INSTITUTE FOR INNOVATION AND TECHNOLOGY

cne: Cluster and Network Evaluation

Cluster Impact Analysis

The real cluster case

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Imprint

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1 Summary

The management of cluster A[1] carried out a so-called impact analysis in co-operation with the Institute for Innovation and Technology (iit) in April/May 2012. The objective of the investigations was to find out in which fields and to which extent the players of cluster A had particularly profited from the networking and in which fields the members' requirements, especially those of the enterprises, could eventually not have been met.

The results of the study clearly show that the enterprises in cluster A have generally been able to benefit well or even very well from the net-working activities.

Equally important is the fact that the surveyed enterprises had achieved excellent effects specifically in those fields that had been considered particularly important for a large number of cluster participants.

This fact illustrates that the management of cluster A had predominantly focused its activities on the fields of high priority and has been able to achieve very positive effects.

In the context of limited resources available to the cluster management organisation, this finding is of high relevance.

The performance of the enterprises involved in cluster A can be described as good.

At least half of the network's players range above the general industry average regarding typical indicators like turnover or productivity.

The impact analysis shows that public investments generally result in monetary benefits for the companies involved in a cluster initiative. The monetary effect (output) hereby has turned out to be larger than the public sector invest-ments (input) made over the same period of time. The output/input leverage amounts to 2.3. Thus, each euro invested to the cluster by public authorities generates a monetary benefit of EUR 2.3 which is an encouraging result.

The overall analysis revealed that the sum of monetary effects had been larger than the total number of investments made by the public and private sector (the output-input-rate amounts to 1.3).

This result can in fact be interpreted as consolidated legitimisation to public investments in recent years.

1 Cluster A represents an anonymous real cluster from the automotive sector that served as a pilot case for the Cluster Impact Analysis approach. The analysis was carried out in 2012.

2 Introduction

Managers (f/m) of clusters and networks are increasingly interested in the effective outcome of their work: To what extent do the enterprises involved in networks and clusters indeed benefit from their networking activities? Which fields can be identified where the positive effects for the networking companies are most apparent? Can the goals that are pursued in line with the entrepreneurial commitment for cluster activities finally be achieved?

The Cluster Impact Analysis helps to find adequate answers to these questions. The newly developed instrument is specifically tailored to the requirements of cluster management organisations.

The findings of the Cluster Impact Analysis provide information to the cluster management showing whether companies derive benefit from networking activities and if so in which fields. Thus, the Cluster Impact Analysis aims at identifying the achieved effects that can be attributed to cluster and networking activities.

Generally, there are three possibilities for a company in a cluster to achieve and influence the development of effects:

- by generally participating in a cluster (i. e. just by virtue of being involved),
- through the specific activities and the commitment in and for the cluster initiative,
- by making use of the services offered by the cluster management organisation.

The results of the Cluster Impact Analysis serve the cluster management organisation to legitimise the activities towards various groups of stakeholders; both towards the members of the cluster and towards funding bodies or political decision-makers. For this reason, the cluster managements' prospective to reach sustainability will become more likely.

This report is the result of a first practical test performed in spring 2012. The participation was optional and free of charge.

During the performance of the practical test, numerous cluster managers (f/m) provided input in discussions about the adequacy and practicability of the applied indicators and raised questions.

Therefore, we have managed to develop an instrument which enjoys broad acceptance among practical users and which can be applied with all types of clusters – regardless their topics of priority or regional positioning.

Considering the achieved results, it is recommended to continue using the Cluster Impact Analysis as an investigation method.

2.1 What is the Cluster Impact Analysis?

The Cluster Impact Analysis aims to measure the effects that are achieved by companies that are members of a cluster.

Target group: The Cluster Impact Analysis explicitly and exclusively addresses organisations in clusters that are pursuing entrepreneurial activities.

Implementation: Enterprises are asked to complete an online questionnaire providing information on hitherto achieved effects in five predefined categories of success. Previous to this, a set of potential indicators used in the survey is aligned with the respective cluster management organisation and varied if necessary. Thereby, cluster-specific features are adequately taken into account.

A link to an active online survey is sent to the cluster management who forwards it to the network's participants via email. Thus, it is guaranteed that the cluster management organisation maintains control over the circle of participants as well as over the start and end times, including the number of reminders.

In addition, information material is provided to support the process of addressing the network's members (draft of a letter to the cluster's companies including background information). The use of this material is optional (see also FAQ in the annex to the report)

The survey is carried out anonymously and does not allow for any conclusions on the responding companies.

Topics: The companies are asked questions that are categorised as follows:

- Qualification and innovation
- Co-operation
- Entrepreneurial performance
- Image and reputation
- ustainability

The new and special feature of the Cluster Impact Analysis: There are no questions raised about data considered as "sensitive" from the companies' perspective (e. g. information on turnover).

The enterprises are just asked to provide qualitative assessments.

Specific characteristics of the clusters and networks are taken into account (e. g. age, intensity of the commitment in the cluster).

The indicators selected for the Cluster Impact Analysis have well been tested in co-operation with the cluster participants under aspects of practicability and are thus widely accepted.

This type of analysis ensures an independency from the availability of statistical data and predefined sectors and regions, respectively. Technologies or activity fields often do not correspond to the sectors that are displayed according to the industrial classification. Moreover, clusters and networks are normally difficult to reconcile with statistically covered territorial units.

The analysis focuses on data that are comparably easy to collect and to evaluate. No complex calculations are performed, leading to easily comprehensible results.

Prerequisite for participation of a cluster:
The members of the initiative "Networks of Competence Germany" have had the opportunity to optionally participate in the study, free of charge. Principally, the cluster must have registered members (enterprises).

Benefit for the participating companies:
The feedback of the cluster management organisation with regard to the question whether and in which fields the companies do benefit from their participation in the cluster and from the work of the cluster management organisation helps the companies to improve their chances for:

- a more precise tailoring of existing and future political instruments to entrepreneurial
- requirements,
- a sustainable and secured cluster management. The cluster management organisation can use the survey's findings for legitimisation purposes with regard to its own role.

Confidentiality of the study's results:
With the present report, the cluster management organisation is provided a feedback on the achieved effects in the cluster. The findings mentioned in the report are exclusively presented to the cluster management, which decides on their eventual publication and further distribution of contents.

2.2 Cluster Impact Analysis: Indicators

The following table below provides a comprehensive overview of the indicators and questions, respectively that are available for the Cluster Impact Analysis. The greyed-out lines characterise those indicators which have been excluded from the questionnaire upon request of the cluster management organisation.

The indicators are aspects and effects, respectively, which cannot necessarily merely be attributed to or influenced by the activities of the cluster management organisation. The influence on standard-setting and standardisation processes may, for example, also improve through the involvement in the cluster initiative without prior engagement of the cluster management organisation offering specific measures. The same applies to other indicators, such as the adjustment of curricula to cluster-specific requirements.

Indicators of the Cluster Impact Analysis at a glance	
Brief Company Information	Company size
	Year of accession to the cluster
	Company name
	Contact person email (optional)
	Commitment and involvement of the company in the cluster initiative
Impact Category	
1) Qualification and Innovation	Access to qualified personnel within the network
	Access to qualification offers and trainings for the network's staff
	Adjustment of training offers to changing requirements with regard to education, promotion of young talents or curricula, etc. within the network
	Access to technological know-how and technical infrastructure
	Access to market and sector-related trends
	Access to funding and capital (public and private)
	Influence on standard-setting and standardisation processes
2) Co-operation	Intensification of existing and establishment of new contacts to R&D and business partners along the value chain
	Intensification of existing and establishment of new contacts to partners from politics and associations, etc.
	Access to consultants with expertise in other fields (e. g. in areas such as tax, law, human resources, marketing)
	Improvement of motivation and openness with respect to co-operation
3) Entrepreneurial Performance	Increase in turnover and profits
	Headcount increase (full-time job equivalent)
	Number of innovative products, processes and services
	Quality of products and processes
	Increase in productivity
	Reduction of the time-to-market
	Increase in R&D expenses (innovation intensity: R&D expenses/turnover)
	New business opportunities
	Entering new markets (geographically, new products/services)
4) Image and Reputation	Improvement of image and reputation of the industry/sector
	Improvement of image and reputation of the organisation itself and its products
	Improvement of image and profile-raising of the business location
5) Sustainability	Willingness to make a financial contribution for the cluster management to secure its continuance and thus sustainability
	Preferred funding model for financing the cluster management organisation
	Willingness to get actively involved in the cluster initiative in terms of personnel
	Potential negative impacts on the cluster initiative due to "free-riders"
Summary	Assessment of overall benefits achieved by cluster involvement
	Further positive impacts, not mentioned in the questionnaire
	Unexpected negative impacts of cluster involvement

2.3 Methodological Explanations and Visualisation

In order to facilitate the understanding of the charts and interpretations displayed in the chapter of findings, the methodological approach as well as the specific forms of visualisation are briefly ex-plained in the following.

Tabular Overview

Average Rating

The first table provides a quick overview of the evaluation of the individual indicators.

For this purpose, the average rating for every indicator has been illustrated by means of directional arrows and a colouring creating either a positive or negative visual effect.

For the evaluation of the survey's responses, the single reply categories have been scored on the basis of a point system (quantification) and the overall average has been calculated.

In the second table below, a calculation sample is given for an indicator with three reply categories. In this example, the indicator XY has reached an average overall score of 66 points and has been coloured in light green visualizing a "positive trend" towards "very good or excellent effects".

For the colouring, five different scales of points have been defined resulting in an evaluation (see colour scale and directional arrow). This reflects whether the effects achieved in the cluster had been positive or less positive with respect to the individual indicators.

Exemplary Trend Calculation				
example indicator XY	**Number of replies**	**In %**	**Quantification points**	
… has developed rather poorly or insuffiviently.	5	18 %	33	0,18*33
… is now given.	18	67 %	66	0,67*66
… is now very good or excellent.	4	15 %	100	0,15*100
total	**27**	100 %		**65**

Evaluation in points between …	Conditional formatting	Interpretation
70 and 100	↑	very good or excellent effects
60 and 69.9	↗	good or very good effects
50 and 59.9	→	effects are given = positive
40 and 49.9	↘	few effects
0 and 39.9	↓	very few or no effects at all

Evaluation of the Priority – Is this a pursued goal?

In a further column ("Priority"), information is provided about the percentage of companies in the cluster that consider the respective indicator as a primary goal in line with the entrepreneurial involvement in the cluster initiative. This corre-sponds to the survey reply to the question "Has this been a pursued goal of your organisation?" which had been asked for every single indicator.

The overview illustrates clearly whether the respective indicator represents a goal that had been pursued by many or rather by a few companies.

The information on priority also helps interpreting and ranking the survey's results. First of all, these data on priority allow for conclusions on the entrepreneurial goals of major relevance in the cluster.

The direct comparison to the adjacent column for evaluation reveals to which extent the goals could have been achieved.

With regard to the rather "negative" scores, the results can be interpreted in a more differentiated way related to the number of enterprises that had pursued a respective goal:

Priority < 50 % and orange/red colouring = tendency to an insignificant need for action

Priority > 50 % and orange/red colouring = tendency to a significant need for action

However, this does only provide a rough outline. In addition, the individual indicators should always be evaluated in view of the experiences of the cluster management organisation.

By taking a quick glance at this data, specific fields may be identified in which unintended positive effects had been achieved, mainly not counting among the defined goals.

In the example illustrated below, the "access to technological know-how and technical infrastruc-ture" is evaluated as good, which had been a defined goal for at least 80 % of the cluster's enter-prises. This is contrasted by the "influence on standard-setting and standardisation processes" that could hardly have been increased. However, only 20 % of the interviewed companies stated that this had been one of their intended goals.

Sample Indicator	Evaluation	Priority
Access to technological know-how and technical infrastructure	↗	80 %
Influence on standard-setting and standardisation processes	↘	20 %

Matrix Presentation

The matrix illustrates the average overall scoring of the individual indicators in relation to the prioritisation, i.e. in proportion to the percentage of companies for which the indicator presented a pursued goal. The indicators are symbolised by a point. By means of the numbering scheme, every circle can be attributed to an indicator.

The more an indicator is placed to the right, the greater the number of companies had mentioned this indicator as a defined goal.

The more a point is placed to the top, the higher is its scoring which stands for a positive evaluation.

Consequently, there are four different matrix fields:

- green: indicators with a high scoring and high priority;
- light green: indicators with a high scoring and low priority;
- yellow: indicators with a low scoring and low priority;
- red: indicators with a low scoring and high priority.

Especially the indicators placed in the red matrix field deserve more detailed consideration with regard to an eventual need for action.

Bar charts with information about the goal

For every individual indicator, the question of effects has been raised mostly in form of three given reply categories with nearly identical wording:

- … has developed rather poorly or insufficiently.
- … is now given.
- … is now very good or excellent.

The chart below visualises the results in an exem-plary way; the number of companies that had replied for the respective categories is given in per-centages. When displaying the evaluation results, a differentiation has been made between affirmative and negative answers to the question: "Has this been a pursued goal of your organisation?"

The evaluation for the group that had affirmed the indicator to represent a pursued goal can always be found on the left side, the results of the group not having primarily pursued the aspect can be found on the right side.

In the example below, 68 % (sum of 48 % + 19 %) indicate that the access to technological know-how and technical infrastructure was "now given" in the cluster. The value of all percentages in total is 100 %.

As can be seen from the chart, the major part of the interviewed enterprises had achieved their pursued goals.

The bar to the very left side is of particular interest when it comes to the identification of needs for action. It illustrates the rate of companies in a cluster whose expectations could have either been met to an insignificant extent or not at all with regard to a particular aspect.

The value of the sum of all "yes" and "no" answers is 100 %.

3 Cluster A – Cluster Impact Analysis – Findings

3.1 Survey Period and Feedback

Start of the survey: (date)
Reminder email: (date)
End of the survey: (date)

Cluster A had sent out letters to 40 enterprises. 31 of them had replied according to the survey's requirements which correspond to a response rate of 78 %. This represents a very good participation rate allowing for valid statements about cluster impacts.

3.2 Remarks on the Interpretation of the Results

In the questionnaire, the companies were queried about the effects achieved since their involvement in the cluster initiative. The period of consideration varies among the individual enterprises due to the different years of accession to the cluster. Aim of the survey was to measure the effects of the companies of the cluster initiative as an overall impact, regardless of their period of participation.The findings of the Cluster Impact Analysis should have been evaluated in the context of the cluster management's experiences, i. e. in relation to external framework conditions, developments within the cluster, specific requirements of individual companies etc.

The report refers to potential needs for action in the respective context. It is recommended to the cluster management organisation to start with a self-reflection of the results provided by the Cluster Impact Analysis.

In a further step, the different groups of stakeholders being relevant for the cluster – particularly the network's enterprises – should be involved to discussions about potential needs for action, eventually revealing from the report's results. In line with this, issues of particular priority should furthermore be identified.

3.3 Evaluation of the Effects and Priorities in the Cluster

The table illustrated above is considered with regard to the following questions:

Have the most important goals of the enterprises in the cluster been achieved? (Priority > 50 % and field colour grey, light or dark green)

- Yes, for nearly all goals that had been pursued by more than 50 % of the enterprises, positive effects have been achieved.
- For indicators that represented an entrepreneurial goal for more than 75 % of the enterprises, positive effects have been achieved (at least grey), mostly even good or very good effects (light green or green).
- Exception: The indicator "Entering new markets" (geographically, new products/services) represented a pursued goal for 71 % of the en-terprises but contributed to insignificant effects only. This fact indicates a need for action.

In which fields are the achieved effects considered excellent? (Exceeding 70 points)

- Access to market and sector-related trends
- Intensification of existing and establishment of new contacts to R&D and business partners along the value chain
- Improvement of image and reputation of the organisation itself and its products

These fields have moreover been of very high priority for the companies (for more than 90 % of the enterprises in the cluster).

In which fields with at least medium priority the achieved effects are considered less significant and do eventually require corrective actions.

Differentiated according to priority in the cluster

Very high priority (> 75 %)

- In this field, positive effects have been achieved for every single indicator.

High priority (> 50 % – 75 %)

- Entering new markets (geographically, new products/services)

Medium priority (> 25 % – 50 %)

- Reduction of the time-to-market
- Access to funding and capital (public and private)
- Influence on standard-setting and standardisation processes

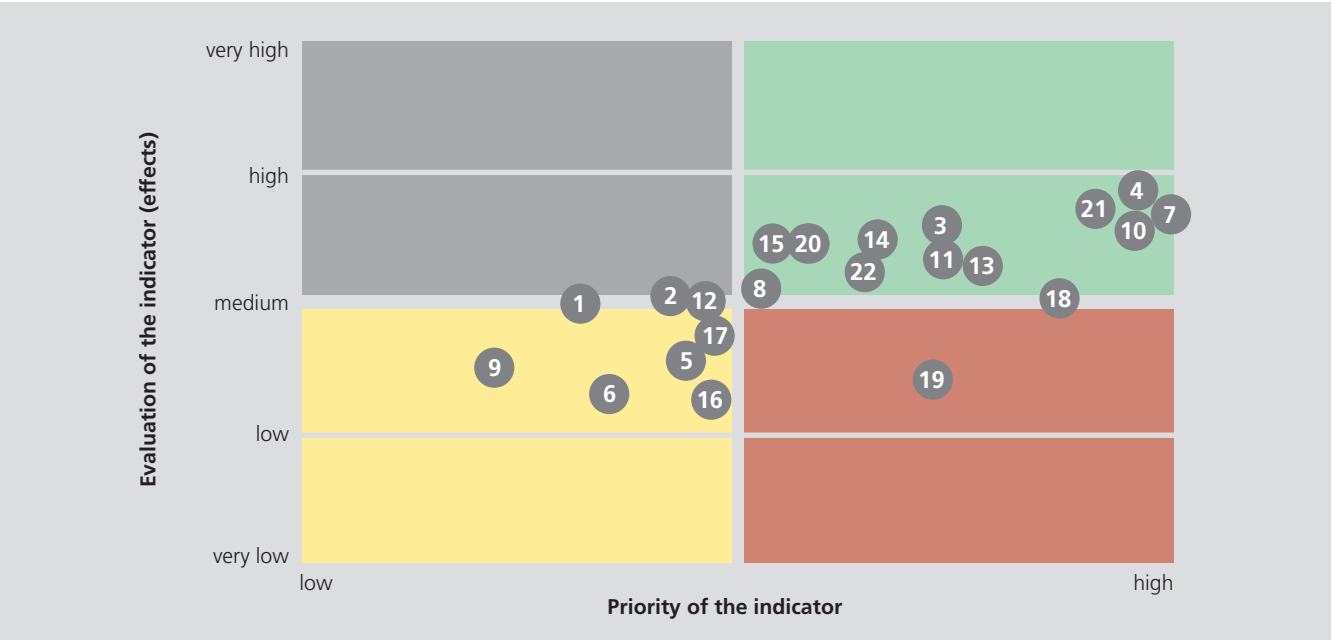
Aspects in fields of priority exceeding 50 % should generally be in particular focus when interpreting the results.

It is up to the cluster management organisation to examine whether it could provide help by offering particular services in the above mentioned fields of high priority with however less significant effects. This applies especially for the aspects of entering new markets and reducing the time-to-market with regard to the development of new products and services.

Cluster Impact Analyses

Indicator	Evaluation	Priority
Brief Company Information		
Company size		
Year of accession to the cluster	Ø=2008	
Name name		
Commitment and involvement of the company in the cluster initiative	→	
1) Qualification and Innovation		
Access to qualified personnel within the network	→	33 %
Access to qualification offers and trainings for the network's staff	→	43 %
Adjustment of training offers to changing requirements with regard to education, promotion of young talents or curricula, etc. within the network		
Access to technogical know-how and technical infrastructure	↗	74 %
Access to market- and sector-related trends	↑	96 %
Access to funding and capital (public and private)	↘	46 %
Influence on standard-setting and standardization processes	↘	36 %
2) Co-operation		
Intensification of existing and establishment of new contacts to R&D and business partners along the value chain	↑	100 %
Intensification of existing and establishment of new contacts to partners from politics and assiciations, etc.	→	52 %
Access to consultants wirh expertise in other fields (e. g. in areas such as tax, law, human resources, marketing)	↘	23 %
Improvement of motivation and openness with respect to co-operation	↗	97 %
3) Entrepreneurial Performance		
Increase in turnover and profits	↗	75 %
Headcount increase (full-time job equivalent)	→	47 %
Number of innovative products, processes and services	↗	79 %
Quality of products and processes	↗	63 %
Increase in productivity	↗	55 %
Reduction of the time-to-market	↘	48 %
Increase in R&D expenses (innovation intensity: R&D expenses/turnover)	→	48 %
New business opportunities	→	89 %
Entering new markets (geographically, new products/services)	↘	71 %
4) Image and Reputation		
Improvement of image and reputation of the industry/sector	↗	58 %
Improvement of image and reputation of the organization itself and its products	↑	92 %
Improvement of image and profile-raising of the business location	↗	63 %
5) Sustainability		
Willingness to make a financial contribution for the cluster management to secure its continuance and thus		
- with continuous achievement	↓	
- with improved performance spectrum	↗	
Preferred funding model for financing the cluster management organization		
Willingness to get actively involved in the cluster initiative in terms of personnel		
- with continuous achievement	↘	
- with improved performance spectrum	↗	
Potential negative impacts on the cluster initiative due to "free-riders"	22%	
6) Summary		
Assessment of overall benefits achieved by cluster involvement		
Further positive impacts, not mentioned in the questionnaire		
Unexpected negative impacts of cluster involvement		

3.3 Matrix – Cluster A



1) Qualification and Innovation

1 = Access to qualified personnel in the network
2 = Access to qualification offers and trainings for the network's staff
3 = Access to technological know-how and technical infrastructure
4 = Access to market- and sector-related trends
5 = Access to funding and capital (public and private)
6 = Influence on standard-setting and standardisation processes

2) Co-operation

7 = Intensification of existing and establishment of new contacts to R&D and business partners along the value chain
8 = Intensification of existing and establishment of new contacts to partners from politics and associations, etc.
9 = Access to consultants with expertise in other fields (e. g. in areas such as tax, law, human resources, marketing)
10 = Improvement of motivation and openess with respect to co-operation

3) Entrepreneurial Performance

11 = Increase in turnover and profits
12 = Headcount increase (full-time job equivalent)
13 = Number of innovative products, processes and services
14 = Quality of prodects and processes
15 = Increase in productivity
16 = Reduction of the time-to-market
17 = Increase in R&D expenses (innovation intensity: R&D expenses/turnover
18 = New business opportunities
19 = Entering new markets (geographically, new products/services)

4) Image and Reputation

20 = Improvement of image and reputation of the industry/sector
21 = Improvement of image and reputation of the organisation itself and its products
22 = Improvement of image and profile-raising of the business location

The matrix displays the evaluation of the indicators, and thus the achieved effects in relation to the prioritisation.

The result basically shows that the companies were able to achieve effects in all fields of significant priority (green zone). Particular emphasis must be given to the remarkable results in the following fields:

- Access to market and sector-related trends (4)
- Intensification of existing and establishment of new contacts to R&D and business partners along the value chain (7)
- Improvement of image and reputation of the organisation itself and its product (21)
- Improvement of motivation and openness with respect to co-operation (10)

In the fields of less priority (yellow zone), the achieved effects have had low or medium significance.

The points placed in the red zone and in the area of transition to the green zone, respectively, are of special interest. It is noticeable that the effects corresponding to the intention of "Entering new markets" have comparably been modest, although this goal had ranked high in priority.

Result

The The matrix shows a clear upward trend from the left to the right side, i. e. the higher the priority of the goals had been evaluated in the cluster, the more effective their achievement has been.

The aspects ranking high in priority for the cluster are all placed in the "green zone" without exception and are related to positive results.

The only clear exception is the indicator "Entering new markets". For this aspect, the cluster management should examine the eventual need for an optimisation of existing support measures or the provision of completely new services. Further options for development may be identified for the points in the yellow zone. These include particularly the "Reduction of the time-to-market" (16), "Increase of the R&D expenses" (17), "Headcount increase" (12) as well as the "Access to funding" (5).

1) Qualification and Innovation

(Indicators 1 to 6)

Against the background of prioritisation, the effects achieved in this category have predominantly been good or very good.

- With regard to "Access to qualified personnel" and "Access to qualification offers and trainings for the network's staff", effects of medium significance are obvious. In addition, more than 20 % of the companies, not having defined these aspects as explicit goals, have finally been able to benefit.
- In the fields "Access to technological know-how" and "Access to market- and sector-related trends" the achieved effects have been good or very good.
- 54 % of the enterprises had not explicitly striven for access to capital and funding, and have also not remarked any improvements concerning this matter. For the remaining 46 % that had mentioned this aspect as a pursued goal, the access to funding has widely been facilitated.
- "Standard-setting and standardisation processes" had been a defined goal by a rather small group of 36 %. The major part of this group has been able to benefit from the cluster activities.

2) Co-operation

(Indicators 7 to 10)

- The results in the category "Co-operation" reflect a partially mixed picture and also have to be considered in the context of prioritisation.
- The companies have managed in an excellent way to intensify their existing and to establish new business contacts to organisations along the value chain. This was the only aspect having been mentioned as a prior goal by all, and thus by 100 % of the enterprises. 97 % of the companies stated that they had managed well or very well to deepen existing business relationships and to initiate new partnerships.
- Also the contacts to partners from politics and associations etc. could have been improved by 59 % of the companies. With respect to contacts to consultants with expertise in other fields (e. g. marketing, human resources), a majority of 68 % has not deepened existing or initiated any new contacts. However, the latter represented only for 23 % an entrepreneurial goal.

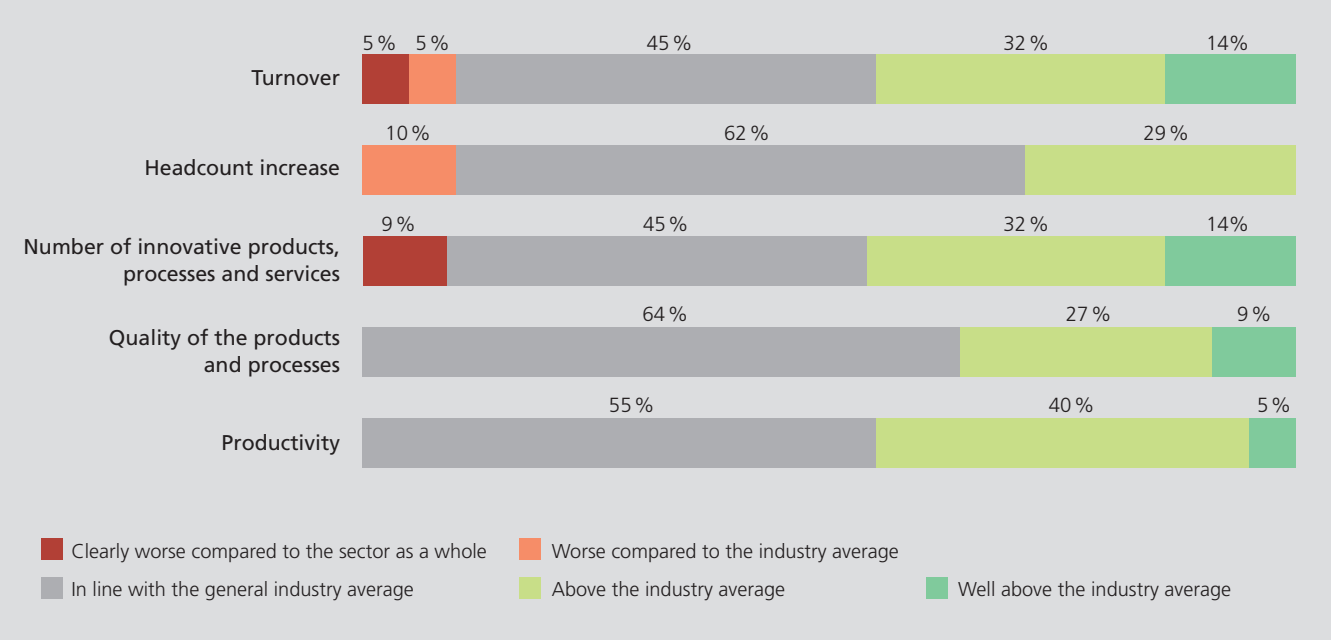
- Nevertheless, 24 % of the companies having sent their reply stated that they did not maintain trustful interactions with relevant partners. But in contrast, 45 % considered their relationships to at least a part of their potential partners as trustful. Another 31 % managed to establish relationships based on trust with the major part of the relevant organisations.

3) Entrepreneurial Performance

(Indicators 11 to 19)

When asking the companies about the development of major performance parameters in comparison to the general industry average over the last two years, a very positive picture was presented. For every parameter, at least one third of the respondents had outranged the industry average with their results.

- **Turnover:** More than 46 % had been able to realise developments exceeding the industry average. 14 % even had outnumbered the average significantly. Only 10 % of the companies had observed a development trend below the industry average.
- With respect to **headcount increase**, two thirds stated being in line with the industry average and about one third being slightly above.
- Considering the **number of innovative products, processes and services**, nearly 50 % had recorded developments above average.
- With regards to **quality of the products and processes**, about one third of the companies had surpassed the average performance.
- According to 45 % of the respondents, their **productivity** had been improved above the industry average.



In addition to the above mentioned performance parameters, the question has been raised as to further company-related effects. As they are only difficult to compare with the sector as a whole, the companies have been requested to give an assessment according to the following three reply categories.

The graphs for the following findings are displayed in the annex.

- For the majority of the respondents (78 %), the **time-to-market** of products and services could have been only reduced to a very low extent or even not at all, although it represented a prior goal for about half of the companies.

- The **R&D expenses** had been increased by more than one half of the surveyed enterprises (56 %), whereas 17 % of them had not defined this growth of expenditure as a cluster-related goal. About 10 % had deviated from their original plan and did only increase their R&D spending insignificantly or not at all.

- Nearly all of the respondents were looking for **opportunities to develop new businesses with other cluster partners**. However, only one third of the companies had been able to implement this objective. On the other hand, about two third of the enterprises in the cluster initiative reported slight or significant improvements.

- The **entering of new markets** (geographically, new products/services) represented an important goal for approx. two thirds of the companies. Up to now, one third has successfully managed to explore in some cases even new markets. The other two thirds of the enterprises have succeeded in entering new markets only rarely or not at all.

4) Image and Reputation

(Indicators 20 to 22)

According to the majority of the respondents, the cluster initiative has contributed considerably to an improvement of the companies' image and reputation at various levels.

- **Sector:** 85 % share the view that the image and reputation of the industry sector as a whole had been slightly improved. 8 % of the respondents even reported a significant improvement.

- **Organisation itself including products and services:** Also for this aspect, image enhancements are clearly noticeable. 69 % mentioned improvements, and about one fourth (23 %) observed even a significant improvement.

- **Profile-raising of the business location:** Almost two thirds felt that the profile of their business location could have been raised. However, 37 % had hardly ever or not recognised any profiling improvement, whereas 29 % of those had not defined this as a cluster-related goal.

3.5 Overall Monetary Benefit Resulting from Cluster Activities

In the course of their involvement in cluster activities, companies are making investments differing in their amounts. The most practiced form hereby is the deployment of personnel, but also the payment of financial contributions, as e. g. membership fees, or the participation in chargeable events, whereas investments in R&D and development projects are explicitly not meant in this category. Consequently, the enterprises expect to benefit from their involvement also economically, besides other qualitative advantages.

Therefore, the companies have been asked to give an estimate about the monetary benefits they were able to realise over the last two years thanks to their participation in the cluster:The term "monetary benefit" may for example imply: additional revenues, licensing revenues, cost savings, reduced development time, lower financial risk etc.

Result Overall Benefit Cluster A:

Round about three-fourths of the surveyed companies stated having profited also financially during the last two years.

- A small group of 4 % have recorded benefits ranging from €100,000 to €250,000.

- 16 % were able to achieve contributions between €50,000 and €100,000.

- Almost one third estimated their monetary benefits to be less than €10,000.

- None of the survey participants responded having achieved benefits exceeding €250,000.

What proves interesting is a comparison of the investments in the activities of cluster A over the last two years with the achieved monetary effects resulting from an active participation in the network according to the involved companies.

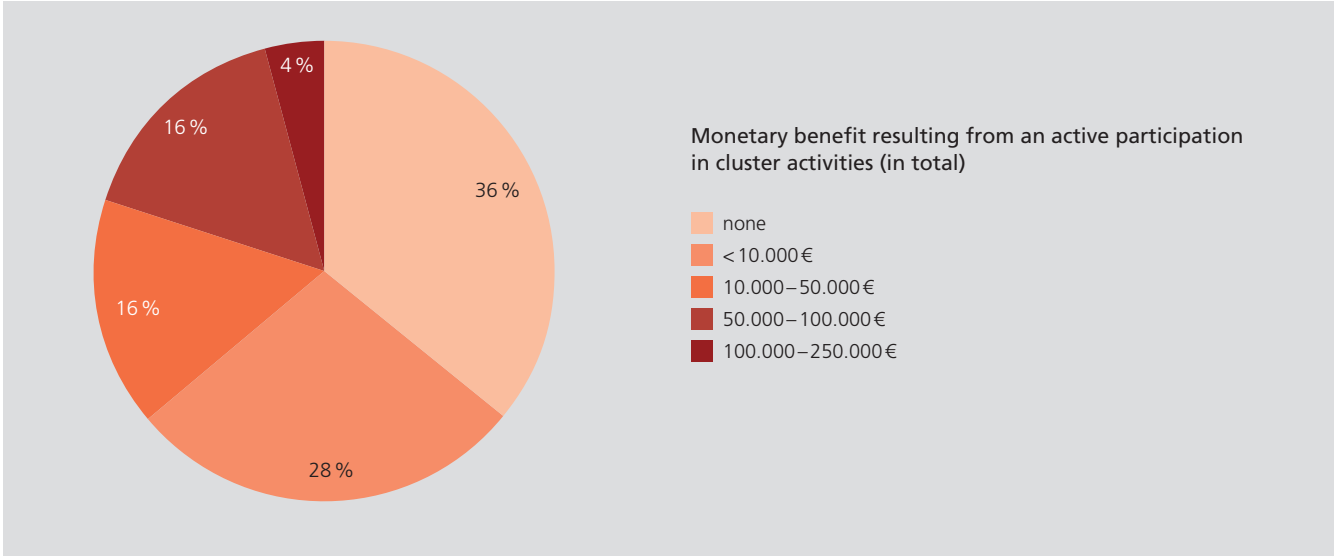
The total investment for the period from 2011 to 2012 amounts to EUR 1,350,000 (public and private investments). This num-

ber includes human resources for the cluster management organisation as well as financial resources for innovation projects, events, PR work, membership fees etc.

When relating this to the 70 participants of cluster A, the annual investment costs **for each company** would amount to **EUR 9,650** (40 out of the 70 participants are enterprises). Only those can benefit financially from the involvement in the cluster initiative in the strict sense. On the other hand, the surveyed companies have reported an average "monetary value" [return on investment] of approx. **EUR 12,600 per year** resulting from their active participation in the cluster. This corresponds to a **positive rate** (monetary value/investments) **of approx. 1.3**.

This value is encouraging. Companies that show particularly active commitment to the activities of cluster A realise an average monetary benefit almost twice as high as the average value **(EUR 26,000 Euro p. a.)**.

Having the public investments on focus, the corresponding leverage ratio amounts to 2.3. Thus, each euro invested by public authorities generates a monetary benefit for the companies involved in the cluster initiative of EUR 2.3. This can be considered to be an excellent result.



3.6 Involvement in Activities of Cluster A pays off

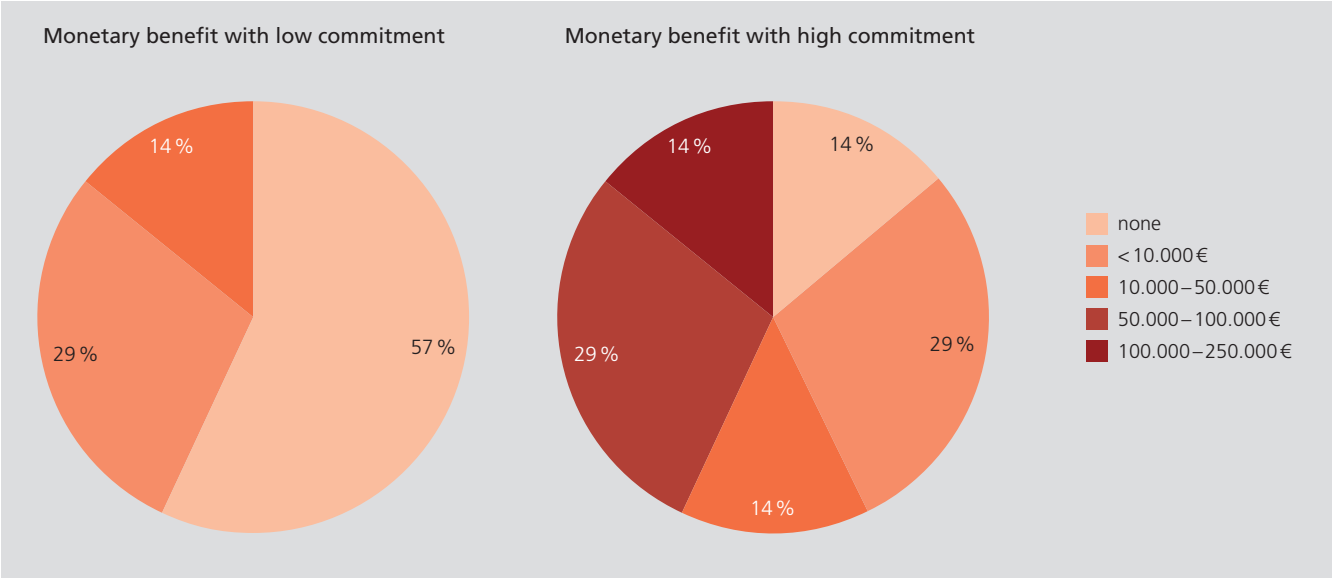
The direct comparison of companies that are very actively involved in the network's activities, and that are spending more than two days for cluster work in terms of personnel resources, with those enterprises spending less than one day a month for cluster work, and being less active with regard to interactions, clearly shows that commitment also pays off in the light of monetary aspects.

The differences between the more committed and the less active group are clearly evident.

For further details with respect to the different commitments for cluster activities, see also chapter 3.3.

Group "high commitment"

- Only 14 % responded not having achieved any monetary benefits. This percentage is considerably lower compared to the less active group of cluster participants.
- Nevertheless, about 30 % have recorded benefits in the range of € 50,000 to € 100,000, and 14 % even between € 100,000 and € 250,000.
- Group "low commitment"
- About 30 % recorded benefits below € 10,000 and approx. 60 % did not profit financially at all.
- The monetary benefit in this group does not exceed the maximum value of € 50,000.



3.7 Sustainability

Whether the companies profit from their involvement in the cluster and consider their commitment as to make sense can be concluded from their respective readiness to make a financial contribution in order to support the cluster management organisation.

In cluster A, all participants have demonstrated their willingness to pay for the services offered by the cluster management organisation. When asking for the preferential terms of payment for the purpose of financing the cluster management, about 50 % responded being in favour of a combined form of payment. The other half preferred a lump-sum payment covering all services.

Preferred Funding Model:

- **Combined form:** Besides a general basic amount, the cluster participants pay extra for each specific service; preferred by 52 %.
- **Service-related payment:** There is no or only a very small annual lump-sum to be paid. Principally, the participants are only paying for the effectively used services; preferred by 7 %.
- **Lump-sum payment:** A member fee is paid on a flat-rate basis covering all services rendered by the cluster management organisation; preferred by 41 %.

Furthermore, the companies have been asked whether they were ready to make henceforth **financial contributions** for the services offered by the cluster management. Two different conditions were laid down hereto:

1. The range of services offered by the cluster management organisation will prospectively remain unchanged.

2. The service portfolio will continuously be improved with respect to its scope and quality.

- With an unchanged range of services: In this case, about two thirds of the companies are ready to retain the amount of their financial contributions. Almost one third would then prefer to reduce the respective payments.
- With an improved service portfolio: Assuming a continuous improvement of the service portfolio, nearly 40 % would even be ready to raise their financial contributions. Except for a small group, all other companies would retain the amount of the current payments.

Result

The result would seem to indicate a broad satisfaction among the companies with regard to the "price-performance ratio" of their involvement in the cluster. However, about one third would be less willing to retain the current payments if the performance continued "as usual". As a follow-up action, the companies should be consulted on their concrete requirements not being met, yet or being addressed only insufficiently. The evidently demonstrated willingness of the companies to eventually raise their financial contributions, provided that the service portfolio of the cluster management is improved, provides potential options for the cluster management organisation being worth to explore.

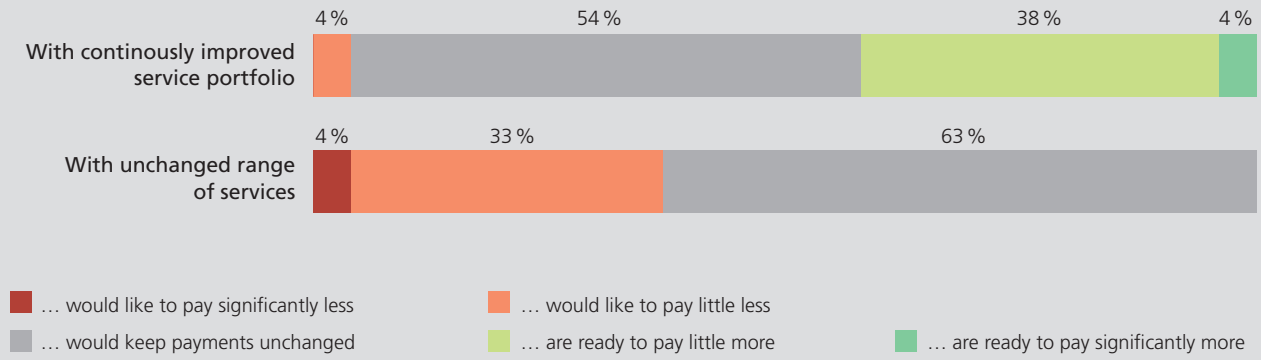
The same question has been raised with respect to the companies' readiness to become actively involved in the cluster work in terms of personnel resources:

- With an unchanged range of services: In this case, the majority of the companies would like to stick to their current staff commitment.
- With an improved service portfolio: On this assumption, nearly half of the enterprises would like to retain the current allocation of human resources; the other half would even be ready to raise their personnel resources for cluster work purposes.

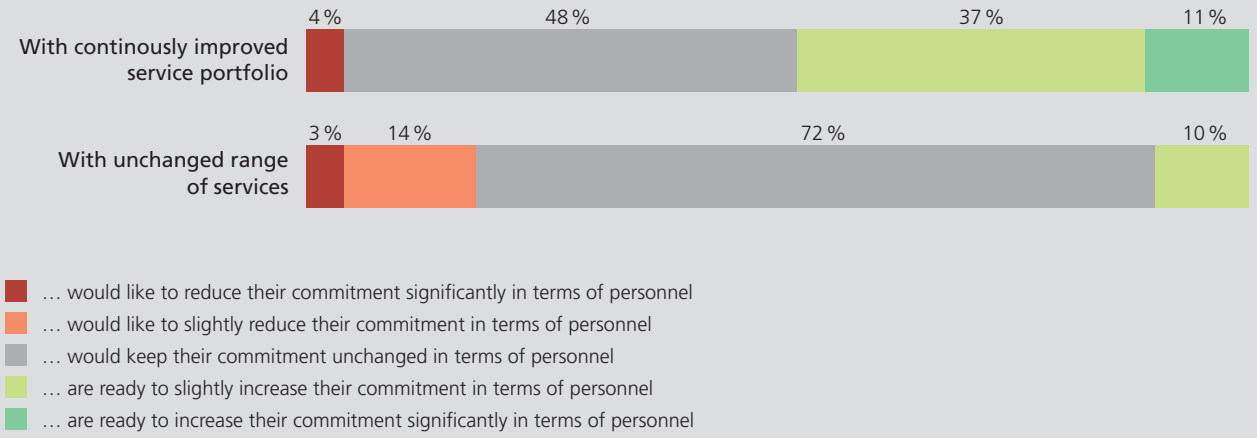
If the performance of the cluster management organisation continued "as usual", staff commitment of the companies involved in the cluster initiative would principally remain unchanged.

Considering the fact that almost half of the enterprises indicated to be willing to become more involved in the cluster activities in terms of personnel resources on the assumption of an improved service portfolio, it is worth to identify the fields that are of interest with regard to a greater commitment.

Readiness to make a financial contribution in order to support the cluster management organisation



Readiness to become more actively involved in the cluster work in terms of personnel resources



3.8 Annotations by the Companies

Finally an open question was raised as to whether the companies had recorded further positive or negative impacts. Moreover, they were asked about their impression regarding the existence of "free-riders" in the cluster.

Positive Impacts

The respondents particularly emphasised the networking possibilities and the facilitated initiation of contacts as a result of intermediation as a positive effect. Apart from that, the following aspects have been mentioned as positive:

- excellent possibilities to establish business relations with other industry players;
- funded R&D projects that had been initiated in cluster A;
- information about technological developments, such as alternative drives, lightweight construction etc.;
- public recognition;
- access to customers;
- multiplier effects due to the active contributions in cluster A (moderation of working groups, lectures, newsletter etc.).

Critical Aspects

Regarding the aspects with potential for improvement, the respondents pointed out that the impulses from the working groups/lead projects should be implemented or executed consequently and in a professional manner. In this context, it was questioned whether this task could generally be performed by universities.

Furthermore, the apparent focusing on university B as R&D partner has been seen as critical. It has hence been suggested to strengthen the co-operation with other research institutes in the network.

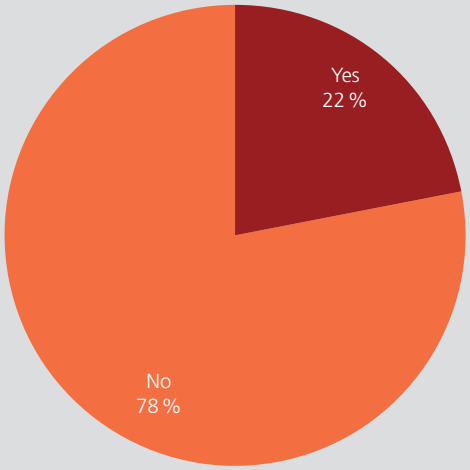
As a negative impact of the work in the cluster, it has been found that project ideas originating from the cluster had diffused so that other interested circles were able to gain knowledge about them.

A few respondents also have mentioned the high personnel expense resulting from cluster work as a critical aspect.

Number of Free-Riders in the Cluster

About one fifth of the cluster's participants share the view that beneficiaries ("free-riders") were benefiting from the cluster activities without showing commitment or making financial contributions to the cluster management organisation, and that they were thus acting at the expense of the network.

It has been noted that the "free-riders" would disrupt the basis of trust in the working groups as well as the dedicated collaboration of other cluster members. In this context, it was emphasised that also start-up companies were expected to pay adequate membership fees if they were using the cluster's services to a particularly large extent.



According to you, do beneficiaries in the cluster act to the overall cluster's initiative disadvantage? These "Free-riders" are neither commited to the cluster initiative nor make a financial contribution to the cluster mangagement organisation.

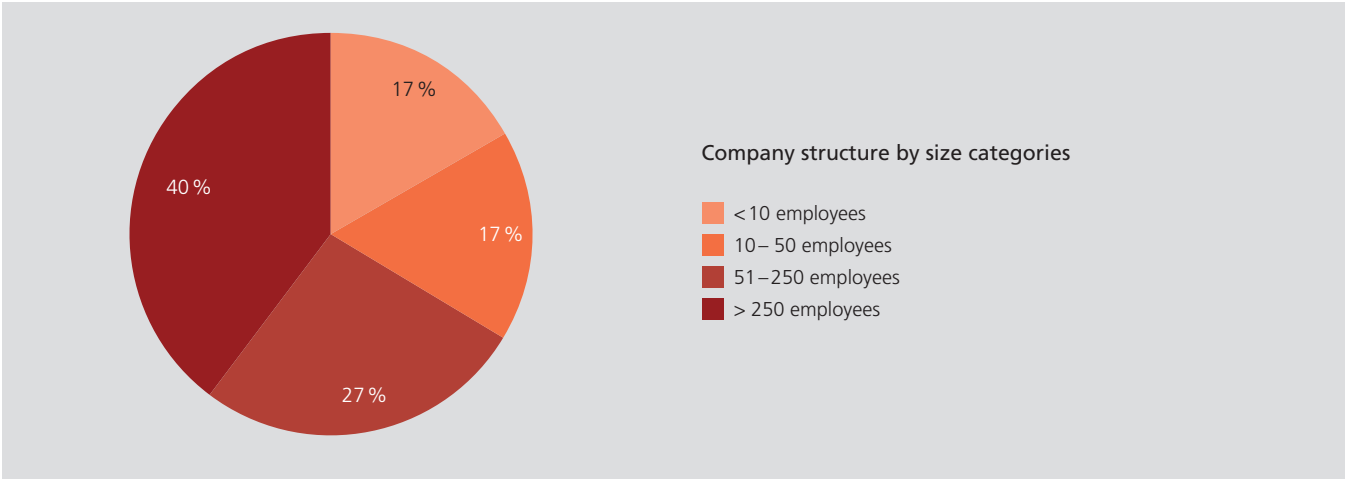
4 Structural Data of the Cluster

4.1 Company size in the Cluster

The following figure visualises the company structure by size categories available in the cluster. To collect this information, the companies have been asked to provide an approximate indication of full time equivalents at the sites relevant to the cluster within Germany.

Result

The cluster primarily consists of companies with more than 250 employees (40 %). Another 34 % of the enterprises in the cluster have less than 50 employees, thereof 17 % with less than 10 employees.

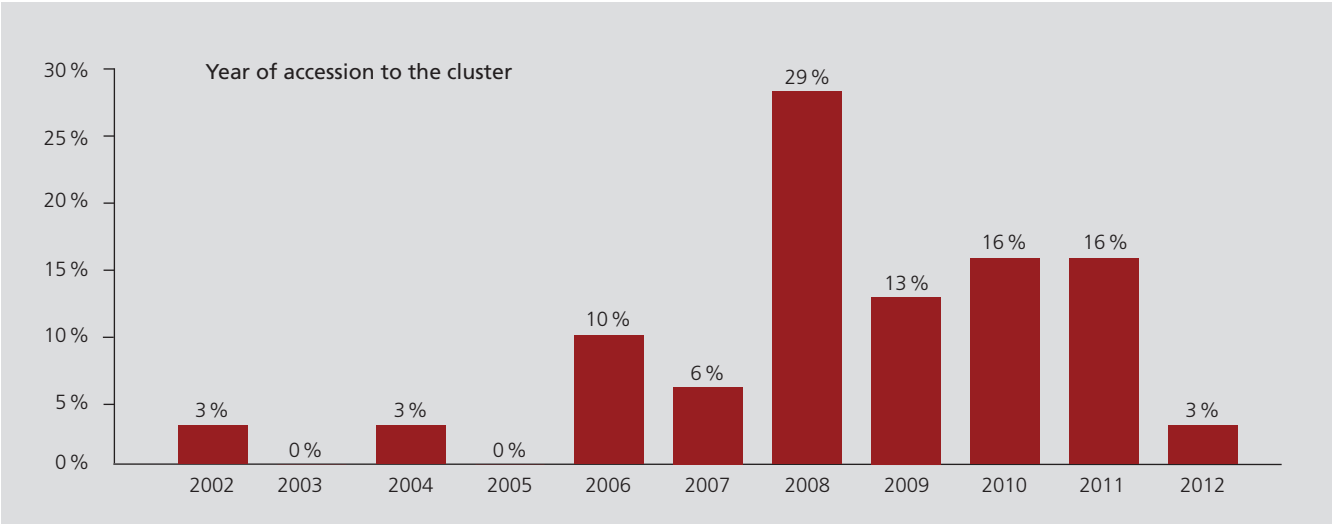


4.2 Development in the Cluster

The companies have been asked to indicate the year when they had become an active participant or member of the cluster initiative. The following chart illustrates the percentage distribution of the respondents who had indicated a specific year of accession. However, it does not provide information about fluctuations, such as member exits.

Result

Since 2006, the number of cluster members has considerably increased. Particularly noteworthy is the number of accessions in 2008.



4.3 Commitment of the Companies in the Cluster

The companies have been requested to evaluate their personnel expenses and their staff's commitment for the cluster initiative, respectively in the following categories.

(Please note: The contribution of human resources to R&D projects does explicitly NOT fall under this category.)

The exact wording was the following: "The commitment of your company's personnel for the cluster initiative is in total …

… low (< 1 day per month)."

- The company makes use of single specific services offered by the cluster management.
- There are rarely interactions with the cluster management organisation or other participants of the cluster initiative.

… medium (1 day per month)."

- The company participates in working groups and/or makes use of offers provided by the cluster management.
- The personnel occasionally interact with the cluster management or other participants of the cluster initiative.

… high (up to 2 days per month)."

- The organisation is actively involved in the cluster initiative and interacts with the cluster management and other participants of the cluster initiative.
- The company participates in relevant activities of the cluster initiative, in the strategic development and implementation processes.

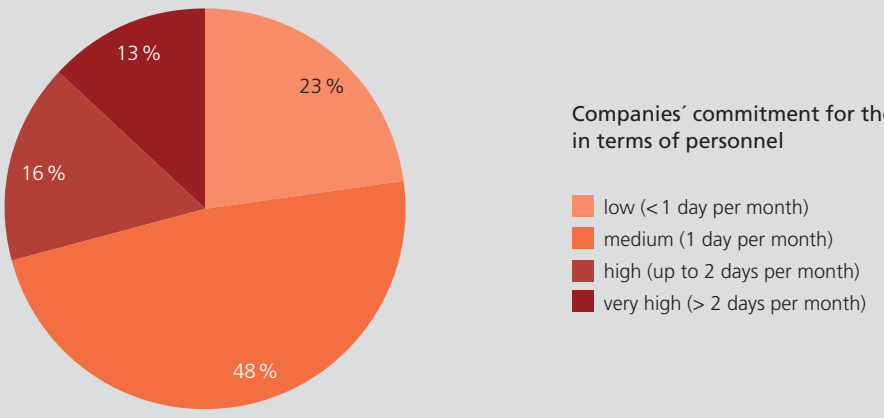
… very high (> 2 days per month)."

- The company is one of the most active players in the cluster initiative, which means that the strategic orientation and contents are significantly shaped by the company.
- The company has been playing a very active role in the cluster initiative (for years).
- The company closely interacts with the cluster management organisation and other participants of the cluster initiative.

Result

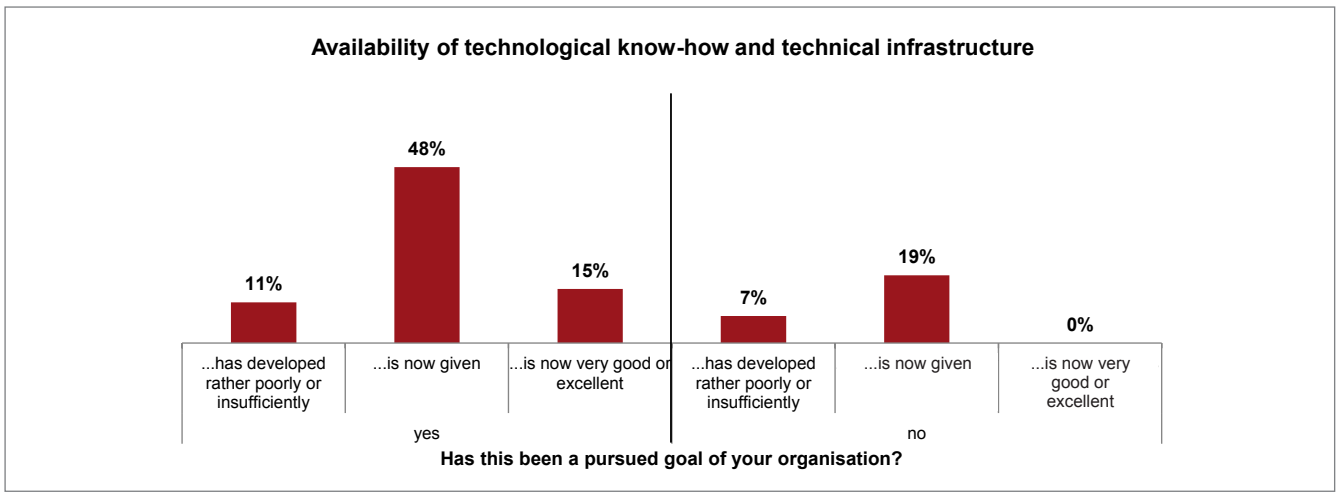
In cluster A, 13 % of the companies are highly involved in the cluster initiative. These participants can be identified as key players of the network. Their commitment is characterised by a close interaction with the cluster management organisation and the other participants of the cluster initiative. This group of stakeholders plays an active role in promoting relevant issues and seeks to create concrete added value. The key players influence the strategic orientation and determine cluster-relevant contents.

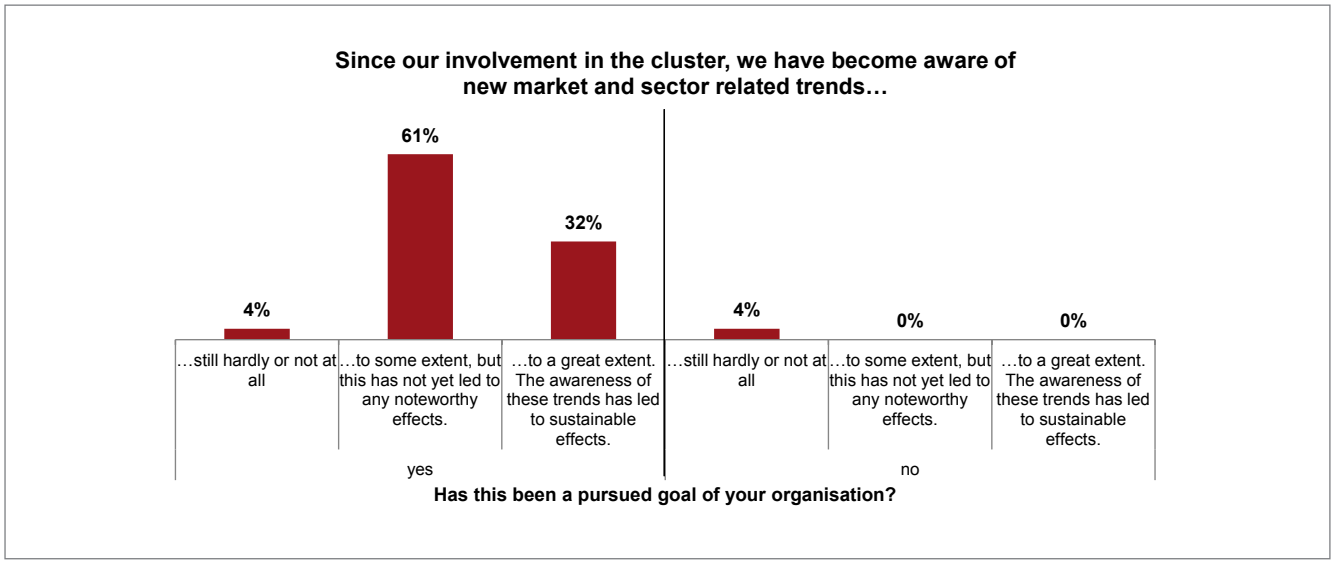
In total, almost 75 % of the companies are playing an active part through their regular participation in cluster activities. 30 % of all enterprises are particularly active. In contrast, about one fourth has revealed being rather passive, making sporadically use of the cluster management's services and interacting with the other participants of the cluster initiative only rarely.

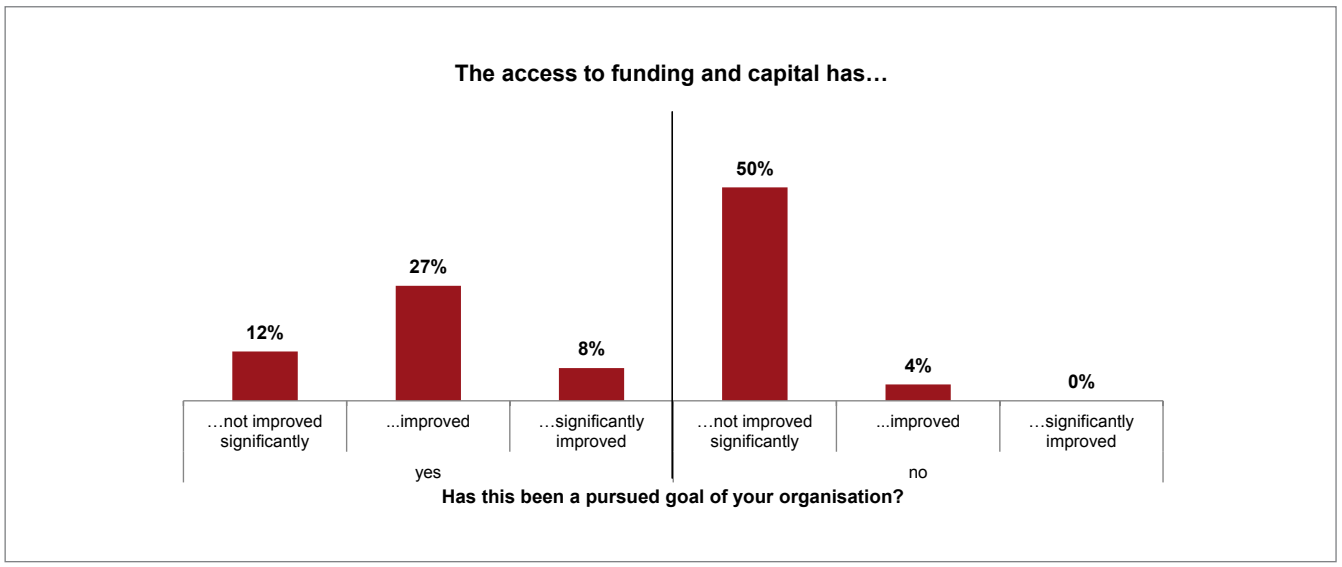


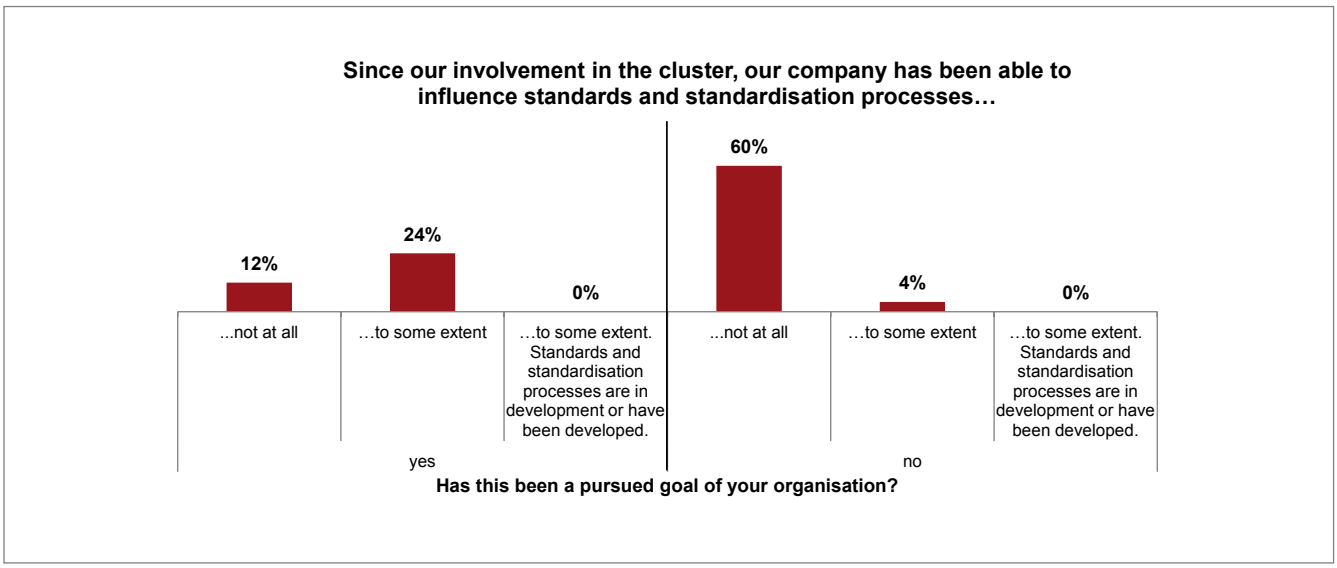
5 Annex: Evaluation in Figures

5.1 Qualification and Innovation

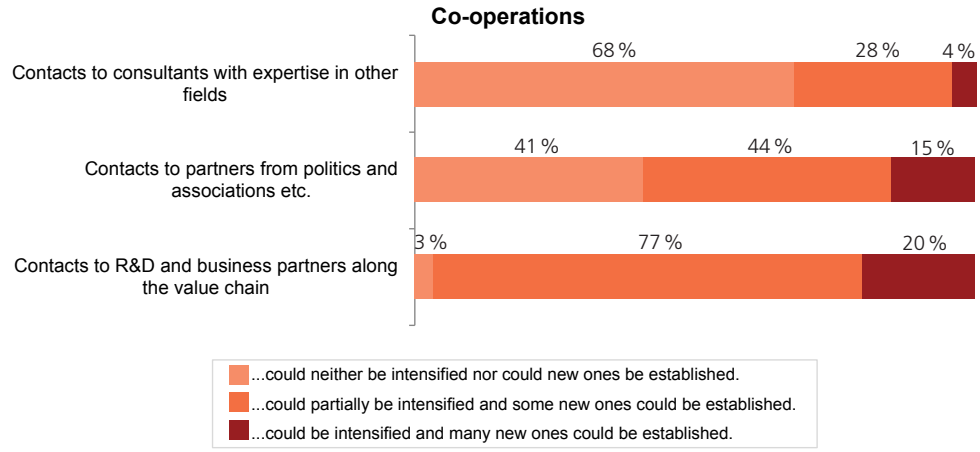


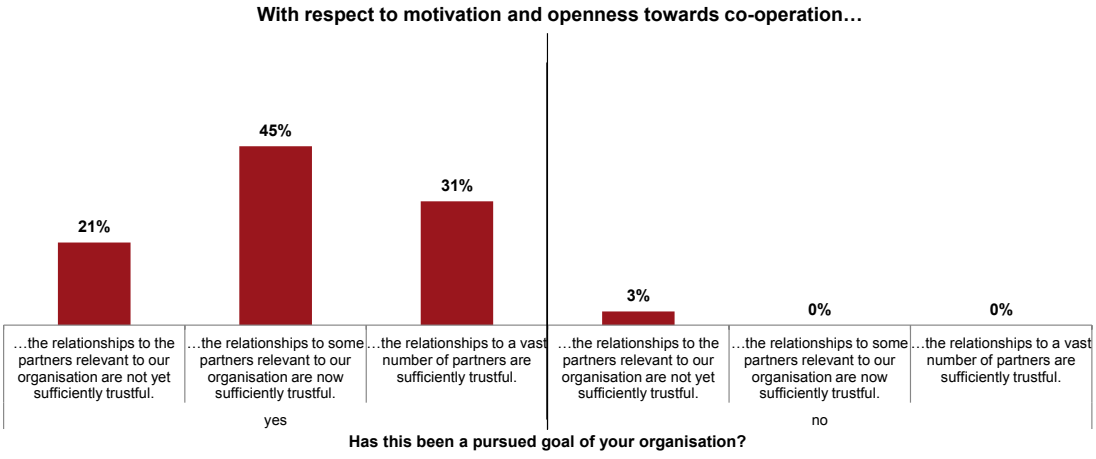

Since our involvement in the cluster, we have become aware of new market and sector related trends…
4%
61%
32%
4%
0%
0%
…still hardly or not at all
…to some extent, but this has not yet led to any noteworthy effects.
…to a great extent. The awareness of these trends has led to sustainable effects.
…still hardly or not at all
…to some extent, but this has not yet led to any noteworthy effects.
…to a great extent. The awareness of these trends has led to sustainable effects.
yes
no
Has this been a pursued goal of your organisation?


The access to funding and capital has…
12%
27%
8%
50%
4%
0%
…not improved significantly
...improved
…significantly improved
…not improved significantly
...improved
…significantly improved
yes
no
Has this been a pursued goal of your organisation?

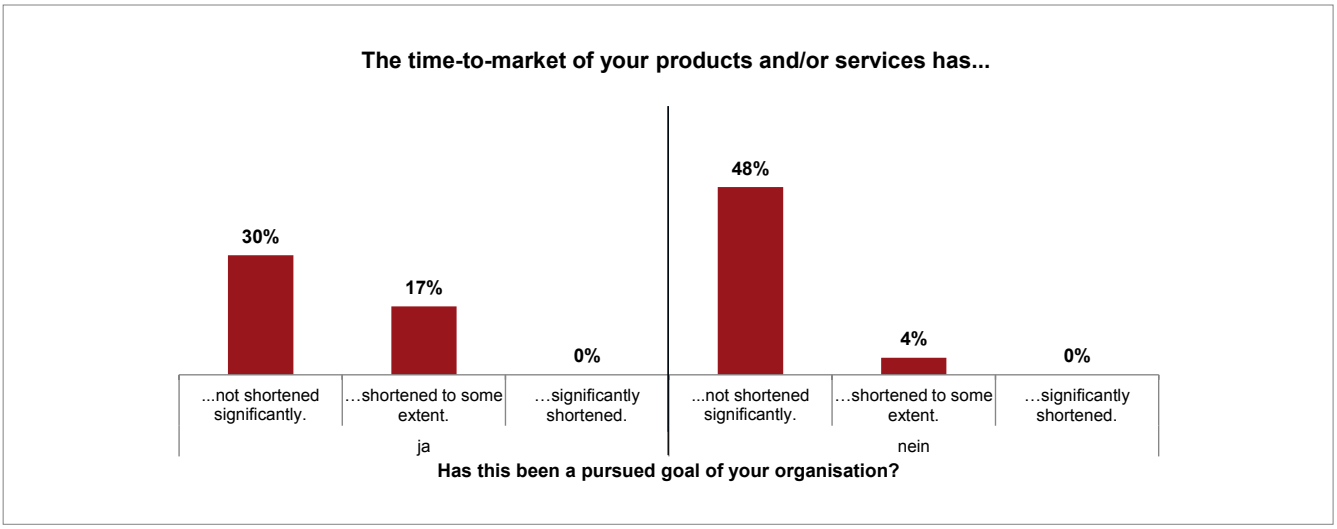

Since our involvement in the cluster, our company has been able to influence standards and standardisation processes…
12%
24%
0%
60%
4%
0%
...not at all
…to some extent
…to some extent. Standards and standardisation processes are in development or have been developed.
...not at all
…to some extent
…to some extent. Standards and standardisation processes are in development or have been developed.
yes
no
Has this been a pursued goal of your organisation?

5.2 Co-operation

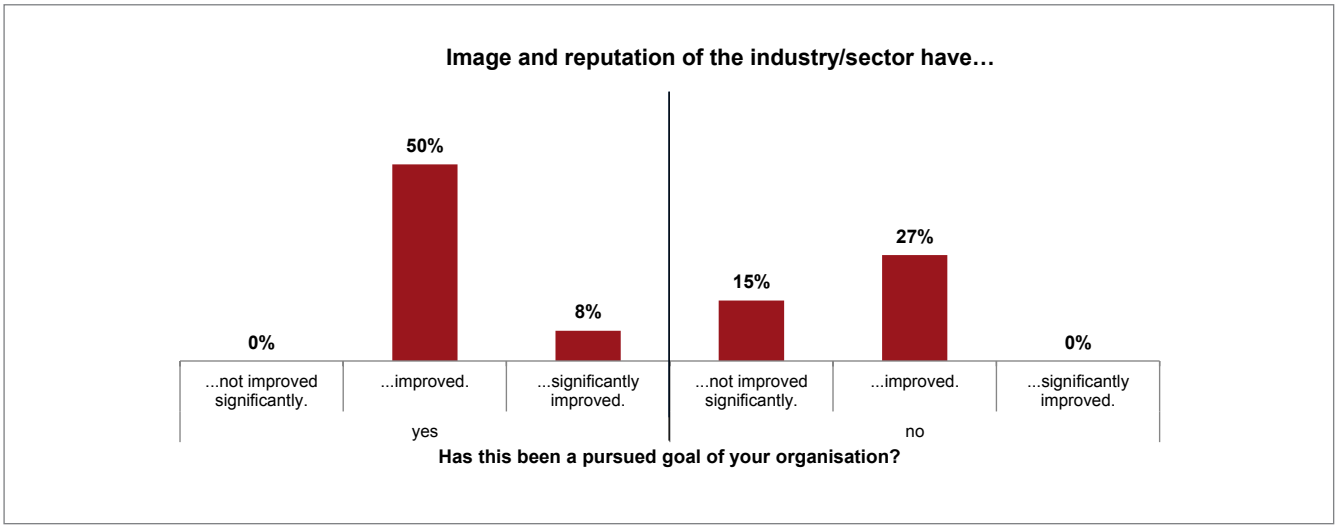


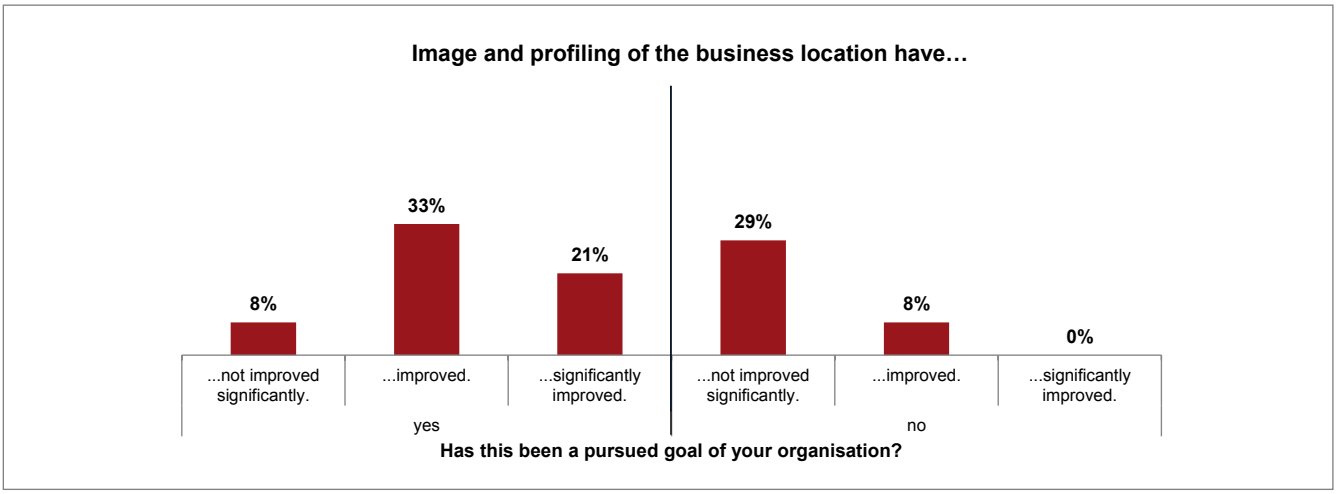


5.3 Entrepreneurial Performance

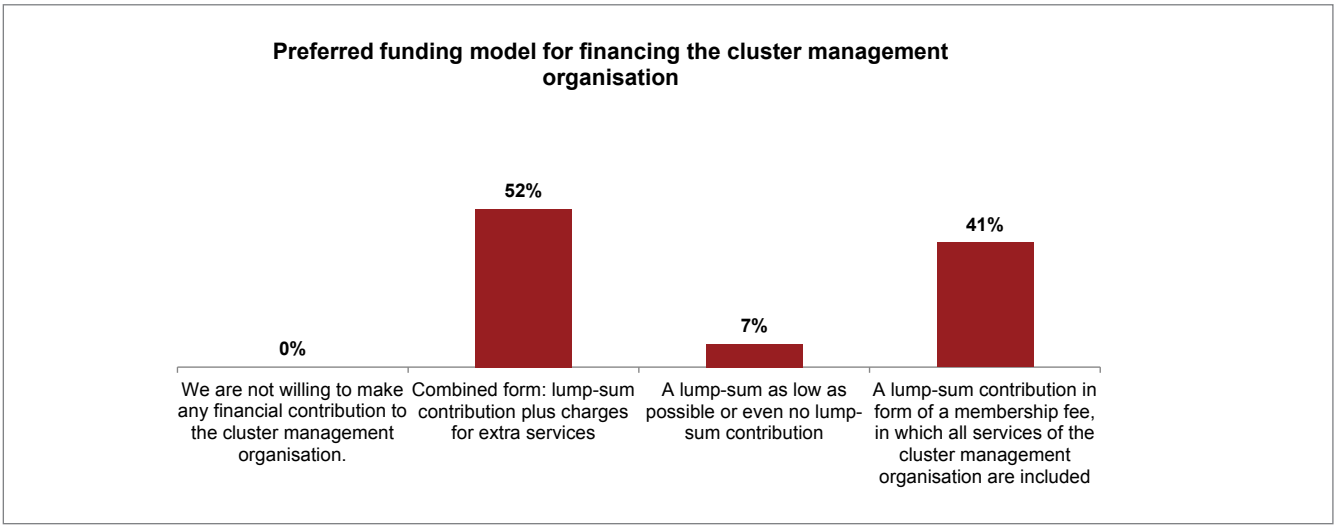


5.4 Image and Reputation





5.5 Sustainability



FAQ About the Cluster Impact Analysis

Who are the survey participants?

The survey exclusively addresses organisations in clusters that are pursuing entrepreneurial activities.

The questionnaire is most suitable for manufacturing and/or developing companies.

To which person is the Cluster Impact Analysis directed in the organisation?

As a general rule, only one person per company should act as respondent and central contact.

In individual cases, it is possible to send to questionnaire to more than one person of the same company in order to get a comprehensive evaluation of the company's effects.

What is meant in the questionnaire by the term "effects achieved through the participation of your organisa-tion in the cluster initiative"?

The purpose here does relate to the achieved benefits that may result from…

- the general participation of the company in the cluster initiative;
- the company's activities and commitment for the cluster initiative;
- the services offered by the cluster management organisation.

Does the Cluster Impact Analysis evaluate and measure the specific performances and the suitability of the services offered by the clus-ter management organisation?

No, the Cluster Impact Analysis aims to measure the general effects for the companies that may result from their involvement in the cluster initiative. This does also include the services offe-red by the cluster manage-ment organisation. However, effects may also be triggered by the companies' participation in and their com-mitment for the cluster initiative in the aggregate.

If you are interested in an analysis of the suitability of the servi-ces offered by your cluster management organisation including a satisfaction survey, the adequate instrument for you would be a member satisfaction analysis.

Is it possible to test the survey myself?

Yes. A test can be conducted by simply clicking on the given link. But PLEASE MAKE SURE to insert "test" in the field named "Company Name". Only then we will be able to identify the actual survey participants.

When will it be possible to start the survey?

As soon as the respective link has been provided, the survey behind is activated.

For how long will the survey be activated?

The start and end of the survey can be defined by yourself. It is up to you to decide on the duration of the sur-vey period.

In most cases, it is recommended to send out a reminder email. As a general rule, the survey should be carried out over a period of two weeks. An additional week should be allowed for sub-sequent to the reminder.

Moreover, public holidays and vacation periods should be taken into account.

How can I find out the number and names of the survey participants?

Please inform us about the starting time of your survey and about the expected number of respondents.

Approx. two weeks after the start date, we will be able to give you a detailed participation overview.

Will the clusters be compared to each other?

No. A comparison is not intended.

What is the meaning behind CNE – Cluster and Network Evaluation?

CNE is a concept for the evaluation of networks and clusters. It relates to the cluster policy itself, the cluster management as well as the network players. Based on a combination of methods including surveys, interviews and workshops, short-, medium- and long-term results are measured with respect to various aspects.

What is CMG – Cluster Monitor Germany?

The Cluster Monitor Germany is a regular brief survey of the cluster managers on trends and prospects of their networks and clusters. The CMG is carried out once in each half year without reference to the Cluster and Net-work Evaluation.

The main CNE modules include:

Module	Purpose
Benchmarking of the cluster management organisation	Positioning of the cluster management organisa-tion compared to others
Cluster Impact Analysis	Effects achieved by the companies in a cluster initiative
Member satisfaction analysis	Evaluation of the suitability of the services offered by the cluster management organisation.

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Since 2005 Dr. Sonja Kind has been working with VDI/VDE-IT, where she heads the competence center "Evaluation". Sonja is mainly involved in consulting, supporting and accompanying innovation and technology policy processes for public commissioners on a regional, national and international level. She has been conducting various evaluations of R&D programmes, R&D projects as well as organizations. Most recently she has led the evaluation of the the SME oriented German funding programme Industrial Community Research ("Industrielle Gemeinschaftsforschung" – IGF). In the evaluation context Sonja's work is particularly focused on the development of new approaches for cluster and network evaluation. To support trend and implication analysis she developed and applied the (visual) roadmap technique to identify socio-economic factors by using a special visualisation technique.

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Dr. Gerd Meier zu Köcker has been working with VDI/VDE-IT since 1999, where he heads the section "International Technology Cooperations and Clusters". He acts in an advisory and expert capacity on various research and innovation programmes at regional, national and international level. Apart from his scientific activity, a major and important part of his work is devoted to various project managements in the field of cluster policy and cluster development. He is Director of the Institute for Innovation and Technology (iit) and Head of German Cluster Excellence Initiative "go-cluster" on behalf of the Federal Ministry of Economics and Technology. In the past, he also advised the European commission as a member of the "High Level Advisory Group on Clusters" on questions of cluster policy.

INSTITUTE FOR
INNOVATION AND
TECHNOLOGY

The Institute for Innovation and Technology (iit) is upheld by the VDI/VDE Innovation + Technik GmbH (VDI/VDE-IT). It covers the entire innovation spectrum on a national and transnational level. Its fundamental elements are the provision of assistance, analysis, evaluation, moderation and the accompaniment of innovative systems and clusters. Its seven departments provide the basis for these services and are as follows: Innovation Systems and Clusters, Innovation Support, Predicting Success of Collaborate R&D Projects, Safety and Security Systems, Innovation Life Sciences, Evaluation in the area of technology and innovation policy as well as Technical Education and Training.

More than 130 scientific employees are part of the team at VDI/VDE-IT and contribute their technological and socio-economic expertise to project management. Their competencies range from diverse natural sciences, engineering and social sciences to economics. The VDI/VDEIT's thirty-five years of experience are represented in the institute's work.

To what extent do enterprises organised in cluster initiatives profit from their networking activities? Which fields can be identified, where the positive effects for the networking companies are most apparent? Where is still potential for optimising the cluster management process? The Cluster Impact Analysis developed by the Institute for Innovation and Technology (iit) helps to find adequate answers to these questions. Thanks to the cooperation of numerous cluster managers, a practice-oriented investigation method has been developed within the scope of a pilot study. The survey exclusively addresses organisations in clusters that are pursuing entrepreneurial activities.

The report presents the results of the Cluster Impact Analysis applied to a cluster initiative from the automotive sector. The enterprises of the analysed cluster have demonstrated their outstanding ability to benefit particularly from the networking activities. The study has revealed that companies showing notably active commitment to the cluster's activities are profiting most. As a result, the cluster management organisation has gained valuable suggestions for improving its service portfolio as well as clear insights about the most important entrepreneurial goals and expectations.