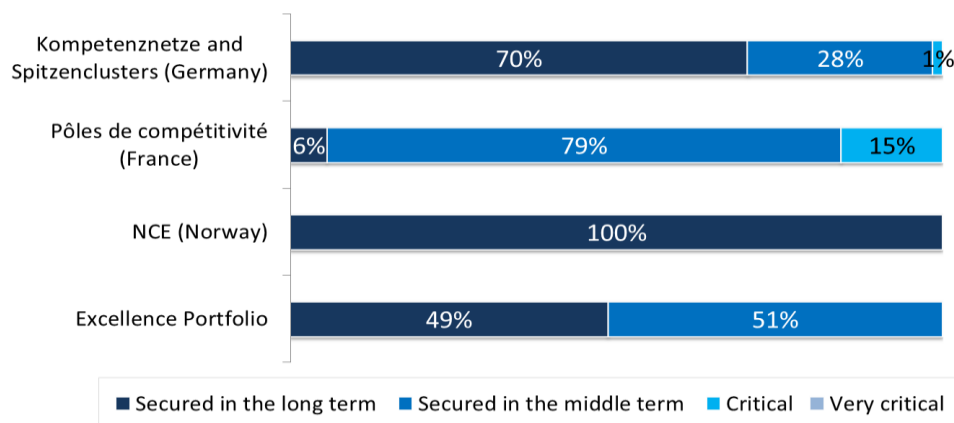

Figure 15   Financial sustainability of clusters

Most German clusters estimate that their financing is sustainable in the long or medium term. On the contrary, French PdC are currently (during the time period the benchmarking interviews were conducted, Feb-May 2012) confronted with the end of the second funding period of the underlying PdC cluster programme in near future. This results in a comparable high uncertainty (Figure 15). All Norwegian NCE are still long-term funded by the National NCE program and consider themselves as financially sustainable. In contrast to French and Norwegian clusters, the German cluster organisations generally do not receive any funding on the federal level to finance their management structure. In many cases however, they receive a public co-financing on the regional level (Bundesländer). Thus, the share of public funding is lower compared to other clusters in Europe, as Figure 14 shows.

In general however it can be said that a higher diversity of financing origins for the cluster organisation results in a more stable and sustainable financial situation for the cluster management.

3.4   STRATEGY

3.4.1 STRATEGY AND IMPLEMENTATION PLAN

Strategic planning and the implementation of corresponding actions are key preconditions for successful work of cluster organisations. The strategy has to be an outcome of an internal process in which the needs and expectations of the key cluster stakeholders are discussed and translated into strategic measures. After implementing the main elements of the cluster's strategy, a continuous monitoring approach should document the progress and impact of the implementation. Review measures and corrective actions should also be documented in order to demonstrate continuous improvements.
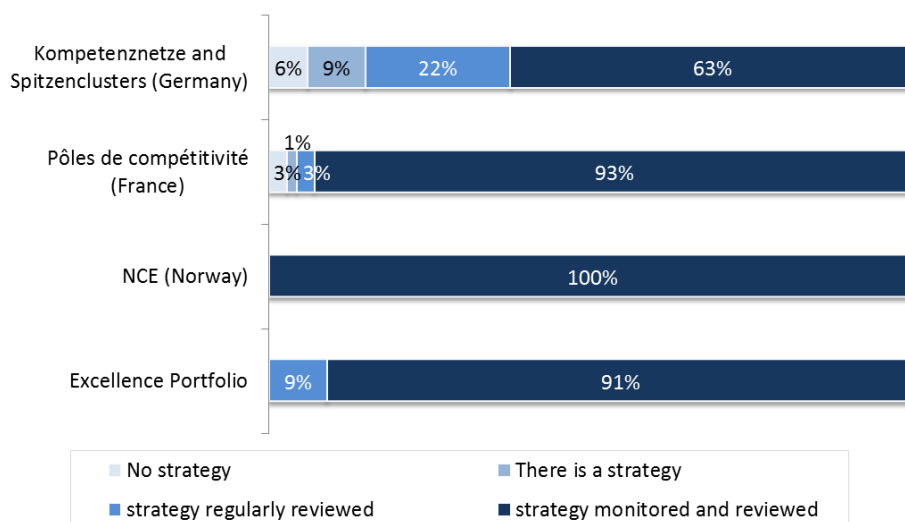

Figure 16   Strategy and implementation plan

French and Norwegian cluster organisations have a systematic approach of developing, documenting and reviewing their strategy (Figure 16). This is partially due to the fact that strategy development and reviewing are (pre)conditions for getting funded in the national cluster programmes. Within the PdC programme for example, the cluster's strategy and its implementation progress are continuously monitored and evaluated by third parties.

On the contrary, German cluster organisations seem not to pay so much attention to strategy issues. The majority of them report that they have a certain kind of strategy, but monitoring and reviewing is not so common compared to cluster organisations in other parts of Europe. There are many regional funding schemes in place in Germany that co-finance the cluster organisation without making it mandatory to develop and strictly monitor the cluster's strategy.

3.4.2 THEMATIC PRIORITIES OF CLUSTERS STRATEGY

According to the findings, the thematic priorities of all clusters follow a similar pattern independently from their nationality (Figure 17). Collaborative technology development, technology transfer and R&D, as well as matchmaking, information and experience exchange between cluster participants all are predominant strategic priorities of cluster organisations in all countries.

For the NCE cluster organisations, development of human resources seems to be of higher importance. When having a closer look at the NCE cluster funding programme, development of human resources plays an important, mandatory role. This is reflected in the strategy of the Norwegian clusters.

Looking at the French cluster organisations, it can be observed that they pay a lot of attention to common R&D. The PdC programme provides a huge amount of funding for collaborative R&D between companies and research institutions, where the specific projects are selected by the cluster management (labelling of R&D projects). So here as well, the cluster's strategy follows the priority of the underlying funding programme.

As far as German clusters are concerned, the 15 Leading-edge Clusters (Spitzencluster) also pay high attention to R&D. They altogether have public funds of Mio EUR 600 available to initiate collaborative R&D among the cluster participants. For the other excellent German clusters however, collaborative product and technology development plays an important role as well, although this is often realised without public funding.

Finally it should be mentioned that according to previous observations in the context of the cluster benchmarking by ESCA, the technology area/industrial sector of the cluster has an even higher impact on the thematic priorities than the country of origin[6].
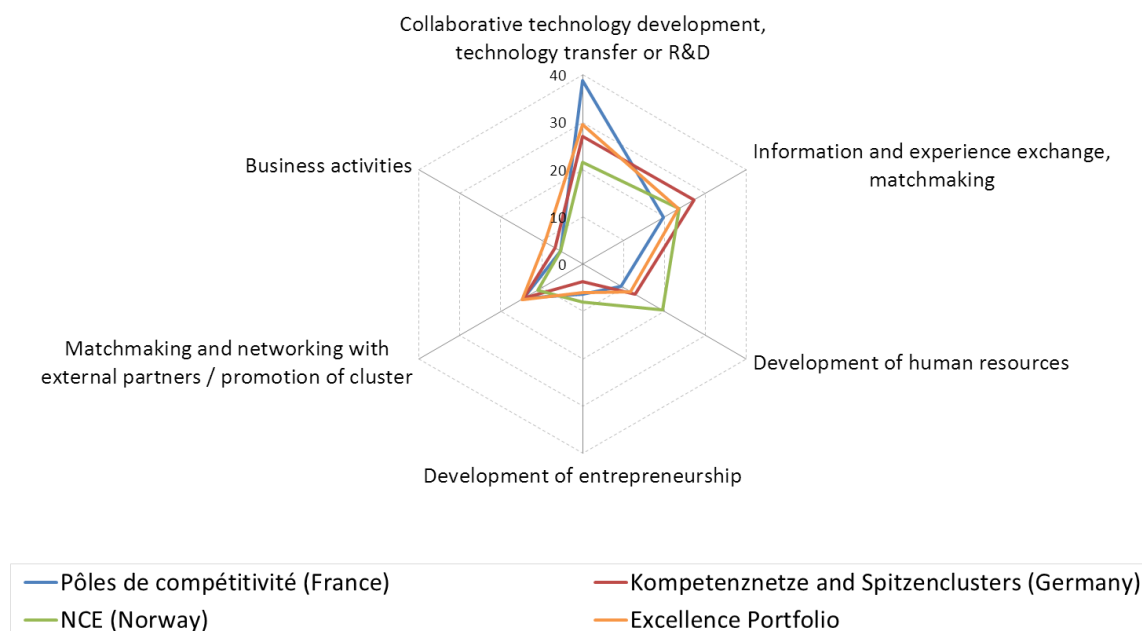

Figure 17   Thematic priorities of cluster strategy

[6] 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/Competence Networks Germany, Copenhagen/Berlin.

3.5 SERVICES

One of the main tasks of cluster organisations is to provide need-oriented structures of cooperation and to make cooperation between members in the innovation process more efficient. The success of clusters therefore depends on the extent to which the cluster management succeeds in supporting the cluster participants with need-oriented services. In doing this, it is crucial for cluster participants to be able to concentrate on their own specific core competences. Thus, expenditure of time and financial resources by individual approaches is reduced for a single cluster participant.

It is important that services are geared to needs in such a way that they generate high added value for participants. Hence, it is crucial to consider first of all the needs and requirements of the cluster partic-ipants and, in particular, the specific features a cluster can contribute. This "optimal tailoring" should be consistent with the strategy priorities of the cluster.

In this report seven main service categories were analysed in terms of their diversity and intensity of services (inputs) and their related results (outputs). Figure 18 displays the intensity of the seven main service categories on a scale from

- 0 (no service provided) to

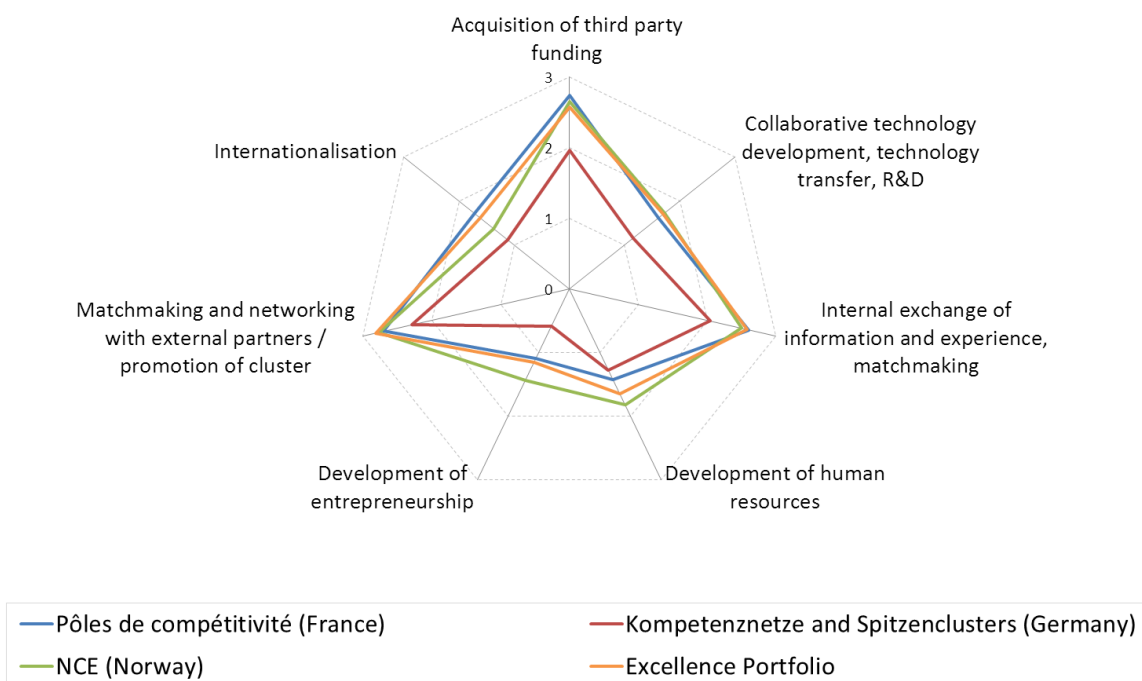- 4 (high intensity and broad diversity of services provided).

Figure 18   Intensity for the seven main service categories

The result is quite interesting: The pattern for all four comparative portfolios is quite similar. High val-ues are measured in the areas, which are also of strategic relevance (Figure 17).

However, it appears that German cluster organisations are less active and do not provide as many services as the cluster organisations of the three other comparative portfolios. One explanation could be that German cluster organisations do not have as many personnel resources as the other cluster organisations (Figure 11). But this cannot be the only reason, since the Norwegian cluster organisations have similar capacities, but seem to be more active when it comes to providing services.

It is also interesting to notice that German cluster organisations are not that active in supporting internationalisation of their cluster participants. However, the degree of internationalisation of their cluster participants is high (comparable with French cluster participants, as well as with those from the European Excellence Portfolio), even if the support by the German cluster organisations is not that strong (see Figure 23).

3.6 ACHIEVEMENTS AND RECOGNITION

In the previous chapter, focus was mainly put on input related indicators. In the following chapter, indicators that have a more output, outcome, and impact related characteristics are considered. In the end, it is of interest what impact the participation in a cluster can provide to the cluster participants and stakeholders, since clusters should be understood as a tool to increase innovation and competitiveness at the participant's level or on regional level.

3.6.1 MEDIA VISIBILITY

Visibility and reputation are very important for the cluster. Thus, it is necessary to invest in public relation actions in order to increase the awareness of interested parties about the cluster and its success. If the cluster and/or the cluster organisation is well known and acknowledged for its potential, it is much easier to attract new participants, convince policy makers of the importance of the cluster, or to get involved in international cooperation projects. Public relation should be increased locally, on national and international level as well as within the industrial sector or community. A sound communication strategy can help to approach the right media partners.

Figure 19 reveals that German clusters do not have as high media visibility as the clusters from the comparative portfolios. About 80 % of the Norwegian cluster(s) (organisations) are very often mentioned in public media. Only about half of the German cluster(s) (organisations) have similar media coverage. This appears to be disadvantageous compared to clusters from comparative portfolios. A successful regional marketing and branding is a dedicated competitive advantage from which cluster participants considerably benefit.

Success stories of the cluster or its participants – if significantly supported by the activities of the cluster organisation – should be communicated by the cluster organisation. They should highlight the complexity of the objectives and activities, the positive impact on the majority of the cluster participants and industry in general, the relevance and degree of contribution to the achievement of the cluster's strategic objectives as well as the contribution to the sustainability of the cluster organisation development. High international visibility in general also supports all internationalisation activities.
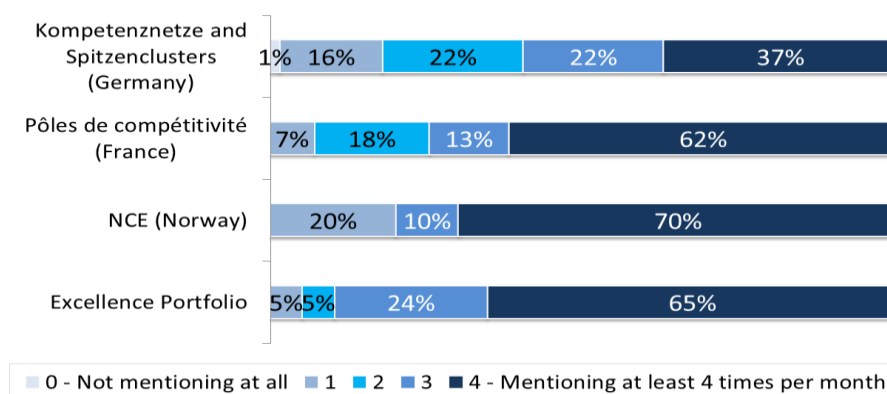

Figure 19 Frequency of mentioning of the cluster in the press in the last 12 months

3.6.2 NUMBER OF EXTERNAL COOPERATION REQUESTS

The international recognition and visibility of a cluster is often reflected in a high number of external cooperation requests received by the cluster organisation.

Taking the findings from Figure 19 into account (low international visibility of German clusters), it is not surprising that also the number of external cooperation requests, facilitated by the cluster organisation, is lower in Germany compared to the comparative portfolios (Figure 20). Only half of the German cluster organisations report a high number of cooperation requests (levels 4 and 5), whereas the cluster organisations of the other comparative portfolios reveal values of 80 % and more.

Norwegian cluster organisations reveal highest values of 90 %. When having a look at Figure 23, it becomes obvious, that Norwegian cluster participants also show the highest degree of internationalisation.
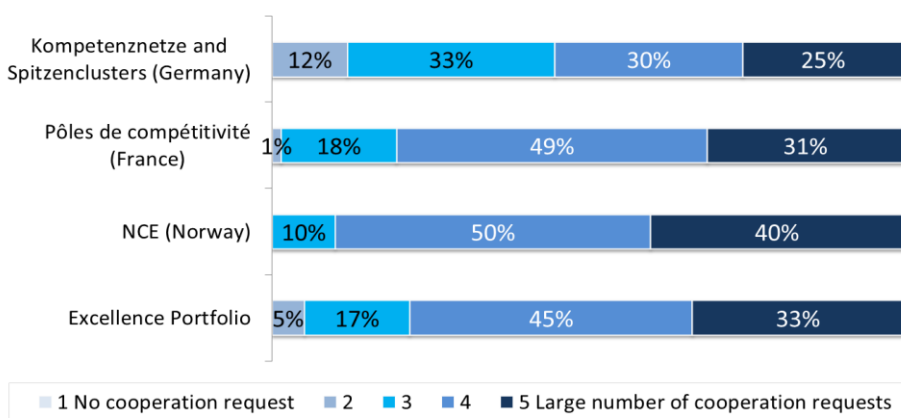

Figure 20   Number of external cooperation requests

3.6.3 COOPERATION WITH FOREIGN PARTNERS

The cooperation with foreign partners can follow different goals. It can be either more R&D-oriented or more business-oriented, or both. Major reasons for cluster participants for internationalisation are:

- to maintain their technological level and
- to gain/develop new markets.

International cooperation within a cluster often allows the cluster participants to obtain a facilitated access to new communities and complementary competences, which at the participants' level only are not available.

The findings reveal that most of the cluster organisations have made significant progress in initiating international contacts in the interests of their cluster participants (Figure 21). German cluster organisations report that the majority of international cooperation they have initiated resulted in specific collaboration between their cluster participants and foreign partners. In prinicple, this could be considered as sufficient, since obviously tangible outcomes can be achieved. However, the value is slightly below the comparable values of the other comparative portfolios. French cluster managers seem to be most successful, when it comes to initiating concrete cooperation with cluster organisations from abroad.
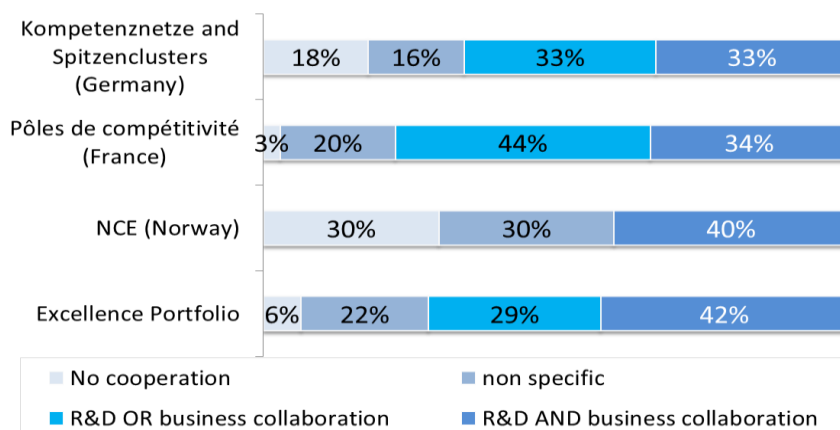
Figure 21   Type of cooperation with foreign clusters and/or cluster organisations

3.6.4 NATIONAL AND INTERNATIONAL VISIBILITY

National and international visibility is a strategic element of all cluster initiatives being analysed in the context of this survey. Figure 22 shows parameter values of some selected "input indicators" (red area) and some selected "output indicators" (green area), specifically regarding the issue of visibility of the cluster. The values are normalised, meaning that the median value of all cluster organisations analysed was set to 100 % and the portfolio-related values are compared to this median value.
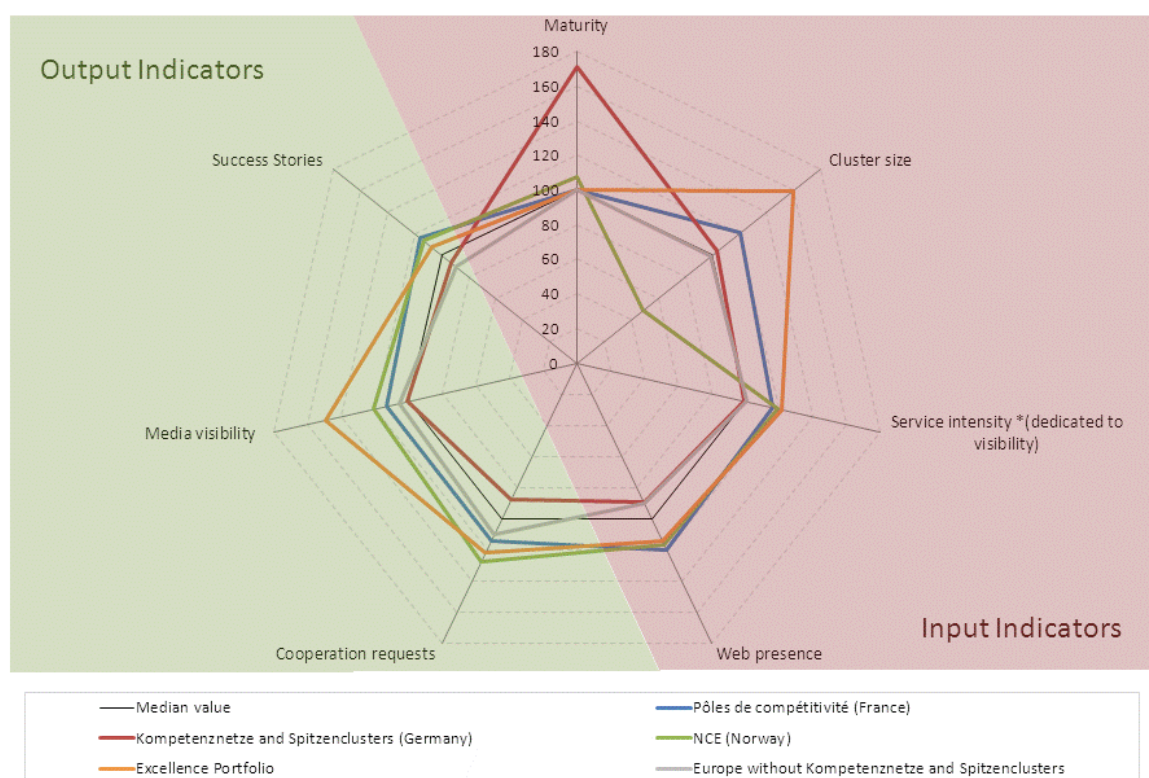

Figure 22   Correlation between selected "input" and "output" indicators regarding the national and international visibility of the cluster

The results show that the visibility of the cluster (in terms of media visibility and external cooperation requests) is not directly correlated to the maturity or size of the cluster. More relevant is the intensity of services dedicated to visibility, as well as the web presence of the cluster. By this, the hypothesis is confirmed that the intensity of public relation activities as well as a good web presence both have a direct influence on the number of external cooperation requests.

3.6.5 INTERNATIONALISATION OF CLUSTER PARTICIPANTS

Internationalisation of cluster participants is a general priority of the European cluster policy and related initiatives. Again, "input" and "output" indicators (red / green area) are selected, this time regarding issues of internationalisation.

Main input indicators (besides others):

- cluster-webpage in English;

- international experience of the cluster management team, international strategy for the cluster;

- intensity of services dedicated to internationalisation.

Output indicators:

- impact of cluster work on international activities of participants;

- international origin of cooperation requests;

- level of cooperation with foreign clusters;

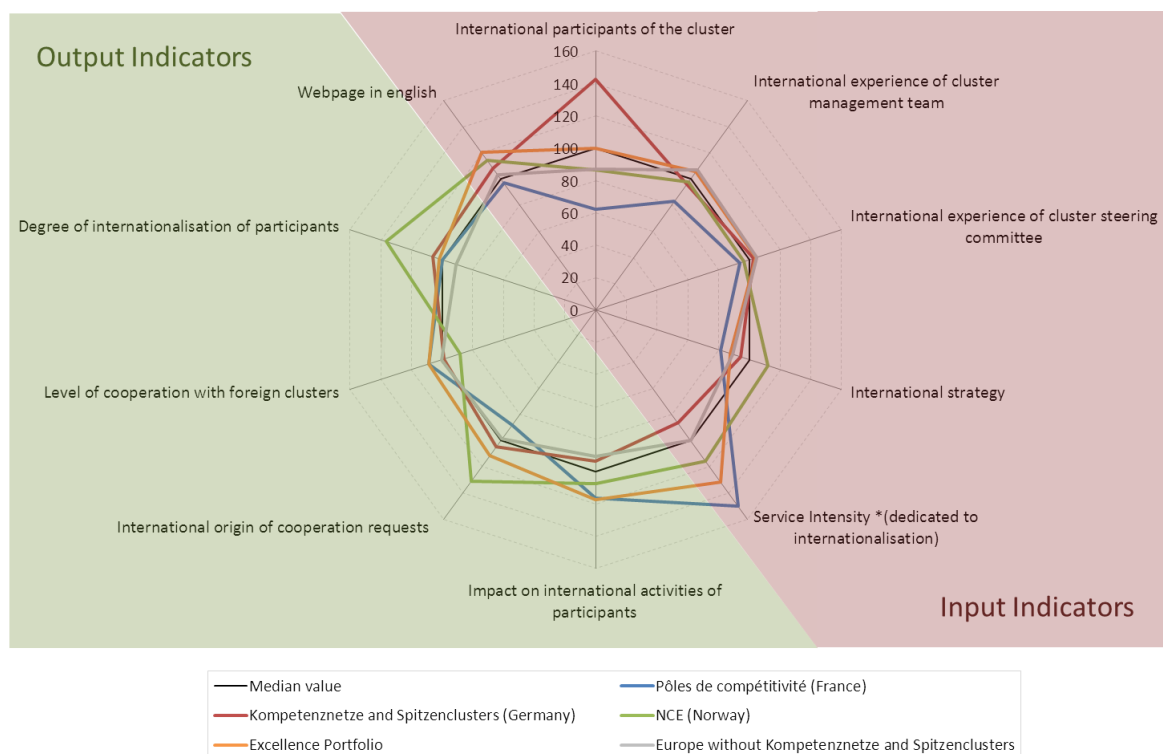- degree of internationalisation of cluster participants.

Figure 23   Correlation between selected "input" and "output" indicators regarding the internationalisation of cluster participants

The results show (Figure 23) that the service intensity dedicated to internationalisation obviously does not significantly influence any of the "output" indicators.

However, clusters which have developed and implemented an internationalisation strategy are more successful in initiating international cooperation than clusters not having an internationalisation strategy. Therefore, specific measures and instruments regarding internationalisation should better be derived on the basis of an internationalisation strategy. It should be developed in line with the specific needs of the cluster participants. The internationalisation strategy should include the identification of priority markets, the specific economic and scientific goals connected with internationalisation, the appropriate measures to reach these goals and target markets, time and action plan, necessary financial and personnel resources, potential partners, as well as possible instruments and measures of financial assistance.

4. RESULTS OF GERMAN CLUSTERS REGARDING ECEI INDICATORS

The following figure represents the condensed results of German clusters regarding selected quality indicators developed in the context of the ECEI project. The ECEI quality indicators are used to assess cluster management quality for awarding the "Cluster Management Excellence Label GOLD – Proven for Cluster Excellence" (details under www.cluster-analysis.org).

The quality indicators and the three-level assessment approach used here are based on a the framework developed within ECEI and can be considered as well accepted method of measuring cluster (management) excellence in Europe. Three quality levels are distinguished[7]:

- GREEN: Clearly above the European average and fully in line with the requirements of ECEI. Only minor improvements are - if at all - possible.

- YELLOW: European average and partly fulfilling the requirements of ECEI. Room for improvements is given.

- RED: Minimal criteria for good practice in cluster management according to the ECEI are not met. Strong demand for short-term improvements is given.
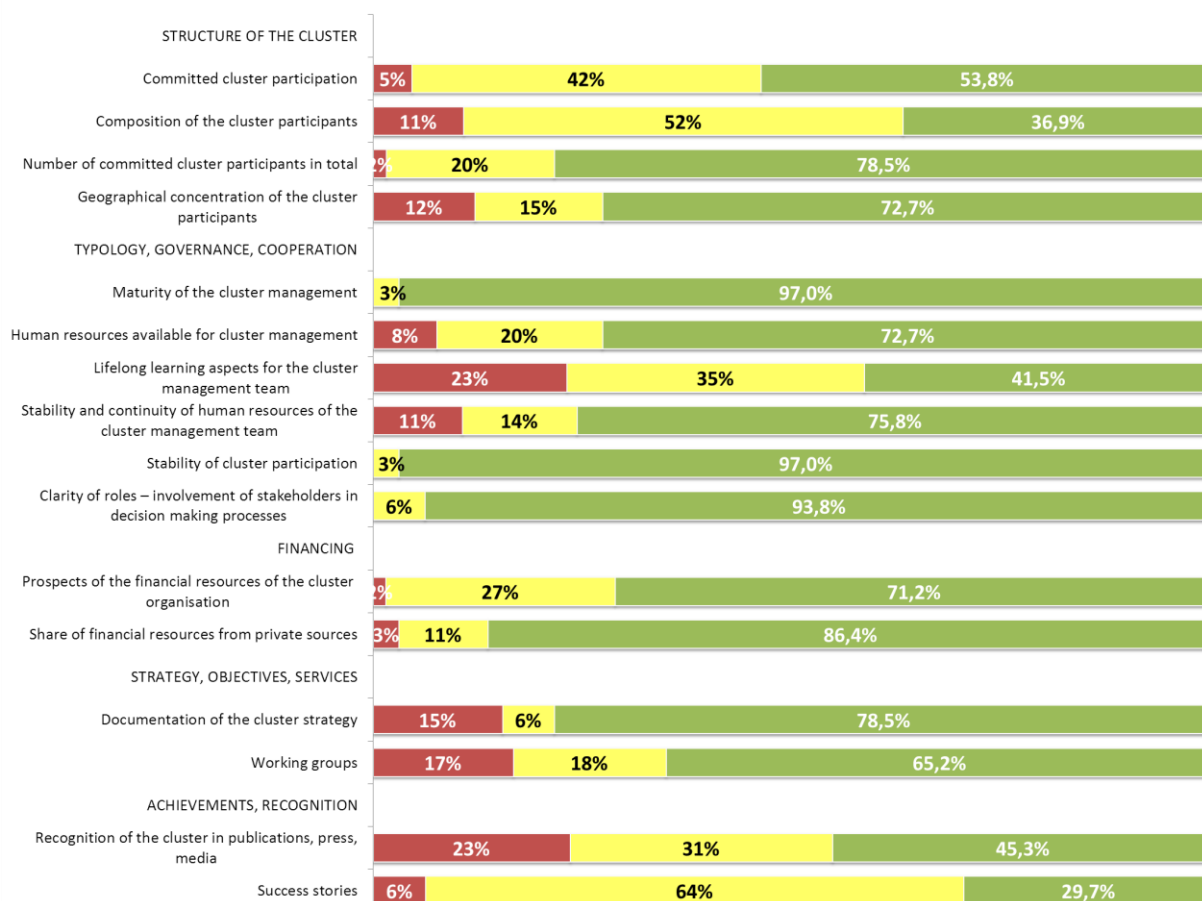

Figure 24   Results of German clusters regarding ECEI indicators

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[7] The specific thresholds for each quality level are not publicly available as they are specific know-how developed in the ECEI project and now being used by ESCA in the context of the assessment processes for the award of the „Cluster Management Excellence Label GOLD – Proven for Excellence" (see http://www.cluster-analysis.org/gold-label-of-the-european-cluster-excellence-initiative-ecei).

Based on the data assessed during the benchmarking, a projection of each quality indicator is made, regarding the absolute level reached, leading to a "cluster management quality profile" of each cluster organisation. The profiles of all German cluster organisations were merged within Figure 24, resulting in a "German cluster excellence status overview". This aggregation allows to identify areas of cluster management, which are well mastered by the German cluster organisations (high percentage of GREEN), and areas where in more cases improvements are necessary when aiming for excellent cluster management (high percentage of YELLOW/RED). Areas of improvement and related actions could be addressed by an appropriate approach within cluster policy for fostering excellent cluster management.

Figure 24 therefore indicates the strengths and weaknesses of German cluster management with respect of the European criteria for cluster management excellence. Most cluster management organisations follow a similar pattern, meaning that they often have the same strengths and weaknesses.

STRENGTHS

- Excellent values can be reached when it comes to numbers of committed members and regional concentration. In addition, most of the excellent German cluster organisations are well matured and do have sufficient staff employed.

- The cluster management mostly has clear tasks and a high clarity of roles. The cluster management is also quite stable, which is important for a continuous work.

- German cluster organisations often have available sustainable financing with a sufficiently high share of financing from private sources ("good mix").

- Three-fourth of the cluster organisations do have a strategy which is jointly developed with key stakeholders.

WEAKNESSES

- Gathering a well-balanced composition of cluster participants according to the industrial specific value chain – cooperation partners and competitors – is still a challenge world-wide, also for German cluster initiatives.

- Although the total number of staff within cluster organisations is quite good, less attention is still given to personnel development issues and continuous learning. The team of the cluster organisation is continuously facing new challenges since the demands and needs of the cluster participants are changing over time. Therefore, there is a need for continuous learning. More attention should be given to this regard.

There is no doubt that German cluster initiatives and cluster organisations have made considerable improvements over the past years and show, compared to the ECEI-criteria as well as compared to other clusters and cluster organisations in Europe, an excellent performance.

However, their national and international visibility and reputation is much lower than it could be. Most of the German cluster organisations neither pay enough attention to, nor invest enough in public relations in order to increase their visibility and the awareness regarding the cluster and its success.

The same is true for success stories of the German clusters. In principle, there are plenty of impressive successes known, but cluster organisations often do not fully exploit these success stories in respect to gaining (international) visibility and reputation. As a consequence, many cluster organisations are suffering of unnecessary discussions about impact and value of the cluster approach and corresponding public investments, instead of benefitting of what they are constantly achieving.