Overall impact assessment dossier: cluster policy analyses

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Table of contents

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Summary

Study aim and study structure

1. The present report was prepared for the purposes of the ClusterPoliSEE project, work package 4, activity 1; learning inputs from past actions analysis. The report first presents the background of the activity and methodology of the study, than follows with the Cluster factsheet analysis, dealing with a brief description of the targeted clusters, regional/national cluster policy analyses and overall cluster policy analyses across 6 cluster development areas. The report concludes with the section of implications for different target groups and limitations of the study.

Methodology

2. To prepare the present report, three questionnaires were developed: 1. Cluster factsheet (open and close questions related to basic info about clusters), 2. Questionnaire for cluster organisations (consisted of 50 open and close questions and sub-questions cross-cutting 6 cluster development areas) and 3. Questionnaire for policy makers (mostly open questions). The theoretical background for questionnaire development was found in scientific articles about clusters, different reports and studies about clusters in different European countries as well as own conceptualization. Questionnaires were checked and redeveloped several times within the group members responsible for this activity from work group leader and UP ZRS. All three questionnaires were developed in English language, which was also the language in which the respondents had to fill them in.

3. Having three different questionnaires with different aims and partially different target groups, the sampling procedure and data collection also differ among them. The **Cluster factsheet** questionnaire was sent by project partners to all clusters in their country (for the Italian partners meaning their region) which they have information on by email. Target respondent group for the **questionnaire for cluster organisations** were 3-4 clusters, that partners deem "representative" in their country. Data collection method was personal interview (or telephone interview if not possible to perform a personal one). Respondents have been sent questionnaires before the interview in order to prepare for it. Respondents for the last **questionnaire for policy makers** were partners of the ClusterpoliSEE project, representing different regions and are also in many cases representatives of policy makers from their region/country.

4. Data collection for the first two questionnaires took place approximately from 22nd November to 22nd January (about two months). To eliminate the bias of different interviewers, a unified Excel form to fill in the answers of both questionnaires was developed and sent to partners. This enabled us to have more comparable data across countries and regions for further analyses. The collection of qualitative specific data from policy makers/partners is still in progress and started on 22.3. 2013.

5. Data were analysed with very simple statistical methods, using averages, mode and median numbers, at certain places representing also minimum and maximum values, which was followed by graphical representations and there interpretations. No advanced statistical procedures were used for data analyses because of very small sample sizes.

Limitations

The study has also different limitations. The biggest limitations concern: first, huge difference in the level of development and operations of cluster policy, which at the same time leave room for lot of improvements, knowledge and best practices exchange. They actually reflect also the level of country/region development in term of economic indicators like GDP. Second, low number of collected responses to derive some generalized conclusions. Third,

respondents should have been from the management of the cluster organisation, but we noticed that certain partners collected data from the cluster members (companies), which may lead to different biases. Fourth, sampling and data collection and related data analysis (because of very small sample size, just basic statistical methods have been used). One of the last limitations pertain limitation which was generated by "mean" and the "average" of the sample. Here we mostly expose the limitation which regards the average, which has been biased due to the most developed countries in clusters (Italy and Austria) and thus increased the mean values and the average value. Furthermore, knowledge of interviewers, as well as the way in which the "representative clusters" are also limitations to be considered in the interpretations of results. The last limitation is that even though that we have received some information or description of cluster's types, we could not and were not able to include them because of poor availability of clusters and also no possibility to uniform them. Even with the limitations presented above, we believe that the present study represents a solid analysis for setting further cluster policy strategies and initiatives.

Cluster factsheet analysis

6. In total there were submitted 121 factsheets. Analyses we performed include general descriptive statistics for selected countries and SEE overall. The analyses consist of tables and figures, including the following information: cluster size, cluster membership (today and at the establishment of the cluster), cluster performance and cluster financing.

7. Number of questionnaires which we have received and were completed by cluster managers in each separate country are following: Albania (1 questionnaire), Austria (2 questionnaires), Bulgaria (4 questionnaires), Croatia (3 questionnaires), Greece (5 questionnaires), Hungary (3 questionnaires), Italy – region Emilia Romagna (8 questionnaires), Italy – region Marche (4 questionnaires), Italy – region Veneto (1 questionnaire), Romania (3 questionnaires), Serbia (5 questionnaires), Slovakia (4 questionnaires) and Slovenia (4 questionnaires).

8. The overall number of cluster members in selected countries/region is increasing all three years (for app 42% from 2010 to 2012) and rose from 5.807 to 8.278 in 2012 along with the increasing number of clusters (for app 38% from 2010 to 2012); from 85 in 2010 to 118 in 2012. In the same year the average number of cluster members per cluster was 70, median is 34 members per country, while mode is 38 cluster members per country.

9. Figures show us that Austria and Italy are dominating the cluster policy in most perspectives, raising the average numbers. They have the highest number of clusters and the largest clusters. Austria with the average of 244 cluster's members/cluster and Italy with 230 members/cluster are high above average of 70 members/cluster within analysed countries.

10. Total number of employees in company cluster members from the start or at establishment of cluster is increasing till now/today. At establishment of cluster there were 2.799 of employees in company cluster member (ranging from 1 to 33.001 employees), while today there are on average 4.858 employees in company cluster member (ranging from 8 to 56.800 employees).

11. Cluster structure is changing, with micro, small and medium companies increasing their number and importance. Average cluster structure is composed mainly of micro (42%) and small (30%) companies, followed by medium companies (10%), large companies (6%) and Public bodies and intermediaries (7%). Financial institutions, R&D institutes, Training and education providers, Universities and technical colleges are represented just with few members and just in certain countries.

12. The results have shown that for SEE overall average annual turnover (total of all company cluster members in €) was 1.467.990.561€. Average export rate of company cluster members for SEE overall was 41% and average R&D rate of company cluster members were 15%. The

median annual turnover of clusters was 131.628.147 EUR, which is almost 10 times less than their average. The highest average R&D rate of company cluster members has Romania (20,20%), followed by Italy (19,60%) and Bulgaria (19,30%). While the lowest average R&D rate of company cluster members has Hungary (5%), followed by Austria (3,60%) and at last Serbia (2%). There were also many companies included in cluster without any export and without investment in R&D, which brings a lot of opportunities for further development of cluster and their policy.

13. The share of public financing (basic funding of cluster management, EU/national projects initiated by the cluster management, etc.) in SEE overall was a bit smaller (47%) compared to private financing (membership fees, service fees, sponsoring etc.) which represented on average 53%. The average cluster management staff was 2,9 employee, ranging from no employees to maximum 40 employees per cluster. Romania, Bulgaria and Slovakia have more than 75% of private financing, while on the other edge, in Hungary and Austria have more than 75% of public financing. In all except 3 countries public financing is strongly prevailing over private financing sources.

Overall cluster policy analysis

14. The final section represent the aggregated analysis of all received questionnaires (N=47) of participating nations/regions, which gives the aggregated picture of the SEE region.

15. Most of the analysed clusters see themselves **playing the role of facilitator of cluster development**, except for Slovakia and Albania, which have a more neutral approach to this question. The same goes for the affirmation, that the **cluster office is the central communication point of the cluster** (only the Albanian cluster disagrees) and that the **cluster office is crucial to the further development** of the cluster (this question is the most homogenic, as the differences between the involved clusters are very small). The Slovak clusters are the only ones which do not think that cluster managers have to carry out operational tasks to achieve the cluster's strategy.

16. Most clusters see the importance of the cluster office very similarly, with a few exceptions. **The most important roles of cluster offices are: establishment and maintenance of an infrastructure for communication** (except for Italy's Emilia-Romagna), e**stablishing cooperation with other clusters or networks of companies** and the coordination of joint projects in the cluster. The Slovak and Austrian clusters seem to give less importance to the cluster office regarding **application to calls for financing** – Slovakia being less confident about this role for domestic calls (3,25), while the Austrian clusters think it is not the cluster office's task to apply to international calls (2,00). **All clusters agree** that the cluster office has to inform cluster members of activities, organize education and training programs, organise cluster members' participation at fairs, exhibitions, etc., promote the cluster at home and abroad, and prepare a cluster development strategy.

17. The **added value of memberships in cluster is perceived very differently among interviewed clusters**. The highest differences are found in the role of increased dynamics of innovation in the company (faster pace of change), more investment in R&D, access to new technologies and foreign production chains and company networks.

18. All of the involved clusters see the **key success factors of clusters in a relatively similar way.** The **largest difference is in the importance of the geographical proximity** of cluster members, which is not important in Albania (2,00) and very important in Austria (4,00). Emilia-Romagna's cluster seems to be a little less convinced than the others about the **importance of state support** (3,38), while Hungary, on average, has a slightly more negative view on the importance of clusters in **building trust among cluster members** (also Slovakia), the support from top management of member companies, and the active participation of members of the cluster.

19. **The implementation of cluster activities varies among countries, but most of them implement all of the mentioned actions**. Major differences are found in the organisation of events where cluster members meet (Serbia and Austria implement them fully, while Croatia and Veneto partially), the performance of activities to promote the cluster at home (little in Slovakia, but to a full extent in Veneto, Serbia, and Albania), the performance of activities to promote the cluster abroad (a lot in Serbia and little in Emilia-Romagna), the joint application for national tenders (full in Austria and little in Slovakia and Hungary), and the connection to other clusters and other business networks abroad (important in Serbia but not in Emilia-Romagna). Some countries do not execute a lot of activities listed in the questionnaire such as the organisation of education and training for members of the cluster (Bulgaria and Greece), joint applications for tenders in the EU or elsewhere abroad (Veneto and Croatia), connecting with other clusters and other business networks in the country (Emilia-Romagna and Slovakia), and the forming of a critical knowledge mass in the industry in which they operate (Veneto and Slovakia). Cluster members designing and implementing joint projects is of high importance in Austria and Veneto.

20. Cluster formation has been positive, since it improved the level of trust between cluster members, especially in Bulgaria, while this does not hold true for Slovakia and Albania. Slovakia also experiences weaker social ties among cluster members (Greece has the strongest), which may be the cause in experiencing difficulties in reaching consensus on issues of common concern (consensus is the highest in Serbia). Cooperation seems to be a general problem in the Slovak cluster (partially also in the Hungarian).

21. Competition between cluster members has hindered their cooperation in joint projects in Veneto and Slovakia, which eventually prevents realistic targets to be set for the implementation of projects. Also, in these two clusters, the vertical integration between companies within the value chain does not dominate.

22. The analysed clusters seem to cooperate in all the mentioned areas, but some deviations are found, for example, **in the construction of a common infrastructure** (information platform for cluster operation), where the Albanian cluster fully cooperates, while the Veneto clusters fail to do so. Lobbying for common interest also seems to be very important in Romania, while not having any importance in Veneto.

23. Education and training are important aspects of cooperation in Austria and Veneto, a lot less in Emilia-Romagna. What regards joint cooperation, it is most prominent in Serbia in the fields of promotion (the least in Emilia-Romagna), sourcing (with a low in Veneto and Austria) and sales (not being important in Slovakia, Veneto, Austria and Croatia). The Emilia-Romagna clusters strongly cooperate in the area of joint R&D projects, while the contrary is true for Slovakia.

Implications

24. The most unified opinion about implications for further cluster policy development is the necessity of the government tailoring incentives to the specific needs of each cluster, and the belief, that clusters and other forms of business alliances are key to improvement of the competitiveness of the national economy. On the other hands Hungary and Slovakia share a disagreement with the claims “Existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities” and “In future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt.”

25. The major evidence arising from the analyses performed is the huge difference in the level of cluster policy development and operations of cluster organisations that affects all main cluster development areas, namely cooperation and networking, financing, sustainability; Innovation, R&D, New skills and Jobs creation, regional specialisation. So the biggest challenge for policy

makers will be in the lowering such differences and in homogenization of operating conditions for clusters, with focused actions adapted to their level of development.

26. One of the biggest opportunities lies in the knowledge transfer and the transfer of good practices from more to less developed regions/countries/cluster organisations. One potential solution to lower such disparities would be also in the development of focused international cluster networks, with an aim to transfer accumulated knowledge, good practices and experiences on different levels; policy makers, cluster organisation's and cluster members.

27. In most cluster organisations there is a wider problem of financing and obtaining financial resources for further cluster development and operations, either for cluster organisations of their members. The problem differs depending on the level of development of cluster policy, country and prior cluster tradition in it. One potential solution to this problem could be the more intensive involvement of financial institutions in the membership in cluster organisations (within all clusters there are only 3 institutions). In this way the cluster members would be able to get in closer contacts with financing institutions, which would help them to better present their operations and companies and potentially receive the credits for their operations.

28. In terms of cluster financing there are very big differences related to the share of public and private funds. An implication to cluster organisations would be to adequately balance the structure between public and private financing, especially to those where public financing exceeds thresholds of 50%. From the responses is evident that those countries (cluster organisations), where public financing sources exceeds proposed levels, focus their lobbing mostly toward "national" policy makers, while there are little possibilities. To overcome such financial constraints, certain clusters have also developed innovative solutions (e.g. Romania).

1. Background

1.1 Work package description and main aims of the report

WP4 is the basis for the process of reflective policy making as precondition to develop smarter policies in support of existing/developing clusters in SEE and enhancing the capacity of the policy to confront, prevent and anticipate change. WP4 creates a common framework of understanding amongst PPs, providing an in-depth assessment of the regional cluster policies AS IS and TO BE in the participant countries and regions, based on the following learning mechanisms: consideration of past actions, visions of the future, analysis of current contexts and understanding and working with parallel contexts.

WP4 supports the mapping exercise and categorize the cluster policies at the partner level after evaluating the policy/programme options which could be helpful in the definition of effective regional and especially cross-regional clusters, to provide inputs to WGs for the setting up of policy learning mechanisms and also contribute to the identification of opportunities of collaboration among partners.

WP4 runs through a matrix approach where six cross cluster development areas (international cooperation and networking, financing, sustainability; Innovation, R&D, New skills and Jobs creation, regional specialisation) cross- cut the four actions analysis. Such approach finds out firstly barriers and how to remove them for learning process but overall improves effective regional cluster policy making through cross-cluster six main items as cluster eco-system dimensions. The actions foreseen in this work package are four, while the present report represents the output of activity **4.1 - learning inputs from past actions analysis**. Other activities of the work package include also contribution for learning process by visions of the future (4.2), policy learning from current regional policies framework (4.3) and learning by understanding and working with parallel contexts (4.4).

This present activity **(4.1)** aims at evaluating cluster policy/programmes in target areas for the following definition of policy learning mechanisms as tools for more effective regional cluster policies and will be addressed from consideration of past actions. Analysis firstly tackles the evaluation gap finding out existing barriers to learning and how to remove them for learning process but overall improves effective regional cluster policy making due to a better understanding of the effects of certain policy instruments. Following, is **the description of the targeted clusters** - **Cluster factsheet analysis** (which updates Cluster Observatory with descriptions characteristics, kind of international relationships as well as detailing maturity, main economical/technological issues, number of employees and other data) of selected clusters in SEE region and a **qualitative and quantitative analysis. A combination of both letter analysis,** that were based on in depth structured interviews with at least two different cluster management members from each region and a survey questionnaire addressed at policy makers, enabled us to prepare an impact assessment report on the levels of individual regions/national level and SEE overall, which was supported also from different perspectives (policy makers as well as the cluster management).

Sound and effective transmission of results to relevant stakeholders will be achieved through platform in order to establish a constant feedback process and a progressing updating of analysis main findings, thus facing and removing the existing barriers in term of weak communication mechanisms and limited information. Delivery of an overall impact assessment dossier, including results and enabling the

analysis of cluster framework conditions, evaluating the impact of policy measures/initiatives for the emergence, growth and excellence of clusters in SEE area, is an innovative contribution to the setting up of evidence based cluster policies in SEE regions.

2. Methodology

The methodology section will present the measurement instrument, sampling and data collection as well as data analyses used to prepare this report.

2.1 Measurement instrument(s)

To prepare the present report, three questionnaires were developed: 1. Cluster factsheet for cluster management, 2. Questionnaire for cluster organisations and 3. Questionnaire for policy makers (all questionnaires are available in Appendices). The theoretical background for questionnaire development was found in scientific articles about clusters, different reports and studies about clusters in different European countries as well as own conceptualization. Main references that were used as theoretical background for questionnaire development are presented in the literature section. Questionnaires were checked and redeveloped several times within the group members responsible for this activity from work package leader AWS Austria, Ecoplus, Austria and UP ZRS. All three questionnaires were developed in English language, which was also the language in which the respondents had to fill them in.

Cluster factsheet

Cluster factsheet questionnaire consisted of basic questions related to individual clusters. Questionnaire was a combination of open and close questions. Its aim was to have an overview of clusters in SEE region, complementing the cluster observatory. The main questions included were:

- Name of the cluster and the country of location
- Sector of operation and specialisation in it
- Founding year of the cluster
- Number of cluster members (in last 3 years, specified by year)
- Structure of cluster members per type of organisation (at establishment and today)
- Total number of employees in companies cluster members (at establishment and today)
- Cluster performance (annual turnover of all members, average export and R&D rate
- Legal form and ownership of cluster organisation
- Main objectives and activities of the cluster
- Cluster management stuff
- Cluster financing
- Main strategic challenges of the cluster related to industry and management.

Questionnaire for cluster organisations

Questionnaire for cluster organisations consisted of 50 open and close questions and sub-questions cross-cutting 6 cluster development areas (cooperation and networking, financing, sustainability; Innovation, R&D, New skills and Jobs creation, regional specialisation) as well as some other information about clusters, and the currents barriers and proposals for further cluster policy development. The questionnaire was quite long, altogether almost 22 pages. The questionnaire is presented in Appendices. The main aim of this questionnaire was to receive a deeper understanding of the functioning of clusters and the main characteristics of cluster policy in specific regions from the perspective of cluster managers. The goal is to identify the main differences between regions and

countries, main barriers for the transfer of information and to propose possibilities to learn and transfer examples of best practices between them.

Questionnaire for policy makers with specific regional qualitative data.
Partners of the Cluster PoliSEE project that represent different SEE countries/regions (and in charge for data collection) are also in many cases representatives of policy makers from their region/country. So a different type of stakeholders that may have a different (diametric) perspective on cluster policy. To obtain this perspective on functioning of the clusters and cluster policy, and to prepare the report also on regional level, we developed another short, 2 page questionnaire addressed to them, consisted mostly of open questions about main barriers, challenges and their proposal of possibilities to eliminate them.

2.2 Sampling and data collection

Having three different questionnaires with different aims and partially different target groups, the sampling procedure and data collection also differ among them.

The **Cluster factsheet** questionnaire was asked to be sent by project partners to all clusters in their country (for the Italian partners meaning their region) which they have information on by email. The clusters they intended to interview with the Survey questionnaire should be excluded. We have not received any information from partners, about how many clusters have denied responding and collaborating in the survey. Target respondent group for the **questionnaire for cluster organisations** were 3-4 clusters, that partners deem “representative” in their country. Data collection method was personal interview (or telephone interview if not possible to perform a personal one). Since the questionnaire was quite long and it lasts approximately from 1-2 hours, interviewers (project partners) were asked to send the questionnaire at least one week in advance in the way the cluster managers should prepare for the interview and informed respondents about the time needed. Respondents for the last **questionnaire for policy makers** were partners of the Cluster PoliSEE project, representing different regions and are also in many cases representatives of policy makers from their region/country.

Data collection for the first two questionnaires took place approximately from 22nd November to 22nd January (about two months). To eliminate the bias of different interviewers, a unified Excel form to fill in the answers of both questionnaires was developed and sent to partners. This enabled us to have more comparable data across countries and regions for further analyses. The collection of qualitative specific data from policy makers/partners was done in period of April, May and June 2013.

2.3 Data analyses

Data were analysed with very simple statistical methods, using averages, mode and median numbers, at certain places representing also minimum and maximum values, which was followed by graphical representations and there interpretations. No advanced statistical procedures were used for data analyses because of very small sample sizes.

CLUSTER FACTSHEET ANALYSES

3. Cluster factsheet analyses

In total there were submitted 121 factsheets. In following pages we are going to present some general descriptive statistics for selected countries and SEE overall. The analyses consist of tables and figures, including the following information: cluster size, cluster membership (today and at the establishment of the cluster), cluster performance and cluster financing.

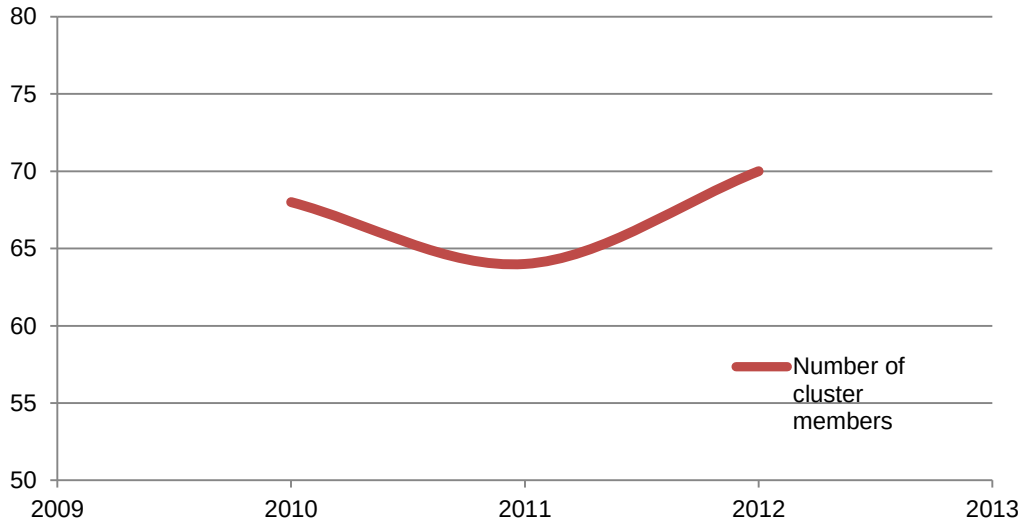
3.1.1 Average number of cluster members

The overall number of cluster members is increasing all three years along with the increasing number of clusters, which have increased faster than cluster members (Table 1). A consequence is that the average number of cluster members of SEE overall has decreased from year 2010 to year 2011, while again increasing in 2012.

Table 1: Number of cluster members for SEE overall

Founding year of cluster	Min	Max	Average	Number of cluster members	Number of clusters	Mode per countries	Median per countries
2012	3	950	70	8.278	118	38	34
2011	0	600	64	6.199	97	/	31
2010	2	700	68	5.807	85	12	23

Figure 1: Average number of cluster members (SEE overall) per cluster through years 2010, 2011 and 2012



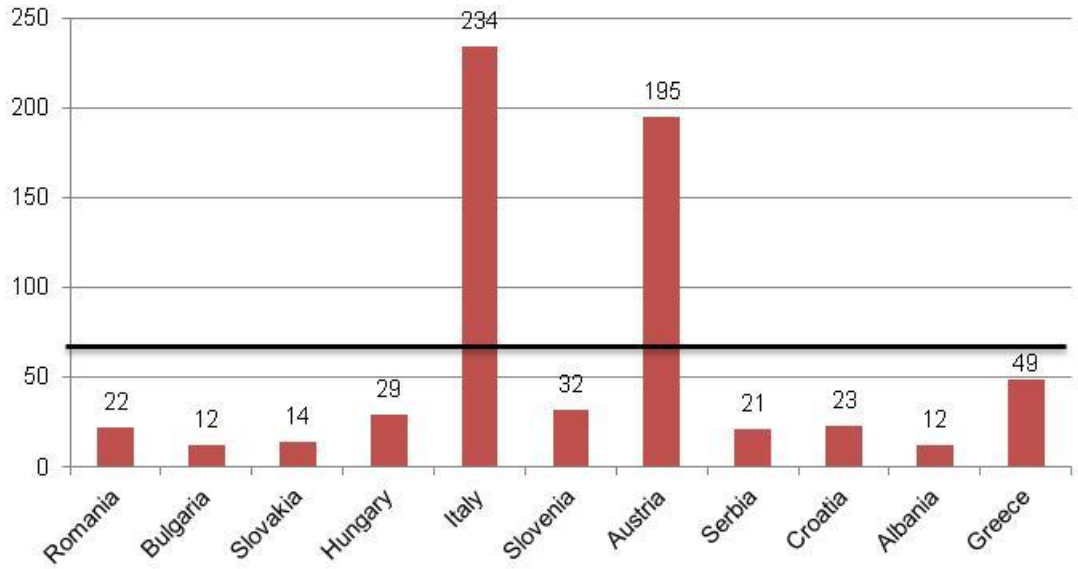
The decrease and increase of average cluster member for the whole SEE region results in a U shaped curve. We can interpret it as a sharp increase the number of clusters in 2010, which was not followed by so sudden increasing number of members. This has changed in year 2012, where the number of cluster members increased relatively faster than number of new clusters. Since we have big differences between clusters and countries (evident from minimum and maximum values), calculated

also the mode and median values. The median value rises from 23 members in 2010 to 34 members in average cluster per analysed country; this means that in 2012 half countries had on average more than 34 members and half analysed countries had less than 34 members. We can also see a huge jump in the mode number, from 12 members to 38 members in average cluster per analysed country, meaning that the most frequent number of cluster members in analysed country in 2012 was 38.

3.1.1 Average number of cluster members on the level of countries from 2010-2012

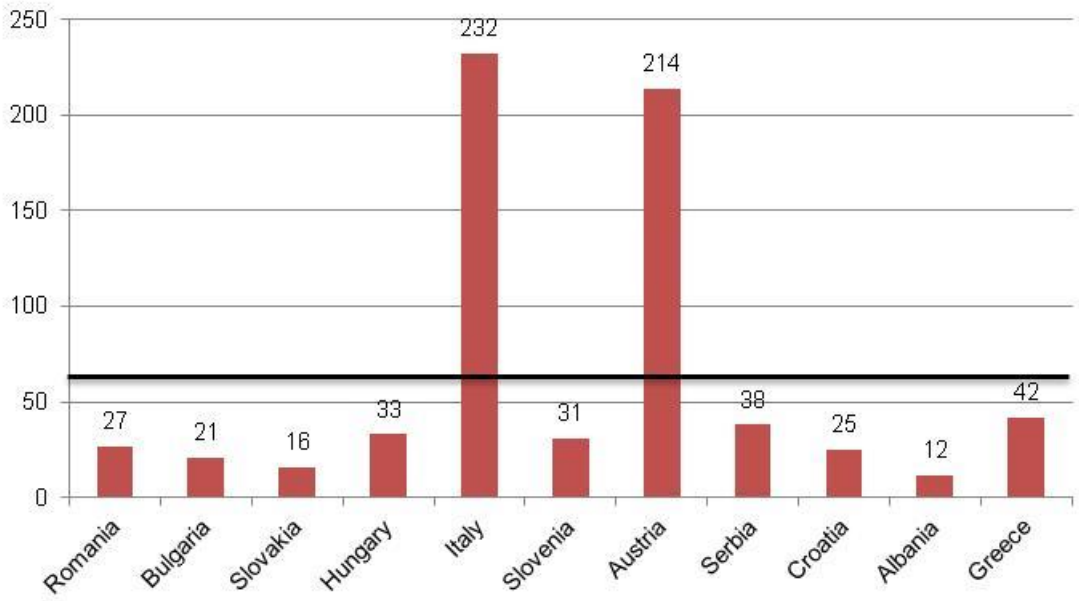
From the figures below we can see the average number of cluster members in 2010, 2011 and 2012 for all included countries. The black line represents the mean value of SEE overall, which shows us which countries are above and which are below the average value of SEE overall. We can see that above the average (68 members/cluster) are only two countries: Italy and Austria (bringing the average quite high), while all other included countries are below the SEE average in terms of average number of cluster members per cluster (Table 1). In all observed years no other country except Italy and Austria has increased the average number of cluster members.

Figure 2: Average number of cluster members per cluster in year 2010 (per country and SEE overall)



*Subsequently we have received additional 5 completed questionnaires from Romanian clusters – thereby the average number of cluster members per cluster in year 2010 in Romania is not 22 as is written in the figure 2, but decreases to 17 cluster members.

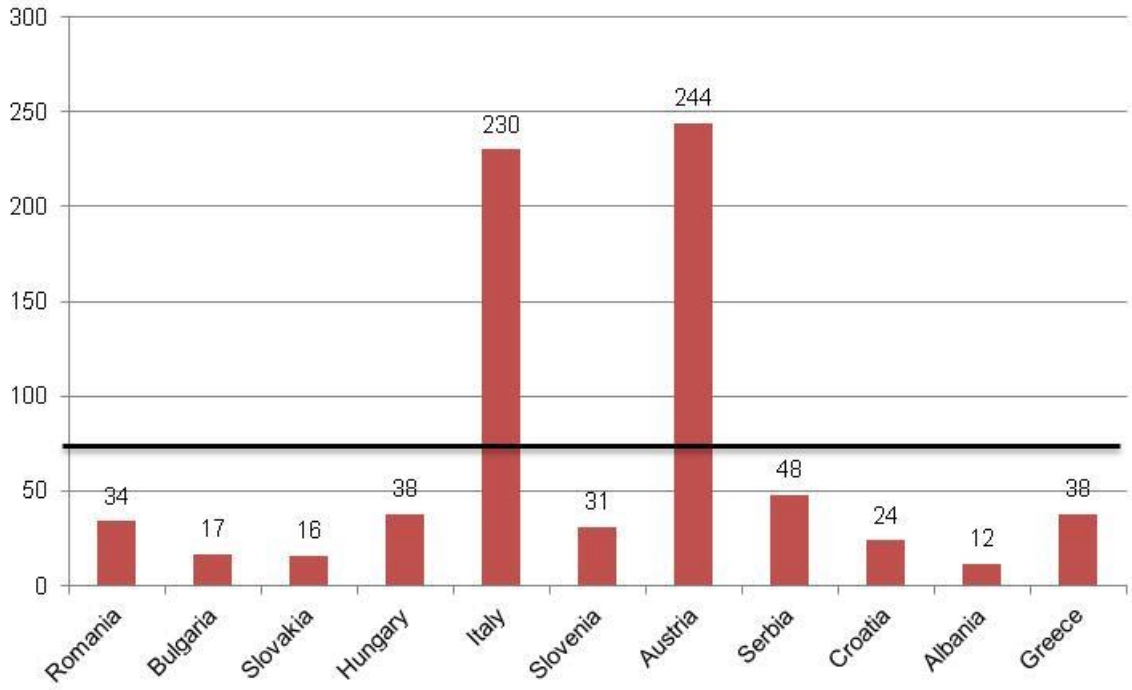
Figure 3: Average number of cluster members per cluster in year 2011 (per country and SEE overall)



The average in 2011 was 64 members per cluster, while in the last observed year (2012) the average has increased to 70 members per cluster. As in all previous years, just Austria and Italy are above the average of SEE overall, while all the other countries are below the average of SEE overall.

*The number of cluster members after analysed additional 5 Romanian completed questionnaires per cluster in year 2011 is not 27, but 23, while in the year 2012 the number of cluster members has not changed (it stays 34 even though that we have added 5 subsequently completed questionnaires).

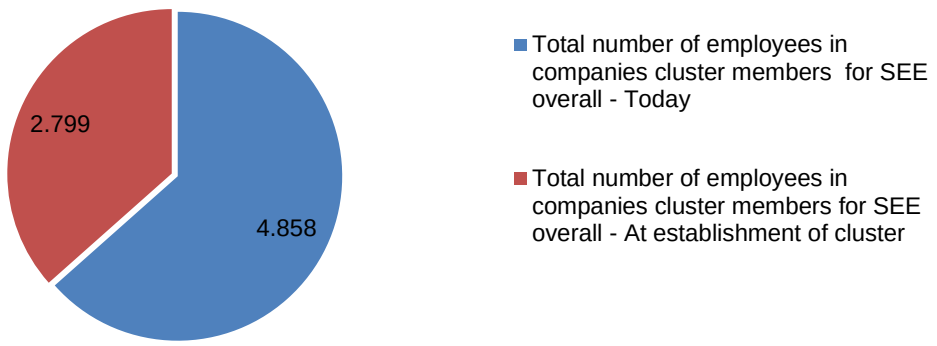
Figure 4: Average number of cluster members per cluster in year 2012



3.1.2 Total number of employees in companies cluster members for SEE overall

From the Figure 5, we can see that the total number of employees in company cluster members from the start or at establishment of cluster is increasing till now/today. At establishment of cluster there were 2.799 of employees in company cluster member (ranging from 1 to 33.001 employees), while today there are on average 4.858 employees in company cluster member (ranging from 8 to 56.800 employees).

Figure 5: Total number of employees in companies cluster members for SEE overall (at establishment of cluster/today)



3.2 Structure of cluster members

3.2.1 Structure of membership for overall SEE

Table 2 and Figure 6 show comparisons in the structure of membership between today and the establishment of the cluster for the overall SEE region. We can see that members consisted mainly of micro, small, medium and large companies, and also public bodies and intermediaries. There were no financial institutions present neither at the establishment of cluster and neither today. The only difference between today and at establishment of the cluster in terms of structure is the presence of one training and education provider in one of the observed countries. There is also a relatively low involvement of R&D institutes and Universities, and technical colleges. The highest average number of cluster members comes from micro companies (30 companies), followed by small companies (22 companies), while there were just 7 medium companies. There were no cluster members from financial institutions. Finally, there were just 2 members (in total) from R&D institutes and Training and education providers. The structure of membership of observed clusters remains similar across years (when they are compared today and at establishment), just the absolute number of members is increasing, which is promising information.

Table 2: Cluster structure for SEE overall (average of all cluster from analysed countries; according to benchmarking tool of ESCA- European Secretariat for Cluster Analysis) – Today and at establishment

	At establishment *	In %	Min	Max	**Today ****	In %	Min	Max	% change ***
Large companies	**2**	**7%**	0	15	**4**	**5,6%**	0	74	100%
Medium companies	**4**	**13,3%**	0	49	**7**	**9,7%**	0	81	75%
Small companies	**9**	**30%**	0	118	**22**	**30,6%**	0	362	144%
Micro companies	**10**	**33,3%**	0	66	**30**	**41,7%**	0	608	200%
Universities, technical colleges	**1**	**3,3%**	0	8	**2**	**2,8%**	0	28	100%
R&D institutes	**1**	**3,3%**	0	9	**1**	**1,4%**	0	13	0%
Training and education providers	**0**	**0%**	0	8	**1**	**1,4%**	0	10	100%
Financial institutions	**0**	**0%**	0	4	**0**	**0%**	0	12	0%
Public bodies and intermediaries	**3**	**10%**	0	26	**5**	**6,9%**	0	62	66,6%
Total number of employees in companies cluster members	**2.799**		1	33.001	**4.858**		8	56.800	

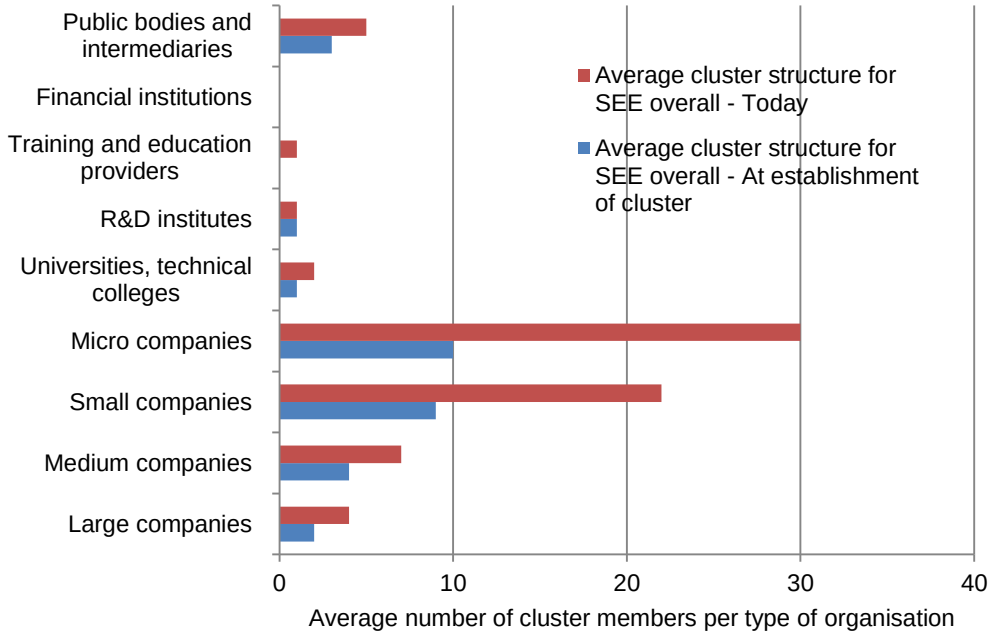
* Average cluster structure for SEE overall at the establishment of cluster
** Average cluster structure for SEE overall today
*** Relative increase in average members per cluster (from establishment compared to now)

Furthermore we can see (Table 2) that from the time when clusters were established till now, the number of large, medium, small and also micro companies in the average cluster structure of SEE overall has increased. The number has increased also regarding the presence of Universities and technical colleges, Public bodies and intermediaries in the average cluster structure of SEE overall region. There were no financial institutions and R&D institutes, while lately one Training and education provider has joined one cluster, which was not present at establishment of cluster.

Summarizing, we can see that the biggest differences are in increased number of small (144% of relative increase in average members per cluster) and micro companies (200% of relative increase), where from establishment of cluster till now are on average 13 more small companies and 20 micro companies in structure of SEE overall. Their substantial increase in number has influenced also their relative importance in the structure of membership. Initially micro firms represented on average 33% of cluster members, while in last year they represented already 42% of all cluster members.

Furthermore we can see that average cluster structure is composed mainly of micro (30 now, at establishment of cluster 10) and small (22 now, at establishment of cluster 9) companies, followed by medium companies (7 now, 4 at establishment; 75% of relative increase), large companies (4 now, 2 before; 100% of relative increase) and Public bodies and intermediaries (5 now and 3 before; 66,6% of relative increase). Little difference is observed in the number Financial institutions (0 now and 0 before) and R&D institutes (1 now and 1 before), Training and education providers (0 before and 1 now; 100% relative increase) and Universities and technical colleges (1 before and 2 now; 100% of relative increase).

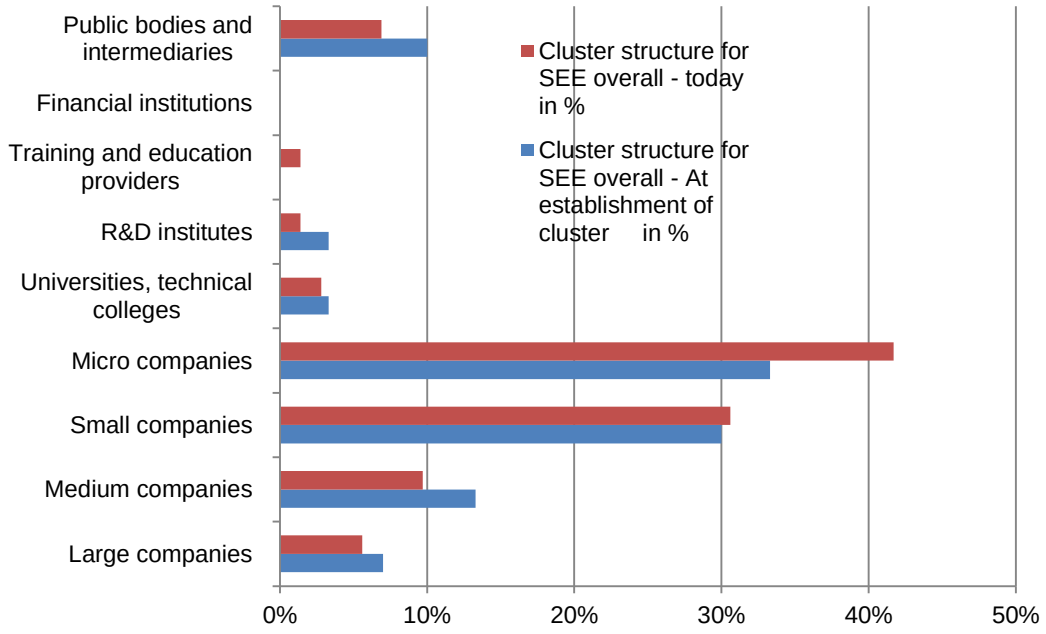
Figure 6 : Average number of members per type of organisation in cluster structure comparison for SEE overall – year 2012 and at establishment of cluster



If we continue with the information which table 2 offers us, we can also see that the total number of employees in companies cluster members has increased from establishment of clusters, when there were 2.799 employees (ranging from 1 to 33.001 employees), to an average of 4.858 employees in companies cluster members (ranging from 8 to 56.800 employees). Such information means that clusters are gaining in importance also in relation to employment issues and policies. This brings another important argument for inclusion of cluster managers and leaders into debates about further country and region policy developments also related to social and cohesion issues.

The average cluster structure based on type of organisation for SEE overall in percentage has been slightly changed from the time of establishment of clusters and today (year 2012) (See figure 7). At establishment of cluster till today decreased the percentage of large and medium companies, R&D institutes, Universities and technical colleges, and Public bodies and intermediaries present in the cluster structure. While there has increased percentage of micro companies and also small companies. At last we can see also that now is present one training and education provider in cluster structure, which has not been present at establishment of cluster, while there still is total absence of financial institutions as members in average cluster structure of SEE overall region.

Figure 7 : Cluster structure comparison based on type of organisation for SEE overall over today (year 2012) and at establishment of cluster (in percentage)



3.2.2 Structure of membership on country level

Table 3: Average number of cluster member, mode and median per type of organisation for selected countries and SEE Overall (according to benchmarking tool of ESCA) in 2012

	Bulgaria	Albania**	Slovakia	Croatia	Slovenia	Romania ***	Greece	Hungary	Serbia	Italy	Austria	SEE overall	Mode	Median
Large companies	1	0	1	1	11	2	1	0	1	7	35	4	1	1
Medium companies	2	0	4	1	4	6	3	0	10	19	35	7	0	4
Small companies	3	0	4	4	9	7	7	12	13	74	**111**	22	4	7
Micro companies	5	12	4	10	6	8	24	19	16	**123**	79	30	/	12
Universities, tech.colleges	1	2	1	1	2	2	1	0	2	2	14	2	2	2
R&D institutes	0	0	0	0	1	3	1	0	1	1	12	1	0	1
Training and ed. providers	0	1	1	0	0	2	0	0	1	1	8	1	0	1
Financial institutions	1	0	0	0	0	0	0	0	0	1	1	0	0	0
Public bodies and intermed.	2	1	2	5	2	7	2	10	6	9	3	5	2	3
Total number of employees*	2.522		1.983	1.327	5.863	3.761	708	277	1.543	**7.361**	**33.618**	**4.858**	/	**2.252**

* Total number of employees in companies cluster members
** Certain data for Albania are missing
***Subsequently we have received additional number of 5 completed questionnaires from Romanian clusters – thereby the structure of membership in Romanian clusters changes just regarding the number of small companies comprising in the cluster structure membership, it decreases from seven to six small companies comprised in structure of membership. While the other change is total number of employees, which decreases from 3.761 to 3.3.44 cluster members.

After having an overview of the cluster structure membership based on type of organisations for the whole SEE we verified the structure also on country level. The largest share in cluster structure have micro and small companies in all countries except Albania, where there is absence of all type of companies; micro, small, medium and large (according to the questionnaires received). We can also see that the least represented across all countries are Universities, technical colleges, R&D institutes, Training and education providers, Public bodies and intermediaries. There is almost a complete absence of financial institutions (all together are 3, represented in Bulgaria, Italy and Austria).

Figure 8: Average cluster structure per type of organisation/country and SEE overall – now (2012)

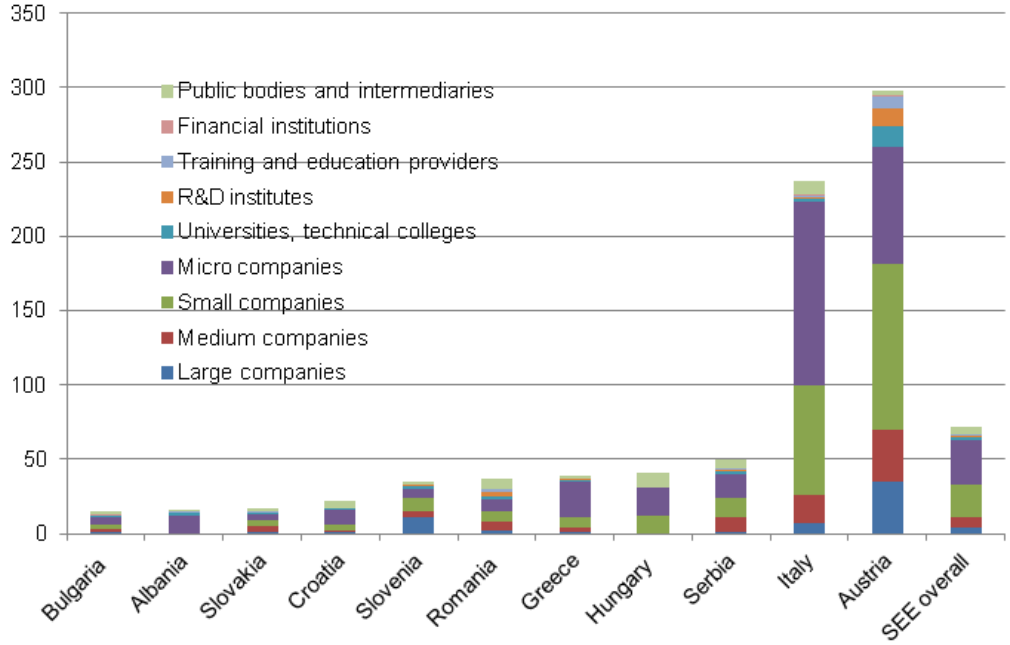


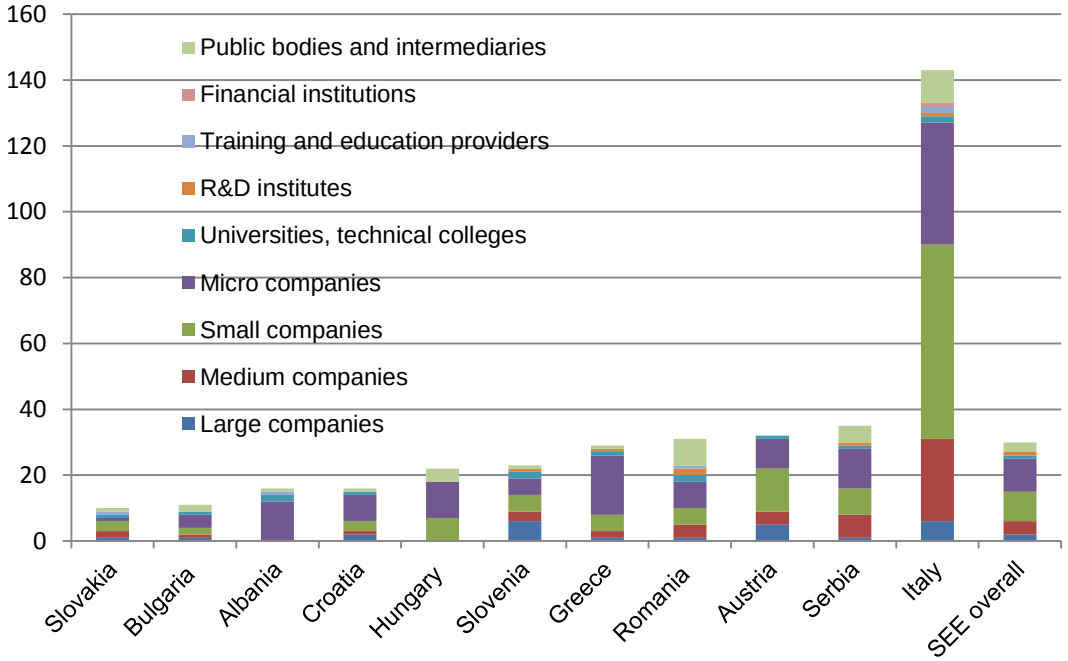
Table 4: Average cluster structure, mode and median per country (according to benchmarking tool of ESCA- European Secretariat for Cluster Analysis) – At establishment of cluster

	Slovakia	Bulgaria	Albania	Croatia	Hungary	Slovenia	Greece	Romania **	Austria	Serbia	Italy	SEE overall	Mode	Median
Large companies	1	1	0	2	0	6	1	1	5	1	6	2	1	1
Medium companies	2	1	0	1	0	3	2	4	4	7	25	4	2	2
Small companies	3	2	0	3	7	5	5	5	13	8	**59**	9	5	5
Micro companies	1	4	12	8	11	5	18	8	9	12	37	10	12	9
Universities, technical colleges	1	1	2	1	0	2	1	2	1	1	2	1	1	1
R&D institutes	0	0	0	0	0	1	1	2	0	1	1	1	0	0
Training and education providers	1	0	1	0	0	0	0	1	0	0	2	0	0	0
Financial institutions	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Public bodies and intermediaries	1	2	1	1	4	1	1	8	0	5	10	3	1	1
Total number of employees*	2.262	2.474		816	192	4.722	884	6.492	2.082	798	9.512	**2.799**	/	**2.082**

* Total number of employees in companies cluster members

***After counting in also subsequently completed questionnaires from Romania, has changed the Romanian cluster membership in number of large companies (now just 1), micro companies (now 10), universities and technical colleges (now 5), training and education providers (now 4), financial institutions (now 1) and public bodies and intermediaries (now 10).

Figure 9: Structure of cluster by organisation type in each analysed country and SEE overall – at establishment of cluster



The leading position of Austria and Italy in clusters is evident also in the total number of employees for an average cluster in a specific country. Far in front is Austria, with 33.618 employees, while the smallest number of employees per average analysed cluster is present in Hungary (277 employees).

We analysed also the structure in terms of organisation type on the level of individual countries at the establishment (Figure 9,

Table 4) and today (year 2012) (Table 3, Figure 8).

The most interesting differences that emerged were related to the position of Austria. Austrian clusters employed at establishment on average 2.082 employees (countries such as Italy, Romania and Slovenia on average employed more employees at establishment of their clusters; see

Table 4), while today Austria leads with 33.618 employees. We should be careful in interpreting this information, because we actually don't asked respondent when the established their clusters. Maybe Austria has the longest tradition and at those times, clusters were not so "popular".

Because of high extremes from Austria and Italy in total number of employees in last year (2012) affecting strongly the average, we calculated also the mode and median number per country in terms of employees and specific organisation type. The biggest differences emerged in the median of small and micro companies. The average number of small companies for SEE overall was 22, while the median number was 7 companies (half countries had less and half countries had more than this) and mode was 4 companies (the most frequent number of small companies per cluster). The median number of micro companies has also significantly decreased. From an average of 30 micro companies per cluster in SEE region to a median of 12 micro companies per cluster. Due to very high number of all employees in average cluster in Austria, a big different emerged when we compared the median number of employees per cluster, which decrease from an average of 4.858 to a median of 2.252 for the SEE overall.

As we can see from

Table 4, the minimum of total number of employees in company cluster members at establishment has had Hungary (192 employees) and the maximum has had Italy (9.512 employees). Above the average of SEE overall region (2.799 employees) were Slovenia (4.722 employees), Romania (6.492 employees) and Italy (9.512 employees) regarding the total number of employees in companies employed in an average cluster. As we have already mentioned also the total number of employees employed by companies cluster members is increasing from their establishment till now. When we observed the mode and median number of specific type of organisations or number of employees at establishment of the clusters, the differences compared to the average were not so significant. An interesting observation is also the median number of employees when compared from cluster establishment to current years. It differs actually just for about 180 employees (2.082 at establishment and 2.252 employees in 2012), which means the average number increased mostly because increases from Austria and Italy.

3.3 Cluster performance

The results have shown that for SEE overall average annual turnover (total of all company cluster members in € in years 2010-2012) was 1.467.990.561€. Average export rate of company cluster members for SEE overall in same observation period was 41% and average R&D rate of company cluster members were 15%. There were also many companies included in cluster without any export and without investment in R&D, which brings a lot of opportunities for further development of cluster and their policy.

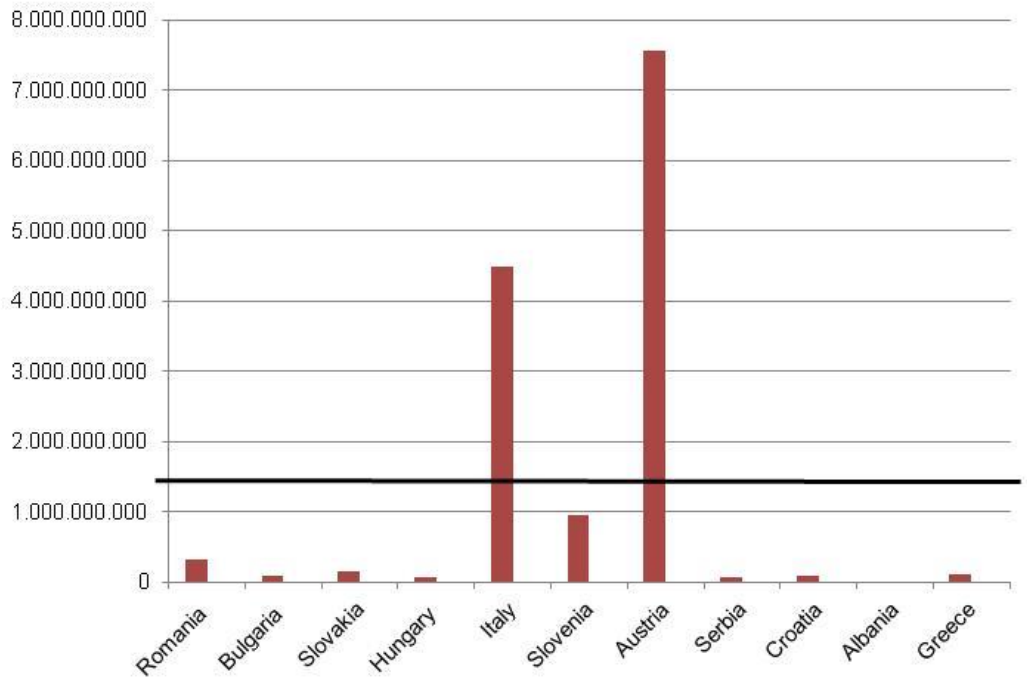
Table 5: Cluster performance for SEE overall

CLUSTER PERFORMANCE PARAMETER	Min	Max	Average	Mode per countries	Median per countries
Annual turnover (total of all company cluster members) in €*	100.000	45.000.000.000	1.467.990.561	/	131.628.147
Average export rate of company cluster members	0%	100%	41%	46%	42%
Average R&D rate of company cluster members	0%	100%	15%	/	10%

*Subsequently we have received additional number of 5 completed questionnaires from Romanian clusters – therefore annual average turnover of Romanian clusters was estimated to 298.972.497€.

When analysing cluster performance on the level of countries we can see that just Italy and Austria have mean values higher than average of SEE overall, while all the other countries are below the average value of SEE overall regarding annual turnover. From the figure above we can see that the average annual turnover for SEE overall is 1.467.990.561€ (marked with black line in the figure 10). Because of high extremes from Italy and Austria, we verified again the mode and median for the SEE overall. As expected a huge difference emerged. The median annual turnover of clusters was 131.628.147 EUR, which is almost 10 times less as their average.

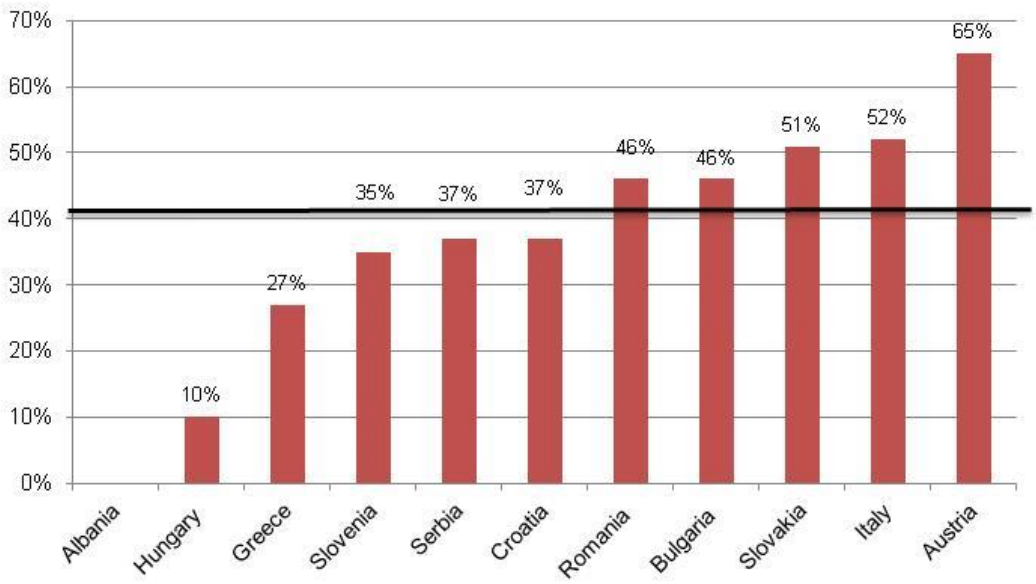
Figure 10: Annual average turnover (total of company cluster members) in € for each analysed country*



We have further analysed the average export rate of selected clusters on the level of countries that are presented in Figure 11. Black line represents a mean value of SEE overall (41%). We can see that Romania (46%), Bulgaria (46%), Slovakia (51%), Italy (52%) and Austria (65%) are above the average value of SEE overall, while Hungary (10%), Greece (27%), Slovenia (35%), Serbia (37%) and Croatia (37%) are below the average value of SEE overall regarding the export rate.

*According to updated results (comprising 5 additional – subsequently sended questionnaires from Romanian clusters) the average export rate of company cluster members in Romania is 44%.

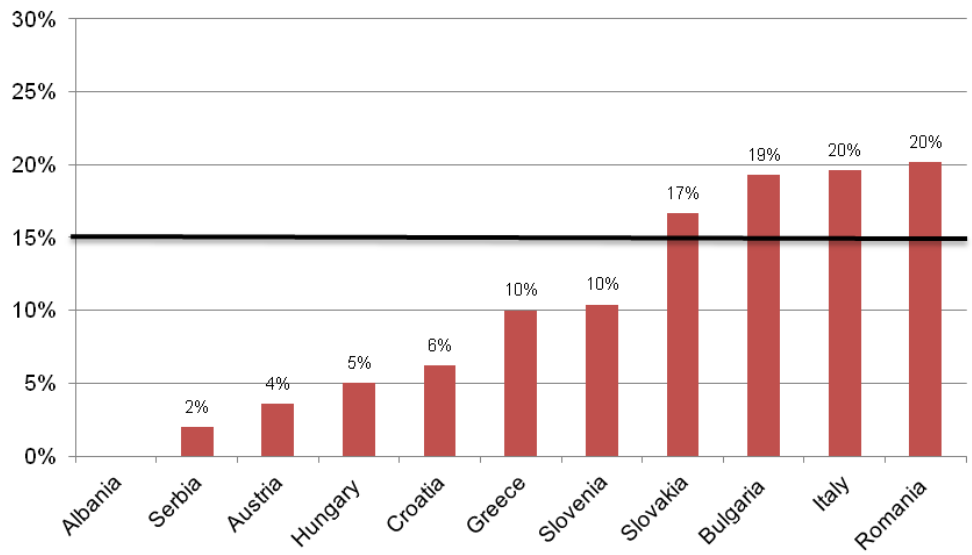
Figure 11: Average export rate of company cluster members



We finally checked the average R&D rate on the level of countries.

Figure **12** shows us an average R&D rate of company cluster members, where average value of SEE overall is marked with black line (amounts to 15% of annual company turnovers). We can see that there are still quite a few countries below the average (Hungary, Slovenia, Austria, Serbia, Croatia and Greece), while approximately half of analysed are above the average R&D rate of SEE overall (Romania, Bulgaria, Slovakia and Italy). Furthermore we can see that the highest average R&D rate of company cluster members has Romania (20,20%), followed by Italy (19,60%) and Bulgaria (19,30%). While the lowest average R&D rate of company cluster members has Hungary (5%), followed by Austria (3,60%) and at last Serbia (2%). Big differences in average R&D rate per country is evident also the median value of SEE overall, which decreased from the overall average of 15% to a median of 10%. Our opinion is that in the interpretation of this R&D rates we have to be careful to their calculations, which we consider as limitation. Interpreting such information is very delicate, without have more in-depth knowledge about the cluster members and the functioning of the cluster.

Figure 12: Average R&D rate of companies cluster members for each country*



*Subsequently we have received additional number of 5 completed questionnaires from Romanian clusters – thereby the average R&D rate of companies cluster members in Romania is not 20%, but 19%.

3.4 Cluster financing

Cluster financing is one the most important areas affecting cluster survival and growth and therefore of interest of different cluster stakeholders. Cluster financing can be basically divided into two main groups; public and private financing. From the table below we can see that the share of public financing (basic funding of cluster management, EU/national projects initiated by the cluster management, etc.) in SEE overall was a bit smaller (47%) compared to private financing (membership fees, service fees, sponsoring etc.) which represented on average 53%. The average cluster management staff was 2,9 employees, ranging from no employees to maximum 40 employees per cluster.

Table 6: Cluster financing for SEE overall in percent*

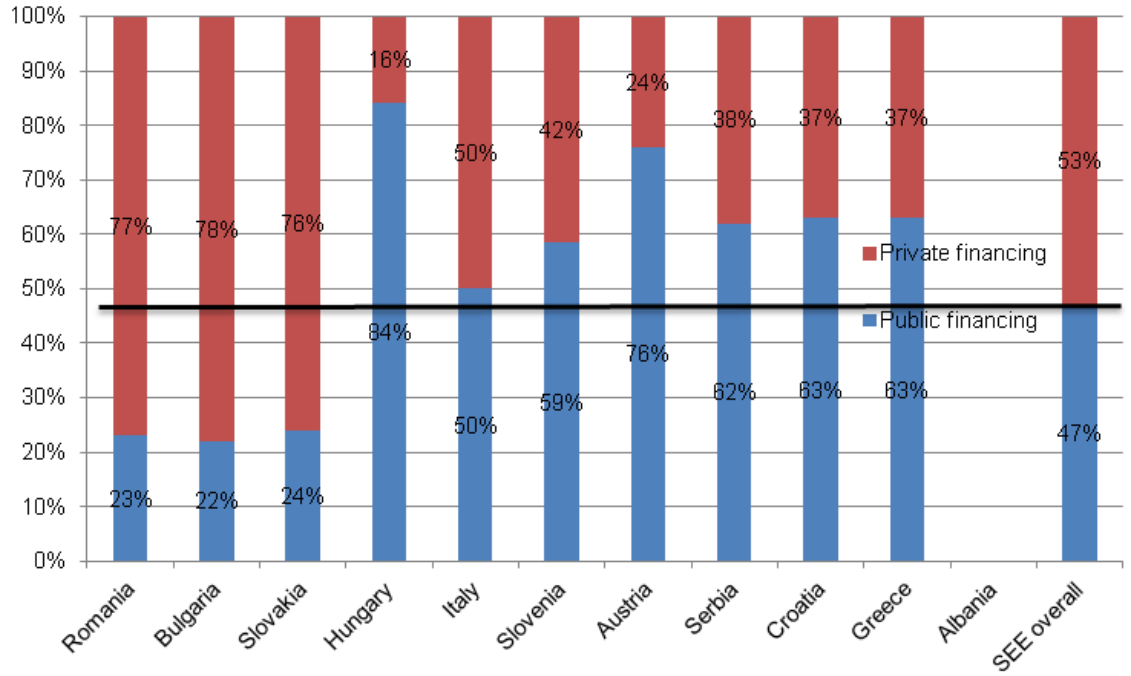
	Min	Max	**Average**	Mode per countries	Median per countries
Public financing (basic funding of cluster management, EU / national / regional projects initiated by the cluster management, etc.)	0%	100%	**47%**	63%	61%
Private financing (membership fees, service fees, sponsoring, etc.)	0%	100%	**53%**	37%	40%
Cluster management staff	0,0	40,0	**2,9**	1,6	2,6

*Here we have to add, that when adding to the analysis of Romanian clusters also 5 subsequently received questionnaires the situation of financing has slightly changed – in order that Romania have 21% of public financing and 71% of private financing (the percents are not reaching 100, because many of clusters have not responded the question).

When we analyse the financing on the level of individual countries, many differences emerged. At first we can see that comparing results of countries to average of SEE overall region (47% public and 53% private financing), the only country which can be compared in sense of cluster financing share distribution is Italy (50% public and also 50% private). Romania, Bulgaria and Slovakia have more than 75% of private financing, which is very promising (probably also because very little public funds are available for cluster activities), while on the other edge, in Hungary and Austria have more than 75% of public financing. Except the 3 countries already mentioned with less that 25% of public financing, in all other countries public financing is strongly prevailing over private financing sources.

The differences in public and private proportions of cluster financing bring the average rate at the level that would be ideal to our opinion. A more real picture is evident in the median and mode of each type of financing. The reality is that still the majority of clusters are financed prevailingly by public sources (median of public financing is 61% and mode 63%).

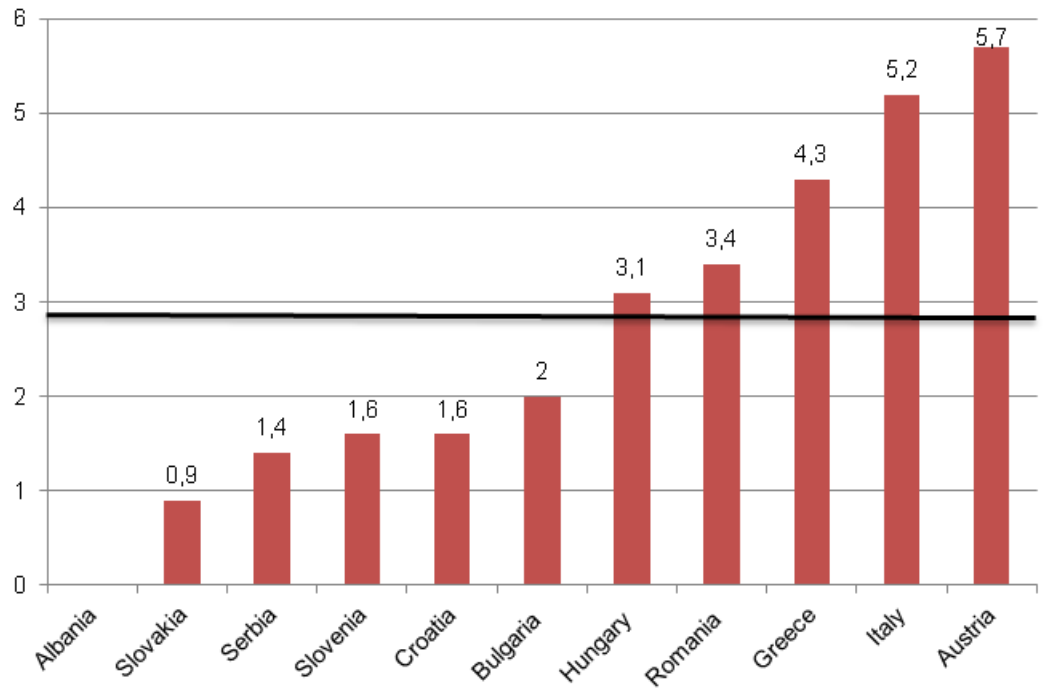
Figure 13: Cluster financing – public and private for each country on average and SEE overall



3.5 Cluster management

Similar to other organisations also cluster can be more and less efficient in their operation. One of such indicators could be also the cluster management staff, but should be checked in a relative way, together with other indicators. This indicator gives relatively little information, except about the people involved in staff management, which means also the accumulated knowledge (and human capital) in each country (acting in a different direction from previous explanation related to efficiency). If we speculate, we can say that probably also the type and structure of financing influences the number of employees in clusters (on average and compared to clusters of similar sizes). From the Figure 14 we can see cluster management staff, where the average value of SEE overall region is 2,9 employees and above this value are the following countries: Romania, Hungary, Italy, Austria and Greece, while Bulgaria, Slovakia, Slovenia, Serbia and Croatia are below the average value of SEE overall region. The highest average of cluster management staff has Austria (5,7 employees), followed by Italy (5,2 employees) and Greece (4,3 employees). While the lowest average of cluster management staff has Slovakia (0,9 employee), followed by Serbia (1,4 employees), Slovenia and Croatia (both 1,6 employees).

Figure 14: Cluster management staff for each country on average*



*Subsequently we have received additional number of 5 completed questionnaire from Romanian clusters and even after comprising in the analysis the additional results, the number has not changed at all (stays 3,4 employees).

REGIONAL / NATIONAL CLUSTER POLICY ANALYSES

4. Regional / national cluster policy analysis

In total we have received 47 questionnaires that were used for further analyses. In following pages we are going to present some general descriptive statistics for selected countries/regions. The analyses consist of tables and figures, including different information about six main cluster development areas: cooperation and networking, financing, sustainability; Innovation, R&D, New skills and Jobs creation, regional specialisation present for each country/region separately. They included Albania, Austria, Bulgaria, Croatia, Greece, Hungary, 3 Italian regions (Emilia Romagna, Marche and Veneto), Romania, Serbia, Slovakia and Slovenia. In certain less developed countries, especially in terms of Clusters and cluster policies, some information is missing.

ALBANIA

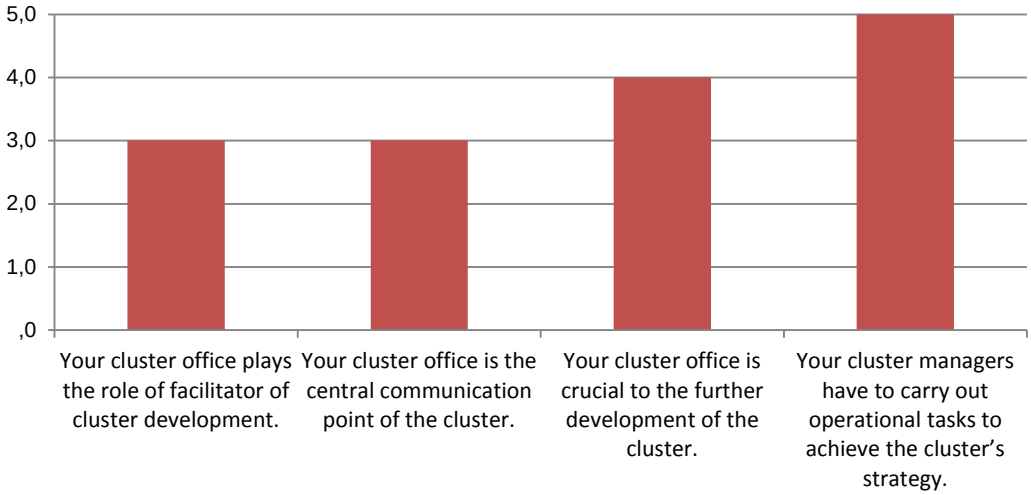

BIH
HRV.
CRNA GORA
KOSOVO
SRB.
Jezero Koman
Skadar
Maja e Korabit 2.764 m
Jadransko more
TIRANA
MAKEDONIJA
Drač
Shkembi Kavajes
Dajti 1.612 m
Berat
Vlore
ITALIJA
Otrantska vrata
Jonsko more
GRČKA
Saranda
Butrint
0 20 40 km
0 20 40 mi

4.1 Albania

4.1.1 Basic information about clusters

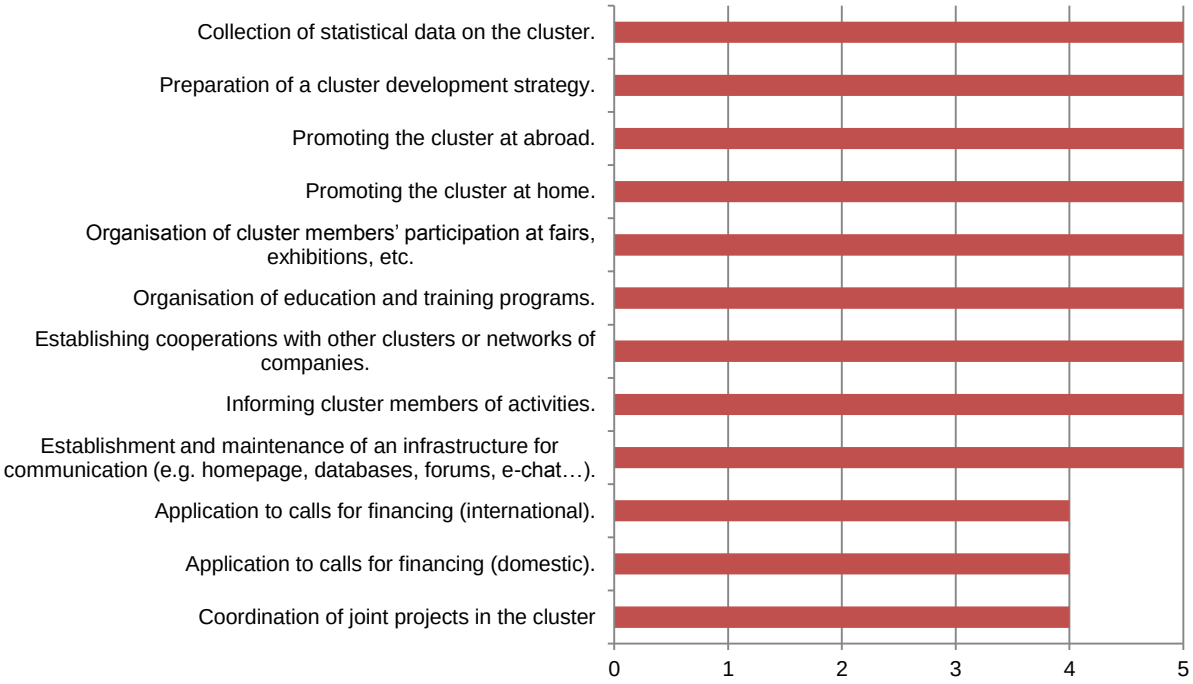
Albania is one of the countries with the shortest tradition of cluster policies and also the cluster managers perform mostly operative tasks instead of strategic ones. We have received just one filled questionnaire from Albanian cluster managers.

Figure 15: The role of the cluster office (1 disagree - 5 fully agree)



The most important role of cluster office is seen in carrying out operational tasks from cluster managers to achieve the cluster's strategy. Other less important roles of cluster office are seen in the role of facilitator of cluster development and the central communication point of the cluster (see Figure 15).

Figure 16: The importance of cluster office in different tasks on average (1 not at all important - 5 very important)



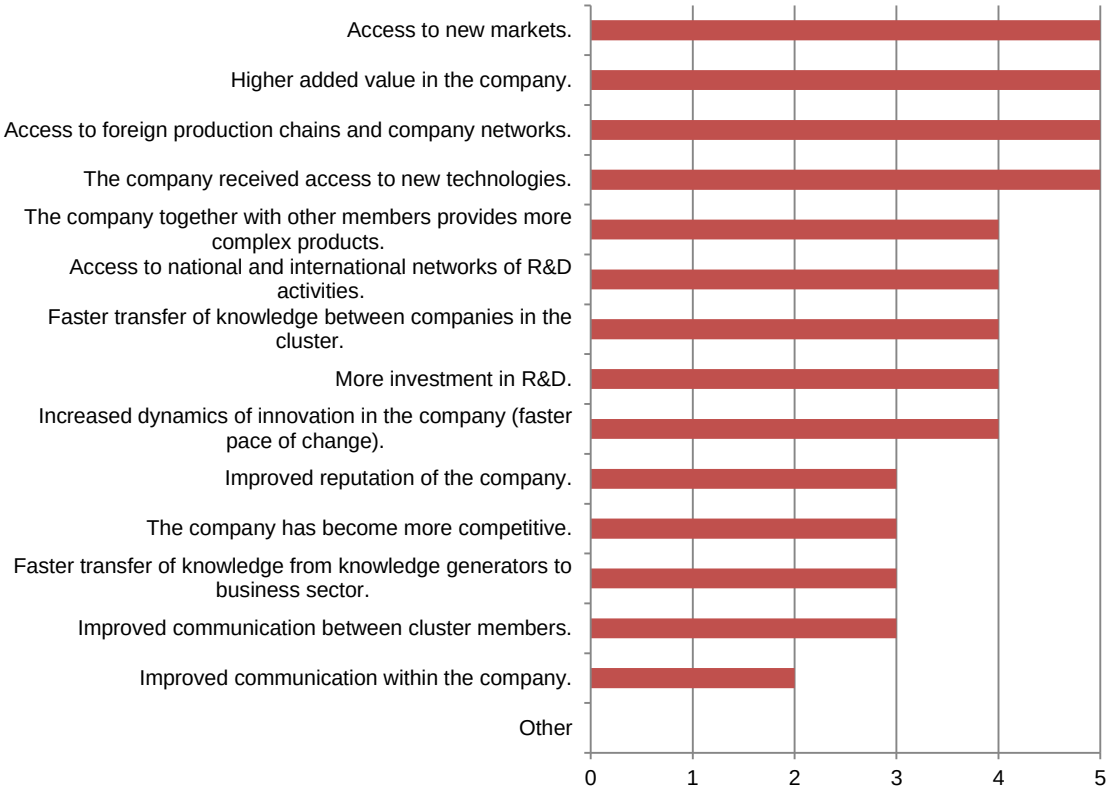
The most important task of cluster office are considered: establishment and maintenance of an infrastructure for communication (e.g. homepage, databases, forums, e-chat…), informing cluster members of activities, establishing cooperation with other clusters or networks of companies, organisation of education and training programs, organisation of cluster members' participation at fairs, exhibitions, promoting the cluster at home, promoting the cluster at abroad, preparation of a cluster development strategy and collection of statistical data on the cluster (Figure 16).

4.1.2 Cluster impact assessment

Following section presents different perspectives of cluster impact assessment, including: added value of membership, key success factors and implementation of cluster activities.

The highest added value of cluster membership from the perspective of cluster organisations is seen in receiving access to new technologies, access to foreign production chains and company networks, higher added value in the company and access to new markets (Figure 17).

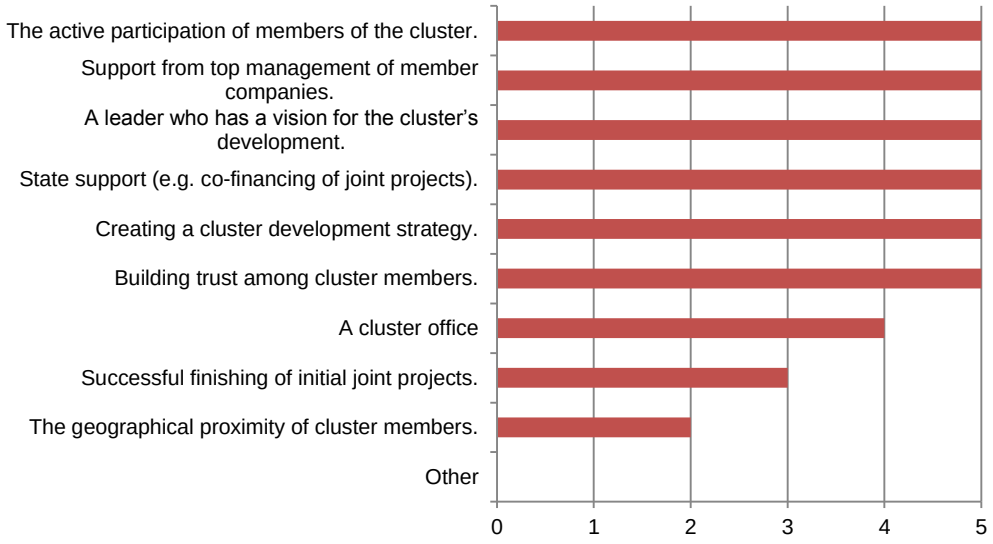
Figure 17: Added value of membership in cluster (1 negligible effects – 5 very strong effects)



From the stakeholder view there is a growing demand for an inclusive production, closed cycle, especially in the textile and agro industry in Albania. There is only one cluster initiative which is still on-going, despite its low profile. It was created with the support of GIZ. Key success factors could be development of a competitive eco-system and creating higher added-value to foster export and support internalization of export competitiveness. Promoters are donors (in education, promotion and facilitation), universities and research centres as well as big/mature firms with high growth or increasing capital.

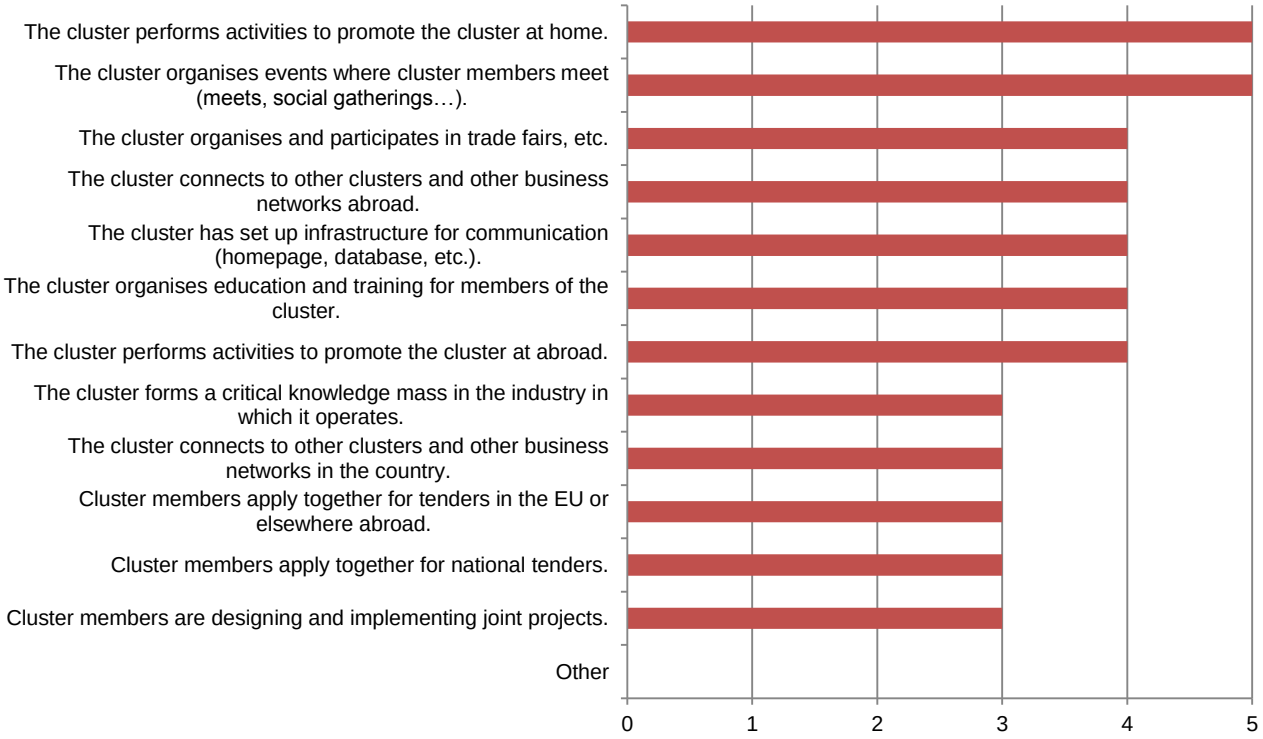
From Figure 18 we can see, that the most important success factor of clusters on average are building trust among cluster members, creating a cluster development strategy, state support (e.g. co-financing of joint projects), a leader who has a vision for the cluster's development, support from top management of member companies and the active participation of members of the cluster.

Figure 18: Key success factors of clusters (1 not at all important - 5 very important)



Fully implemented activities in clusters are organised events where cluster members meet (meetings, social gatherings…) and perform activities to promote the cluster at home **Figure 19**

Figure 19: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

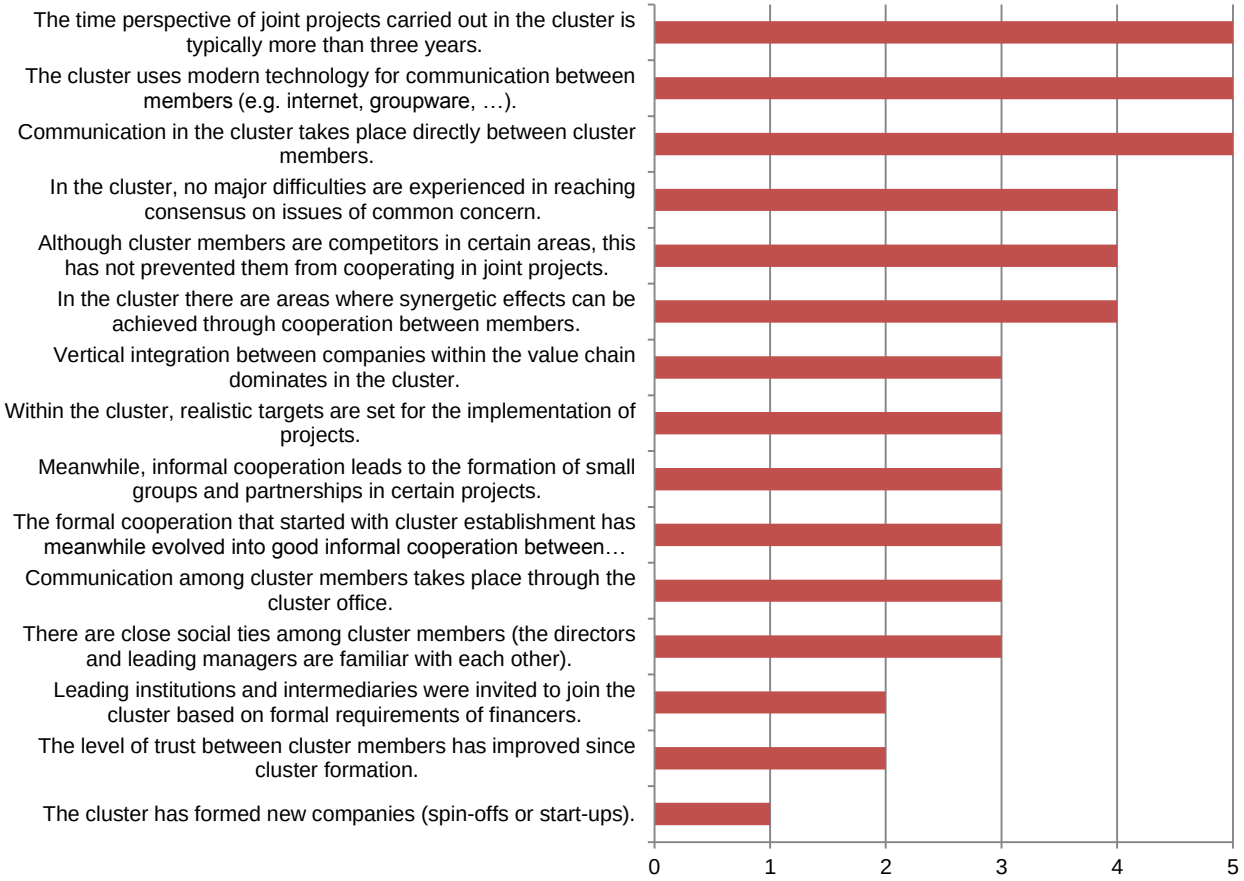


4.1.3 Cooperation and networking

The most common cooperation and networking characteristics, which are communication in the cluster, takes place directly between cluster members, the cluster uses modern technology for communication

between members (e.g. internet, groupware, …) and the time perspective of joint projects carried out in the cluster is typically more than three years. The cluster disagree with the claim that has formed new companies (spin-offs or start-ups). (Figure 20)

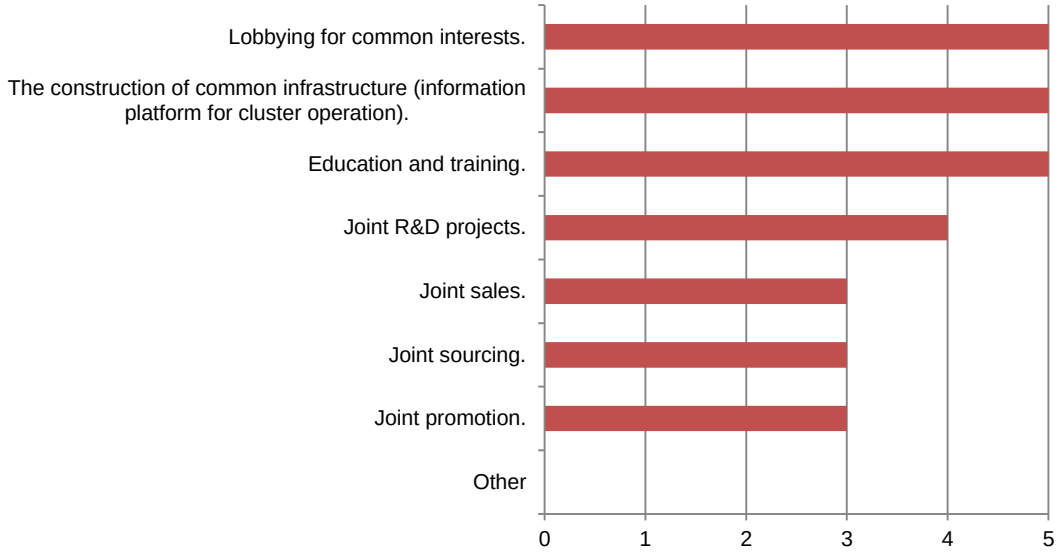
Figure 20: Cooperation and networking characteristics (1 disagree - 5 fully agree)



Areas of cooperation

From the Figure 21 we can see that the most common cluster cooperation areas are education and training, the construction of common infrastructure (information platform for cluster operation) and lobbying for common interests. The cluster itself plans their most intense future activities in the areas of Education and training, Joint R&D projects and lobbying for common interests.

Figure 21: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

The Albanian cluster selects and implements their projects based on proposal od cluster members and their activities. Cooperation in their projects is allowed also to non-cluster members, but they don't have such experiences yet.

The cluster currently has no large companies, consulting institutions, venture capital funds, incubators or technology parks within their member. Their members consist of small innovative companies, companies providing specialized services and educational and research institutions.

4.1.4 Innovation R&D

The Albanian cluster stresses the importance of research, development and innovation, which is evident also from their project activities in the last three years. They elaborated 3 project ideas within the cluster, while 2 of them were even implemented and realised.

Forms of organisation for support of R&D

The analysed cluster knows all concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment, but they are in contact only with other type of business networks in their home country and abroad, while they have carried out and finished a joint project with one cluster in their home country and are in contact with a clusters abroad.

The cluster is actively involved in the preparation and in discussions of the innovation policies on national, while does not participate on regional or EU levels.

4.1.5 Sustainability

The cluster didn't set any objectives related to the support of eco-innovation and does not carry our any activities of this type, therefore they cannot supply any good practices.

4.1.6 Internationalisation

Internationalisation strategy is set as important (nor mentioned how on the scale from 1-5) in the Albanian cluster. The strategy they currently follow includes all listed activities, except cluster offices or representatives abroad. They have participated in the networks of GOPA, studies of needs of the tourism and garment industry related to IT, match-making and round tables for these main sectors.

4.1.7 Financing

The cluster was initially financed by initially by GIZ, now with membership fees, and later they expect it will be financed also through project funding. Cluster membership represents an important source of financing and the fee is fixed; public institutions such as NGOs and universities are exempted from paying. They estimate they would need approximately 47 membership fees to being independently financed from fees. They don't present their current structure of funding, but their ideal structure of financing would be: 40% of own resources, 5% of national/regional funds and 55% of funding from structural and other EU funds. They are also planning to apply in the future for such funds; namely: ERDF, Horizon 2020, Eureka, FP7 and Cordis funds. They expect their financing model of the cluster will consist of Funding from the Structural Funds and other EU-funds, and own resources (brought in by members of the cluster)

4.1.8 Smart Specialisation

Their cluster is not involved in any smart specialisation strategies in their region.

4.1.9 New skills and job creation

The cluster thinks that the objective "new skills and job creation" is very important in regard to their cluster strategy. Their importance is described as "the member companies regularly undergo technical and managerial training and their staff take courses to update and expand their knowledge and skills in the latest technologies of this dynamic sector."

Main implementation activities of new skills and job creation

The cluster strategy implementation activities related to new skills and job creation focuses mostly on Informing cluster members of training and qualification programs for their staff and Organisation of seminars to offer training and education to cluster members' and cluster office' staff, and Support and motivation of young entrepreneurs, while thinks that Promoting the hiring of disadvantaged staff is of least importance (

Table 7).

Table 7: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	5
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	5
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	4
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	3
Awareness-raising concerning the retention of older, qualified staff in the workforce.	3
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	3
Promoting the hiring of disadvantaged staff.	2
Support and motivation of young entrepreneurs.	5
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	4
Involvement in elaborating curricular for high schools and vocational training centres.	4

4.1.10 Barriers and implications for cluster development

From the **stakeholder's perspective main barriers** for cluster development are difficulties in cooperation between Albanian entrepreneurs to cooperate, low awareness for cluster cooperation benefits, low synergy of cooperation between companies (high competition and mistrust for the sake of similar products) and very limited chain added-value, very limited experience with only one existing cluster, lack of facilities and mature associations of nationwide coverage, insufficiency of adequate administrative and human capacities to support and manage cluster development within a specific sector, unreliable in-depth sector economic assessments and studies for specific sector to value feasibility and sustainability of cluster initiatives.

According to stakeholders, barriers could be removed by ensuring financial resources for companies included in the cluster (bank's understanding of cluster's requirements: e.g. financing of cooperative projects involving several companies and institutions), engaging proper human resources as well as trained staff, and removing mistrust between cluster members.

On the other hand the **cluster sees their main barriers** in mistrust between cluster members, lack of knowledge concerning the management of clusters and network structures, and lack of financial resources (Table 8).

Table 8: Main barriers for cluster development

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Mistrust between cluster members.	5
Objections from company owners.	4
Lack of knowledge about clusters and network structures, unfamiliarity.	4
Lack of knowledge concerning the management of clusters and network structures.	5
Lack of support from top management in companies.	4
Lack of financial resources.	5
Lack of human resources.	3
Not-included experts to advice on the development of clusters.	3
We found that clusters do not produce the expected results.	2
The positive effects of clusters are visible only in the long run.	4
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	2
Other	0

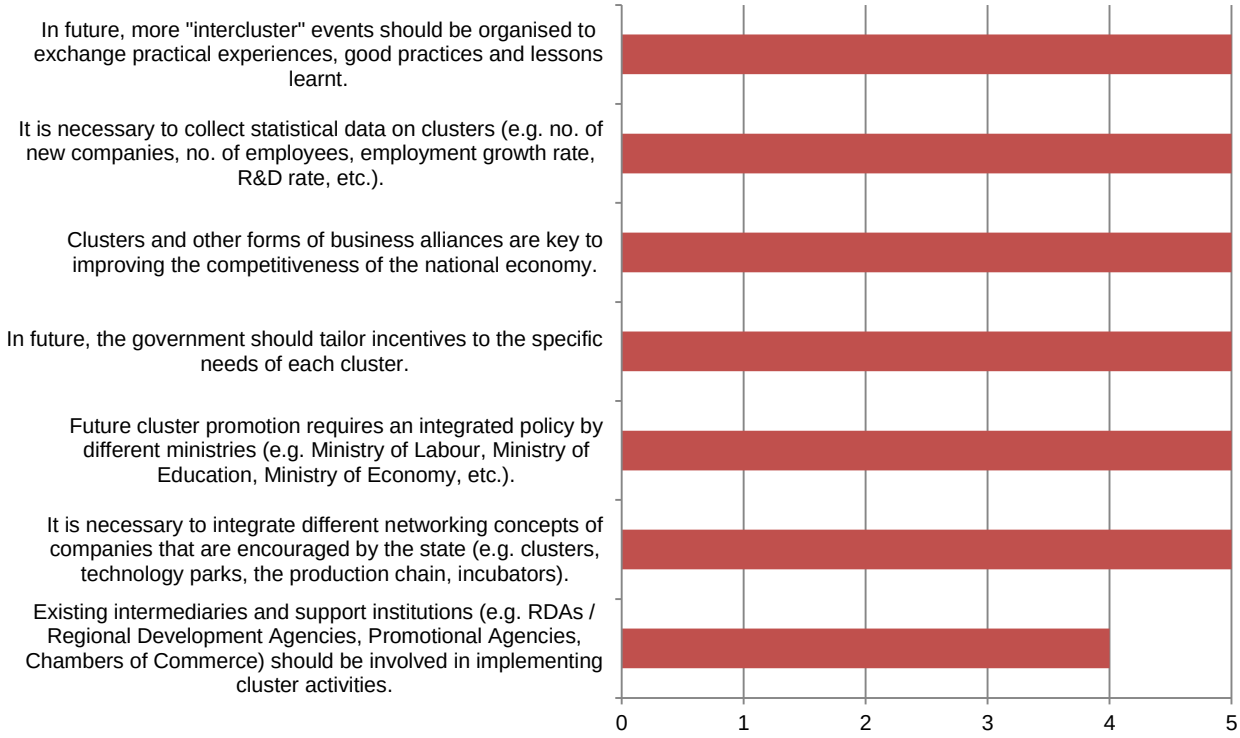
The **biggest challenges from the stakeholder perspective** in the early stages of cluster development are promotion of cooperation between businesses, linking with technological regional infrastructure, and activation of public institutions as moderators in encouraging networking between businesses in common projects. In the later stages of cluster development, public institutions as well as chambers of commerce and businesses associations shall proactively seek for regional cooperation between clusters and technology transfer centres.

The cluster sees their current biggest challenges in access to national and international networks of R&D activities, while biggest future challenge will be further development of the regional economy, business' competitiveness and capabilities in fostering innovation.

Implications for further cluster policy development – cluster perspective

The most important implications for further cluster (policy) development are the claims that it is necessary to integrate different networking concepts of companies that are encouraged by the state (e.g. clusters, technology parks, the production chain, incubators), future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.), in future, the government should tailor incentives to the specific needs of each cluster, clusters and other forms of business alliances are key to improving the competitiveness of the national economy, it is necessary to collect statistical data on clusters (e.g. no. of new companies, no. of employees, employment growth rate, R&D rate, etc.), in future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt. The less important implications is the claim that existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities (Figure 22).

Figure 22: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder/policy marker perspective

Albanian government has approved the Business Innovation and Technology Strategy 2011-2016 with the Decision of Council of Ministers on 09.02.2011. Cluster Programme is an important programme included there and it imposes preparation for cluster initiatives. This programme has envisaged also initial infrastructure and development of other cluster initiatives building on this experience. AIDA is the agency in charge of implementing the strategy and also the cluster programme. They have organised several meetings with business representatives on this initiative.
The role of the state is to involve all potential actors together to facilitate creation of networks that could engage in 1st cluster initiative. In order to increase exports AIDA will support technically and financially the companies within the clusters.

The Albanian Government within the Framework of the National Strategy of Business Innovation and Technology has foreseen the development of the infrastructure necessary, promotion of start-ups through incubators, organisation of cluster events and including clustering in education curricula. The Government has established The Agency for Research, Technology and innovation (ARTI) whose aim is to fund projects in the field of SMEs, as well as transfer, modernization and renewal of their technologies. It also contributes in the establishment of infrastructure and instruments which implement said policies by playing a leading role in the creation of a science and technology culture.

From the stakeholder perspective Albania could consider other regions' experiences in following areas: building capacities in local governments, establishing the legal framework (decentralization and inducing initiatives for management form regional authorities), providing financial support or other financial resources from outside, avoiding or minimising legal conflicts of property issues for fair

competition, ensuring equal and fair dissemination of information by business associations to all contacts, which are concerned to take the opportunity and benefit from the specific initiative. The business Associations should increase their capacities through training in order to promote clustering as a value-added service for the membership fees their members pay.

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- Rötseemoos
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Österreich
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Graz
Villach-Innere
Stadt
Maribor
Slovenija
(Slovenia)
Pécs
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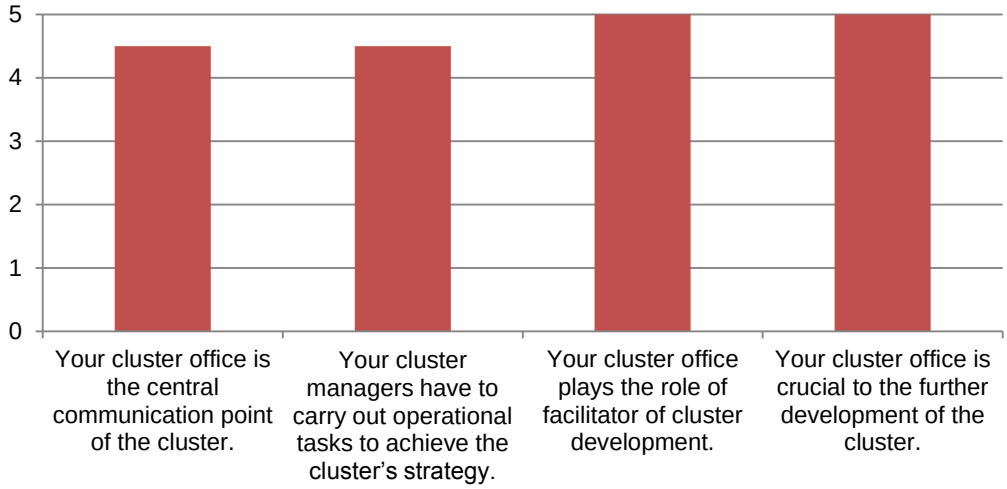
4.2 Austria

4.2.1 Basic information about clusters

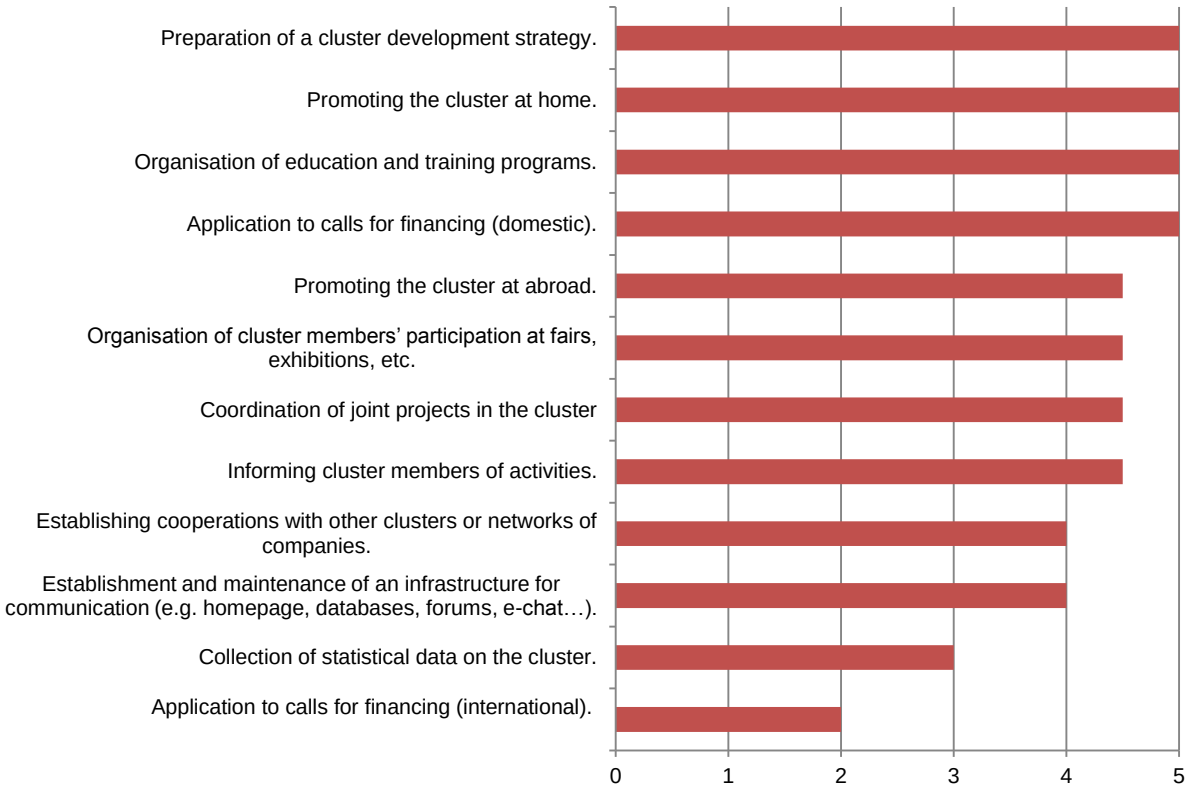
Austria is one of the countries with the tradition of more than 10 years in clusters, and to what we saw from factsheet analysis, also a country with the biggest number of clusters, with the largest number of members. We have received 2 filled questionnaires from Austrian cluster managers.

Figure 23: The role of the cluster office (1 disagree - 5 fully agree)



The most important role of cluster office is seen as cluster office being crucial to the further development of the cluster. While the less important roles of cluster office are seen in the role of carrying out operational tasks from cluster managers to achieve the cluster's strategy and the central communication point of the cluster (Figure 23).

Figure 24: **The importance of cluster office in different tasks (1 not at all important - 5 very important)**



The most important tasks of cluster office are considered: preparation of a cluster development strategy, application to domestic calls for financing, organisation of education and training programs and promotion the cluster at home (Figure 24). The least important tasks are considered application to international calls for financing and collection of statistical data on the cluster. An interesting point is the different importance clusters are giving to domestic versus international call for financing. It seems that the domestic (public) financing is extremely important for them, which is evident also from the share of their financing (see cluster factsheet).

Three most important skills that cluster leaders should possess are: industry competence, strategic outlook, networking skills and knowledge of relevant stakeholders. They are very much in line between the two clusters.

4.2.2 Cluster impact assessment

The highest added value of cluster membership from the perspective of cluster organisations is in receiving access to new markets, followed by goal of clusters to increase competitiveness of companies and increasing their value, as well as facilitators of knowledge transfer, while the lowest added value of cluster membership are improved communication within the company and access to foreign production chain and company networks (Figure 17).

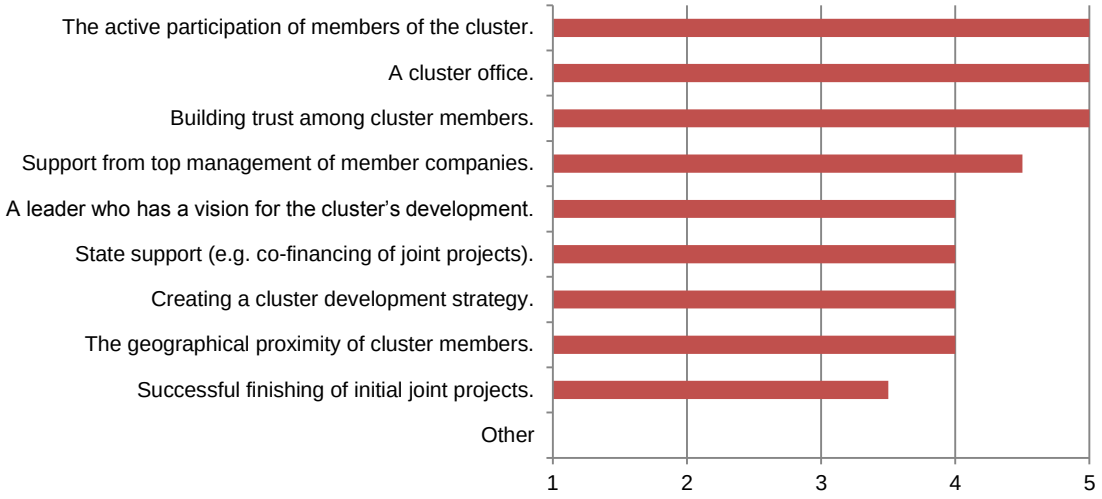
Figure 25: Added value of membership in cluster (1 negligible effects – 5 very strong effects)

From the stakeholder view the key success factors / promoters of clusters are:

- Cluster initiatives that base on existing fields of strength (traditionally strong sectors), relevant research institutions within the region or nearby, and involvement of companies already in the mapping/preparation phase.
- Clear thematic focus and (bottom-up) specialisation in the clusters.
- Cluster development has a tradition of more than 10 years in Austria. By now Austrian companies show a relatively high rate of collaborative product and process innovation activities (51%) according to the Community Innovation Survey 2012 (http://europa.eu/rapid/press-release_STAT-13-5_en.htm).
- Cluster initiatives are well integrated in the Regional Innovation Systems in Austria, strong players and well interlinked with other innovation service providers.

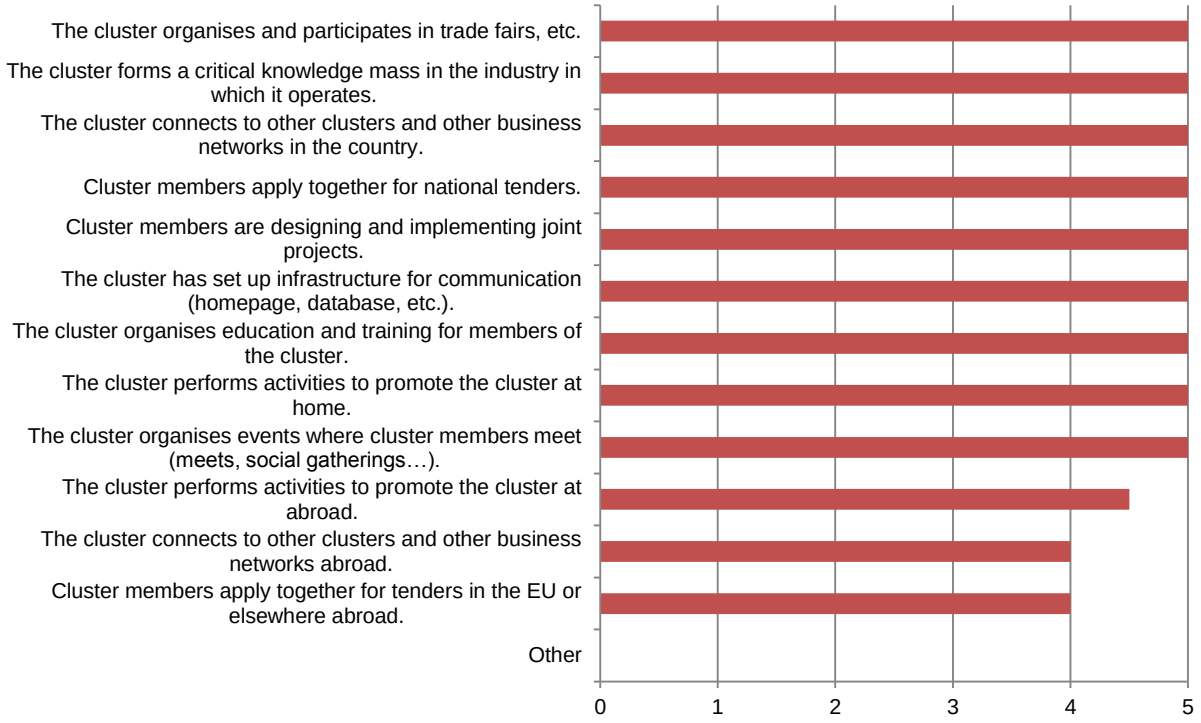
The **most important success factors of clusters are**: building trust among cluster members, a cluster office and the active participation of members of the cluster. While the least important success factors of clusters are: successful finishing of initial joint projects and the geographical proximity of cluster members (Figure 26).

Figure 26: Key success factors of clusters (1 not at all important - 5 very important)



Fully implemented activities in clusters include: organisation of events where cluster members meet (meetings, social gatherings), performance of activities to promote the cluster at home, organisation of education and training for members of the cluster, setting up infrastructure for communication (homepage, database, etc.), design and implementation of joint projects by cluster members, also applying together for national tenders, connecting to other clusters and other business networks in the country, forming a critical knowledge mass in the industry in which it operates and finally organisation and participation in trade fairs, etc. The least implemented activities in cluster include cluster members applying together for tenders in the EU or elsewhere abroad (Figure 27).

Figure 27: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

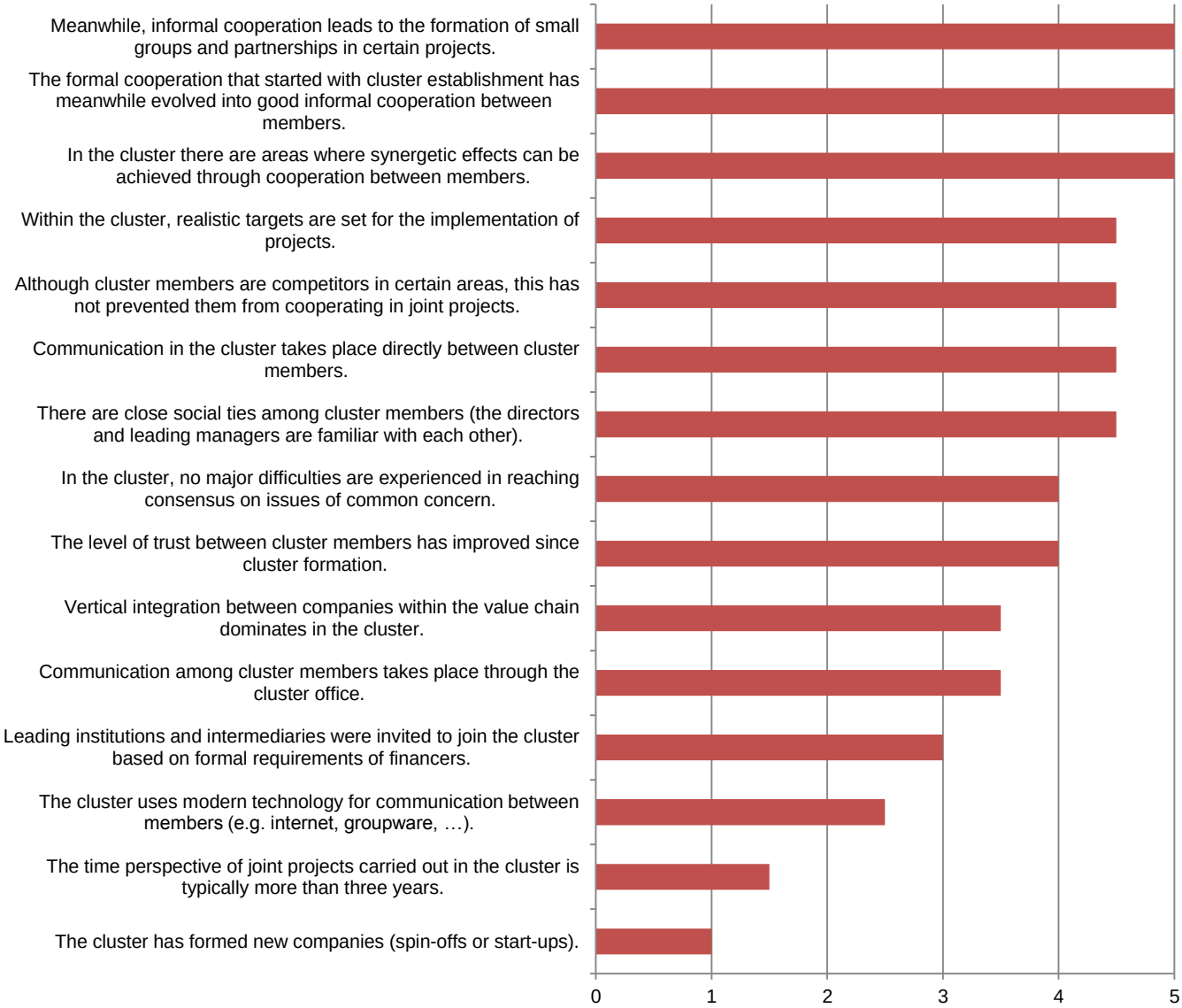


4.2.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristics of Austrian interviewed clusters include: areas where synergetic effects can be achieved through cooperation between members, the formal cooperation that started with cluster establishment has meanwhile evolved into good informal cooperation between members and informal cooperation which leads to the formation of small groups and partnerships in certain projects. The clusters mostly disagree with the claim that has formed new companies (spin-offs or start-ups) (Figure 28).

Figure 28: Cooperation and networking characteristics (1 disagree - 5 fully agree)

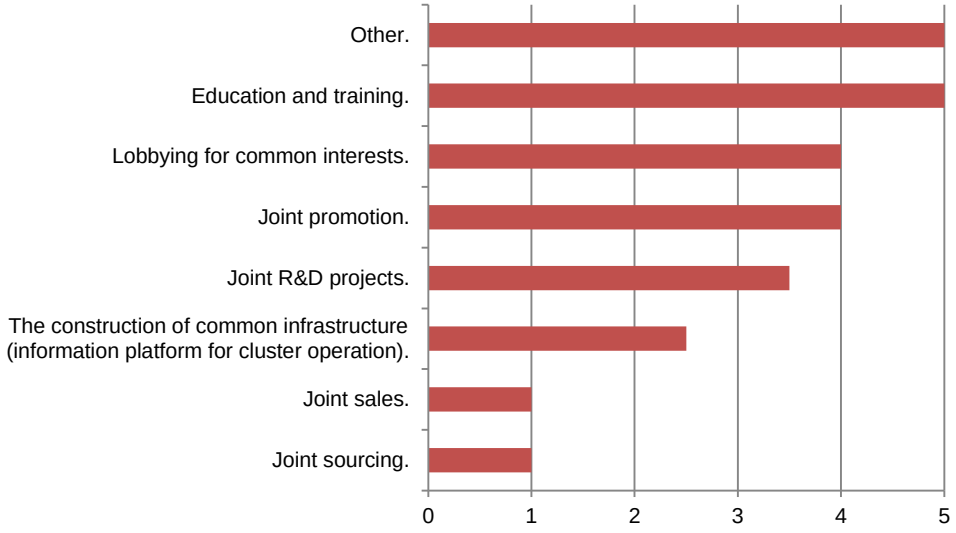


We have also asked the clusters about their frequency of communication with national financer, cluster members and directors of the company members. In Austria clusters communicate on average with the national financer (ministry, state, etc.) at least once a week (M=4), while they on average communicate with cluster members daily (M=5) and they meet the directors of the company members at least once a week (M=4). The prevailing forms of communication are mainly indirectly through the cluster office.

Areas of cooperation

The most common areas of cluster cooperation are education and training. They did not cooperate in joint sourcing and joint sales (Figure 29).

Figure 29: **Areas of cooperation (1 do not cooperate – 5 cooperate a lot)**



In near future Cluster 1 from Austria plans the most activities in following areas from above: education and training, exhibition and fairs, infrastructure and funding, while Cluster 2 plans the most of activities from the areas above in: joint RD&DI projects, joint qualification and non-applicable (n.a.).

Selection of cluster projects and partners

The Austrian cluster 1 selects and implements their projects based on relevance to improve competitiveness, while Cluster 2 selects and implements their projects based on innovativeness, feasibility and relevant consortium. For both clusters cooperation in their projects is allowed also to non-cluster members, both of them have already experienced the presence of companies which are not a member of the cluster, but they have been already involved in joint projects.

Both clusters currently have no venture capital funds. Members in Cluster 1 consist of large companies (more than 250 employees), small innovative companies (less than 50 employees), consulting firms (e.g. legal/financial/tax consultancy, marketing), companies providing specialised services (e.g. IT support, process automation, certification…), educational institutions (e.g. universities, colleges…), research institutions (e.g. institutes, laboratories…), incubators and technology parks. While members in Cluster 2 consist of large companies (more than 250 employees), small innovative companies (less than 50 employees), consulting firms (e.g. legal/financial/tax consultancy, marketing), educational institutions (e.g. universities, colleges…) and research institutions (e.g. institutes, laboratories…).

Cluster 1 believes that it the future will be very important to include in cluster members also large companies, small innovative companies, consulting firms, companies providing specialised services, educational institutions and research institutions, which they already included in their cluster. While

they do not presume venture capital funds, incubators and technology parks neither as very important to include in the cluster and neither as not important. Cluster 2 believes that there is very important to include in the cluster members from large companies, small innovative companies, educational institutions and research institutions, less important for them to include present members from consulting firms and as not needed to be included in the cluster they believe are members from companies, which are providing specialised services, venture capital funds, incubators and technology parks.

4.2.4 Innovation R&D

R&D projects

Austrian clusters on average stress the importance of research, development and innovation, which is evident also from their project activities in the last three years. They have on average elaborated 50 R&D&I project ideas within the clusters, while they have 36 of these ideas implemented within the clusters and 5 of them realised within the clusters.

Forms of organisation for support of R&D

The analysed Austrian clusters both know all concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. Cluster 1 is in contact with technology networks in their home country and also technology networks abroad, they are in contact also with other types of business networks abroad and in their home country. While they have carried out and finished a joint project with clusters in their home country and also with clusters abroad. Finally they are also preparing a joint project with technology parks, centres of excellence, incubators – all of them in their home country and also abroad. Cluster 2 is in contact with technology parks, technology networks and incubators in their home country. They have also carried out and finished a joint project with cluster in their home country and also with clusters abroad. In their home country they have carried out and finished a joint project with centres of excellence. Abroad they are in contact with technology parks, technology networks and centres of excellence, while they have no contact with incubators abroad.

Cluster 1 is actively involved in the preparation and/or public discussions of the innovation policies and instrument creation on regional and national levels, while does not participate on EU levels. On regional level they are involved in membership in regional body, while on national level they are involved in membership in working group on future strategy. Meanwhile Cluster 2 is actively involved in the preparation and/or public discussions of the innovation policies and instrument creation on regional, national and also EU levels. On regional level they are involved in direct communication with departments or regional government and working groups, they are also involved in working groups on national levels and on EU level they are involved in Provision of best practice cases, participation at RegioStars Award.

4.2.5 Sustainability

Cluster 1 did not set any objectives related to the support of eco innovation and does not carry out any activities of this type, therefore they cannot supply any good practices. While Cluster 2 has set objectives with regard to support of eco innovation and their cluster strategy also includes objectives related to eco-innovation.

Activities related to eco innovation

Cluster 1 as we have already written did not set any objectives related to the support of eco innovation and does not carry out any activities related to eco innovation. While Cluster 2 carried out the following activities of eco-innovation: awareness-raising, distribution of information, training, support for introduction of eco-standards and initiation of/participation in eco-R&D projects.

Examples of good practices of eco-innovation

As it has been written a couple of time, Cluster 1 did not carry out, neither set any eco-innovation related activity, while all activities of Cluster 2 (the Greenbuilding Cluster) are related to eco-innovation.

4.2.6 Internationalisation

Internationalisation strategy is set as important (not mentioned how on the scale from 1-5) in both Austrian clusters. Cluster 2 has not an internationalisation strategy, while cluster 1 has it. The strategy they currently follow (Cluster 1) includes the following activities: participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking, participation of companies in international projects and participation of cluster organisation in international projects, except infusion of foreign companies in the cluster and cluster office/representation abroad. They have participated (Cluster 1) in the networks of CEBR and Cluster 2 in Innobyg Denmark; CEEI.

Table 9: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	1
B2B matchmaking.	1
Participation of companies in international projects.	1
Participation of cluster organisation in international projects.	1
Inclusion of foreign companies in the cluster.	1
Cluster office / representation abroad.	1
Other	0

Internationalisation is considered as very important to Cluster 1 and as neither important and neither non important for Cluster 2. Cluster 1 cooperates with CEBR and Cluster 2 with Innobyg Denmark; CEEI.

4.2.7 Financing

Financing structure

Cluster 1 was initially financed by 50% city of Vienna (ZIT – technology agency of city of Vienna) and 50% by the federal government through Austria wirtschaftsservice. While Cluster 2 receives basic funding from the regional Government of Lower Austria co-financed by ERDF (they hope to be continued in the future 2014+), membership fees and service fees. For Cluster 2 cluster membership represents an important source of financing and the average fee is 700,00€, which depends on number of company's employees (from 1 - 3 employees the fee is € 280,00 ; from 4 - 9 employees the fee is € 560,00; from 10 – 50 employees the fee is € 840,00 ; from 51 or more employees the fee is € 1.120,00; for Research & Development (w/o services) the fee is 0,00€). Self-financing is not important goal for Cluster 2, while Cluster 1 has not responded the question regarding the self-financing importance.

Their current structure of funding is: 44% of national funds, 28% other, 13% of own resources (brought in by members of the cluster), 13% of funding from the Structural Funds and other EU-funds and 3% of sponsorships. While their ideal structure of financing would be: 30% of own resources (brought in by members of the cluster), 30% of national funds – REGIONAL, 30% other and 10% of sponsorship (Table 10).

Table 10: Cluster financing structure (current and ideal)

Cluster (incl. activities and projects) financing structure (current - % of total funding)	
Current rate of funding (in total 100 %)	
a) Own resources (brought in by members of the cluster)	13
b) National funds - REGIONAL	44
c) Funding from the Structural Funds and other EU-funds	13
d) Sponsorships	3
e) Other:	28
please specify "Other" (text):	/
Ideal rate of funding (in total 100 %)	
Own resources (brought in by members of the cluster)	30
National funds - REGIONAL	30
Funding from the Structural Funds and other EU-funds	0
Sponsorships	10
Other:	30

Applications for financing

Cluster 1 has not yet carried out any activities/joint projects in the cluster without national/EU financing (i.e. just with member co-financing), while Cluster 2 has already carried out activities/joint projects in the cluster without national/EU financing (i.e. just with member co-financing).

They are also planning to apply in future for such funds; namely: ERDF European Regional Development Fund and PF 7/Horizon 2020 (just Cluster 2, while Cluster 1 has not expressed no tendencies yet).

Ideal financing model

For the future the ideal model of cluster financing which Cluster 1 would propose is mixture of public and private funding, while Cluster 2 would propose to fulfil tasks of public interest implementing regional development and innovation support policy, because it is therefore needed to maintain public funding contribution to the cluster initiative. It is necessary to collect membership fees to guarantee the commitment of cluster members. A 100% self-financing of the cluster initiative is not intended.

4.2.8 Smart Specialisation

Both Austrian clusters are involved in elaborating and implementing (future) smart specialisation in their region.

Characteristics and implementation of smart specialisation

Austrian clusters have expressed as the most important characteristics and implementation of smart specialisation the following statements: the cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies, further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation, the cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.), the cluster is regionally focused and its formation is based on a comprehensive SWOT analysis, the cluster is a key player of the regional innovation system, tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities and good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand. While as the least important statement they have suggested that the cluster primarily addresses the implementation of sectorial strategies.

Table 11: Characteristics and implementation of smart specialisation strategies (1 - not important, 5 - very important)

Characteristics and implementation of smart specialisation strategies	1- Not at all important, 5 - Very important
The cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies.	5
Further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation.	5
The cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.)	5
The cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.	5
The cluster is a key player of the regional innovation system.	5
Tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities.	5
Good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand.	5
The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies.	4
The cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation.	4
How important is it to strengthen cluster members' capability regarding collaboration?	4
In addition, the cluster is an important player of the national innovation system.	4
The cluster primarily addresses the implementation of sectorial strategies.	3

Austrian clusters have expressed by their opinion that **the 3 main relevant topics regarding elaboration of smart specialisation strategies are**: analysis of value chain, SWOT analysis of location (Cluster 1) and analysis: knowledge of the region's SWOT – Monitoring - Flexibility of the regional government to test new instruments / support entrepreneurial discovery expressed by Cluster 2.

Followed by 3 main relevant topics regarding implementation of smart specialisation strategies; has Cluster 1 expressed: monitoring of results, coherence with regional and national strategy and Cluster 2: Diversification of Key enabling technologies - Policy mix – Monitoring. Cluster 1 see their cluster (office) more in designing – other agency implement, while Cluster 2 see their cluster (office) more in implementing (the cluster helps identifying (niche) markets and developing relevant technologies or new adaptations of existing technologies).

4.2.9 New skills and job creation

The clusters think that the objective «new skills and job creation» is very important in regard to their cluster strategy. Their importance is described as «educate start-ups about funding possibilities in the region; promote region abroad to attract investment; helping companies to find investors» (Cluster 1) and as «identifying training needs of companies, setting-up training programmes, supporting the implementation of the training programmes for employees of cluster members. The cluster is not in charge of support for recruiting as well as for education issues» (Cluster 2).

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focuses mostly on Informing cluster members of training and qualification programs for their staff and Organisation of seminars to offer training and education to cluster members' and cluster office' staff. While clusters think that Promoting the hiring of disadvantaged staff, Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff, Awareness-raising concerning the retention of older, qualified staff in the workforce, Carrying out needs assessments to exploit job potentials for the future and support for adequate skills and Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc. are of least importance (Table 13).

Table 12: **Main implementation activities of new skills and job creation on average**

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	4,50
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,50
Support and motivation of young entrepreneurs.	3,00
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	2,50
Involvement in elaborating curricular for high schools and vocational training centres.	2,00
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	1,00
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	1,00
Awareness-raising concerning the retention of older, qualified staff in the workforce.	1,00
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,00
Promoting the hiring of disadvantaged staff.	1,00

4.2.10 Barriers and implications for cluster development

Main barriers for cluster development

From the **stakeholder's perspective the main barriers** regarding cluster development are following difficulties in: lack of human resources, objectives from company owners and lack of knowledge about clusters and network structures, unfamiliarity. The least important barriers seems to be following: founding that clusters do not produce the expected results, lack of knowledge concerning the management of clusters and network structures, bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions) and not-included experts to advice on the development of clusters (Table 13).

Table 13: **Main barriers for cluster development (1 – not relevant, 5 – very relevant)**

Main barriers for cluster development in your country	1- Not relevant, 5 - Very relevant
Lack of human resources.	4
Objections from company owners.	4
Lack of knowledge about clusters and network structures, unfamiliarity.	4
The positive effects of clusters are visible only in the long run.	3
Lack of support from top management in companies.	3
Lack of financial resources.	3
Mistrust between cluster members.	3
Not-included experts to advice on the development of clusters.	1
We found that clusters do not produce the expected results.	1
Lack of knowledge concerning the management of clusters and network structures.	1
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	1

According to stakeholders, barriers could be removed. Successful and proposed solutions referring to the lack of resources of cluster organisations are following:

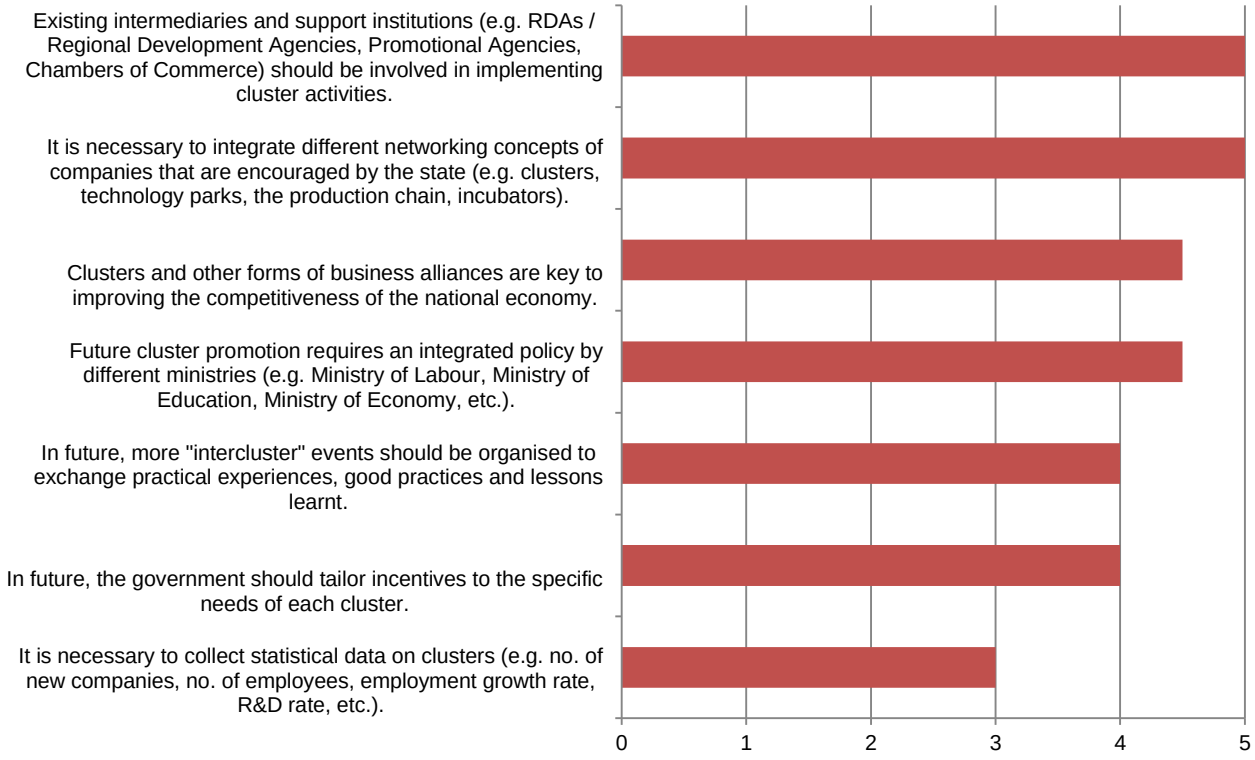
- Join forces through services used by several clusters (back office, PR, international support). Examples in Austria: ecoplus, Clusterland Upper Austria, Standortagentur Tirol, etc.
- Cross-regional cluster initiatives. Examples in Austria: Plastics-Cluster (Upper Austria, Lower Austria, Salzburg), Mechatronics-Cluster (Upper Austria, Lower Austria).
- Joint internationalisation activities. Example: LISA Life Science Austria.

The biggest challenges in clusters in the early stages are seen in building trust, showing success stories (time), identifying the common goals and lack of interest of cooperation in cluster activities by cluster members. While in **later phases of cluster development the biggest challenges in clusters are following:** not enough funds to realise projects, keeping momentum, identifying new topics for innovation and finding strategic international partners.

Implications for further cluster policy development – cluster perspective

The most important implications for further cluster (policy) development on average are the claims that it is necessary to integrate different networking concepts of companies that are encouraged by the state (e.g. clusters, technology parks, the production chain, incubators) and existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities. The least important implication on average is the claim that it is necessary to collect statistical data on clusters (e.g. no. of new companies, no. of employees, employment growth rate, R&D rate, etc.) (Figure 30).

Figure 30: **Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)**



In future clusters suggest the following improvements to promote cluster development: needs based development of a national cluster strategy.

Implications for further cluster policy development – stakeholder/policy maker perspective

From the stakeholder perspective the main areas / topics of cluster policy making where Lower Austria could learn the most from other regions' experiences are:

- Clarification and learning regarding aims and role of cluster policy makers
- Monitoring and evaluation of output and results of cluster initiatives
- How to support cross-sector and cross-regional clustering
- Internationalisation of clusters.

Role of the state in promoting cluster development in certain areas

Clusters have indicated how important is the role of the state in promoting cluster development in certain areas. For the most important roles of states they have indicated the following claims: co-financing of the cluster office, promoting the concept of clusters and network structures in the economy, promotion of research and technological development, promoting the creation of enterprise networks, protecting the environment and internationalisation of clusters. As the least important state roles the Austrian clusters have indicated participation in EU projects, diffusion of information, accessibility for businesses (databases, info-centres…) and help in recruiting.

Table 14: **Role of state in promoting cluster development in certain areas (1- Not at all important, 5 - Very important)**

Role of the state is in promoting cluster development in certain areas	1- Not at all important, 5 - Very important
a) Co-financing of the cluster office.	5
b) Co-financing of joint projects carried out in the cluster.	4
c) Organisation of cluster events.	3
d) Adaptation of existing institutions relevant to the proper functioning of clusters.	3
e) Education in the field of clusters and other network structures.	3
f) Promoting the concept of clusters and network structures in the economy.	5
g) Development of physical infrastructure (esp. telecommunications, transport ...).	3
h) Education and training.	3
i) Promotion of research and technological development.	5
j) Diffusion of information, accessibility for businesses (databases, info-centres…).	2
k) Help in recruiting.	2
l) Promoting the creation of enterprise networks.	5
m) Promoting start-ups and the creation of small businesses (incubators).	4
n) Improving access to venture capital.	4
o) Attracting foreign investment.	4
p) Increasing exports.	4
q) Protecting the environment.	5
r) Supporting eco-innovations.	4
s) Internationalisation of clusters.	5
t) Participation in EU projects.	2

BULGARIA


(Београд)
Craiova
Bucureşti
Călăraşi
Constanța
Србија
(Serbia)
Ruse
(Русе)
Dobrich
(Добрич)
Mangalia
Niš
(Ниш)
Tijabara
(Тијабара)
Varna
(Варна)
България
(Bulgaria)
Burgas
(Бургас)
Kosova
(Kosovo)
Sofia
(София)
Plovdiv
(Пловдив)
Узунбоджак
Македонија
(Macedonia
(FYROM))
Çorlu
İstanbul
Thessaloniki
(Θεσσαλονίκη)
Tekirdağ
İzmit
Bitola
(Битола)
Map data ©2013 Basarsoft, Google

4.3 Bulgaria

4.3.1 Basic information about clusters

The most important role of cluster office is seen as the central communication point of the cluster, while the least important cluster office role seems to be the role of cluster office as facilitator of cluster development, cluster office as crucial to the further development of the cluster and carrying out operational tasks from cluster managers to achieve the cluster's strategy (Figure 31).

Figure 31: The role of the cluster office (1 disagree - 5 fully agree)

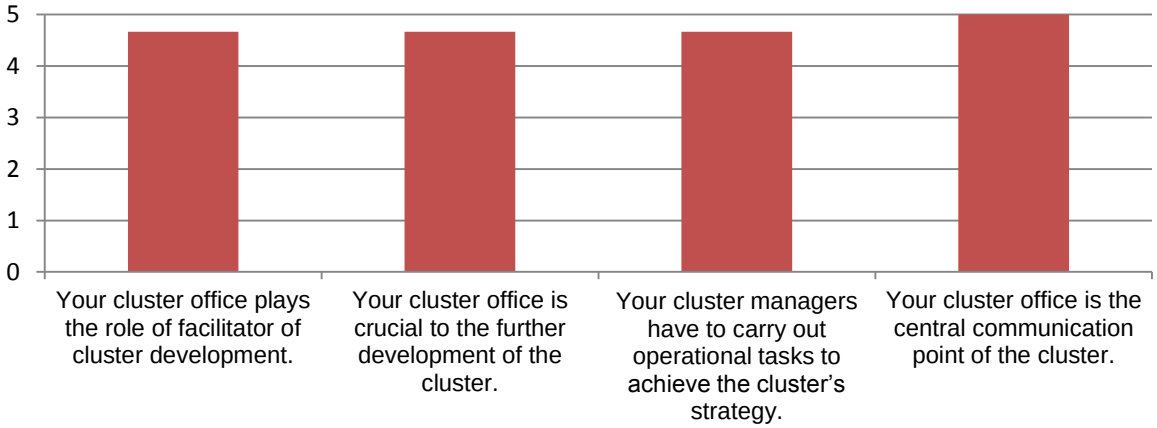
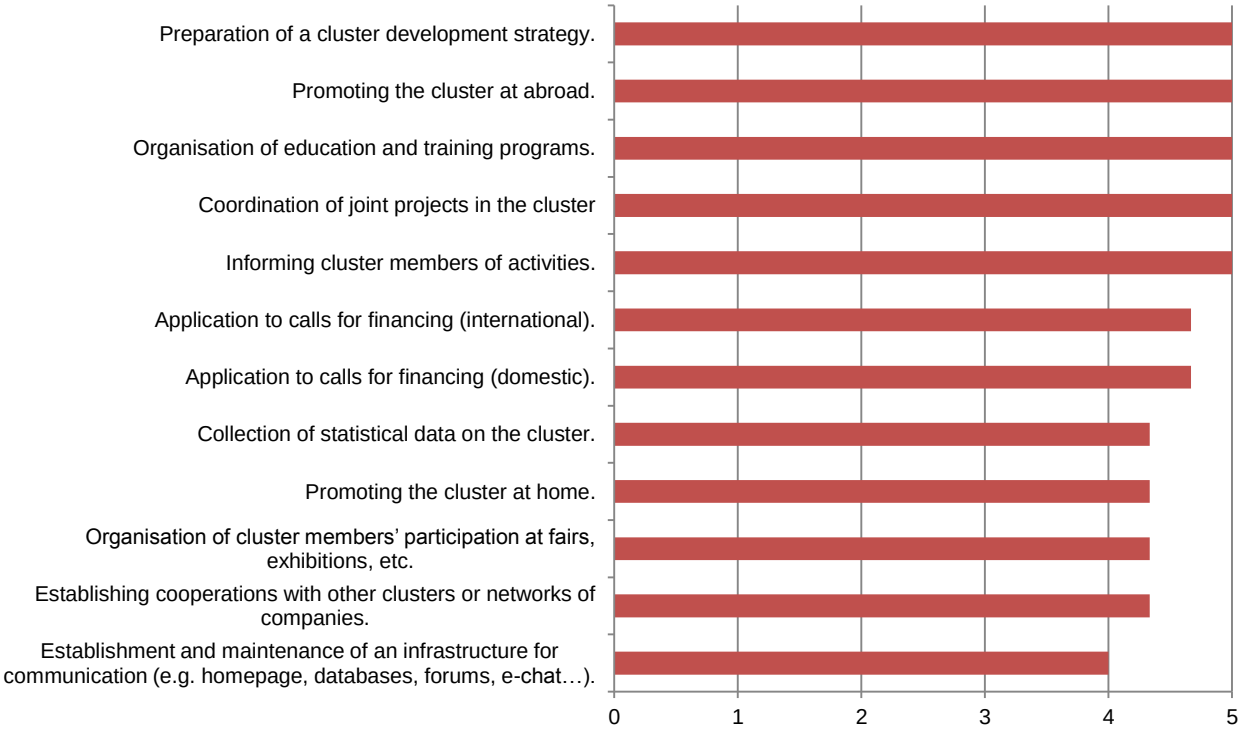


Figure 32: The importance of cluster office in different tasks on average (1 not at all important - 5 very important)



The most important tasks of cluster office are considered informing cluster members of activities, coordination of joint projects in the cluster, organisation of education and training programs, promotion of the cluster at abroad and preparation of a cluster development strategy. The least important task is considered the establishment and maintenance of an infrastructure for communication (e.g. homepage, databases, forums, e-chat…) (Figure 32).

Three most important skills that cluster leader should possess are: being able to prepare cluster development strategy, promote cluster at abroad and have the skills of organizing of education and training programs.

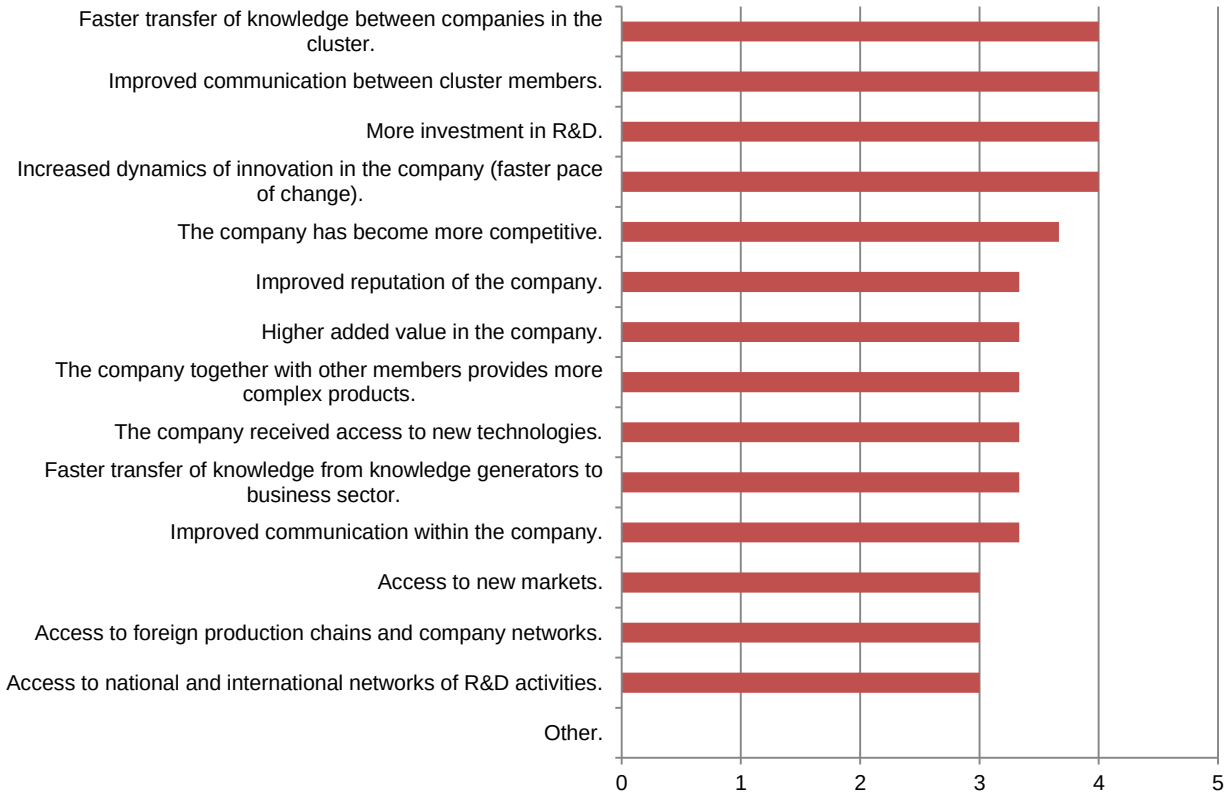
4.3.2 Cluster impact assessment

Following section presents different perspectives of cluster impact assessment, including: added value of membership, key success factors and implementation of cluster activities.

Added value of membership

The highest added value of cluster membership from the perspective of cluster organisations is seen in increased dynamics of innovation in the company (faster pace of change), more investment in R&D, improved communication between cluster members and faster transfer of knowledge between companies in the cluster. The lowest added values are considered: access to national and international networks of R&D activities, access to foreign production chains and company networks and access to new markets (Figure 33).

Figure 33: Added value of membership in clusters on average (1 negligible effects – 5 very strong effects)



From **the stakeholder perspective** one of the key success factors of clusters in Bulgaria is the experience in the application of different clustering programs (since 2002):

- Phare Program – Phase 1 and 2 – pilot programs for cluster;
- The Operational Program "Development of the Competitiveness of the Bulgarian Economy 2007-2013" funded by EU Structural funds – the program supports new cluster`s establishment and the development of the current Bulgarian clusters. There is financial support for development of the administrative body of the cluster, trainings, publicity, participation at fairs abroad, trade missions and etc.
- Operational Program for transnational cooperation "Southt East Europe 2007-2013".

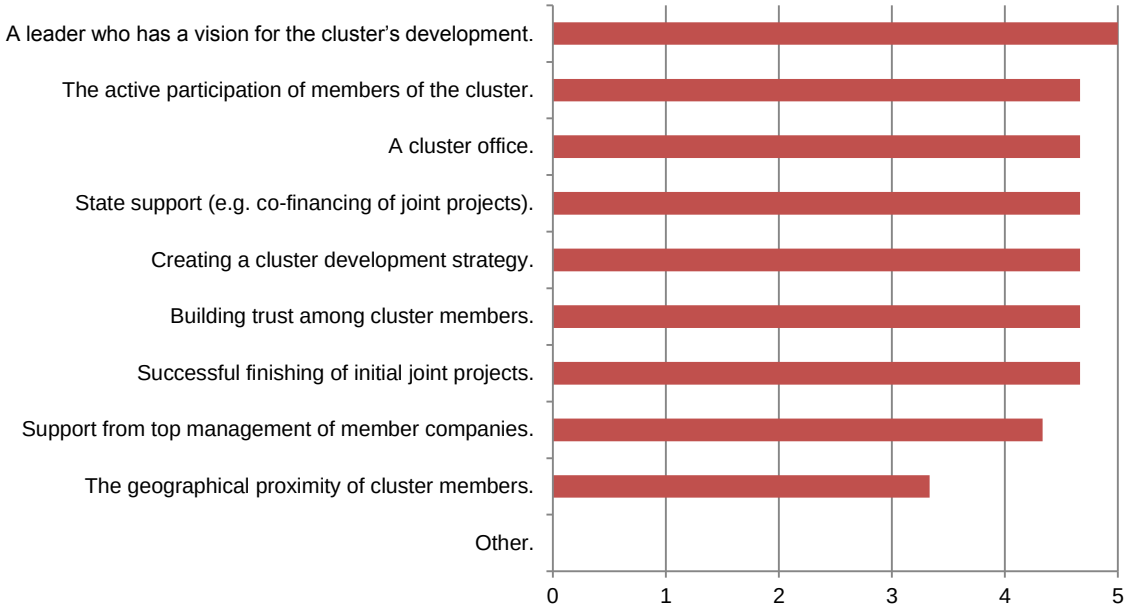
The intensive level of the cooperation between academia and industry should be also mentioned as a progress factor for Bulgaria. Almost all clusters created and developed so far, have as members respective universities or department. The role of the intermediaries is significant in the process of establishment and development the Bulgarian policy towards cluster development. There is a specialised Association of Business Clusters that represents the interests of the clusters, which is also a positive factor for the success of the clusters in Bulgaria.

According to Bulgarian clusters, other key success factors are: the promotion of the clusters in the region and abroad, the geographical proximity of cluster members, the successful finishing of initial joint projects, the leader`s vision of cluster`s development, the active participation of members of the cluster, the common branding, setting up a common infrastructure for communication (homepage, database, etc.) and a cluster office, the participation in trade fairs, the connection to other clusters and business networks in the country and abroad and last but not least state support.

Key success factors

From the figure below (see Figure 34) we can see, that the most important success factor of clusters is a leader who has a vision for the cluster's development, followed by support from top management of member companies, successful finishing of initial joint projects, building trust among cluster members, creating a cluster development strategy, state support, cluster office and the active participation of members of the cluster. As the least important success factors is considered the geographical proximity of cluster members (Figure 34).

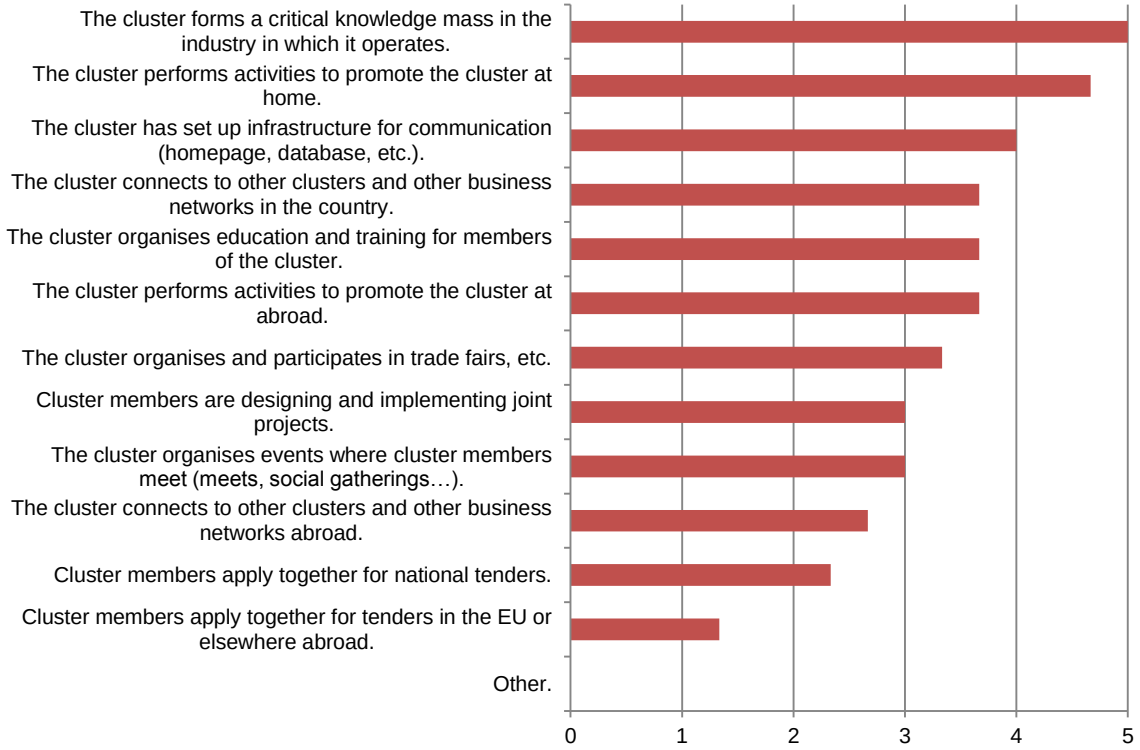
Figure 34: Key success factors of clusters (1 not at all important - 5 very important)



Implementation of activities

Fully implemented activity in clusters is considered when clusters form a critical mass of knowledge in the industry in which it operates. The lowest level of implementation of activities is considered that the cluster members apply together for tenders in the EU or elsewhere abroad (Figure 35).

Figure 35: **Implementation of activities in clusters on average (1 not implemented – 5 fully implemented)**

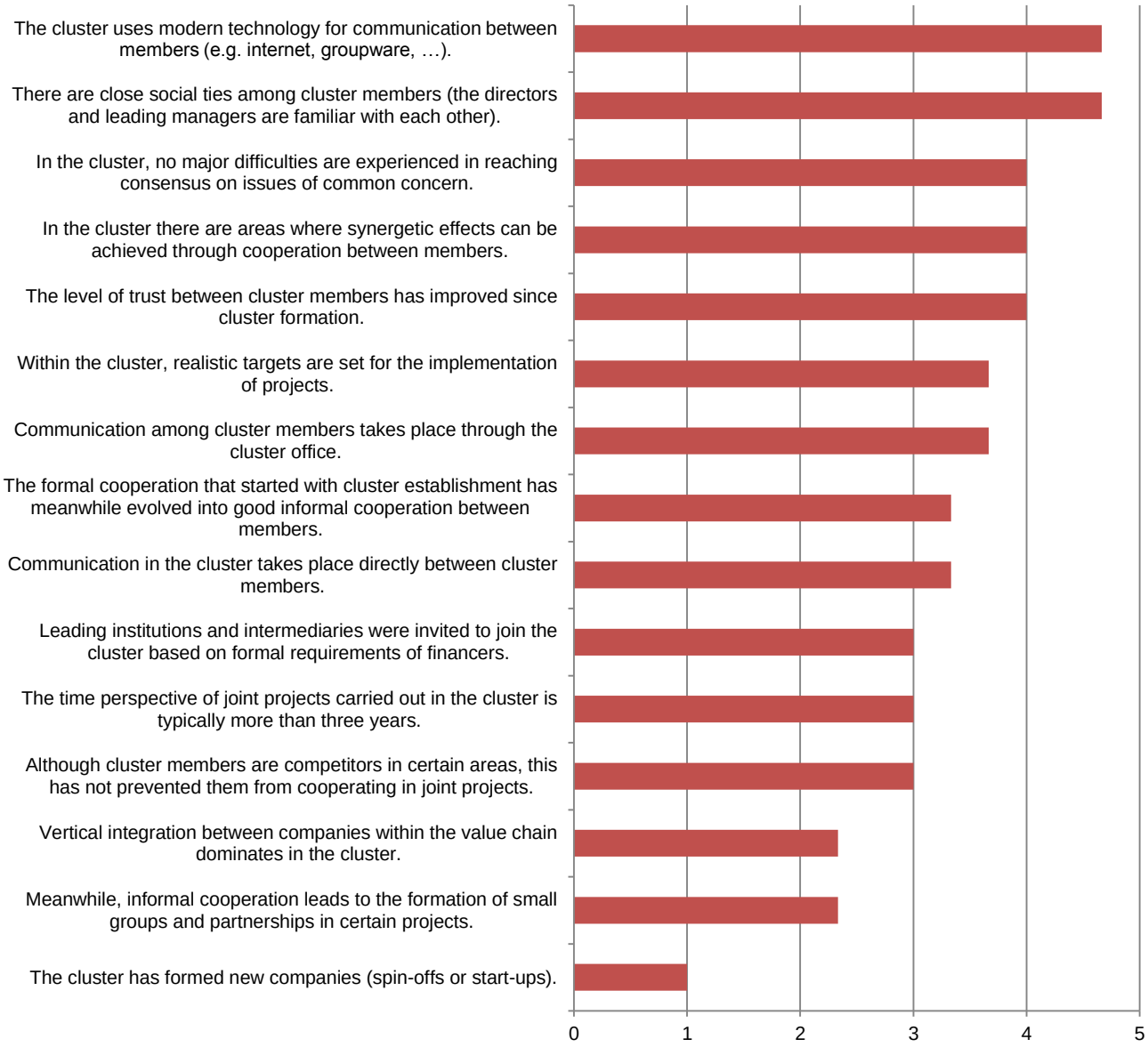


4.3.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristics is the level of close social ties among cluster members (the directors and leading managers are familiar with each other) and cluster uses modern technology for communication between members (e.g. internet, groupware, …). The clusters disagree with the claim that has formed new companies (spin-offs or start-ups) (Figure 36).

Figure 36: **Cooperation and networking characteristics (1 disagree - 5 fully agree)**



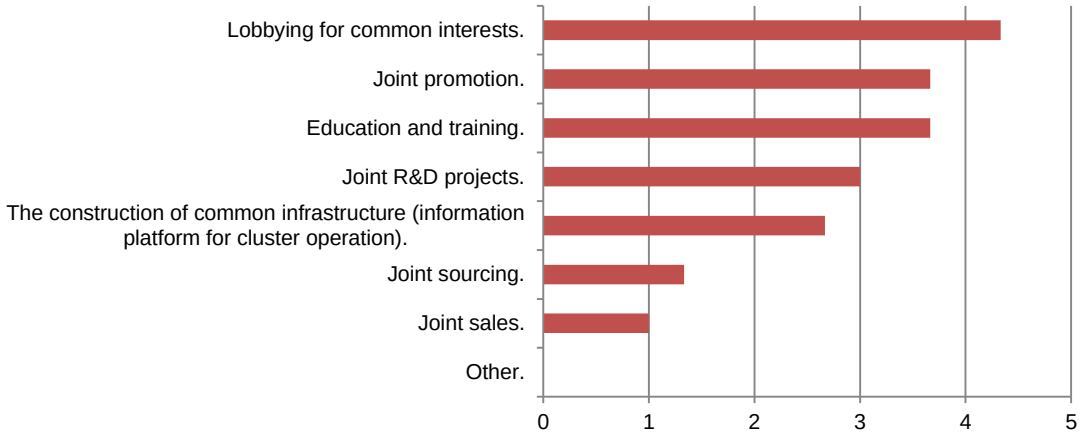
We have also asked the clusters about their frequency of communication with national financer, cluster members and directors of the company members. In Bulgaria clusters communicate on average with the national financer (ministry, state, etc.) at least once a month (M=3), while they on average communicate with cluster members at least once a week (M=4,3) and they meet the directors of the

company members at least once a month (M=2,8). The prevailing forms of communication are following: through e-mails, telephone and office, also directly, depends also on “needs”.

Areas of cooperation

The most common cooperation in Bulgarian clusters is in the area of lobbying for common interests, while the most rarely area of cooperation are joint sales (Figure 37).

Figure 37: **Areas of cluster cooperation (1 do not cooperate – 5 cooperate a lot)**



In near future Bulgarian clusters plan the most activities in following areas from above: joint contracting and joint marketing, expansion of the Cluster, software for the Cluster, Research and Development, education and training, joint promotion and also sales, lobby for infrastructure and joint R&D projects.

Selection of cluster projects and partners

The Bulgarian clusters select and implement their projects based on common discussion and ideas, comparison with other Maritime States, some of them according to the strategy and priorities and also resources required. The responses also included those that create more business – can improve productivity and management skills and create network with other clusters, while their selection and implementation also depends of interest of companies comes first, financial gain and priorities of Cluster.

Cooperation in their projects is allowed also to non-cluster members, except in one cluster. The ones who allow the cooperation in their projects also to non-cluster members have already been involved in their projects non-cluster members.

The clusters on average have no venture capital funds and technology parks within their members. Their members consist of small innovative companies, educational institutions, large companies and companies providing specialized services (e.g. IT support, process automation, certification, …). In future they believe that is very important to include (following by importance order): small innovative companies (less than 50 employees) and educational institutions (e.g. universities, colleges,…), followed by research institutions (e.g. institutes, laboratories…), other (NGOs), large companies (more

than 250 employees) and companies providing specialised services (e.g. IT support, process automation, certification…), technology parks and venture capital funds. Less important to include in their clusters seems to be consulting firms (e.g. legal / financial / tax consultancy, marketing…) and the least important for Bulgarian clusters are incubators.

4.3.4 Innovation R&D

R&D projects

The Bulgarian clusters stress the importance of research, development and innovation just in 2 clusters, while not in the other 2. In the last three years they have elaborated 4,5 of R&D&I projects ideas within the cluster, while 3 of these R&D&I project ideas they have implemented within the cluster and 1,5 of these ideas they have realised within the cluster.

Forms of organisation for support of R&D

The analysed clusters know all concepts of organisation that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment, but they are in contact in home country with clusters (1), technology networks (2), centres of excellence (2), incubators (2) and other types of business networks (3), while some of them are not. Some of them are also carrying out/have finished a joint project with the home country clusters (3), technology networks (1), technology parks (1) and incubators (1), while some of the Bulgarian cluster are preparing a joint project with technology parks (1). Some of Bulgarian clusters have no contact with technology parks (1), incubators (1) and centres of excellence (2). Abroad the cluster are in contact with clusters (1), technology parks (2), technology networks (2), centres of excellence (2), incubators (2) and other types of business networks (3). They are carrying out/have finished a joint project with clusters abroad (3) and technology networks (1), while they are preparing a joint project with technology networks (1).

The clusters are actively involved in the preparation and in discussions of the innovation policies on national level (3) and regional level (1), while again just 1 cluster participate on EU level. On regional level they use a communication channel through contact with municipalities, on national level they are connected with World Bank meetings. They are also included in membership of different bodies (invitation to different meetings), council under the Presidency MEET, MT4TC and FP7 – CAF application.

4.3.5 Sustainability

The clusters did not set any objectives related to the support of eco-innovation and do not carry out any activities of this type (just 2 of 4 do), therefore they cannot supply any good practices, while one cluster is primarily focused on sustainability/eco-innovation and therefore carries out a wide range of activities related to eco-innovation.

Activities related to eco innovation

Not all Bulgarian clusters set objectives related to the support of eco innovation and did not carry out activities related to eco innovation. Two clusters of 4 have carried out awareness-raising activities of eco-innovation, 3 of them distribution of information, training, just one cluster support for introduction of

eco-standards, while 2 of them support for investments to improve eco-friendliness and 2 of 4 initiation of/participation in eco-R&D projects. At last one cluster has also carried out extended life cycle standards.

Examples of good practices of eco-innovation

Implemented good practices by Bulgarian cluster are following: Extended life cycle standards, changes products, 10-year programme started – Parking of Electro-Vehicles for free, zero taxes and financial stimulation. While one cluster has written, they have not yet written any strategies, but they follow their ambitions towards eco-innovation.

4.3.6 Internationalisation

Internationalisation strategy is considered as very important (not mentioned how on the scale from 1-5) for the Bulgarian clusters. All the Bulgarian clusters have and follow their internationalisation strategies. The strategy they currently follow includes all listed activities. They have already cooperated with the foreign clusters/networks/companies of Serbian Furniture Cluster, Turkish Clusters, CBC Romania/Bulgaria, Lower Austria Holz Cluster, FP7 application, EU Maritime Cluster Networks, Ministry of Transport via French, Coralline Cluster (Greece), ICT Cluster – Bern, Research Centre – Izmir, Turkey, Serbia – ICT, Romania – ICT and one cluster has expressed they have not yet cooperated but they are preparing documents with Dutch, Serbia and France.

Table 15: **Main activities contained in internationalisation strategy**

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	4
B2B matchmaking.	4
Participation of companies in international projects.	4
Participation of cluster organisation in international projects.	4
Inclusion of foreign companies in the cluster.	4
Cluster office / representation abroad.	3
Other: (Education: Erasmus / Young Entrepreneurs, Joint international tendering)	2

Their main activities contained in internationalisation strategy are: participation of companies in international events, trade fairs, study visits, B2B matchmaking, participation of companies in international projects, participation of cluster organisation in international projects and inclusion of foreign companies in the cluster. The least important activity in internationalisation strategy of Bulgarian clusters is considered cluster office/representation abroad (Table 15).

4.3.7 Financing

The clusters were initially financed by Lead company, via Cluster Grant Scheme, partly CGS and partly projects. In future they expect to be financed by Cluster Grant Scheme, via fees and paid services, services to companies and other clients.

On average membership fee of the clusters amount is 190,10 € (*1BGN = 0.51034 EUR*). The lowest membership fee in all Bulgarian clusters was 122,38 €, while the

highest membership fee was 510,34€. The above amount is a flat rate in one cluster, in another is not applicable (in sense that the above amount of fee does not change related to company size etc.) and in another cluster depends on company size (their exception is Luk-Oil: 4000BGN = 2.041,37EUR). For all Bulgarian clusters self-financing is an important goal. Two clusters have responded that they should have in their cluster from 20-30 members to be independently funded (funded with membership fees). While in this precise moment three clusters have responded and believe that they would be moderately capable of self-financing.

Financing structure

Bulgarian clusters are mainly financed by funding from the Structural Funds and other EU-funds (38%) and own resources (35%), followed by national funds – REGIONAL (13%), sponsorships (8,8%) and other (5%). In future their ideal rate of funding would be: own resources (35%), funding from the Structural Funds and other EU-funds (26,3%), other (23,8%), national funds - REGIONAL (8,8%) and sponsorships (6,3%) (Table 16).

Table 16: **Financing cluster structure**

Current rate of funding (in total 100 %)	
Own resources (brought in by members of the cluster)	35,0
National funds - REGIONAL	13,0
Funding from the Structural Funds and other EU-funds	38,3
Sponsorships	8,8
Other:	5,0
please specify "Other" (text):	/
Ideal rate of funding (in total 100 %)	
Own resources (brought in by members of the cluster)	35,0
National funds - REGIONAL	8,8
Funding from the Structural Funds and other EU-funds	26,3
Sponsorships	6,3
Other:	23,8
please specify "Other" (text):	/

All Bulgarian clusters also carry out activities/joint projects in the clusters without national/EU co-financing (i.e. just with member co-financing).

Applications for financing

All of the Bulgarian clusters are planning to apply for EU funding in 2013/2014 (from the Cohesion Funds, Horizon 2020, COSME, etc.) – 3 of them have responded for sure and one cluster possibly. We can see in Table 16 that they are all going to apply for funding to CF Cohesion Fund and just 1 cluster is going to apply for funding to ERDF European Regional Development Fund and ESF European Social Fund (Table 17).

Table 17: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
CF Cohesion Fund	4
ERDF European Regional Development Fund	1
ESF European Social Fund	1
EAFRD European Agricultural Fund for Rural Development	2
EMFF European Maritime and Fisheries Fund	3
FP 7 / Horizon 2020	3
COSME	2
EUREKA	2
Other	0

Ideal financing model

The ideal financing model for Bulgarian clusters would be: 50% membership fees – 50% project financed, plus paid services (expressed by one cluster), self-financing via fees and services (1 cluster), in 2 years – sales to overtake other Grants/Awards etc. (1 cluster) and project based only (different companies in R&D projects), clusters to be able to apply for projects on behalf of the group of companies (1 cluster). We can see that the goal of all 4 clusters is mainly to lead and carry on projects/different services and also be funded from membership fees.

4.3.8 Smart Specialisation

Characteristics and implementation of smart specialisation

All 4 Bulgarian clusters are involved in elaborating and implementing (future) smart specialisation strategies in their region. And they have expressed their agreement and belief that strengthening cluster member's capability regarding collaboration is very important for smart specialisation strategy and also as very important for smart specialisation strategy they feel that cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation. As the least important they feel the cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.), followed by statement that tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities.

Table 18: **Characteristics and implementation of smart specialisation strategies**

Characteristics and implementation of smart specialisation strategies	1 - Not important, 5 - Very important
How important is it to strengthen cluster members' capability regarding collaboration?	4,8
The cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation.	4,8
The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies.	4,0
Good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand.	3,8
The cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies.	3,5
Further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation.	3,5
The cluster primarily addresses the implementation of sectorial strategies.	3,3
In addition, the cluster is an important player of the national innovation system.	3,0
The cluster is a key player of the regional innovation system.	3,0
The cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.	3,0
Tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities.	2,8
The cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.)	2,3

The 3 main relevant topics regarding **elaboration of smart specialisation strategies according to Bulgarian clusters are:** the needs of the market, sectoral competitive advantages and world trends, while the other cluster has proposed other three similar main relevant topics regarding elaboration of smart specialisation strategies: competitive advantages, investing in R&D and innovation, SMEs developing priorities.

The 3 main relevant topics regarding **implementation of smart specialisation strategies** according to the Bulgarian clusters are following: collaboration between companies, support from the state and awareness raising; national strategy comes first and local engagement; preparation of good SWOT analyses, existence of S3 National R&D strategy and preparation of stable financial framework.

The Bulgarian clusters see their cluster (office) in the role of implementation of sectoral competitiveness (1 cluster), as a leader in the S3 + automotive industry (as implementing the region smart specialisation strategy and also as designer – 1 cluster), at last 1 cluster sees its role in part of preparation of Strategy, but needs the right "growing medium".

4.3.9 New skills and job creation

Clusters think that the objective «new skills and job creation» is important in regard to their cluster strategy. Their importance is described and regards mainly university partnerships, collaboration with technical Schools, communication with Ministry of Education and participation in working groups.

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focuses mostly on promoting incentives for young entrepreneurs to take-up learning opportunities, coaching and on

involvement in elaborating curricular for high schools and vocational training centres. While they think that offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc., awareness-raising concerning the retention of older, qualified staff in the workforce and informing of the potential of immigrant staff as well as assisting and supporting immigrant staff are of least importance (Table 19).

Table 19: **Main implementation activities of new skills and job creation**

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Involvement in elaborating curricular for high schools and vocational training centres.	3,8
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	3,3
Support and motivation of young entrepreneurs.	3,5
Informing cluster members of training and qualification programs for their staff.	3
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	2,8
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	2
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	1
Awareness-raising concerning the retention of older, qualified staff in the workforce.	1
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1
Promoting the hiring of disadvantaged staff.	1

4.3.10 Barriers and implications for cluster development

Main barriers for cluster development

On the other hand clusters see the main barriers in bank financing (lack of understanding of cluster's requirements - e.g. financing of cooperative projects involving several companies and institutions), mistrust between cluster members and lack of knowledge about clusters and network structures, unfamiliarity, followed by lack of knowledge concerning the management of clusters and network structures, the positive effects of clusters which are visible only in the long run. The least important barrier seems to be lack of human resources (Table 20).

Table 20: **Main barriers for cluster development**

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	4,8
Mistrust between cluster members.	4,5
Lack of knowledge about clusters and network structures, unfamiliarity.	4,5
Other	4,5
Lack of knowledge concerning the management of clusters and network structures.	4,3
The positive effects of clusters are visible only in the long run.	4,3
Objections from company owners.	3,8
Lack of financial resources.	3,8
We found that clusters do not produce the expected results.	3,3
Lack of support from top management in companies.	3
Not-included experts to advice on the development of clusters.	3
Lack of human resources.	2,8

Bulgaria is in the initial phase of clustering and there is no sufficient experience in the implementation of long term policies and support measures in this area. The Cluster development is not a priority of Bulgaria. There is a cluster strategy, developed in 2006 (in a draft version), that is appropriate for the creation and establishment of clusters in Bulgaria. Nowadays it should be reviewed, updated and it should be put in action.

The national and regional innovation programmes do not include measures aiming to support cluster formations and their development. The financial resources for promotion and internationalisation of clusters in Bulgaria are not properly focused –there are low funding mechanisms for them. There is only one program for cluster development. Its financial support is low, and not appropriate for development of experienced clusters. There is no direct financing of cluster members. The SME could apply directly to the OP Competitiveness for financing.

The lack of clusters focused policy for internationalisation of clusters, the absence of professional skills and competences of employees in the clusters are real barrier for their competitiveness on the European and international markets. There are some typical Cluster development barriers in Bulgaria such as low level of strategic vision, limitations of published data, resistance to change and take risks, no clear governance, absence of evaluation culture and lack of private investors, fragmentation of public support activities, etc. Another barriers to learning from past actions in our region are lack of ethical behaviour, poor quality standards that compromised the Cluster`s tender, different business models and inability to attract foreign investments.

According to the stakeholders barriers could be removed by:

- Increasing the awareness among entrepreneurs of the advantages to join clusters and create networks.
- Creating information data-base for existing clusters and networks. Establishment of a National Contact Point is a good measure to address the two issues above.
- Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).

- Clusters do not fit into existing structures/Laws.

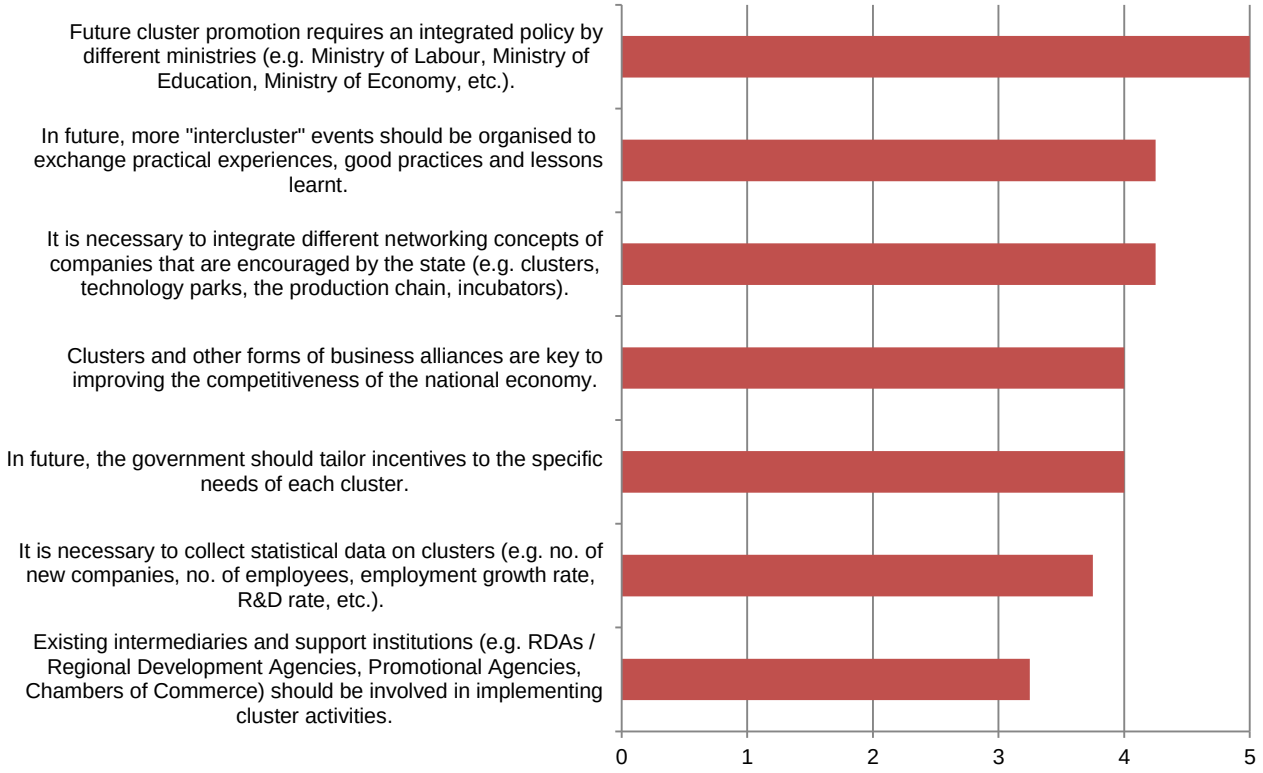
Access to financing is very essential issue for clusters development. Many opportunities are presented through the Structural Funds however, since the legal status of the clusters is indefinite, they are somehow limited. There should be a legal framework for the clusters units.

Biggest challenges in clusters in the early stages are seen in building trust, showing success stories and identifying the common goals, and in **later phases of cluster development in** carrying out successful projects, win-win projects, expansion of members (including variety of members) and self-sustainability.

Implications for further cluster policy development

The most important implications for further cluster (policy) development is that future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.). The least important implications is that existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities.

Figure 38: **Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)**



The following suggestions for improvements to promote cluster development in the future from clusters are:

- capacity building of relevant agencies and more use of external expertise;
- as a first step to increase the number of cluster promotional events and meetings with potential new members and local and national authorities. As a second step clearly stated cluster policy by the national authorities. And as a last step - amendments in working rules on operational

programs, enabling access of the clusters to programs for internationalisation and promotion of the Bulgarian economy.

From the stakeholder perspective the most important role of the state in promoting cluster development is in areas of:

- Adaptation of existing institutions relevant to the proper functioning of clusters.
- Education in the field of clusters and other network structures.
- Promoting the concept of clusters and network structures in the economy.
- Development of physical infrastructure (esp. telecommunications, transport ...).
- Attracting foreign investment.
- Increasing exports.
- Protecting the environment.
- Participation in EU projects.
- Internationalisation of clusters.

While less important role of the state in promoting cluster development is in the following areas: co-financing of joint projects carried out in the cluster, promotion of research and technological development, education and training, diffusion of information, accessibility for businesses (databases, info-centres…), improving access to venture capital, promoting the creation of enterprise networks, supporting eco-innovations, co-financing of the cluster office, promoting start-ups and the creation of small businesses (incubators), organisation of cluster events and **the least important role of the state in promoting cluster development is in area** – help in recruiting.

From the **stakeholder perspective the main areas / topics of cluster policy making where Bulgaria could learn the most from other regions' experiences** are:

- Development of regional S3 strategy.
- Development of cluster strategy and supporting measures.
- Raising the competencies of the policy makers regarding clusters, innovations and implementation of the strategies for business support.
- Integration and synergy of different policies.
- Improvement of skills and knowledge of clusters managers.

CROATIA

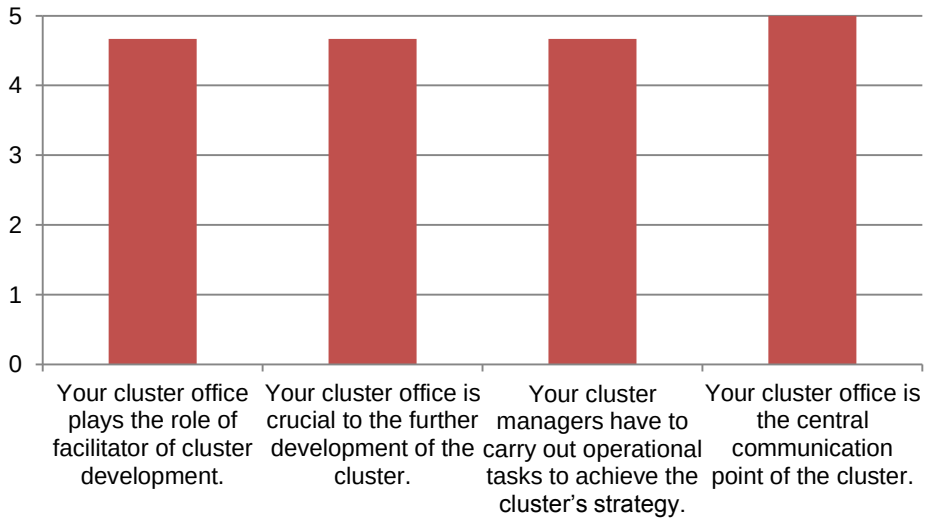

Slovenija
(Slovenia)
Zagreb
Trieste
Karlovac
Sisak
Pécs
Szeged
Arad
Timişoara
Novi Sad
(Нови Сад)
Beograd
(Београд)
Padova
Hrvatska
(Croatia)
Bosna i
Hercegovina
(Bosnia and
Herzegovina)
Bologna
Zadar
Knin
Srbija
(Serbia)
San Marino
Užice
(Ужице)
Sarajevo
(Сарајево)
Niš
Trogir
Split
Italia
(Italy)
Orepak
Crna Gora
(Montenegro)
Kosova
Pescara
Map data ©2012 Google

4.4 Croatia

Croatia is the next new EU member state, entering on 1 July 2013. The country has already harmonized most of its legislation and regulations during the negotiating process. In our analyse we have received 3 questionnaires from Croatian cluster's managers.

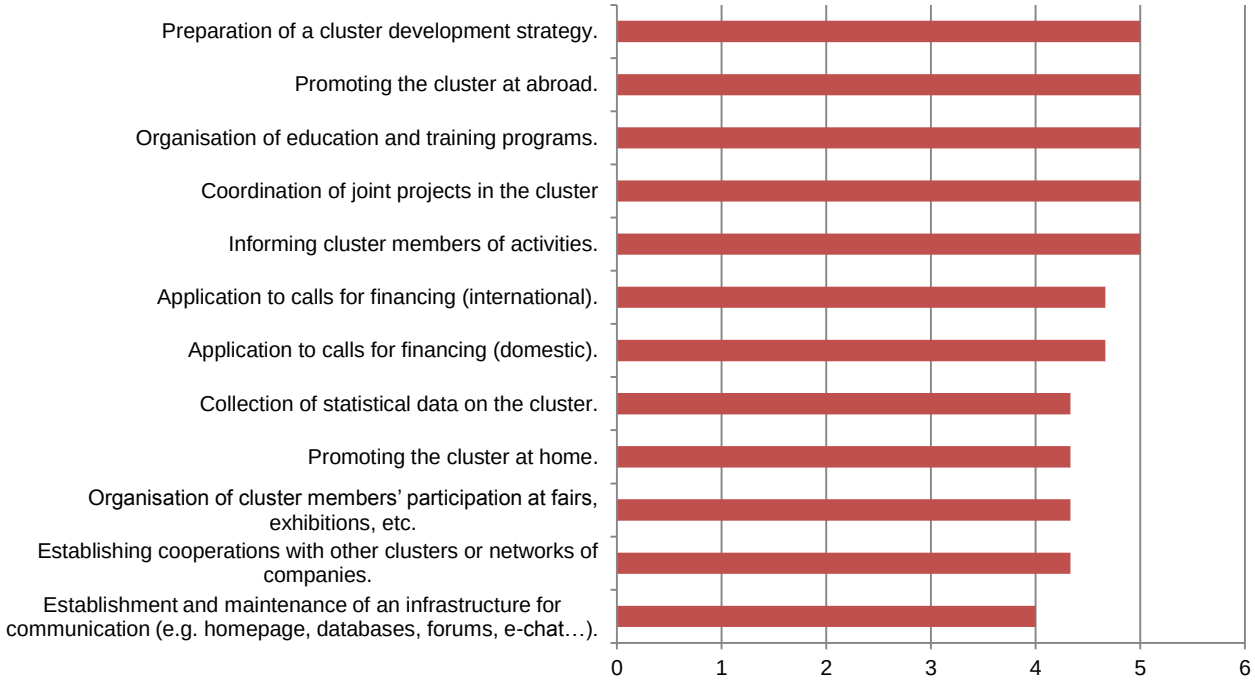
4.4.1 Basic information about clusters

Figure 39: The role of the cluster office (1 disagree - 5 fully agree)



The most important role of cluster office is seen as the central communication point of the cluster. Facilitating cluster development and carrying out operational tasks from cluster's managers to achieve the cluster's strategy are perceived as less important (Figure 39)

Figure 40: The importance of cluster office in different tasks (1 not at all important - 5 very important)



The most important tasks of cluster office are considered: informing cluster members of activities, coordination of joint projects in the cluster, organisation of education and training programs, promoting the cluster at abroad, and preparation of a cluster development strategy. The less important task is considered establishment and maintenance of an infrastructure for communication (e.g. homepage, databases, forums, e-chat…) (Figure 40).

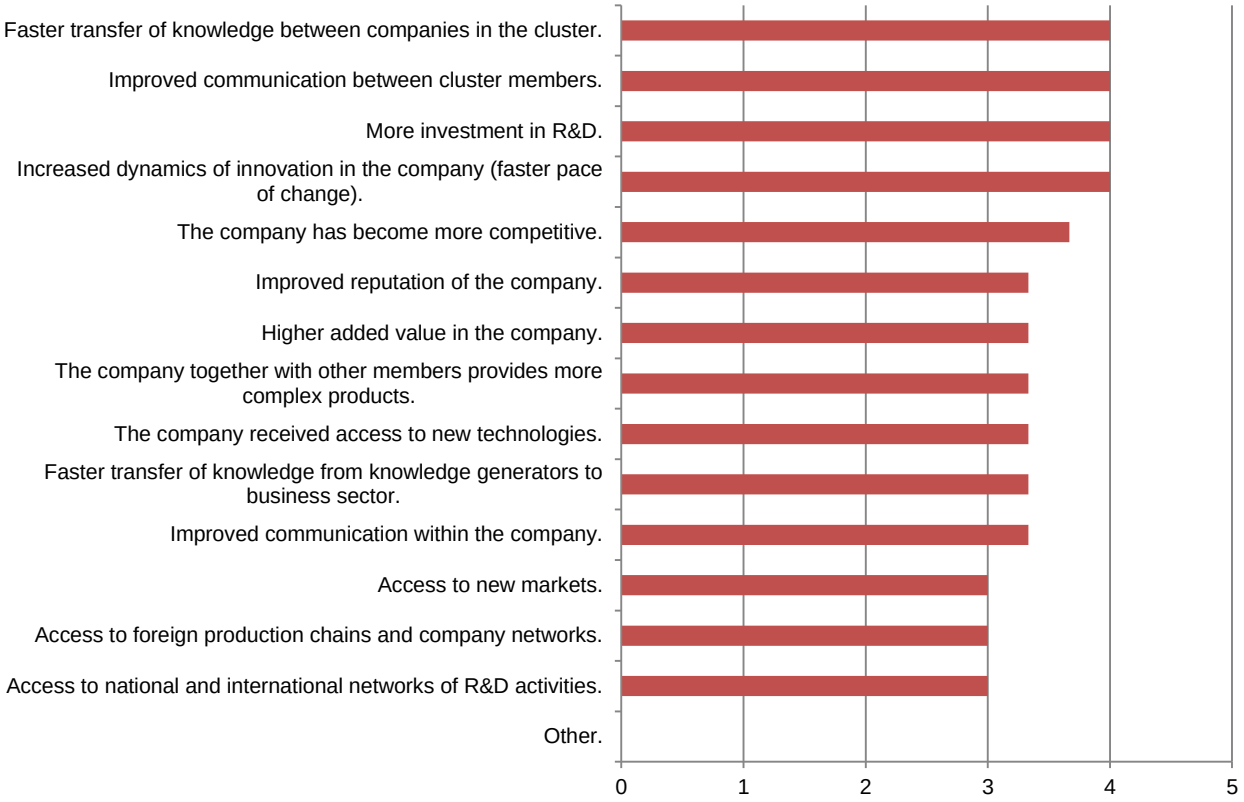
Visionary leadership which promotes the creation and share its vision and dominance of cluster leader in company are perceived as the most important skills that cluster leader should possess.

4.4.2 Cluster impact assessment

Following section presents different perspectives of cluster impact assessment, including added value of membership, key success factors and implementation of cluster activities.

The highest added value of cluster membership from the perspective of cluster organisations is seen in increased dynamics of innovation in the company (faster pace of change), more investment in R&D, improved communication between cluster members, and faster transfer of knowledge between companies in the cluster. The lowest added value are considered access to national and international networks of R&D activities, access to foreign production chains and company networks and access to new markets (Figure 41).

Figure 41: Added value of membership in clusters (1 negligible effects – 5 very strong effects)

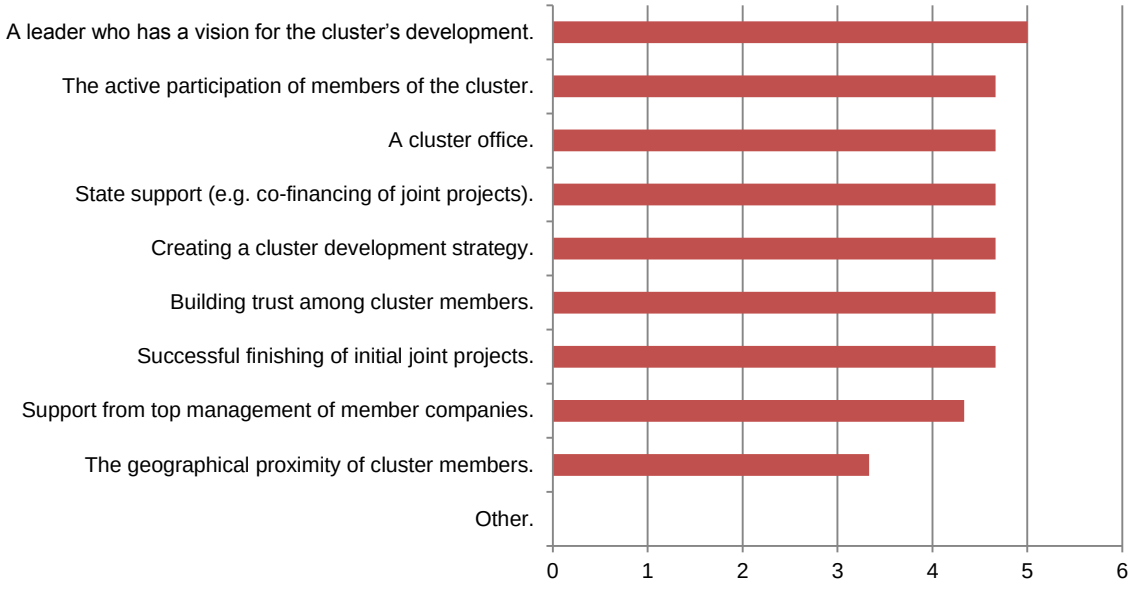


From the stakeholder perspective success factors for Croatian clusters were at first qualified labour in the traditional industrial sectors such as wood industry, leather and shoes, tourism, shipbuilding, production of medical equipment, utility equipment, food and metal processing and finally ICT industry. So these were first established clusters, and a positive climate for their creation was enabled by Croatian Government Institutions as well as the existence of programs created to encourage clusters in the business sector. Programs were an answer to growing problems of production efficiency and preparation for global market.

In most recent past some regions have made great strides in the territorial branding (Istria - f&b, Dalmatia - tourism) which create a positive climate for regional clusters development through territorial diversity of Croatia. So, this policy already achieved diversity of cluster organisations and models. Also, the process of good EU practice alignment with national SMEs policies leads to more business clusters. Increased interest tendency for R&D clusters shows a particularly important trend which indicates a positive climate created for cluster development in Croatia. Former Croatian experience has shown that in addition to the possibilities of co-financing, most important thing for cluster development is a leader with a vision and building trust among cluster members.

Similarly, from Figure 42 we can see that the most important success factor of clusters from the cluster's manager's perspective is a leader who has a vision for the cluster's development. The less important success factors is considered the geographical proximity of cluster members.

Figure 42: Key success factors of clusters (1 not at all important - 5 very important)



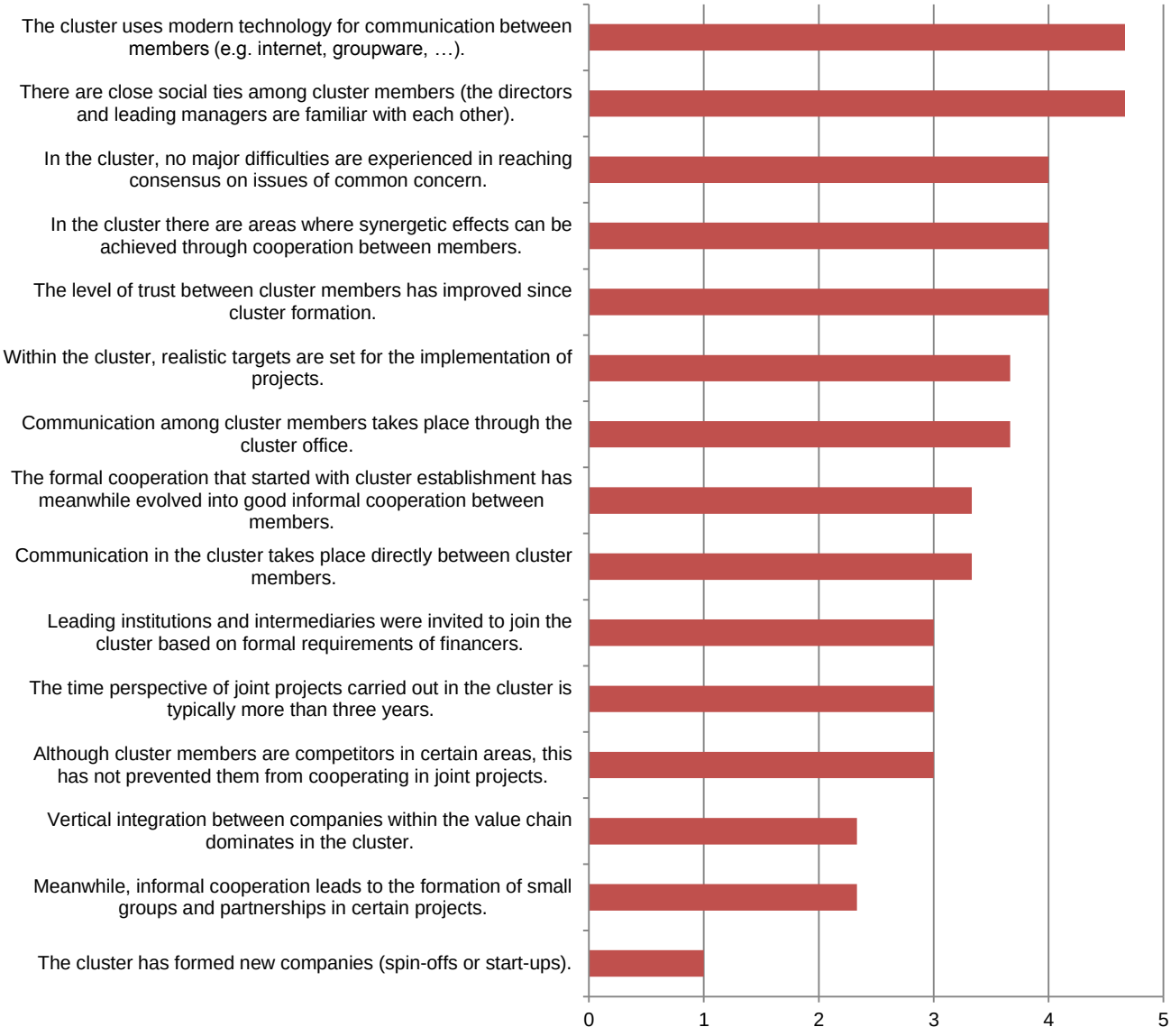
Fully implemented activities in clusters are forming of a critical knowledge mass in the industry in which it operates and performing activities to promote the cluster at home. The lowest level of implementation of activities is considered the cluster members apply together for tenders in the EU or elsewhere abroad (Figure 43).

Figure 43: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

4.4.3 Cooperation and networking

The most common cooperation and networking characteristics in clusters are the close social ties among cluster members (the directors and leading managers are familiar with each other) and the usage of modern technology for communication between members (e.g. internet, groupware, …). The lowest cooperation is seen in the role that the cluster has formed new companies (spin-offs or start-ups) (Figure 44).

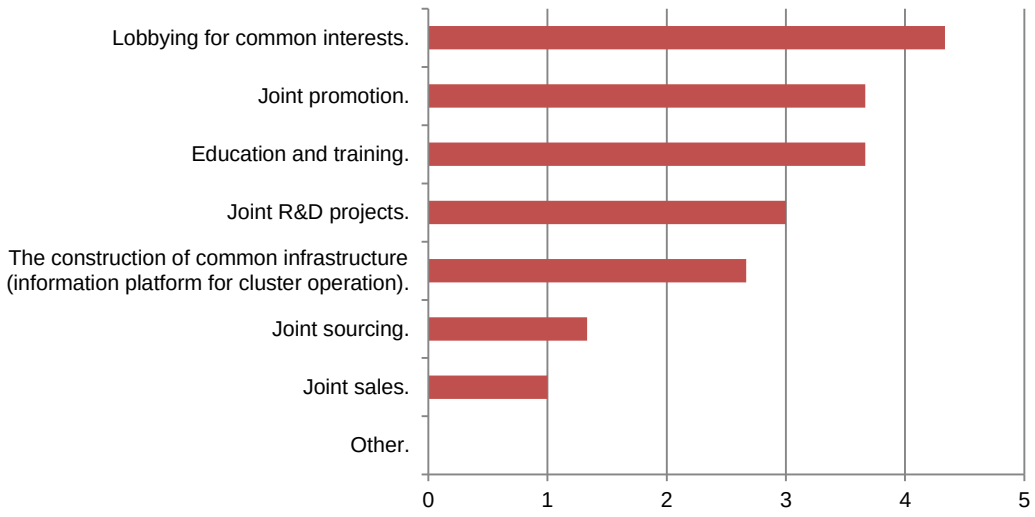
Figure 44: Cooperation and networking characteristics on average (1 disagree - 5 fully agree)



Croatian cluster's managers are communicating with the national financer (ministry, state, …) and with cluster members almost every week. Meetings of the directors of the company members are taking place a few times a year. Prevalent form of communication is indirect through the cluster office.

Areas of cooperation

Figure 45: Areas of cooperation on average (1 do not cooperate – 5 cooperate a lot)



In the near future most activities in Croatian clusters are planned in the areas of education and training, but also in the field of joint R&D projects and lobbying for common interests.

Selection of cluster projects and partners

Croatian clusters select and implement their projects on the basis of annual work programme and mission, interest of all cluster members and by teams of competence and board. Companies that are formally not cluster members can cooperate in cluster projects, but so far no such company has yet participated in any joint project. On average in analysed Croatian clusters are represented large companies (more than 250 employees), small innovative companies (less than 50 employees), educational institutions (e.g. universities, colleges…), and research institutions (e.g. institutes, laboratories…). On the other hand, consulting firms (e.g. legal/financial/tax consultancy, marketing…), venture capital funds, incubators, and technology parks are not represented at all. Croatian clusters believe it is the most important to have research institutions (e.g. institutes, laboratories…) and small innovative companies (less than 50 employees) included among cluster members in the future.

4.4.4 Innovation R&D

R&D projects

Croatian clusters on average stress the importance of research, development and innovation. They elaborated on average 13 R&D&I project ideas within the cluster over the past three years (2010–2012). On average 2,5 projects were implemented within the cluster and 2 of them were realised.

Forms of organisation for support of R&D

The analysed clusters in Croatia are familiar with all concepts of organisations which support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. Most of them are cooperating with other clusters and technology parks in Croatia, but not with technology networks, centres of excellence, and incubators. Abroad they are collaborating only with foreign clusters and not at all with centres of excellence and incubators.
Only some of analysed clusters are actively involved in the preparation and in discussions of the innovation policies on regional or national level, but none of them on the EU-level.

4.4.5 Sustainability

According to the national cluster programme's objectives with regard to support of eco-innovation, most of analysed Croatian clusters include this objectives in their strategies, however only one cluster is primarily focused on sustainability or eco-innovation and therefore carry out a wide range of activities related to eco-innovation.

Activities related to eco innovation

Croatian clusters carry out only activities connected to distribution of information, but they have started initiation of or they already participate in some eco-R&D projects.

Examples of good practices of eco-innovation

One of analysed Croatian clusters stress implementation of projects dealing with waste management and reduction of waste, weight reduction of products, and development of new energy efficient products, tended to reduce CO2 emissions.

4.4.6 Internationalisation

For analysed Croatian clusters internationalisation is quite important. Most of them have an internationalisation strategy, however main activities contained in this strategy are limited to participation of companies in international events, trade fairs, study visits, etc. with some exceptions including B2B matchmaking and participation of companies in international projects (Table 21). So far only one of analysed Croatian clusters has significant experiences in collaboration with foreign clusters or networks of companies: CRITT M.D.T.S. technological research laboratory (France), University of Reims (France), University Graz (Austria), and AC Styria (Austria).

Table 21: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	2
B2B matchmaking.	1
Participation of companies in international projects.	1
Participation of cluster organisation in international projects.	0
Inclusion of foreign companies in the cluster.	0
Cluster office / representation abroad.	0

4.4.7 Financing

Financing structure

Current rate of funding of Croatian clusters consists mainly of national (regional) funds (cca. 2/3 of required amount) and of own resources in significant less amount (cca. 1/3 of required amount), while other financial resources are almost not used. In future they are counting on funding from the Structural Funds and other EU-funds, which could complement national funds in order to keep financing by own resources at the same or smaller share than currently. They see their clusters as moderate capable of self-financing and estimate they would need approximately 20 membership fees to being independently financed from fees.

Currently Croatian clusters do not carry out any activities / joint projects in the cluster without national / EU co-financing. The membership fee of the only one cluster, which has responded to this question, is 1200 EUR/yearly. For other clusters depend either of number of employees, revenues, assets or it is fixed amount.

Applications for financing

All analysed Croatian clusters are planning to apply for EU funding in 2013/2014. They intend applying mainly to European Regional Development Fund (ERDF) and European Social Fund (ESF), while some of the also to the European Agricultural Fund for Rural Development (EAFRD), FP 7 / Horizon 2020, COSME, and EUREKA (Table 22).

Table 22: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
CF Cohesion Fund	0
ERDF European Regional Development Fund	3
ESF European Social Fund	3
EAFRD European Agricultural Fund for Rural Development	1
EMFF European Maritime and Fisheries Fund	0
FP 7 / Horizon 2020	1
COSME	1
EUREKA	1
Other	0

Ideal financing model

According to Croatian clusters ideal model of cluster financing should be ensured by joint projects within cluster members and partly funded by public (EU) resources in order to generate common profit to be reinvested in future projects dealing with research and innovation.

4.4.8 Smart Specialisation

Characteristics and implementation of smart specialisation

Among analysed Croatian clusters only one is involved in elaborating and implementing (future) smart specialisation strategies in the region. Its' managers consider as important following activities or characteristics: further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation, the cluster members are convinced of the importance of collaboration – they support joint projects although such projects demand more openness and active participation, the cluster is regionally focused and its formation is based on a comprehensive SWOT analysis, the cluster is an important player of the national innovation system, good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand, tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities, and awareness of importance of strengthening cluster members' capability.

According to analysed Croatian clusters the main relevant topics regarding elaboration of smart specialisation strategies are strategic approach in dealing with development issues, research and innovation, networking, good definition of strategic sector involved, research and detailed state of the art analyses, and networking and institutional support. Regarding implementation of smart specialisation strategies main relevant topics are clearly defined goals with clear priorities and measures, good territorial coverage, good networking and investment in R&D, and ensured funding.
From the cluster's managers perspective the role of their cluster (office) (more) is either designing or implementing the region's smart specialisation strategy, since sectorial cluster have preconditions for making smart specialisation strategies' environment favourable for implementation of projects in

different fields. On the other hand bottom-up approach is crucial for developing and also later implementing good and tailor-made strategies.

4.4.9 New skills and job creation

On average the objective 'new skills and job creation' is quite important for analysed Croatian clusters. The most important ways in which this objective is achieved are: establishing training academies, preparation and implementation of trainings and special skills courses, cooperation with academic sector, and cooperation with R&D institutions.

Main implementation activities of new skills and job creation

The cluster strategy implementation activities related to new skills and job creation focuses mostly on informing cluster members of training and qualification programs for their staff and organisation of seminars to offer training and education to cluster members and cluster office' staff, while offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc. and informing of the potential of immigrant staff as well as assisting and supporting immigrant staff are on average less presented (Table 23).

Table 23: Main implementation activities of new skills and job creation on average

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	4,33
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,00
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	2,33
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	3,00
Awareness-raising concerning the retention of older, qualified staff in the workforce.	2,67
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,67
Promoting the hiring of disadvantaged staff.	2,50
Support and motivation of young entrepreneurs.	3,33
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	3,33
Involvement in elaborating curricular for high schools and vocational training centres.	3,00

4.4.10 Barriers and implications for cluster development

Main barriers for cluster development

From the stakeholder perspective the main barriers regarding cluster development are:

- Lack of financial resources - Poor financial situation in Croatian business sector general, inhibits cluster development, and moreover companies underuse EU funds. Clusters in Croatia are still very small and have very limited financial resources.
- Lack of human resources – cluster management and business experience in cluster organisations, is a problem in Croatia. Also, the best IT and R&D staff is choosing to leave the country do to unsatisfactory conditions.
- Mistrust between cluster members – is a big problem and barrier for cluster development in Croatia, as potential cluster members are still unable to see pros versus cons, and are afraid to lose their know-how by joining a cluster.
- Lack of knowledge about clusters and network structures, unfamiliarity - Is related to the previously stated item. It is important to educate business sectors regarding cluster opportunities and options, so they and the economy in general can benefit from its growth
- Low level of cooperation among cluster members – Clusters in Croatia are mostly formed for lobbying purposes, and are still not sufficiently oriented to the development of innovation, human resources and international/regional networking. In this fashion clusters remain small and uncompetitive.

According to stakeholders more effective cluster policy making could be achieved considering following solutions:

- Increased activity of education about the importance of clustering among entrepreneurs – Ministry of Entrepreneurship and other support institutions should educate SMEs and explain all the benefits that clustering has in relation to an independent approach to the market, such as reducing the cost of procurement, marketing, sales, easier access to financing, transfer of know-how, and ultimately increase competitiveness. Education should take direction of view clustering as one of the most important factors in the survival of the company future, European and world stage.
- Creating a framework for corporate financing through the cluster – creation of new financial programs (such as bank loans, guarantees, export credit insurance, ...) for cluster organisations, in a way that such entrepreneur association are further stimulated by reducing the cost of capital, or, for example, stimulating a part of interest rate.
- Stronger presentation of good practices of clustering in Europe – the need for stronger presentations and introductions of SME with EU policies towards clustering (the ones accepted by RH). Then, prompt presentation of all future EU funds financed by cluster organisations.
- Educational institutions on clusters - encouraging greater representation of this subject in high schools and higher education institutions, as well as establishing programs at the university dealing with clusters.

On the other hand Croatian clusters see their main barriers in the lack of financial and also human resources, while lack of support from top management in companies and exclusion of experts to advice on the development of clusters are not seen as relevant as above mentioned (Table 24).

Table 24 Main barriers for cluster development on average

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Lack of financial resources.	5,00
Lack of human resources.	4,33
Mistrust between cluster members.	4,00
The positive effects of clusters are visible only in the long run.	4,00
We found that clusters do not produce the expected results.	3,67
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	3,67
Lack of knowledge about clusters and network structures, unfamiliarity.	3,67
Lack of knowledge concerning the management of clusters and network structures.	3,33
Objections from company owners.	3,33
Lack of support from top management in companies.	3,00
Not-included experts to advice on the development of clusters.	3,00

Biggest challenges in clusters in the early stages are seen in financing and funding options, coordination, designing of new projects, lack of trust, and the question how to survive. In **later phases of cluster development clusters perceive as the biggest challenges** acquiring new members together with rising awareness among them, project cycle management, searching for financing and funding options, and finally the question how to realise quality projects for the members that will increase competitiveness

In the early stages of cluster development and prior to his legal organisation, there are many **challenges according to stakeholder**. Of course, the most common problem is the lack of funding and other problems associated with lack of resources. Start brings problems such as cluster coordination, because it is a specific organisation not so familiar in Croatia. Technical problems are identified, but also big problem is figuring out the way for the best possible organisation hierarchy, decision-making processes, legal establishment and other similar challenges. Problem prior to financial obstacles is the lack of visionary and initiators that would start a complex project of cluster development. The aim of association should be to develop new products and innovations. This is a major challenge that requires strategic thinking, positioning, lobbying actions and gathering information. Since it is a newly formed organisation, there may be many problems at every level of the development and implementation of new products. Large investments and efforts are needed to achieve the objectives of the organisation, so there are always current questions of justification of investment and accurate budget controlling. It is very important that these items are properly evaluated and implemented in order to create a framework for future cluster organisations. Experiences have highlighted the problem of mistrust among potential partners within the cluster, and the fear of disclosure of trade secrets. This is a big barrier that often prevents the development or establishment of clusters in Croatia.

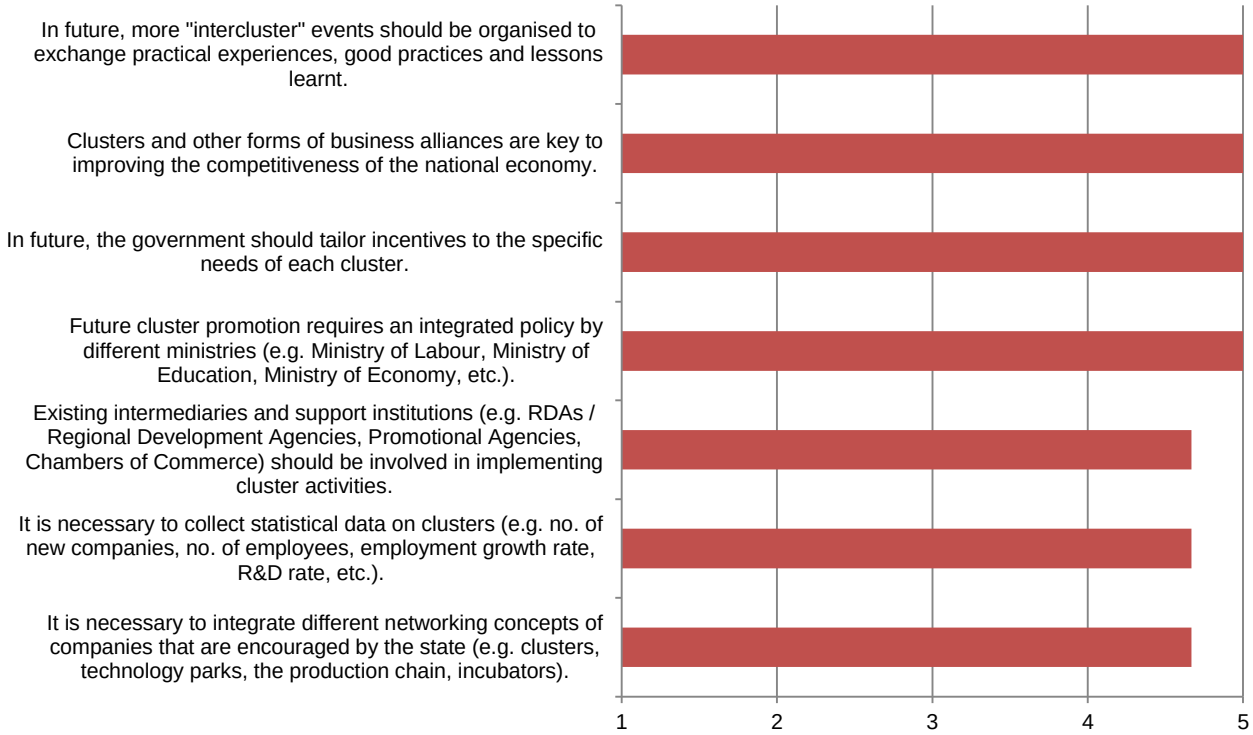
In later stages of cluster development, the problems of saturation, differences of opinion and decrease activity in the cluster are identified by **stakeholder**. This leads to communication problems, since it is becoming much rarer. There are challenges in cluster expansion, and in finding new members that should use their energy and fresh ideas to contribute further cluster development. In

case expansion did not occur, this situation may close a way for innovation, which should form the basis objectives of cluster organisations. Inflexibility in organisation objectives is also one of the important problems since in the ever-changing market; decision making process requires constant adjustment to properly manage all given projects. Also, there is the challenge of future goals of clusters, and their proper guidance, as it can become a bigger problem in the case of an increasing number of members in the cluster. So, there is a challenge in which way to choose, strategically focus, and realise projects that should contribute to increased competitiveness. Issue of financing is always a problem; in this case, the continuous funding through national and regional programs and EU funds, as well as self-financing as a result of collecting membership fees of cluster members.

Implications for further cluster policy development – cluster perspective

The most important implications for further cluster (policy) development are the claims that the future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.), in future, the government should tailor incentives to the specific needs of each cluster, clusters and other forms of business alliances are key to improving the competitiveness of the national economy and in future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt. The less important implications on average are the claim that it is necessary to integrate different networking concepts of companies that are encouraged by the state (e.g. clusters, technology parks, the production chain, incubators), it is necessary to collect statistical data on clusters (e.g. no. of new companies, no. of employees, employment growth rate, R&D rate, etc.)., existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities (Figure 46).

Figure 46 Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder perspective

Relating to the role of the state in promoting cluster development stakeholder has found out that presence of non-restructured SOEs, declining competitiveness of domestic products, weakness of large enterprises, focusing mainly on domestic regional market and lack of SMEs capable of sustainable global matches are just some of the reasons in favour of encouraging clustering in Croatia. To start the process of clustering is a good way to increase the economic efficiency of Croatian SMEs. This involves restructuring, repositioning and specialisation of Croatian industrial companies to position themselves in the EU market as a cluster, and achieve long-term competitiveness and sustainability at the global level. Therefore, the primary task of the state is to adopt appropriate strategies for developing entrepreneurship, as well as laws, regulations and other legislation that will regulate the market. Furthermore, given the challenging economic situation, one of the key activities of the state should be to assist in financing, and to participate in EU projects. In addition, the government should play its role in the internationalisation of clusters, and fostering innovation as the basis of growth and development. Being that one of the key problems in Croatia in terms of clusters is precisely lack of knowledge; the government should make greater efforts to educate the business sector. Experience has shown that companies still do not have enough knowledge about the advantages and disadvantages that participating in a cluster organisation can bring. The state is also expected to attempt to ensure increase of export of cluster organisations and their continuous development, all in line with eco-trends and environment preservation.

From the stakeholder perspective the main areas / topics of cluster policy making where Croatia could learn the most from other regions' experiences are:

- Development of Innovation - Croatian clusters usually developed for the need for lobbying, and on this it remains, due to inertia but also financial barriers. Clusters should be based on innovation

which will create added value and lead to the development not only of clusters but also the entire region. Great responsibility and recognizing the importance of learning from others in this area has its state with its measures and incentives.

- Internationalisation - When cluster achieves the purpose for which it was established, it usually does not pursue further growth and internationalisation, and clusters remain small. Experience in the region, they should indicate the additional capabilities and solutions, as Croatia in this area has not made significant efforts.
- Better use of EU funds - Croatian companies still does not have enough knowledge to fully utilize the potential of EU funds. By joining the EU, Croatian entrepreneurs will have structural funds of EU at its disposal. Croatia has a chance of benchmarking all the countries that have significant experience in this area.
- Transfer of knowledge - Using the platform and groups for knowledge transfer, does not occur enough, an in that matter, Croatian companies should take positive examples from the region. By joining the EU, this problem should be to reduce as entrepreneurs and managers will be able to do more on education and training issues.

Clustering of Croatian economy is a hot topic in the field of economy. Clusters represent a new model of economic development and economic entities because they affect exports, seeking new markets for products, growth and employment, especially in innovation, competitiveness and inter-regional cooperation. The main source of information related to the clusters provides foreign consultants who carry experience of foreign clustering. Croatian economy has a proactive approach to traditional entrepreneurship, which is reflected in the fact that the incentives affect the increase of economic efficiency of Croatian companies, raising the level of technical equipment, personnel expertise and quality of management control, with the aim of strengthening the Croatian economy. The process of encouraging and developing the system of clusters in Croatia is implemented by the Ministry of Business and Trade, in collaboration with partner institutions (Croatian Employers' Association, Croatian Chamber of Economy, and Croatian Chamber of Trades) with the range of activities that encourage entrepreneurs to cooperate. Central Office for Development Strategy and Coordination of EU funds also has a significant role in the development strategy of Croatian and encouraging the creation of strategic clusters.

Clusters in Croatia generally aim for internationalisation and have a certain strategy; however, they are neither long-term nor sufficiently developed, mainly due to the aforementioned problems. A similar situation is noticed as for ecological and innovative projects are concerned, for now they are mostly just ideas.

Clusters in Croatia tend to self-financing, but it is still not a realistic option. There is also a poor practice for sponsorship funding which is currently a negligible percentage of total financing. Most of the funding is obtained from the regional funds, and future plane is more use of EU funds. In general, defects in formation and development of clusters are very similar to Croatia and to other countries of European Union. However, the benefits of cluster development in order to strengthen the competitiveness and the strategy should be formed around the following objectives: conquer new markets, the internationalisation of clusters, encouraging innovation, strengthening the cluster associations and skills for the development of clusters, etc. Cluster Strategy should serve to improve the Croatian cluster policy management with efficient use of EU funds.

GREECE


Crna Gora
(Montenegro)
(Kosovo)
(Bulgaria)
Македонија
(Macedonia
(FYROM))
Plovdiv
(Пловдив)
Napoli
Shqipëria
(Albania)
İstanbul
Bursa
Ankara
Ελλάς
(Greece)
Athina
(Αθήνα)
İzmir
Konya
Palermo
Catania
Malta
Mediterranean
Sea
Κύπρος
Kıbrıs
(Cyprus)
Map data ©2013 Basarsoft, Google, ORION-ME

4.5 Greece

4.5.1 Basic information about clusters

The most important role of cluster office is seen as facilitator of cluster development. Carrying out operational tasks to achieve the cluster's strategy is on average seen slightly less important (Figure 47), while the most important task of cluster office is considered promoting the cluster abroad and preparation of a cluster development strategy. The less important task is considered application to calls for financing (international) (Figure 48).

Figure 47: The role of the cluster office (1 disagree - 5 fully agree)

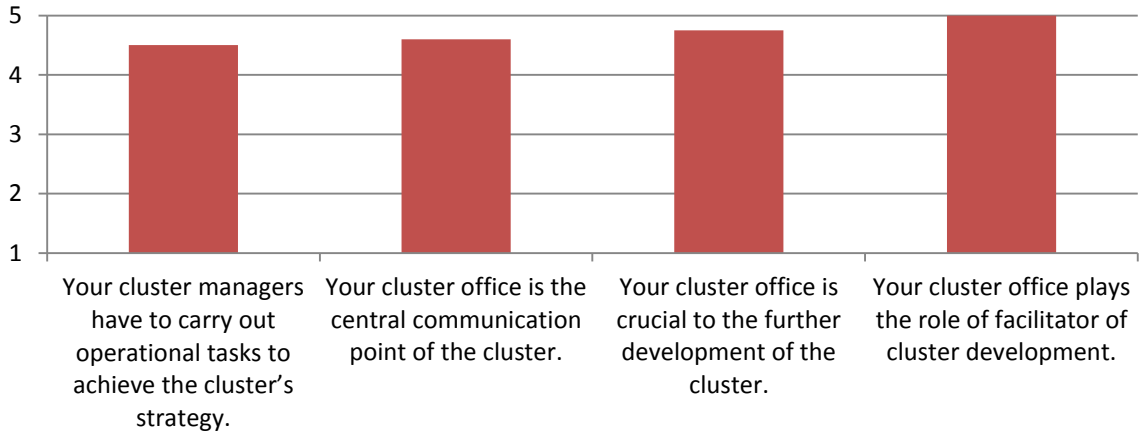
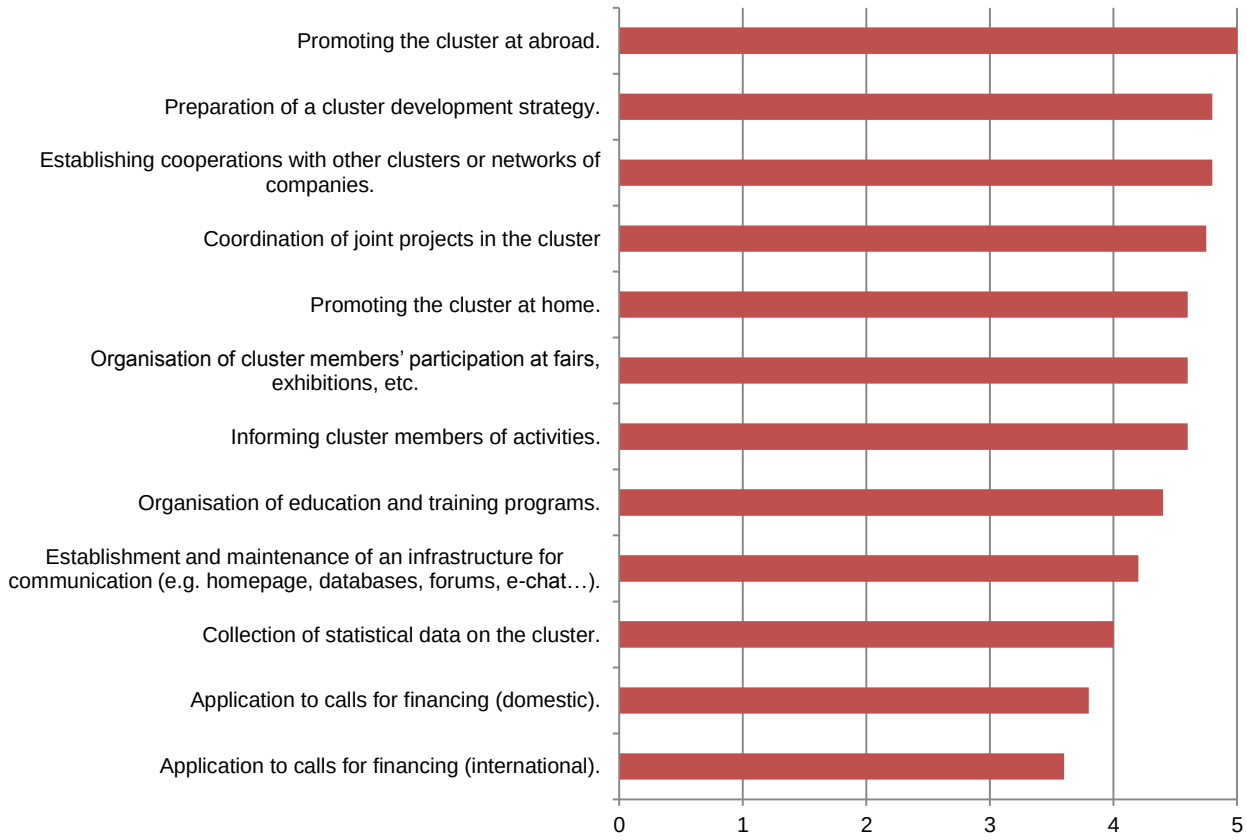


Figure 48: The importance of cluster office in different tasks on average (1 not at all important - 5 very important)



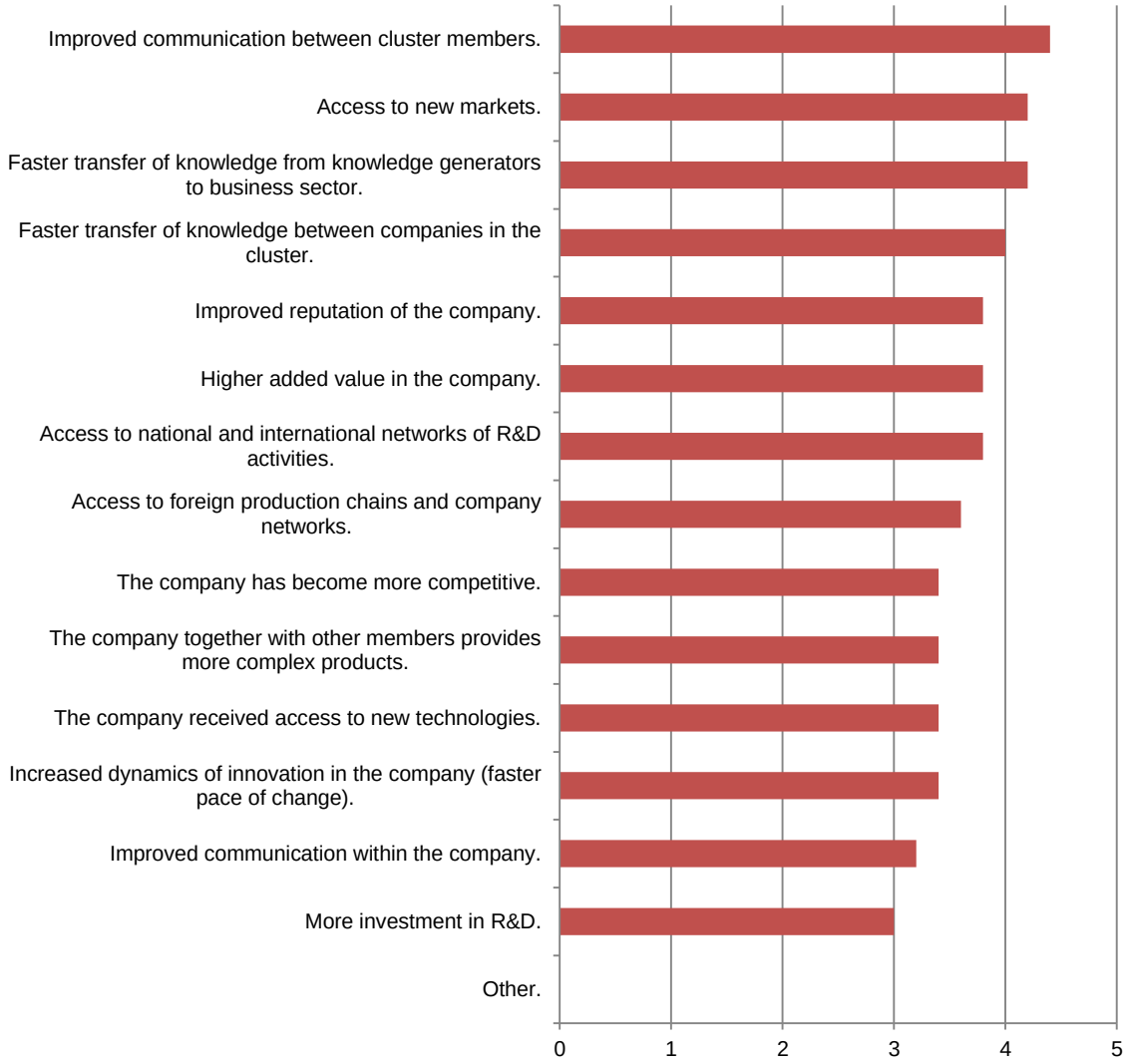
The most important skills that cluster leader should possess are: negotiation skills, technology transfer skills, project management skills, deep knowledge about the sector, leadership skills, knowledge of the financing tools and strategic policies, visionary, strategic way of thinking, communication and networking skills, broad perspective about cluster's future and next actions.

4.5.2 Cluster impact assessment

Following section presents different perspectives of cluster impact assessment, including added value of membership, key success factors and implementation of cluster activities.

The highest added value of cluster membership from the perspective of cluster organisations on average is seen in improved communication between cluster members, faster transfer of knowledge from knowledge generators to business sector and access to new markets. The lowest added values are considered following: more investment in R&D and improved communication within the company (Figure 49).

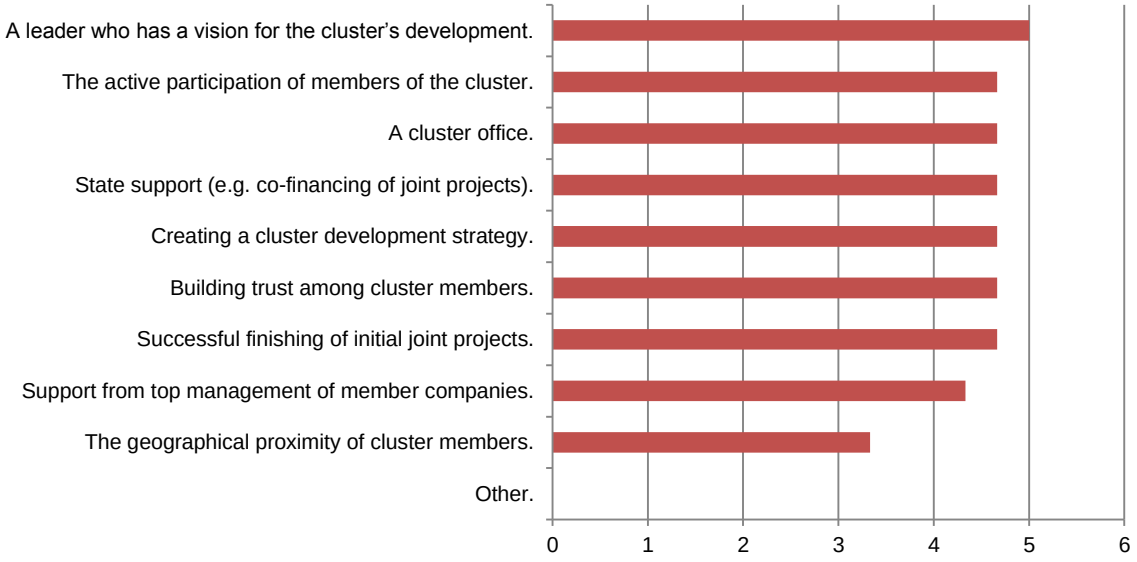
Figure 49: Added value of membership in clusters (1 negligible effects – 5 very strong effects)



From the clusters perspective the most important success factor of clusters is a leader who has a vision for the cluster's development. The least important success factor is considered the geographical proximity of cluster members (Figure 50).

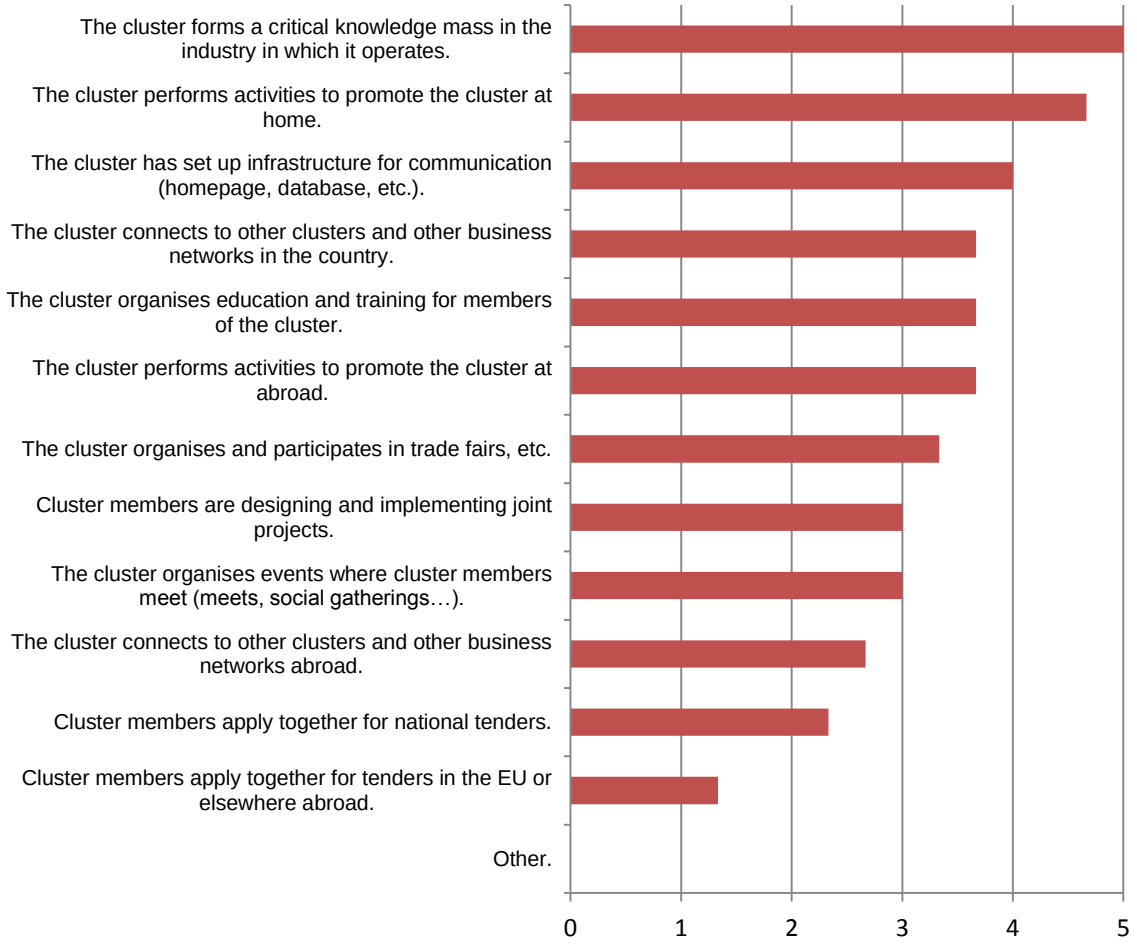
From the stakeholder perspective the key success factor of Central Macedonia region is the city of Thessaloniki with universities, research institutes, clusters, SMEs and large companies. Some other important sectors, where clusters could stimulate their further development include: tourism and culture, transportation and logistics, agriculture – fishing, research and development, manufacturing, geothermal energy, ICT and knowledge about pharmaceutics production.

Figure 50: Key success factors of clusters (1 not at all important - 5 very important)



Fully implemented activities in clusters are forming of a critical knowledge mass in the industry in which it operates. The lowest level of implementation of activities are considered common application for tenders in the EU or elsewhere abroad and connecting to other clusters and other business networks abroad (Figure 51).

Figure 51: Implementation of activities in clusters on average (1 not implemented – 5 fully implemented)

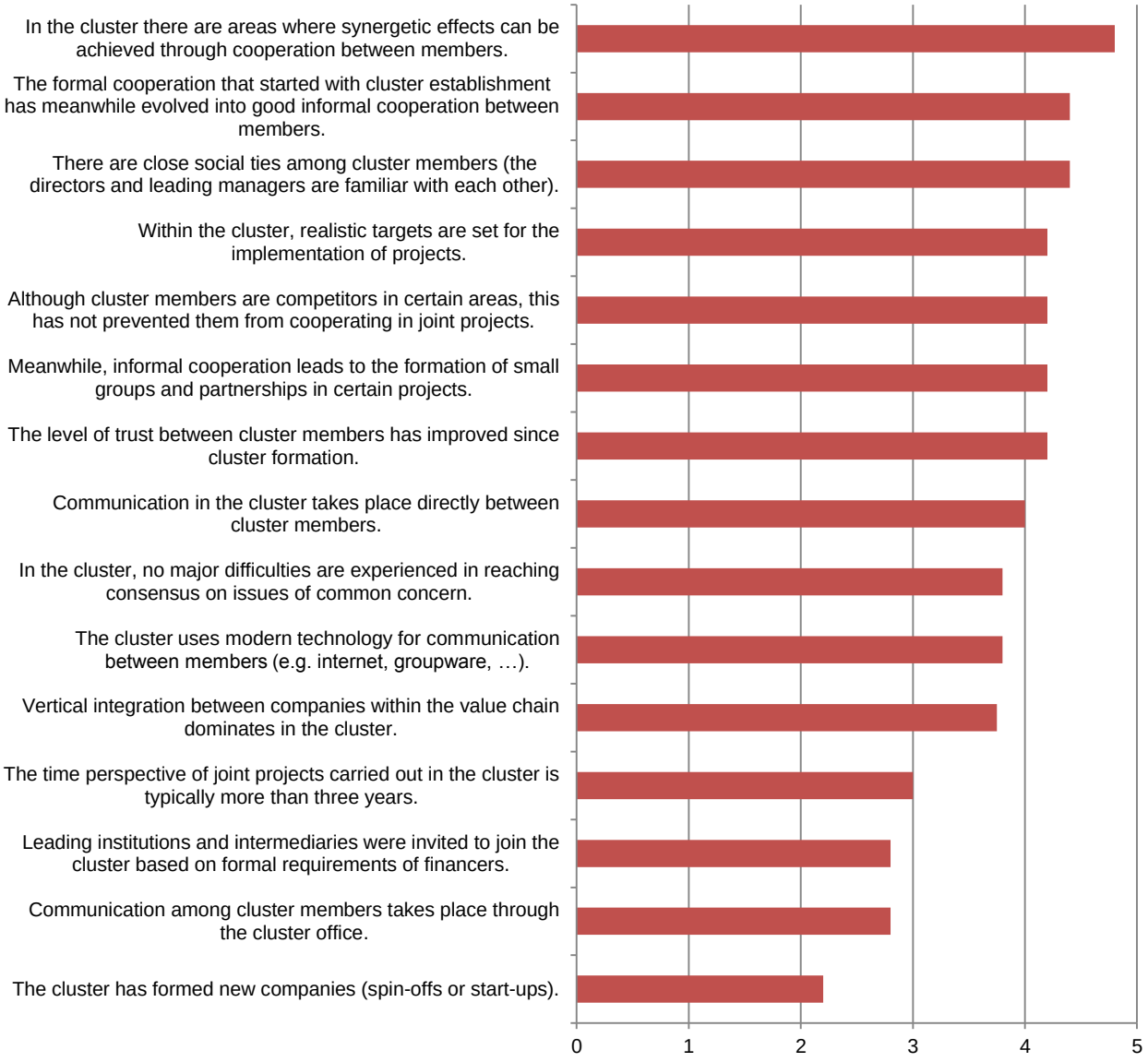


4.5.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristic in clusters on average is the claim that in the cluster there are areas where synergetic effects can be achieved through cooperation between members. The lowest cooperation characteristic is that the cluster has formed new companies (spin-offs or start-ups) (Figure 52).

Figure 52: Cooperation and networking characteristics on average (1 disagree - 5 fully agree)

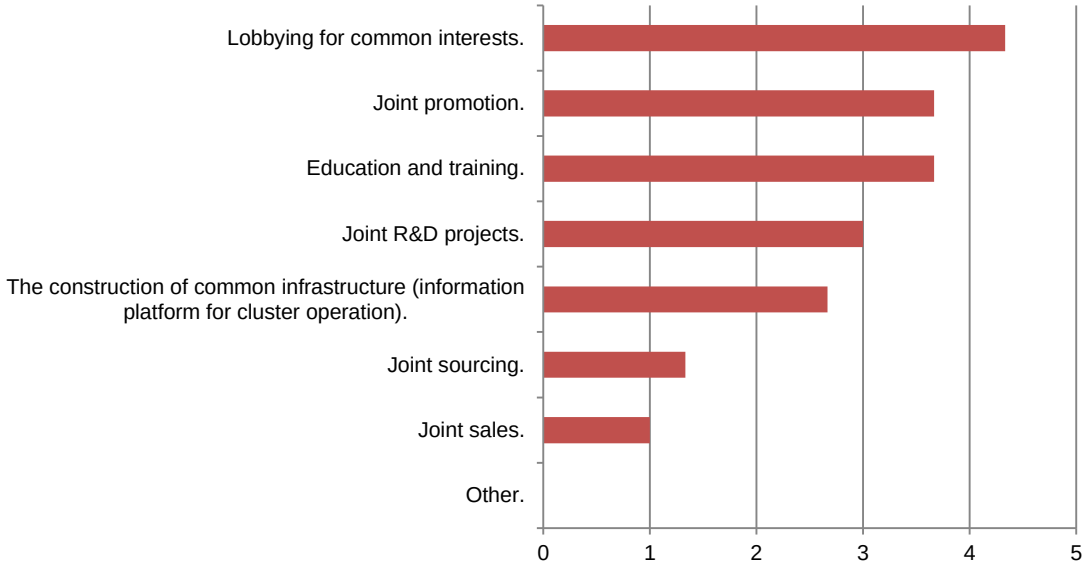


Greek cluster managers are communicating on average with the national financer (ministry, state, …) at least once a month, while communication with cluster members is taking place at least once a week. Meetings of the directors of the company members on average take place a few times a year. Prevalent form of communication in direct communication between cluster members and in indirect communication through the cluster office are e-mail correspondence and telephone conversations.

Areas of cooperation

From the Figure 53 we can see that the most common cluster cooperation area on average is lobbying for common interests, while the most rarely area of cooperation are joint sales and joint sourcing.

Figure 53: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



In the near future most activities in Greek clusters are planned in the areas of joint promotion, joint R&D projects, construction of common infrastructure, new markets, joint sourcing and strategic lobbying for common interests of cluster members.

Selection of cluster projects and partners

Analysed clusters select and implement their projects on the basis of impact envisaged for the promotion of the members and of the organic sector in general, on the basis of excellence and potential for cooperation of a significant number of cluster members or simply by vote. Despite companies that are formally not cluster members are able to cooperate in cluster projects, but only one analysed clusters has experience with such collaboration so far.

On average in Greek clusters are represented small innovative companies (less than 50 employees), research institutions (e. g. institutes, laboratories), educational institutions (e.g. universities, colleges…) and incubators. On the other hand large companies (more than 250 employees), consulting firms (e.g. legal / financial / tax consultancy, marketing…), companies providing specialised services (e.g. IT support, process automation, certification…), venture capital funds and technology parks are represented in significantly less cases. Greek clusters believe it is the most important to have a mix of large companies and small innovative companies included among cluster members in the future.

4.5.4 Innovation R&D

R&D projects

Greek clusters on average stress the importance of research, development and innovation. They elaborated on average 6 R&D&I project ideas within the cluster over the past three years (2010–2012), 6 projects were implemented within the cluster as well and 5 of them were realised.

Forms of organisation for support of R&D

The analysed clusters in Greece are familiar with all concepts of organisations which support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. Most of them are cooperating with other clusters, technology parks, technology networks, centres of excellence and incubators in Greece. Abroad they are collaborating in most cases with foreign clusters, but only in some cases with technology parks, technology networks, centres of excellence and incubators.

Majority of analysed clusters are actively involved in the preparation and in discussions of the innovation policies on regional level (e. g. in Thessaloniki Innovation Zone – governmental initiative supported by EU or through communication with regional actors concerning the enhancement and promotion of the needs and goals for the organic sector or concerning the regional innovation strategy) and national level (participation in the working groups recently established by the ministry of Agriculture for the discussion on the new Common Agriculture Policy, consultancy for Hellenic GSRT, Hellenic Operational Programme for Competitiveness and Hellenic Operational Programme for the Information Society, participation at events organised by public authorities where national innovation policy is discussed with the stakeholders, co-organising of several forums and conferences for innovation policy and relative instruments with General Secretariat for Research & Technology), and some of them also on EU-level (consultancy for the European Commission: DG Research, DG INFSO, DG REGIO, DG Enterprise, membership of the Advisory Board of the European Clusters Observatory).

4.5.5 Sustainability

Activities related to eco innovation and Examples of good practices of eco-innovation

Analysed Greek clusters are following eco-innovation oriented national cluster programme only partly. Most of activities related to eco-innovation are limited to training and participation in eco-R&D projects. As an example of good practice of eco-innovation is mentioned organisation of info-days regarding eco-innovation issues.

4.5.6 Internationalisation

For analysed Greek clusters internalisation is very important. On average they have an internationalisation strategy, containing participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking and participation of cluster organisation in international projects in most cases (Table 25). They are collaborating mainly with Italian and Spanish clusters.

Table 25: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	4
B2B matchmaking.	4
Participation of companies in international projects.	2
Participation of cluster organisation in international projects.	4
Inclusion of foreign companies in the cluster.	2
Cluster office / representation abroad.	1

4.5.7 Financing

Financing structure

Current rate of funding of Greek clusters consists mainly of own resources (on average 43%) and EU-funds (on average 38%), while national and regional funds contribution is on average 15% of required funding. Although most of them not consider self-financing as an important goal of cluster and have not carried out yet activities without national / EU co-financing, they are counting in future mainly on funding from own resources (60% of required funding), combining it only with Structural Funds and other EU-funds and sponsorships. Cluster membership fee is on average cca. 400 EUR and depends either on size of the company or its legal status.

Applications for financing

Majority of analysed Greek clusters are planning to apply for EU funding in 2013/2014. They intend applying mainly to Cohesion Fund and European Regional Development Fund, while some of them also to FP 7 / Horizon 2020 and COSME (Table 26). Nothing was said about the ideal way of financing/financing model.

Table 26: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
CF Cohesion Fund	3
ERDF European Regional Development Fund	3
ESF European Social Fund	1
EAFRD European Agricultural Fund for Rural Development	1
EMFF European Maritime and Fisheries Fund	0
FP 7 / Horizon 2020	2
COSME	2
EUREKA	1

4.5.8 Smart Specialisation

Characteristics and implementation of smart specialisation

Majority of analysed Greek clusters are involved in elaborating and implementing (future) smart specialisation strategies in the region. Their managers consider as the most important activity in this field the strengthening of cluster members' capability regarding collaboration.

According to analysed Greek clusters the main relevant topics regarding elaboration of smart specialisation strategies are:

- analysis of the regional context and potential for innovation,
- understanding the local context concerning design,
- elaborating of a shared vision for the future of the region development,
- international and trans-regional perspective,
- defining the scope and the expected goal, with a view to ensure participation of the key actors and secure ownership of the orientations defined in the strategy,
- effective and broad consultation with regional stakeholders,
- abilities to synthesize in a creative way and using a unique advantages.

Regarding implementation of smart specialisation strategies main relevant topics are:

- high level of cooperation among all stakeholders,
- efficient use of resources,
- coordination of actions,
- setting in motion regional change,
- structural change,
- integration of monitoring and evaluation mechanisms,
- formulating and implementing a national/regional research and innovation strategy for smart specialisation as continuous process considering changing economic circumstances.

Special emphasis should be given to adapting and updating of RIS3. This element closes the policy design cycle: through the use of information and insights gathered during the implementation of the strategy, pilot projects and others, learning activities (inside and outside the region), new events that have occurred after formal adoption of the RIS3 and incorporating this into a new version of the RIS3.

The challenge associated with this step is to ensure sufficient stability to the prioritisation process, while allowing for this adaptability.

4.5.9 New skills and job creation

On average the objective 'new skills and job creation' is moderately important for analysed Greek clusters. Clusters which consider an objective 'new skills and job creation' as important, are achieving it mainly by organising seminars to offer training and education to cluster members' and cluster office' staff, supporting and motivating young entrepreneurs and promoting incentives for young entrepreneurs to take-up learning opportunities, coaching. On the other hand activities such as informing the potential of immigrant staff as well as assisting and supporting immigrant staff and promoting the hiring of disadvantaged staff are less implemented (Table 27).

Table 27: Main implementation activities of new skills and job creation on average

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Support and motivation of young entrepreneurs.	4,25
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	4,25
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,25
Informing cluster members of training and qualification programs for their staff.	3,75
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	3,25
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	2,75
Awareness-raising concerning the retention of older, qualified staff in the workforce.	2,50
Involvement in elaborating curricular for high schools and vocational training centres.	2,50
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	2,00
Promoting the hiring of disadvantaged staff.	2,00

4.5.10 Barriers and implications for cluster development

Main barriers for cluster development

From the stakeholder perspective the main barriers regarding cluster development are:

- Mistrust between cluster members. There is limited collaboration among those that could be cluster members, who are not willing to trust each other and work together. We thing that the small size of the Greek market and the Greek mentality are responsible for that.

- Lack of knowledge about clusters and network structures, unfamiliarity. The concept of clusters is in the early phase and as a consequence there is no adequate knowledge, training and good examples (no success stories).
- Lack of financial resources. Because of the early phase of cluster development there are limited financial resources (national level till now) and the process of financing is quite complicated.
- Unsuitable statistical data and information flows. They must follow the cluster framework in order to be suitable
- Lack of regional cluster development policy till now. Till now there is only national cluster development policy.

According to stakeholder more effective cluster policy making could be achieved considering following solutions:

- Elimination of mistrust between cluster members. Emphasize about the benefits that can arise from cluster development. Internationalisation as a key mechanism for all the actors. Establishment of strong linkages between the actors.
- Training for smart specialisation, RIS and clusters. Good practices.
- Improvement of the process of financing, maybe in regional level. Private financing must be increased.
- Better collection of statistical data and information flows in the framework of clusters.
- A well designed RIS (is on the phase of development for the region of Central Macedonia).

On the other hand Greek clusters see their main barriers in mistrust between cluster members and in the lack of financial resources, while lack of human resources, exclusion of experts to advice on the development of clusters and the claim that clusters do not produce the expected results are not seen as relevant as above mentioned (Table 28).

Table 28: Main barriers for cluster development on average

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Mistrust between cluster members.	4,25
Lack of financial resources.	4,00
Lack of knowledge about clusters and network structures, unfamiliarity.	3,50
Lack of knowledge concerning the management of clusters and network structures.	3,25
The positive effects of clusters are visible only in the long run.	3,25
Objections from company owners.	3,00
Lack of support from top management in companies.	3,00
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	2,75
Lack of human resources.	2,50
Not-included experts to advice on the development of clusters.	2,50
We found that clusters do not produce the expected results.	2,25

Biggest challenges in clusters in the early stages are seen in the problem of financing, attracting of dynamic members, creating the feeling of mutual trust between members, formation of strategy,

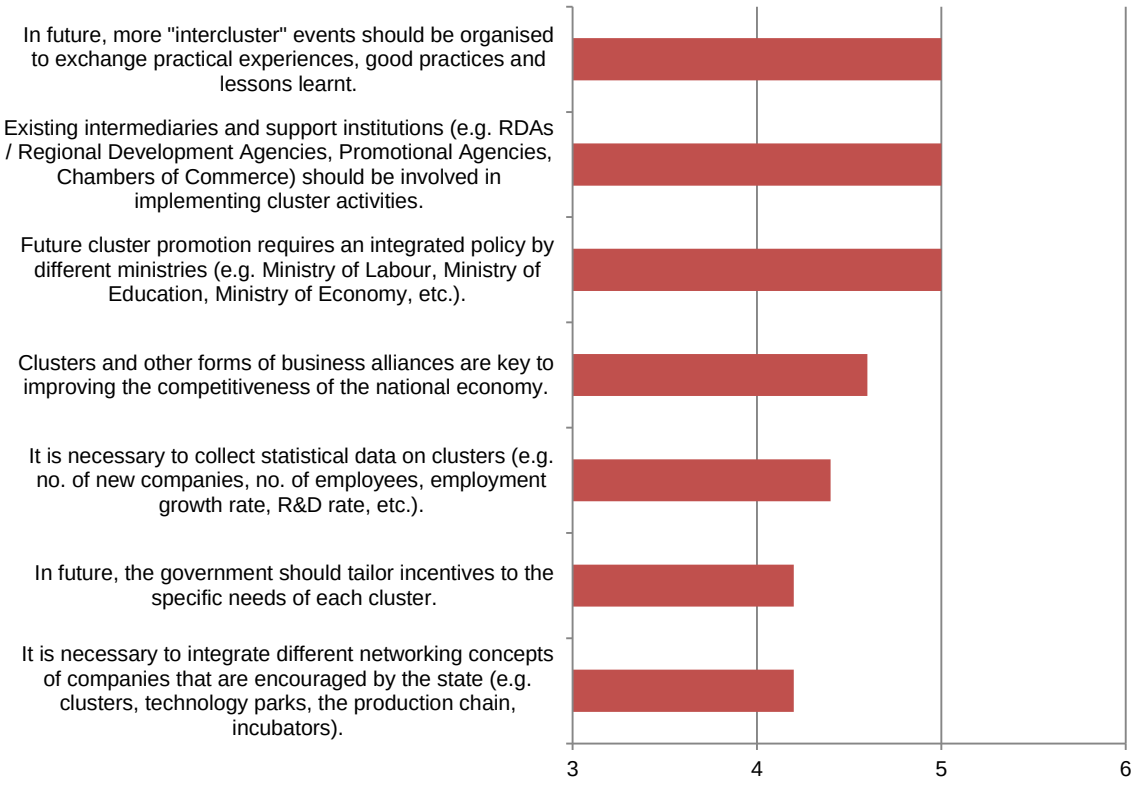
creation of a common and strong vision for all members, knowledge combination among its members, and in **later phases of cluster development in** building members' trust, obtaining special sector skills for cluster office employees, searching for funding opportunities (both for the office and the members), developing innovative products and services, access to markets.

From the stakeholder perspective biggest challenge in early stages is the fact that benefits materialises in the early phases of cluster development, so the members are not discouraged in their efforts. **In later phases biggest challenges** are connected to tax and other incentives for private financing: establishment of indicators and a well-designed evaluation process. The goal should be private financing. For those clusters that have been developed under public financing it is recommended to cut the public financing for a certain period (e.g. for 2 years) in order to see which are healthy and which not. After that period, the healthy clusters could have again public financing (the same or increased).

Implications for further cluster policy development – cluster perspective

For managers of analysed Greek clusters the most important role of the state promoting cluster development is in the following areas: co-financing of joint projects is carried out in the cluster, attracting foreign investment, increasing export and internationalisation of clusters. The most important implications for further cluster (policy) development on average are the claims that future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.), existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities and in future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt. The less important implication on average is the claim that it is necessary to integrate different networking concepts of companies that are encouraged by the state (e.g. clusters, technology parks, the production chain, incubators) (Figure 54).

Figure 54: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder perspective

According to stakeholder the state should promote in general the entrepreneurial culture, while concerning public financing the state should establish indicators and evaluation systems in order to realise the right way of cluster development.

From the stakeholder perspective the main areas / topics of cluster policy making where all Greek regions could learn the most from other region's experiences are:

- Internationalisation: for example Austria Wirtschaftsservice is currently running two support instruments on behalf of the Federal Ministry of Economy, Family and Youth to support the internationalisation of Austrian clusters.
- National cluster platform of Austria.
- Smart Specialisation: for example Strategy: Technopol Program Lower Austria which supports strengthening / development of regional potentials, Specialisation in niches – forming critical mass, avoiding duplication with Vienna and other R&D hubs nearby.

HUNGARY

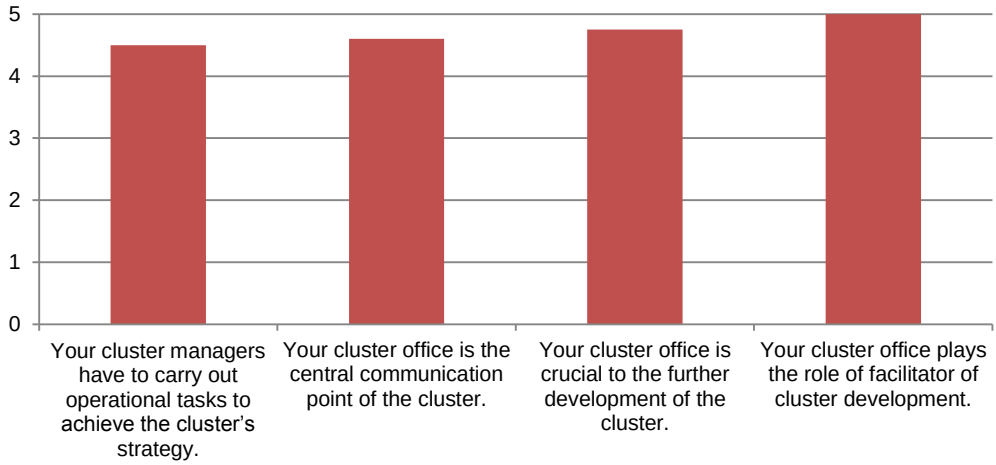

Brno
Slovensko
(Slovakia)
Košice
Linz
Wien
Trnava
Bratislava
Miskolc
Parcul
Natural Munții
Maramureșului
Budapest
Debrecen
Graz
Oradea
Magyarország
(Hungary)
Maribor
Cluj-Napoca
Szeged
Arad
Pécs
Slovenija
(Slovenia)
Zagreb
Timișoara
Trieste
Karlovac
Novi Sad
Sisak
Mapdata ©2013 GeoBasis-DE/BKG (©2009), Google

4.6 Hungary

4.6.1 Basic information about clusters

Hungary is one of the countries with the number of cluster members below the cluster average (SEE overall), while it is above the average of cluster management staff, indicating potential for improved efficiency. We have received 3 filled questionnaires from Hungarian cluster offices.

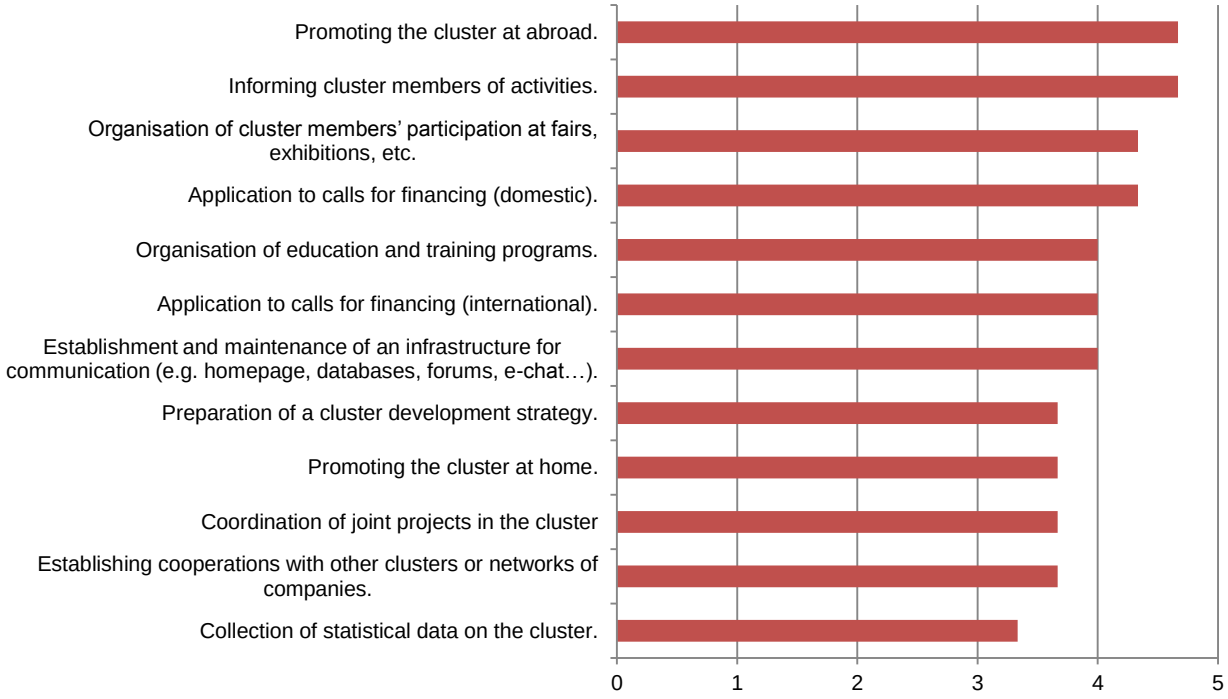
Figure 55: The role of the cluster office (1 disagree - 5 fully agree)



The most important role of cluster office is seen as facilitator of cluster development, while the less important roles of cluster offices are the role of carrying out operational tasks to achieve the cluster's strategy, followed by role as the central communication point of the cluster (Figure 55).

The most important task of cluster office is considered promoting the cluster abroad and informing cluster member activities. The least important task is considered collection of statistical data on the clusters (Figure 56). Three most important skills that cluster leader should possess differ significantly between clusters. Cluster 1 proposes project management skills, communication skills and professional competence, Cluster 2 has expressed the following skills as the most important: good communication and executive ability, business and economic relationship and Cluster 3 has exposed the following skills: cooperation, problem-solving skills and knowledge transfer.

Figure 56: **The importance of cluster office in different tasks (1 not at all important - 5 very important)**



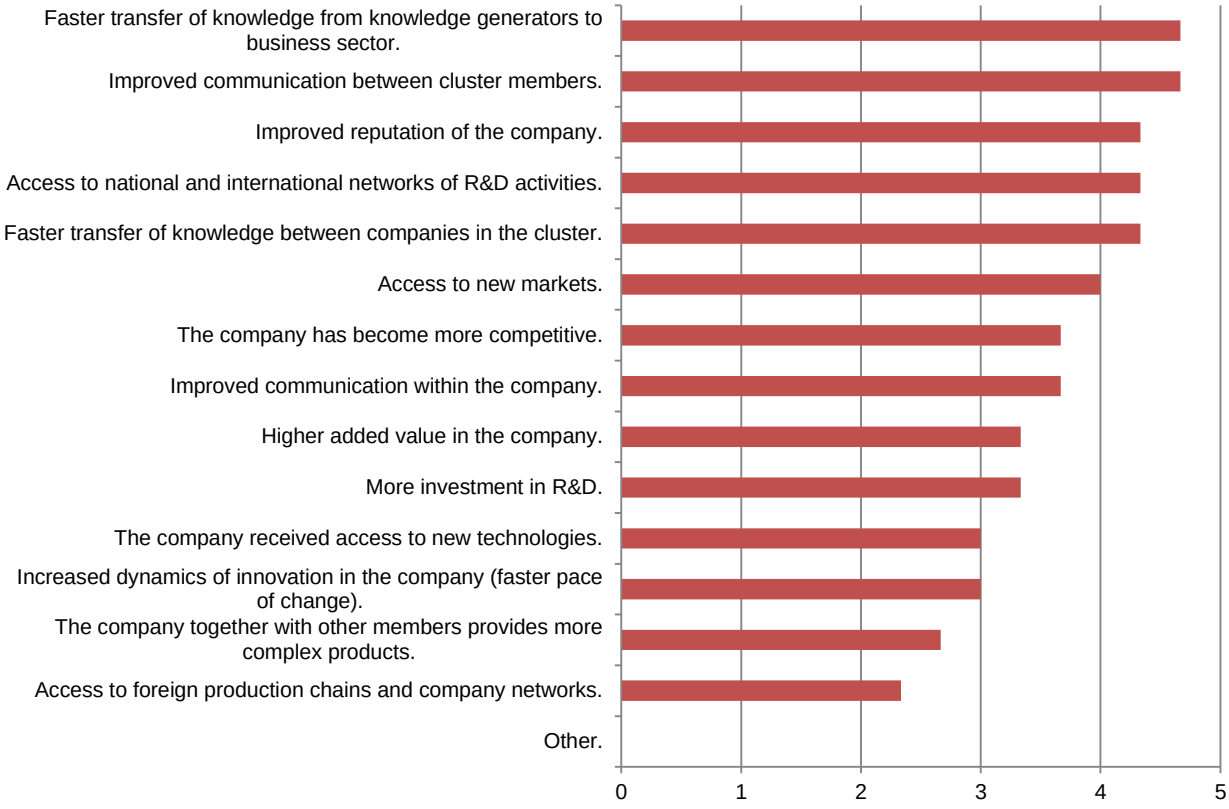
4.6.2 Cluster impact assessment

Added value of membership

The highest added value of cluster membership from the perspective of cluster organisations is in improved communication between cluster members and faster transfer of knowledge from knowledge generators to business sector. The lowest added value is considered access to foreign production chains and company networks (Figure 57).

Despite the fact that all clusters are different, **from the stakeholder perspective a number of common features stand out as underpinning the development of successful clusters throughout West Panon region**. Common factors are ranging from 'softer' elements of cluster working such as networks and institutional development, through 'harder' aspects, such as physical infrastructure or the presence of large firms, to more intangible elements, such as the presence of leadership or an entrepreneurial culture. A number of other factors that have contributed to the development of successful clusters can also be identified, such as access to markets, to finance or to specialist services, in the West Pannon region.

Figure 57: **Added value of membership in clusters (1 negligible effects – 5 very strong effects)**



From the evidence three factors can be identified that are critical for the development of successful West Pannonian clusters:

- The presence of functioning networks and partnerships, existing and future cooperation;
- A strong innovation base, with supporting R&D activities where appropriate;
- The existence of a strong skills and available professionals' base.

Four other factors also are seen to contribute to successful cluster development, but do not figure as prominently in the evidence:

- An adequate physical infrastructure;
- The presence of large firms: OEMs;
- A strong entrepreneurial culture entrepreneurial spirit; and
- Access to sources of finance.

Finally, a range of other factors have complemented the development of successful clusters in different circumstances. These factors, such as advice may help individual businesses, but are not explicitly cluster focussed from stakeholder's point of view.

Key success factors

The most important success factor of clusters is successful finishing of initial joint projects. The least important success factor is considered the active participation of members of the cluster (see Figure 58).

Figure 58: Key success factors of clusters (1 not at all important - 5 very important

Implementation of activities

Fully implemented activity in clusters includes forming a critical knowledge mass in the industry in which it operates. While the least implemented activity includes cluster members applying together for tenders in the EU or elsewhere abroad (Figure 59).

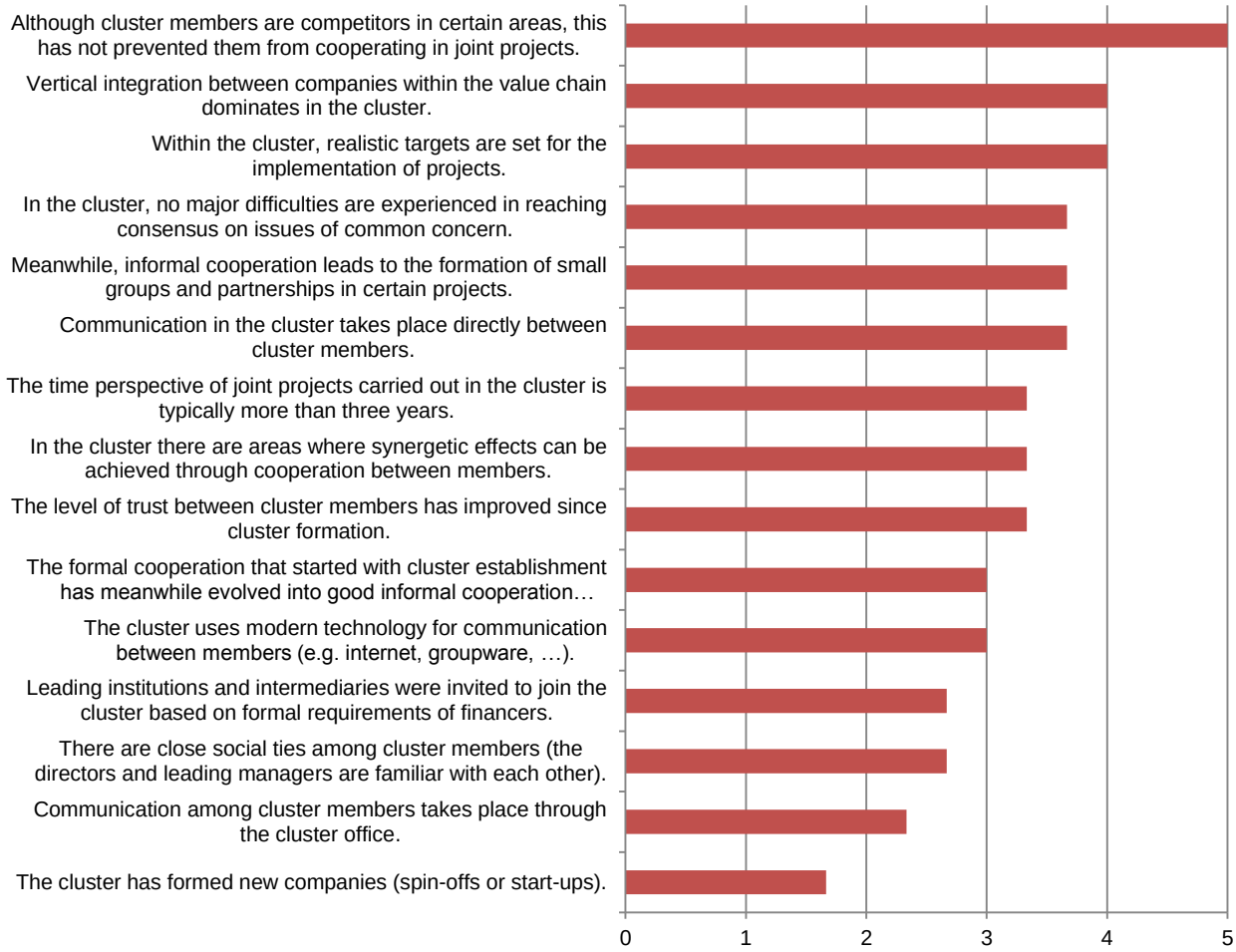
Figure 59: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

4.6.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristic of Hungarian interviewed clusters include on average the claim that although cluster members are competitors in certain areas, this has not prevented them from cooperating in joint projects. The clusters mostly disagree with the claim that they have formed new companies (spin-offs or start-ups) (Figure 60).

Figure 60: Cooperation and networking characteristics (1 disagree - 5 fully agree)



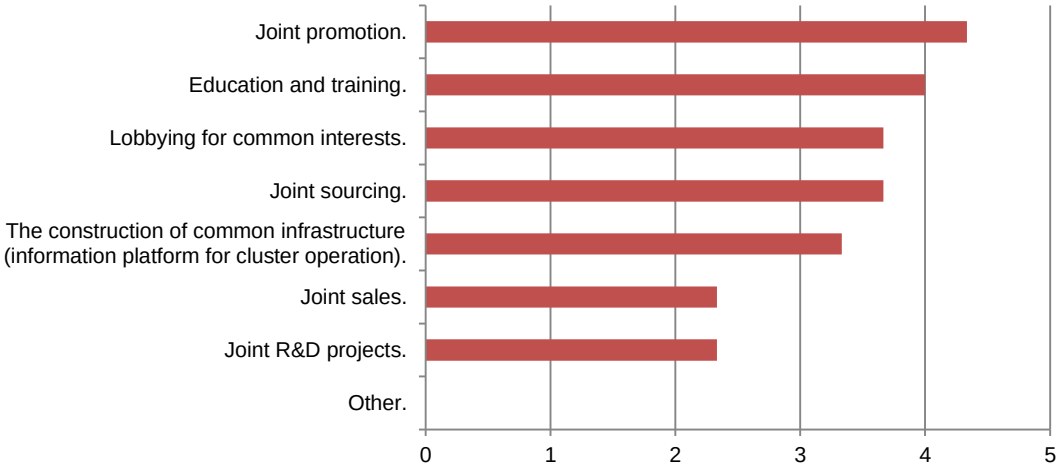
We have also asked clusters about their frequency of communication with national financer, cluster members and directors of the company members. In Hungarian clusters communicate on average with the national financer (ministry, state) a few times a year (M=1,67), while they on communicate with cluster members at least once a week (M=3,67) and they meet the directors of the company members at least once a month (M=2,67). The prevailing forms of communication are mainly indirectly and also directly through the cluster office (e-mail or face to face).

Areas of cooperation

The most common area of cluster cooperation is joint promotion, while the most rarely area of cooperation is in joint R&D projects (

Figure **61**).

Figure 61: Areas of cooperation (1 – do not cooperate, – 5 cooperate a lot)



In near future clusters from Hungary are planning the most activities in following areas from above: education and training, joint promotion, joint sourcing and lobbying for common interest.

Selection of cluster projects and partners

The Hungarian clusters select and implement their projects based on interviews of cluster members, projects which have support by members and the call for proposal which contain such goals which are included in the cluster strategy. In two of Hungarian clusters cooperation in their projects is allowed also to non-cluster members, while in one it is not allowed. Just one cluster has responded (negatively) to the question which regards the experience of the presence of companies which are not cluster members, but they have been already involved in joint projects, the other two have not experienced this kind of cooperation yet.

All three Hungarian clusters have currently no venture capital funds, incubators, technology parks, neither large companies (more than 250 employees) and nor companies providing specialized services (e.g. IT support, process automation, certification…) in their clusters. They consist of: small innovative firms (less than 50 employees; all 3 of them), consulting firms (e.g. legal / financial / tax consultancy, marketing…; just 1 cluster), educational institutions (e.g. universities, colleges…; 2 clusters) and research institutions (e.g. institutes, laboratories…; 2 clusters).

In future they believe that it is very important to include in cluster members small innovative companies (less than 50 employees) and educational institutions (e.g. universities, colleges…). While they feel that it would be important also to include: consulting firms (e.g. legal / financial / tax consultancy, marketing…), research institutions (e.g. institutes, laboratories…) and venture capital funds. As less important (but still need to be included) they believe are: large companies (more than 250 employees),

companies providing specialised services (e.g. IT support, process automation, certification…), incubators and technology parks.

4.6.4 Innovation R&D

R&D projects

Just one cluster of Hungary stresses the importance of research, development and innovation, while other two do not consider as important areas of research, development and innovation. This statement is also evident from their project activities in the last three years. They have not elaborated neither one R&D&I project idea within the clusters, neither implemented nor realised.

Forms of organisation for support of R&D

The analysed Hungarian clusters all know the concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. Cluster 1 is in contact with clusters, technology parks, technology networks, centres of excellence, incubators and other types of business networks in their home country and also with all of them abroad. Meanwhile Cluster 2 is in contact with clusters, centres of excellence and other types of business networks in their home country and also with all of them abroad. Cluster 2 has no contact with technology parks, technology networks and incubators in their own home country and neither with them abroad. Cluster 3 is in contact just with clusters in their home country, while they have no contact with technology parks, technology networks, centres of excellence, incubators and other types of business networks. Cluster 3 does not have neither in one of them (clusters, technology parks, technology networks, centres of excellence, incubators and other types of business networks) contact abroad.

Cluster 1 is actively involved in the preparation and/or public discussions of the innovation policies and instrument creation on regional and national level, while does not participate on EU-level. On regional level and also national level they are involved in direct communication with department of regional and national environments, also working groups. Other two clusters are not actively involved in the preparation and/or public discussion of innovation policy and instrument creation.

4.6.5 Sustainability

Cluster 3 did not set any objectives related to the support of eco innovation and does not carry out any activities of this type; therefore they cannot supply any good practices. While Cluster 2 has set objectives with regard to support of eco innovation and their cluster strategy also includes objectives related to eco innovation. Cluster 1 is an exception, because it has set objectives with regard to support eco innovation, while does not include in their cluster strategy any objectives related to eco innovation.

Activities related to eco innovation

Cluster 1 as we have already mentioned above, has not set any objectives related to the support of eco innovation and therefore has not carried out any activities of eco innovation. Cluster 2 has carried out the following activities related to eco innovation: awareness raising, distribution of information, support for introduction of eco-standards and support to investments to improve eco friendliness. Cluster 3 has not carried out neither one activity related to eco innovation.

Examples of good practices of eco-innovation

Cluster 1 did not set any objectives related to eco innovation, therefore examples of good practice cannot be described, because they have not elaborated any eco innovation in the last past three years, the same we can say about Cluster 3. While Cluster 2 has made a propagation of renewable energy in the last past three years.

4.6.6 Internationalisation

Internationalisation strategy is set as important (not mentioned how on the scale form 1-5) in all Hungarian clusters. Just Cluster 3 has an internationalisation strategy, while Cluster 1 and 2 do not have it. The main activities of internationalisation strategy in Cluster 3 include the following activity – cluster office/representation abroad.

The strategy they currently follow (Cluster 3) includes the following activities: participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking, participation of companies in international projects, participation of cluster organisation in international projects, inclusion of foreign companies in the cluster and cluster office/representation abroad.

Table 29: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	1
B2B matchmaking.	1
Participation of companies in international projects.	1
Participation of cluster organisation in international projects.	1
Inclusion of foreign companies in the cluster.	1
Cluster office / representation abroad.	1
Other	0

On average internationalisation is considered as very important (M=4,33 on scale from 1-5). Cluster 3 cooperates with the development of European Pellet Qualification System as the member of European Pellet Council.

4.6.7 Financing

Financing structure

Cluster 1 has not expressed how it was initially financed and neither how they expect to be financed in the future. Cluster 2 was initially financed by membership fees, EU sources from tenders, while in future they expect to have higher incomes from services and regional supporting. The average fee in Cluster 2 is 4.464,29 € and the above amount depends on income of companies. Cluster 3 was initially financed by EU support and membership fees, they have not express their expectations for the future, while their membership fee on average is 1.000,00 € and there are no significant differences between the members – they are all paying the same amount of membership fee. Self-financing is important goal for all three of Hungarian clusters, on average they believe that their clusters should have 25 members to be independently funded (with membership fees). Their clusters at the moment are sufficiently capable of self-financing (M=1,5 on scale from 1-3).

Their current structure of funding is: 75% of funding from the Structural Funds and other EU-funds, followed by 25% of own resources (brought in by members of the cluster). While their ideal structure of financing would be: 40% of own resources (brought in by members of the cluster), followed by 30% of funding from the Structural Funds and other EU-funds, 20% of national funds – REGIONAL and 10% of sponsorships (Table 30).

Table 30: Cluster financing structure (current and ideal)

Cluster (incl. activities and projects) financing structure (current -% of total funding)	
Current rate of funding (in total 100 %)	
a) Own resources (brought in by members of the cluster)	25
b) National funds - REGIONAL	0
c) Funding from the Structural Funds and other EU-funds	75
d) Sponsorships	0
e) Other:	0
please specify "Other" (text):	/
Ideal rate of funding (in total 100 %)	
Own resources (brought in by members of the cluster)	40
National funds - REGIONAL	20
Funding from the Structural Funds and other EU-funds	30
Sponsorships	10
Other:	0

Applications for financing

Clusters 2 and 3 have not carried out any activities/joint projects in the cluster without national/EU co-financing (i.e. just with member co-financing), while both of them are planning to apply for EU funding in 2013/2014 (from the Cohesion Funds, Horizon 2020, CO SME, etc.). Meanwhile Cluster 1 has not responded to the previous questions.

As we have written already above, they are also planning to apply in future for funds; namely: ERDF European Regional Development Fund (2 clusters) and EUREKA (1 cluster) (Table 31). For the future

their ideal model of cluster financing would be increase of incomes from cluster services (expressed by one cluster, other two have not responded the question).

Table 31: **Intended funds from applying**

Funds from applying for funding	Number of clusters intended applying for funds
CF Cohesion Fund	0
ERDF European Regional Development Fund	2
ESF European Social Fund	0
EAFRD European Agricultural Fund for Rural Development	0
EMFF European Maritime and Fisheries Fund	0
FP 7 / Horizon 2020	0
COSME	0
EUREKA	1
Other	0

4.6.8 Smart Specialisation

Just one cluster is involved in elaborating and implementing (future) smart specialisation in their region, while the other 2 clusters are not.

Characteristics and implementation of smart specialisation

Hungarian clusters have expressed as the most important characteristics and implementation of smart specialisation the following statements: the cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies, further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation, the cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation, good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand, the cluster primarily addresses the implementation of sectorial strategies, the cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies and the cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.

While as less important strategies they have suggested the following ones: tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities, the cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.), strengthening cluster members' capability regarding collaboration, cluster as an important player of the national innovation system and cluster as a key player of the regional innovation system.

Table 32: **Characteristics and implementation of smart specialisation strategies (1 – not important, 5 – very important)**

Characteristics and implementation of smart specialisation strategies	1 – not at all important, 5 – very important
The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies.	4,00
Further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation.	4,00
The cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation.	4,00
The cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.	4,00
Good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand.	4,00
The cluster primarily addresses the implementation of sectorial strategies.	4,00
The cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies.	4,00
The cluster is a key player of the regional innovation system.	3,00
In addition, the cluster is an important player of the national innovation system.	3,00
How important is it to strengthen cluster members' capability regarding collaboration?	3,00
The cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.)	3,00
Tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities.	3,00

Hungarian clusters have not responded the two questions regarding the 3 main relevant topics regarding elaboration of smart specialisation strategies and neither about the 3 main relevant topics regarding implementation of smart specialisation strategies, because they do not apply any of them. While just one cluster has responded that they see their cluster (office) (more) in the role of implementing the region's smart specialisation strategy, since they follow the strategy set by the region, while other two clusters have not responded the question.

4.6.9 New skills and job creation

The clusters think that the objective «new skills and job creation» is moderately important in regard to their cluster strategies. Their importance is described as «theoretical training, on the job training, study visits, both inland and abroad» and by the other cluster as «supporting market position of member companies».

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focuses mostly on informing cluster members of training and qualification programs for their staff, followed by organisation of seminars to offer training and education to cluster members' and cluster office' staff. Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff is of the least importance (Table 33).

Table 33: **Main implementation activities of new skills and job creation on average**

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	4,33
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,00
Involvement in elaborating curricular for high schools and vocational training centres.	3,00
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	2,67
Awareness-raising concerning the retention of older, qualified staff in the workforce.	2,67
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	2,67
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	2,33
Support and motivation of young entrepreneurs.	2,33
Promoting the hiring of disadvantaged staff.	2,00
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,67

4.6.10 Barriers and implications for cluster development

Main barriers for cluster development

The main barriers regarding cluster development are: lack of knowledge about clusters and network structures, unfamiliarity, lack of financial resources, bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions) and the positive effects of clusters are visible only in the long run. Lack of support from top management in companies is considered as the least important barrier for cluster development.

Table 34: **Main barriers for cluster development**

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	4,33
Lack of financial resources.	4,33
The positive effects of clusters are visible only in the long run.	4,33
Lack of knowledge about clusters and network structures, unfamiliarity.	4,33
Not-included experts to advice on the development of clusters.	4,00
Lack of knowledge concerning the management of clusters and network structures.	3,67
Lack of human resources.	3,67
Mistrust between cluster members.	3,33
We found that clusters do not produce the expected results.	3,33
Objections from company owners.	3,00
Lack of support from top management in companies.	2,67

From the **stakeholder perspective the main barriers** regarding cluster development are:

- Lack of available financing instruments,

- Weak policy support from national institutions,
- Lack of available university and R&D infrastructure,
- Difficult access to cluster related funding,
- Lack of past experiences.

According to stakeholders more effective cluster policy making could be achieved considering following solutions:

- Development of networks on financial support,
- Development of policy instruments both at regional and national levels,
- Better coordination between University and other institutional R&D support,
- Development of networks on financial support,
- Learn from international best practices.

The biggest challenges in clusters in the early stages are seen in: weak motivation of possible members, lack of regional support, financing and lack of calculability from business policy. While in **later phases of cluster development the biggest challenges in clusters** are in: lack of further financing, lack of growing interest of member companies, lack of calculability from business policy and definition of the profitable results. From the stakeholder perspective the best way to increase West Pannon region economic competitiveness is to enhance innovative activities, while reducing the dependency on factor prices.

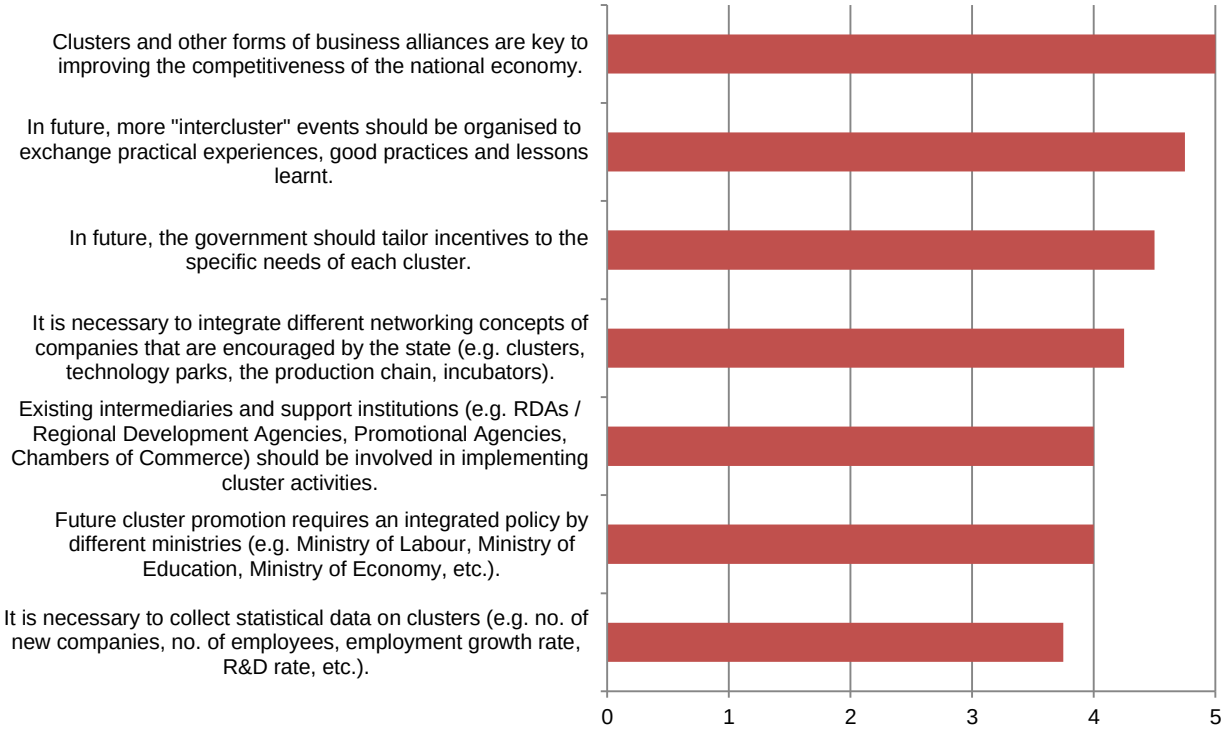
Main barriers for cluster development include:

- companies and institutional knowledge is available locally;
- rear interaction between the enterprises and universities, lack of flexibility
- lack companies investment in universities and local vocational schools;
- SME's are unlikely to join and cooperate when size is matters to receiving or completing an order.

Implications for further cluster policy development

The most important implications for further cluster (policy) development are that clusters and other forms of business alliances are key to improving the competitiveness of the national economy. The least important implication is that it's necessary to collect statistical data on clusters (e.g. no. of new companies, no. of employees, employment growth rate, R&D rate, etc.).

Figure 62: Implications for further cluster (policy) development on average (1 fully disagree – 5 fully agree)



Role of the state in promoting cluster development in certain areas

Clusters have indicated how important is the role of the state in promoting cluster development in certain areas. For the most important roles of the state they have indicated: co-financing of the cluster office, participation in EU projects, increasing exports and attracting foreign investment. As the least important state role the Hungarian clusters have indicated help in recruiting.

Table 35: **Role of the state in promoting cluster development in certain areas (1 – not at all important, 5 – very important)**

Role of the state is in promoting cluster development in certain areas.	1- Not at all important, 5 - Very important
Co-financing of the cluster office.	5,00
Co-financing of joint projects carried out in the cluster.	4,33
Organisation of cluster events.	3,67
Adaptation of existing institutions relevant to the proper functioning of clusters.	3,67
Education in the field of clusters and other network structures.	4,00
Promoting the concept of clusters and network structures in the economy.	4,00
Development of physical infrastructure (esp. telecommunications, transport ...).	4,00
Education and training.	4,00
Promotion of research and technological development.	4,67
Diffusion of information, accessibility for businesses (databases, info-centres…).	2,67
Help in recruiting.	2,00
Promoting the creation of enterprise networks.	3,67
Promoting start-ups and the creation of small businesses (incubators).	4,33
Improving access to venture capital.	4,67
Attracting foreign investment.	5,00
Increasing exports.	5,00
Protecting the environment.	4,00
Supporting eco-innovations.	4,00
Internationalisation of clusters.	4,33
Participation in EU projects.	5,00

In line with EU Commission recent studies on clusters success factors they include: the existence of favourable cluster-specific framework conditions, the strength and dynamics of cluster firms and related actors, and the quality of cluster management. Stakeholders experienced only state and regional authorities are able to ensure the best environment for success of companies within the clusters!

According to stakeholders the main areas / topics of cluster policy making where West Pannon region could learn the most from other regions' experiences are following:

- existence of favourable cluster-specific framework conditions in the region,
- the strength and dynamics of cluster firms and related actors,
- the quality of cluster management,
- available specific, cluster tailored funding,
- strong policy support coming from the government.

ITALY – REGION EMILIA ROMAGNA

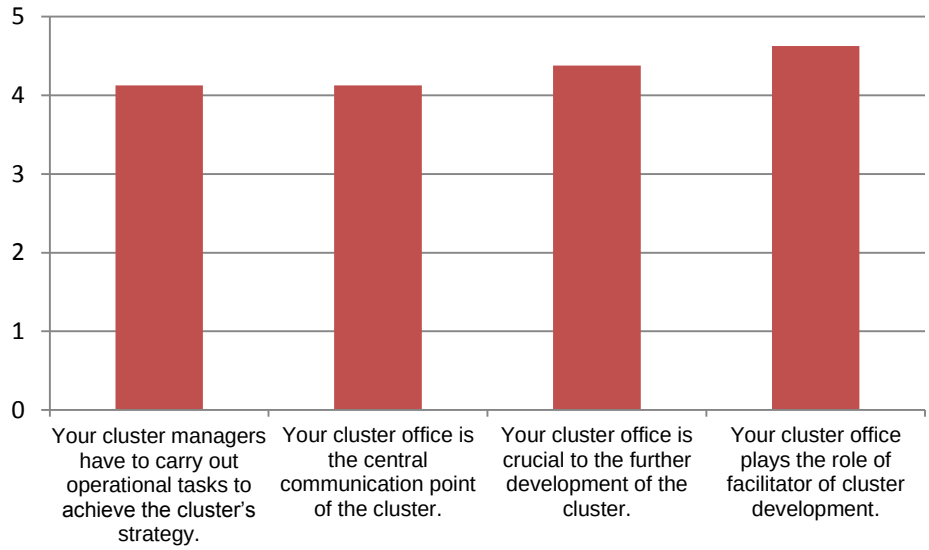
4.7 Italy (Emilia Romagna)

4.7.1 Basic information about clusters

For Italy's Emilia-Romagna (north-eastern region) we have received eight questionnaires from the region's clusters. With reference to the Emilia-Romagna section of the following overall impact assessment report (4.1), we want and have to underline that the indications coming out from the questionnaires concerning the role and tasks of the "cluster office" are intended to be especially referred to the specific regional program "From industrial districts to technology districts 2", in which projects are managed by a "network coordinator", which is a structure of industrial research and technology transfer accredited by the Region to be part of the High Technology Network of Emilia Romagna.

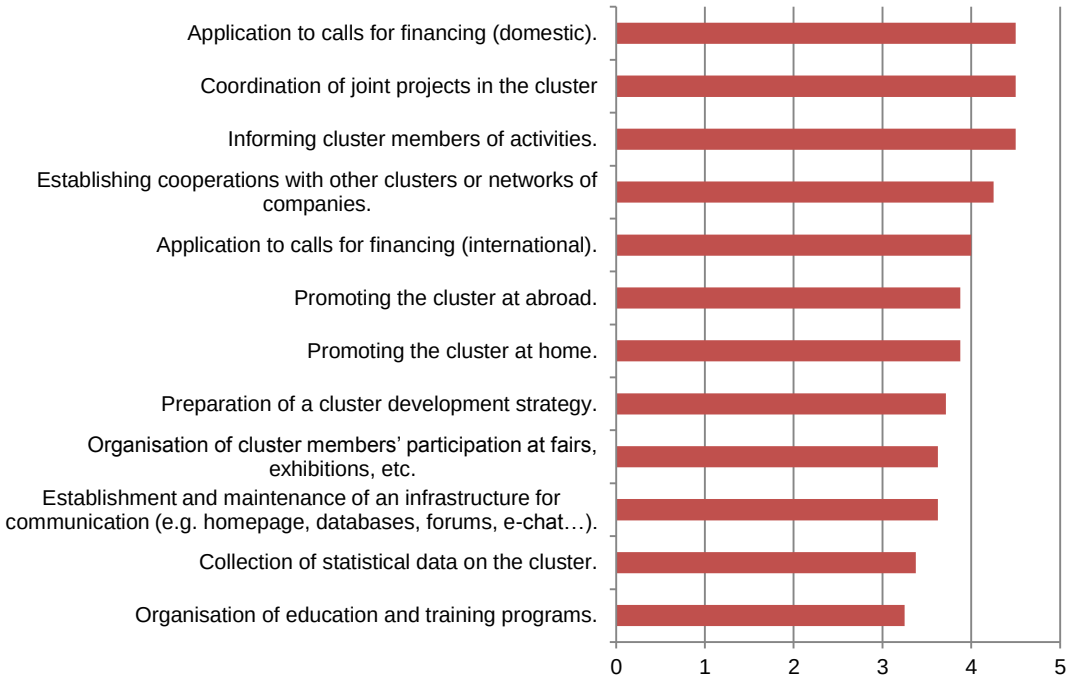
Therefore, since in Emilia-Romagna does not exist a cluster manager organisation, these network coordinators, created just for the duration and the objectives of the funded program, have been also identified as temporary cluster offices, in order to answer to clusters survey questionnaires.

Figure 63: The role of the cluster office (1 disagree - 5 fully agree)



The most important role of cluster office on average is seen as the cluster office plays the role of facilitator of cluster development, the less important roles are the cluster managers need to carry out operational tasks to achieve the cluster's strategy and the cluster office as the central communication point of the cluster.

Figure 64: The importance of cluster office in different tasks on average (1 not at all important - 5 very important)



The most important tasks of cluster offices are considered: informing cluster members of activities, coordination of joint projects in the cluster and application to calls for financing (domestic). The less important task is considered organisation of education and training programs (Figure 64).

The three most important skills that cluster leader should possess are: "soft skills" (communication, project management, leadership), "hard skills" (specific knowledge related to the cluster and the SMEs characteristics), and "innovation skills" (skills related to networking management and collaborative processes of innovation).

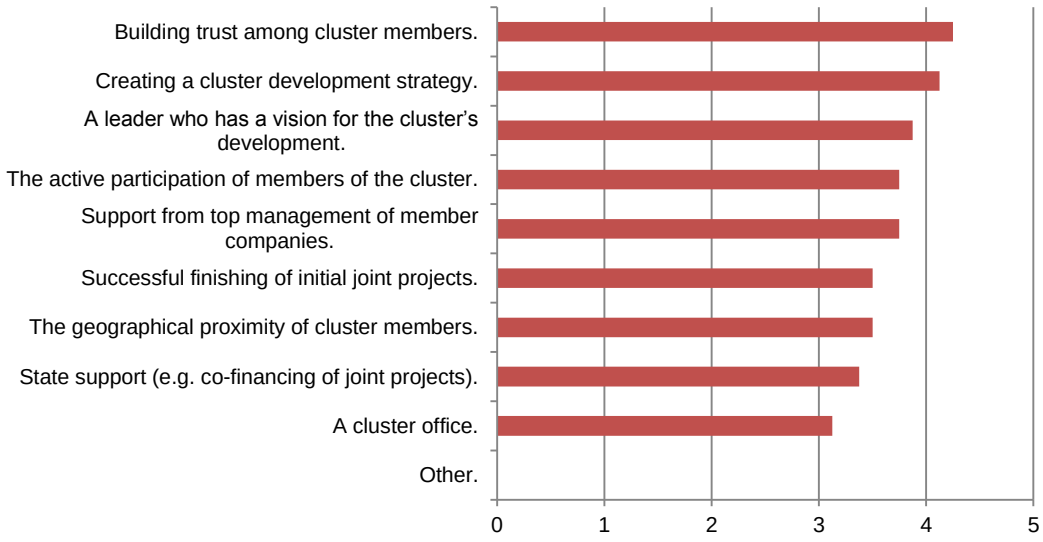
4.7.2 Cluster impact assessment

The highest added value of cluster membership from the perspective of cluster organisations is seen in improved communication within the company, higher added value in the company, the claim that the company has become more competitive. The lowest added value is considered the claim that the company received access to new technologies. (Figure 65).

Figure 65: **Added value of membership in clusters on average (1 negligible effects – 5 very strong effects)**

We can see, that the most important success factors of clusters on average are building trust among cluster members. The less important success factor is considered the cluster connects to other clusters and other business networks abroad (Figure 66).

Figure 66: Key success factors of clusters (1 not at all important - 5 very important)



The highest level of implemented activities is that the cluster organises education and training for members of the cluster. The lowest level of implementation of activities is considered the cluster performing activities to promote the cluster at abroad. (Figure 67)

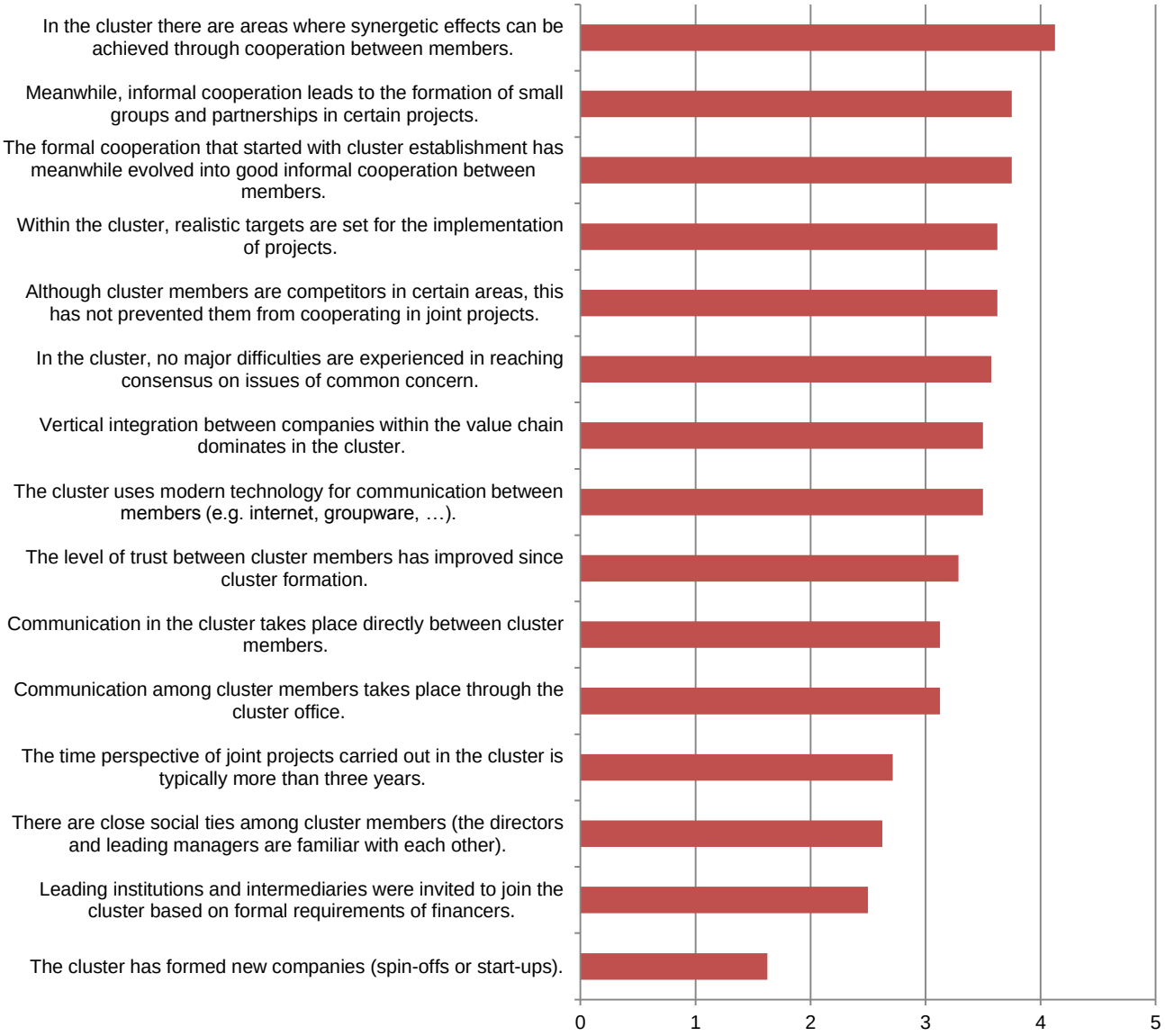
Figure 67: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

4.7.3 Cooperation and networking

The most common cooperation and networking characteristic are areas where synergetic effects can be achieved through cooperation between members. The lowest cooperation on average is seen in the claim that the cluster has formed new companies (spin-offs or start-ups) (Figure 68).

On average, Emilia-Romagna clusters communicate a few times per year with their national financer (ministry, state), have meetings with the directors of the company members at least once a month, and communicate with cluster members from at least once a month to at least once a weak. The prevalent forms of communication are phone calls and electronic correspondence, then meetings and personal visits.

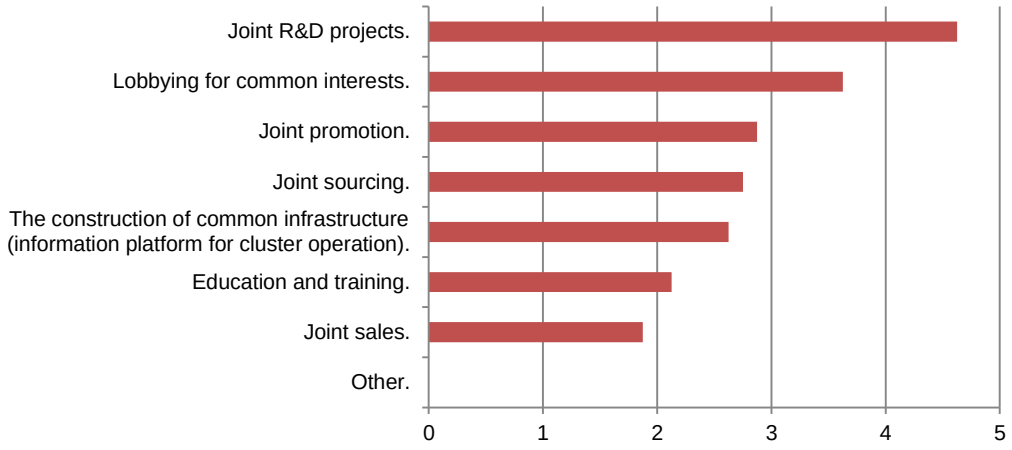
Figure 68: Cooperation and networking characteristics (1 disagree - 5 fully agree)



Areas of cooperation

The most common areas of cluster cooperation on average are joint R&D projects and to a lesser extent lobbying for common interests, while the most rare area of cooperation lies in joint sales. (Figure 69) The future plans of the clusters point into the continuing of joint R&D projects and lobbying, while some of them see the need to work on promotion and research.

Figure 69: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

The Emilia-Romagna clusters select their projects on the basis of promising technologies and companies determination in projects, the interest of companies, the skills of researchers, by considering the existing opportunities of acquiring new commissions and tasks, technology competitiveness and members will and strategy. Cooperation in their projects is allowed also to non-cluster members, with 5 clusters having such experiences.

The clusters' are currently comprised of mainly small innovative companies with less than 50 employees (all of the responses), large companies with more than 250 employees (6) and educational institutions (6). Currently there are only two consulting firms and technology parks, one incubator, while the clusters do not include venture capital funds. In the future, the clusters see the need to include more small innovative companies and educational and research institutions, while they do not see the need to include venture capital funds and consulting firms.

4.7.4 Innovation R&D

R&D projects

All of the Emilia-Romagna clusters state the strengthening of research, development and innovation as the key goal of their cluster strategy. That is clear from the figures – in the last three years they elaborated 14,33 project ideas, of which 5,83 are in implementation, while 7,93 of them were realised.

Forms of organisation for support of R&D

Just one of the responding clusters is not familiar with all the concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. The majority of the other clusters are in contact with such organisations in Italy and have collaborated with them in joint projects. The situation is slightly opposite for the same organisations abroad, as only a few clusters involved in our research are in contact or collaborating with these institutions abroad.

Five out of eight clusters are actively involved in the preparation and in discussions of the innovation policies on regional, national and EU level.

4.7.5 Sustainability

All participating clusters state that the regional/national cluster programme sets objectives with regard to support of eco-innovation, and their strategy (except for one of them) includes objectives related to eco-innovation (half of the clusters are primarily focused on sustainability). The most frequent activities, related to eco-innovation the clusters carry are: awareness-raising, distribution of information and training.

Examples of good practices of eco-innovation

Examples of good practices, pointed out by the participating clusters, include the participation in European projects, the elaboration and conception of eco-innovative building components and materials made from raw or recycled material, integrating systems among building and equipment components and new sterilisation methods for biomedical devices.

4.7.6 Internationalisation

Five of the participating clusters have an internationalisation strategy. The strategy they currently follow includes all listed activities, except for cluster offices or representatives abroad (only one of the clusters has them) (

Table 36).

The clusters on average think that internationalisation is important (3,71 on a scale from 1-5). They have cooperated with: Automotive Cluster of Slovenia, Poland, Czech Republic, Hungary, Russia and Turkey, “Artemisia” Platform, “Climate KIC” Platform.

Table 36: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	5
B2B matchmaking.	5
Participation of companies in international projects.	5
Participation of cluster organisation in international projects.	5
Inclusion of foreign companies in the cluster.	5
Cluster office / representation abroad.	5
Other	0

4.7.7 Financing

Clusters in region Emilia Romagna do not have a specific cluster financing system. The clusters are mostly financed by regional funds, one of them is self-financed (private billing). In the future, all of them expect to be partly self-financed by EU/national projects and still financed by Regional and own funding.

Financing structure

The average structure of funding of the clusters which gave an answer to the question (3) sees as the main resource Structural and other EU funds (63,33 %), followed by own resources (20 %) and national (regional) funds (16,67 %). The ideal structure, given by the clusters, is slightly more distributed, seeing the funds almost equally distributed between Structural and other EU funds (32,5 %), national (regional) funds (28,75 %) and own resources (26,25 %). Only one cluster has carried out activities/joint projects in the cluster without national/EU co-financing (i.e. just with member co-financing).

Applications for financing

Most of the clusters are considering applying for EU funding in 2013/2014. The majority sees possibilities in the FP 7 / Horizon 20202 programme, followed by the EUREKA programme and ERDF (

Table 37).

Table 37: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
CF Cohesion Fund	0
ERDF European Regional Development Fund	2
ESF European Social Fund	1
EAFRD European Agricultural Fund for Rural Development	0
EMFF European Maritime and Fisheries Fund	1
FP 7 / Horizon 2020	7
COSME	1
EUREKA	4
Other	0

Ideal financing model

The ideal model of the cluster is seen as an office that produces innovative solution for the business, so a portion of these results could be invested in the office, while still receiving public continuous financing at a 40% amount per year.

4.7.8 Smart Specialisation

Six of the Emilia-Romagna clusters are involved in smart specialisation strategies in their region.

Characteristics and implementation of smart specialisation

The clusters see the importance of members being convinced of the importance of collaboration, and see the cluster as a key player of the regional innovation system (4,17). The factor with less importance (but still relatively important) seems to be the focus of the clusters on the regional level (

Table 38).

Table 38: Importance of involvement in elaborating and implementing smart specialisation strategies

Importance of involvement in elaborating and implementing smart specialisation strategies	Importance (1 – Not important, 5 – Very important)
The cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation.	4,17
The cluster is a key player of the regional innovation system.	4,17
Further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation.	3,83
The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies.	3,83
In addition, the cluster is an important player of the national innovation system.	3,83
Good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand.	3,50
The cluster primarily addresses the implementation of sectorial strategies.	3,33
The cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.	3,17

For three of the participating clusters the 3 main relevant topics regarding elaboration of smart specialisation strategies are: cooperation and the implementation of new technologies. For the implementation they see the main relevant topics in research and innovation, structural investments, regional policy, energy saving, environmental sustainability, security, the adoption of sectorial strategies and of thematic-based strategies.

4.7.9 New skills and job creation

The clusters think that the objective "new skills and job creation" is important in regard to their cluster strategy. The achievement of this objective will be executed through: specialized personnel, the hiring of young researchers, the increasing of human capital and the activities connected to research and innovation in urban regeneration and buildings securing interventions.

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focus mostly on the organisation of seminars to offer training and education to cluster members' and cluster office' staff and support and motivation of young entrepreneurs, while they see of less importance the informing of the potential of immigrant staff as well as assisting and supporting immigrant staff. (

Table 39).

Table 39: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	3,50
Support and motivation of young entrepreneurs.	3,50
Informing cluster members of training and qualification programs for their staff.	3,33
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	3,17
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	3,00
Involvement in elaborating curricular for high schools and vocational training centres.	2,83
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	2,50
Awareness-raising concerning the retention of older, qualified staff in the workforce.	2,50
Promoting the hiring of disadvantaged staff.	2,50
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	2,17

4.7.10 Barriers and implications for cluster development

Main barriers for cluster development

The clusters on average experience as the main barriers for cluster development the lack of financial resources, followed by the lack of support from top management in companies and bank financing, while the least barrier is seen in the lack of human resources (Table 40).

Table 40: Main barriers for cluster development

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Lack of financial resources.	3,43
Lack of support from top management in companies.	3,14
The positive effects of clusters are visible only in the long run.	3,14
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	3,14
Mistrust between cluster members.	3,00
Objections from company owners.	3,00
Lack of knowledge concerning the management of clusters and network structures.	2,86
Lack of knowledge about clusters and network structures, unfamiliarity.	2,71
Not-included experts to advice on the development of clusters.	2,57
We found that clusters do not produce the expected results.	2,57
Lack of human resources.	2,43

The **Biggest challenges in clusters in the early stages** are seen in finding innovative solutions useful for the business through the member cooperation, the integration of different forms of knowledge, the creation of cooperation between the partners, the lack of knowledge, financial and human resources. The challenges in **later phases of cluster development** are seen in the development of innovative solutions, members and impact on the business, the design and production phase integration, the lack of support from top management, cost-cutting and internationalisation.

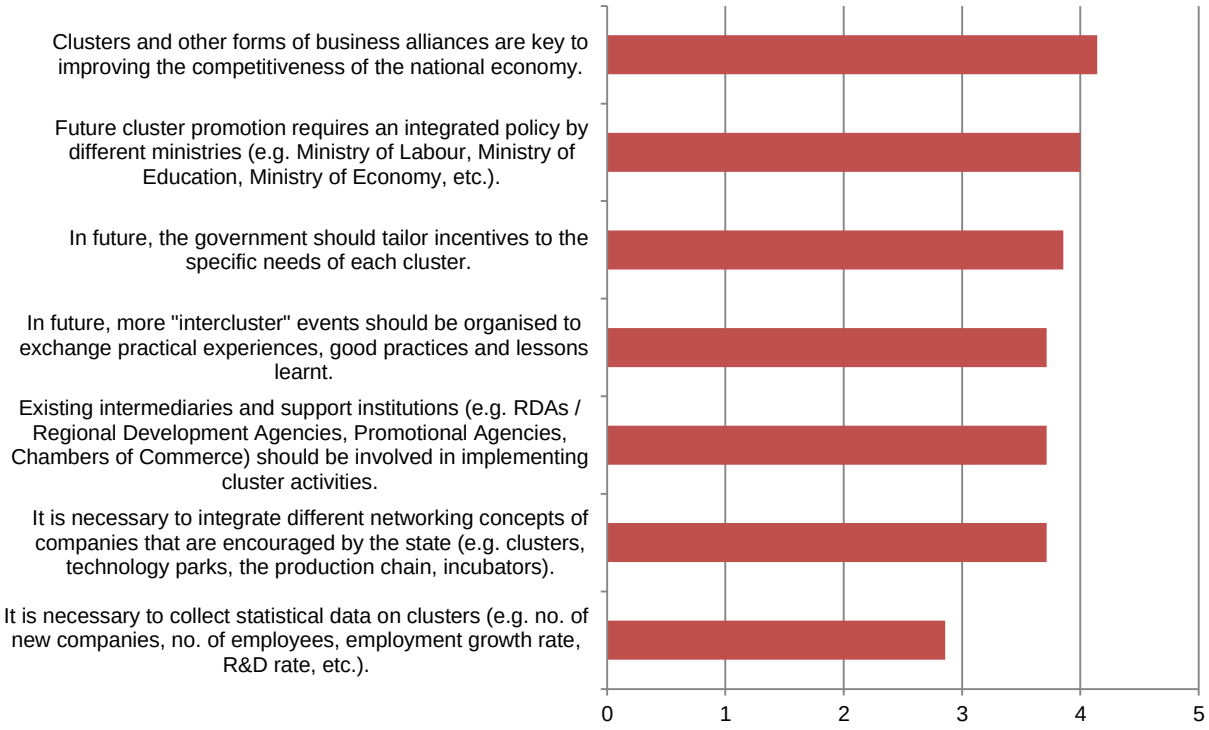
Implications for further cluster policy development

The clusters of the Emilia-Romagna region see the importance of the role of the state in promoting cluster development especially in the areas of co-financing of joint projects carried out in the cluster and the promotion of research and technological development. From the clusters' point of view the state has the lesser role in the organisation of cluster events and the promoting of the concept of clusters and network structures in the economy.

Clusters point to the implications for further cluster policy development mainly in the aspect that clusters and other forms of business alliances are key to improving the competitiveness of the national economy, while they think it is least important to collect statistical data on clusters (e.g. no. of new companies, no. of employees, employment growth rate, R&D rate, etc.) (Figure 70).

For promoting cluster development in the future, one cluster suggests the involvement of local governments who are called to express their interest to support, including financially, in complementary activities and functional development and exploitation of cluster.

Figure 70: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



ITALY – REGION MARCHE

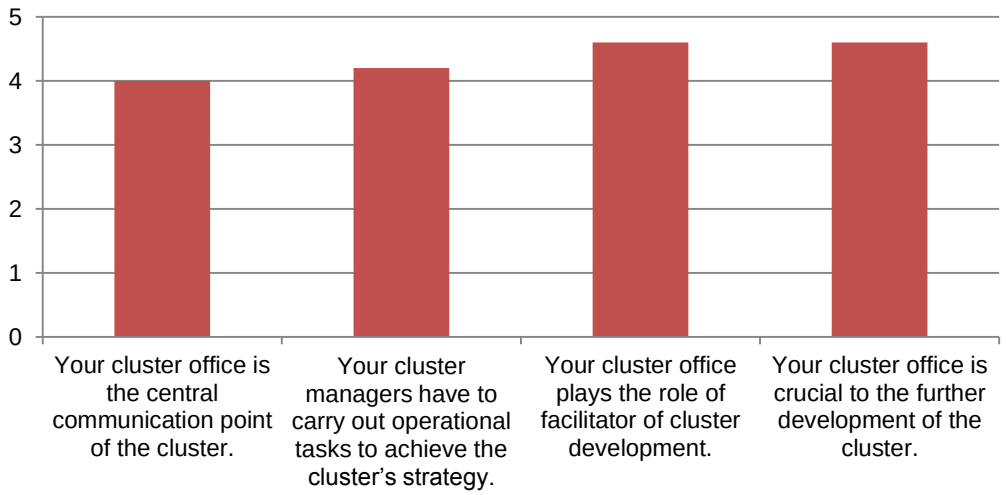
4.8 Italy (Marche)

Italy's central region Marche produced four responses by cluster organisations.

4.8.1 Basic information about clusters

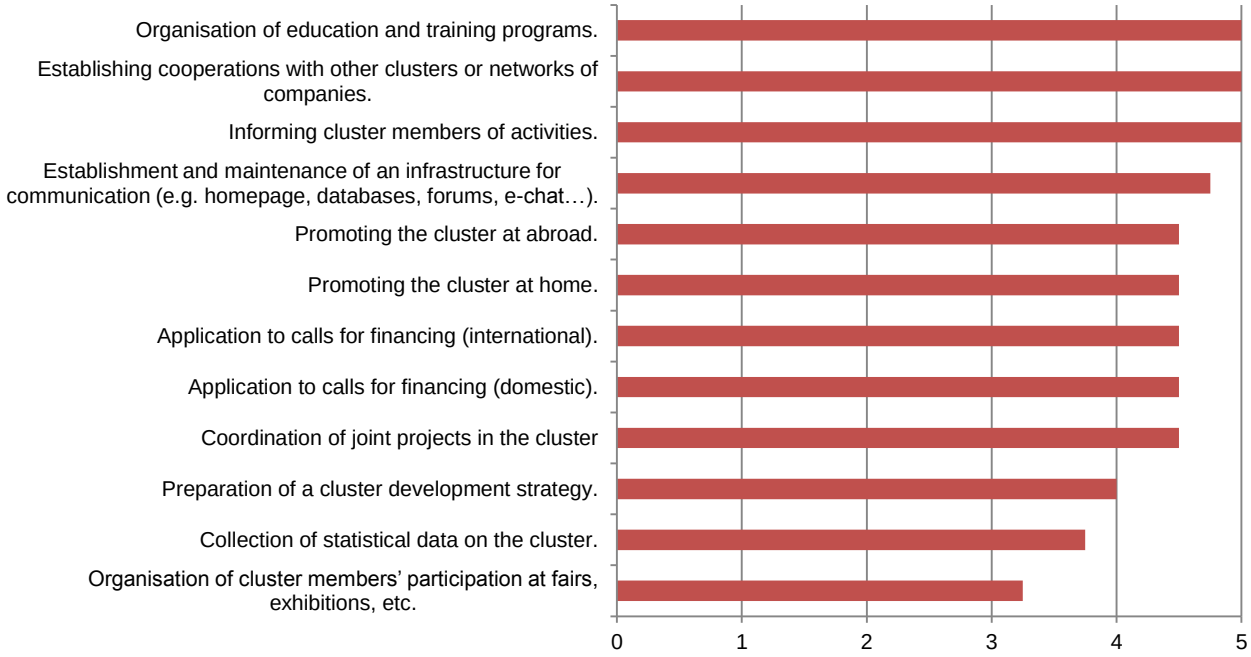
The most important roles of cluster office are the role of facilitator of cluster development and its crucial role for the further development of the cluster. The less important role is in carrying out operational tasks to achieve the cluster's strategy.

Figure 71: The role of the cluster office (1 disagree - 5 fully agree)



The most important tasks of cluster office on average are considered: informing cluster members of activities, establishing cooperation with other clusters or networks of companies and the organisation of education and training programs. The less important task is considered organisation of cluster members' participation at fairs, exhibitions, etc. (Figure 72).

Figure 72: The importance of cluster office in different tasks (1 not at all important - 5 very important)



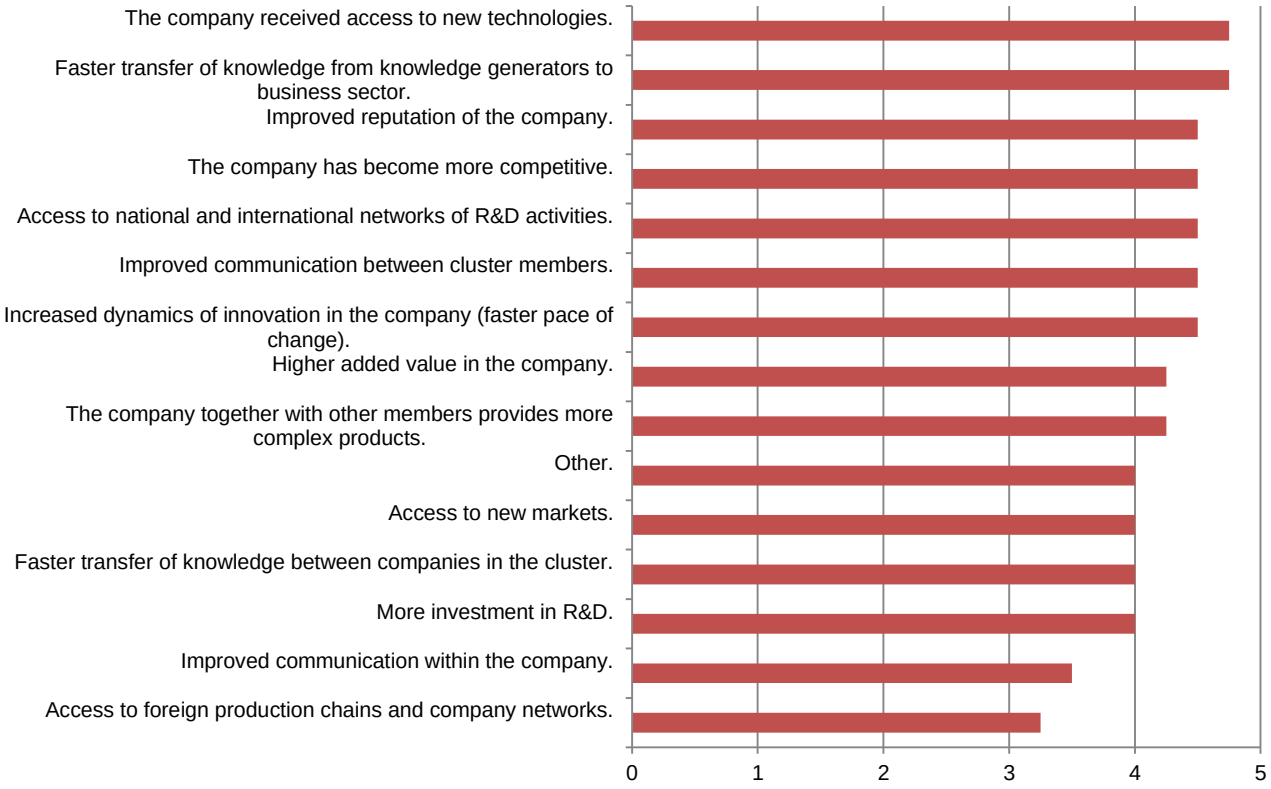
The three most important skills that cluster leader should possess are: knowledge of the sector, overall managerial competences and visionary skills.

4.8.2 Cluster impact assessment

The following section presents different perspectives of cluster impact assessment, including: added value of membership, key success factors and implementation of cluster activities.

The highest added value of cluster membership from the perspective of cluster organisations is seen in the faster transfer of knowledge from knowledge generators to business sector and the company receiving access to new technologies. The lowest added value is considered the access to foreign production chains and company networks (Figure 73).

Figure 73: Added value of membership in clusters (1 negligible effects – 5 very strong effects)

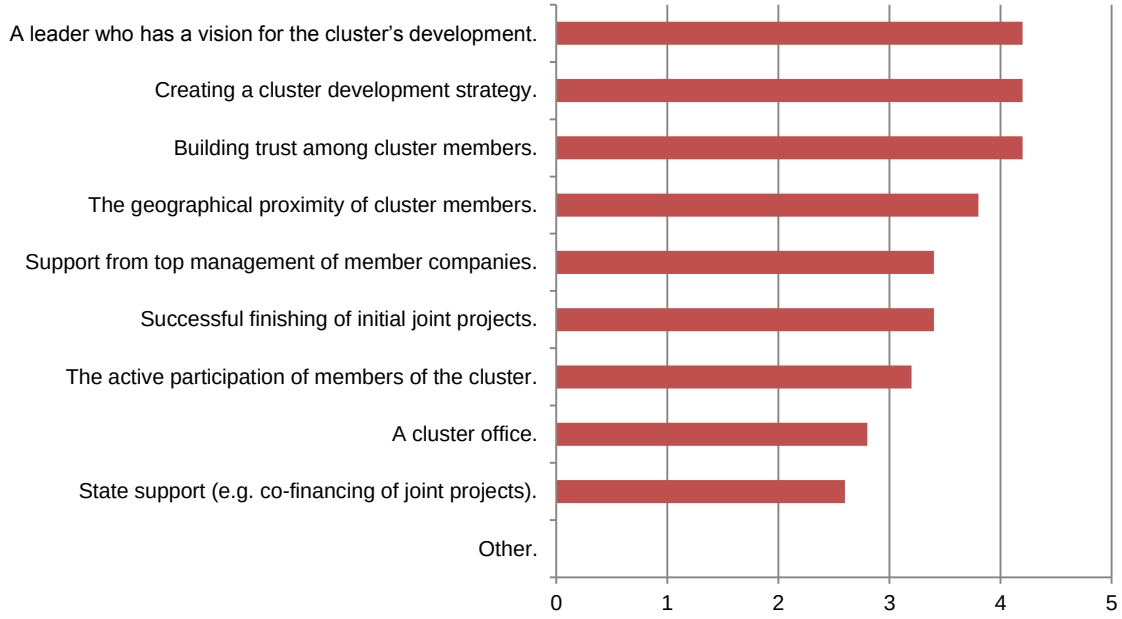


From the stakeholder view the key success factors / promoters of clusters in Marche Region is mainly seen in the activity of the regional government supporting competitiveness of industrial districts in the past years through the identification of industrial districts based on the indications provided by National Legislation, the identification of district value areas obtained by changing some parameters laid down by national legislation, the testing of the districts, the identification of the production districts as most extensive category in the framework of industrial districts. Based on this supports were given for projects aimed at improving the competitiveness of local production districts (mainly for industrial research, pre-competition development and technology transfer, internationalisation and promotion of quality and innovation; strengthening of the organisational system to facilitate the integration of supply chains, business networks and processes for enterprises aggregation and systemic actions among the different district areas, supply chains and business networks).

The regional district policy has evolved from a model of industrial cluster strongly linked to territorial specialisation to an organisational model of supply chain laying on a system of "enterprises networks." Further, the regional policy through the "Operative Plan for Productive Activities 2009-2011" proposed a new approach for regional districts support and development: integration among productive/manufacturing specialisations was pursued. So the districts were conceived not only based on their geographical location and proximity but also on the interaction/networking and partnership which could be established among different productive sectors all over the region, to optimize the policy impact.

That the most important success factors of clusters are: creating a cluster development strategy and the active participation of members of the cluster. The less important success factor is considered the geographical proximity of cluster members (Figure 74).

Figure 74: Key success factors of clusters (1 not at all important - 5 very important)



The highest level of implemented activities on average is the claim that the cluster members are designing and implementing joint projects and that the cluster forms a critical knowledge mass in the industry in which it operates. The lowest level of implementation of activities is considered the cluster connecting to other clusters and other business networks abroad and organizing and participating in trade fairs, etc. (Figure 75).

Figure 75: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

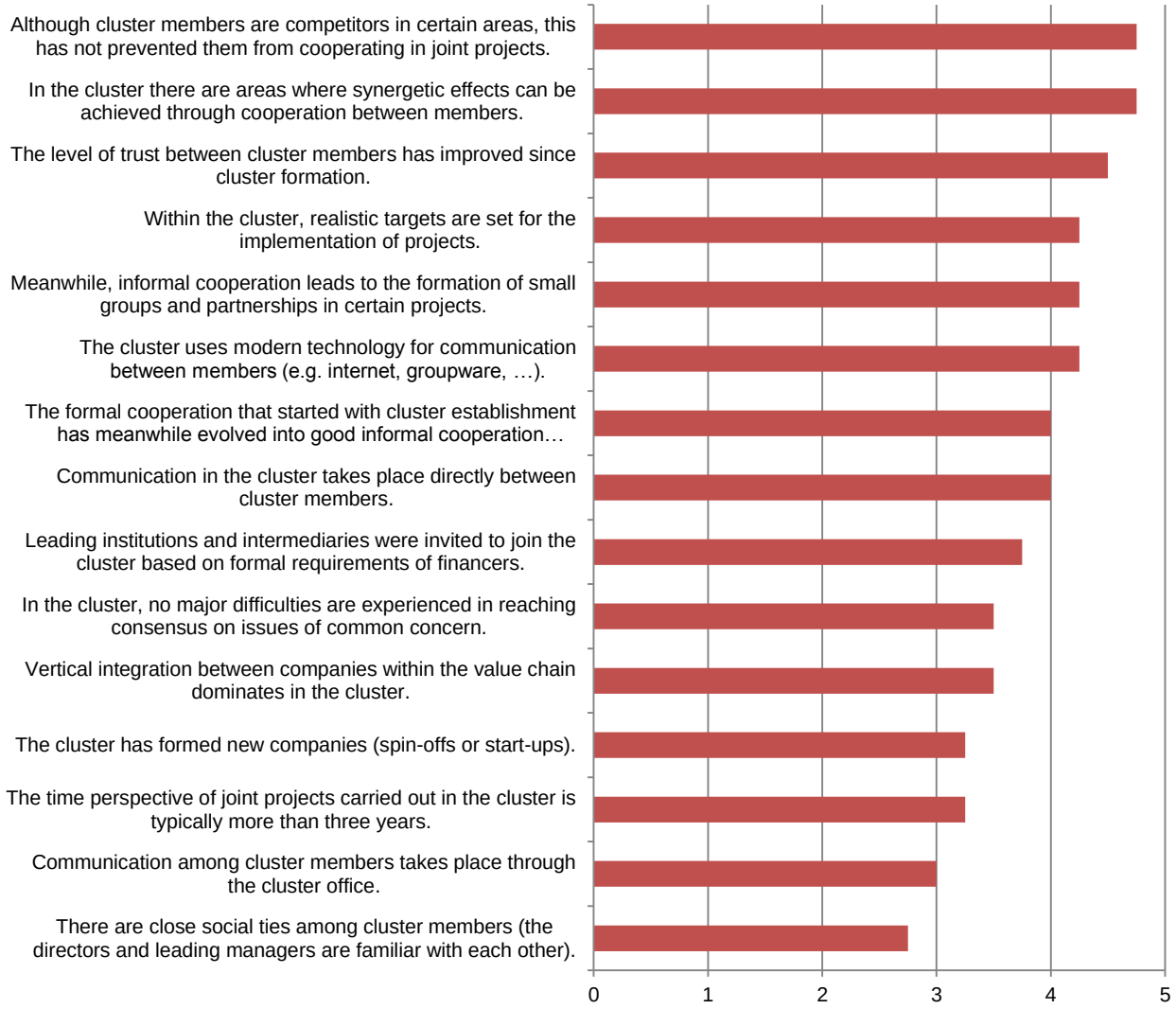
4.8.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristic are: in the cluster there are areas where synergetic effects can be achieved through cooperation between members and the opinion, that although cluster members are competitors in certain areas, this has not prevented them from cooperating in joint projects. The lowest cooperation is seen in the claim that there are close social ties among cluster members. (Figure 76).

Marche clusters communicate a few times per year to at least once a month with their national financer (ministry, state), have meetings with the directors of the company members at least once a month, and communicate with cluster members at least once a week. The prevalent forms of communication between cluster members are direct ones.

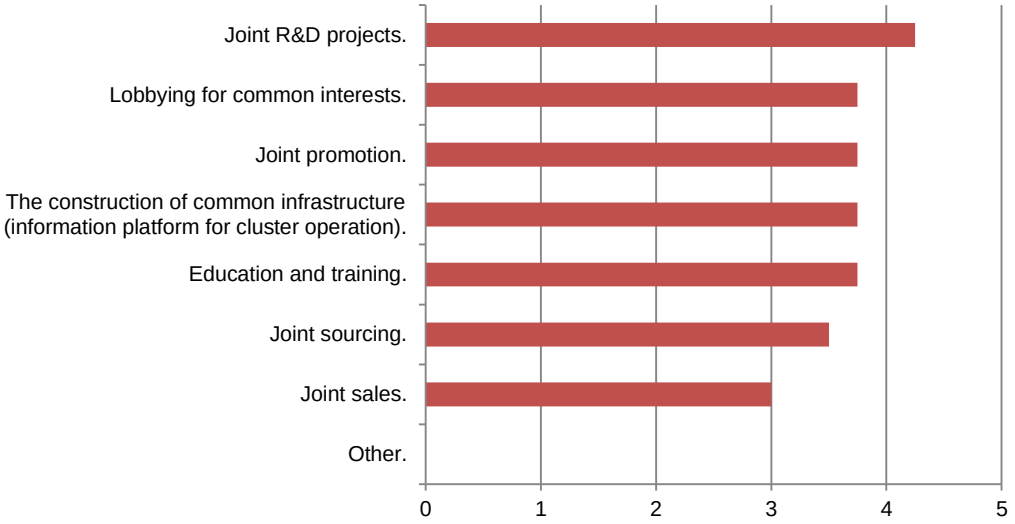
Figure 76: Cooperation and networking characteristics (1 disagree - 5 fully agree)



Areas of cooperation

The most common areas of cluster cooperation are joint R&D projects and to a lesser extent lobbying for common interests, while the least cooperation lies in joint sales (Figure 77). The future plans of the clusters point into the continuing of joint R&D projects and education and training.

Figure 77: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

The Marche clusters select their projects on the basis of the priorities indicated by the companies, while some selection is made by regional or national deputed institutions. Cooperation in their projects is allowed also to non-cluster members, with all clusters having such experiences.

The clusters' are currently comprised of large companies with more than 250 employees and small innovative companies with less than 50 employees (all of the responses), followed by educational and research institutions. Only one cluster includes venture capital funds. In the future, the clusters see the need to include more small innovative companies and companies providing specialized services.

4.8.4 Innovation R&D

R&D projects

All of the Marche clusters state the strengthening of research, development and innovation as the key goal of their cluster strategy. That is clear from the figures – in the last three years they elaborated on average 112,33 project ideas, of which 96,67 are in implementation, while 142,5 of them were realised.

Forms of organisation for support of R&D

All of the responding clusters are familiar with the concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment.

All of the clusters are in contact with such organisations in Italy and planning to or have collaborated with them in joint projects. The same is true for the same organisations abroad, as only a few clusters are not in contact with all of these institutions abroad. All clusters are also actively involved in the preparation and in discussions of the innovation policies on regional and national level, while two of them are also active on EU level.

4.8.5 Sustainability

All participating clusters state that the regional/national cluster programme sets objectives with regard to support of eco-innovation, and their strategy includes objectives related to eco-innovation (three of the four clusters are primarily focused on sustainability).

Activities related to eco innovation

The most frequent activities, related to eco-innovation are: awareness-raising, distribution of information and training.

Examples of good practices of eco-innovation

Examples of good practices, pointed out by the participating clusters, include sector studies of products life cycles, integrated policies for furniture products, supporting projects that focus exclusively on products, techniques, services and processes that are aimed at the prevention and reduction of environmental impacts and that contribute to optimal use of energy resources in the home.

4.8.6 Internationalisation

All of the participating clusters have an internationalisation strategy. The strategy they currently follow includes all listed activities (Table 1). The clusters on average think that internationalisation is very important (4,5 on a scale from 1-5). They have cooperated with clusters from Finland, France, UK, Turkey, Egypt, Brazil, Russia, Serbia, Tunisia, Argentina, but also Singapore and Indonesia.

Table 41: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	4
B2B matchmaking.	4
Participation of companies in international projects.	4
Participation of cluster organisation in international projects.	4
Inclusion of foreign companies in the cluster.	4
Cluster office / representation abroad.	4

4.8.7 Financing

The clusters are financed by regional and private funds. In the future, all of them expect to be mostly self-financed and partially financed by Regional and state funding. The average membership fee is 865 EUR, and all the clusters see self-financing as an important goal of their cluster (currently being moderately capable of self-financing).

Financing structure

The average structure of funding of the clusters which responded to the question (3) consisted of: their own resources (43,33 %), sponsorship funds (30 %), while 25 percent are coming from regional funds. The ideal structure, given by the clusters, is slightly more distributed, giving own resources (36,67 %), self-financing from trust activity (70 %) and national and EU fund (15 % each). Three clusters have carried out activities/joint projects in the cluster without national/EU co-financing (i.e. just with member co-financing).

Applications for financing

All of the clusters are possibly considering applying for EU funding in 2013/2014. The majority sees possibilities in the ESF and FP 7 / Horizon 2020 funds, followed by ERDF (Table 42).

Table 42: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
ERDF European Regional Development Fund	3
ESF European Social Fund	4
FP 7 / Horizon 2020	4

Ideal financing model

The ideal financing model of the clusters is a mix of public and private funding. Some of the answers pointed to a bigger need of public (EU) funds, i.e. at least 60% of the budget, while others are trying to invert the ration from 70% public to 30% public.

4.8.8 Smart Specialisation

Three out of four Marche clusters that participated in our survey are involved in smart specialisation strategies in their region.

Characteristics and implementation of smart specialisation

The clusters see themselves as key players of the regional innovation system (4,67), while being an important player of the national innovation system (4,33). They also think, that good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand (4,33). The clusters agree less with statements, such as: ”The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies” (3,67) and ”The cluster primarily addresses the implementation of sectorial strategies” (3,33) (Table 43).

Table 43: Importance of involvement in elaborating and implementing smart specialisation strategies

Importance of involvement in elaborating and implementing smart specialisation strategies	Importance (1 – Not important, 5 – Very important)
The cluster is a key player of the regional innovation system.	4,67
In addition, the cluster is an important player of the national innovation system.	4,33
Good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand.	4,33
Further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation.	4,00
The cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation.	4,00
The cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.	4,00
The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies.	3,67
The cluster primarily addresses the implementation of sectorial strategies.	3,33

For two of the participating clusters the 3 main relevant topics regarding elaboration of smart specialisation strategies are: knowledge of own sector, knowledge of technologies and knowledge of the market. For the implementation they see the main relevant topics in structured relationships systems with the enterprises, knowledge of the characteristics of the systems and companies' products, knowledge of the applicative problems of the technologies.

4.8.9 New skills and job creation

The clusters think that the objective "new skills and job creation" is very important in regard to their cluster strategy. The achievement of this objective will be executed through: organisation of vocational training courses, through helping the establishment of spin offs/start-ups, the creation of new products, new services and new approaches to home automation based on the original concept of "smart objects", technological innovation (process innovation and product innovation) and the training of workers and young people.

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focus mostly on support and motivation of young entrepreneurs, promoting incentives for young entrepreneurs to take-up learning opportunities, coaching, Informing cluster members of training and qualification programs for their staff and the organisation of seminars to offer training and education to cluster members' and cluster office' staff (Table 44).

Table 44: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Support and motivation of young entrepreneurs.	4,75
Informing cluster members of training and qualification programs for their staff.	4,50
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,50
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	4,50
Involvement in elaborating curricular for high schools and vocational training centres.	4,25
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	4,25
Awareness-raising concerning the retention of older, qualified staff in the workforce.	3,00
Promoting the hiring of disadvantaged staff.	2,75
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	2,75
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,75

4.8.10 Barriers and implications for cluster development

Main barriers for cluster development

The cluster's main barriers for development are: the lack of financial resources, followed by bank financing – lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions), while the least barrier is seen in clusters not producing expected results (Table 45).

From the **stakeholder's perspective the main barriers** for cluster development are the lack of monitoring and evaluation systems for the first funds allocated to support districts development, and weak Information flows within enterprises and public institutions supporting innovation and cluster policies. According to stakeholders, a more effective cluster policy making could be achieved by considering a better incentive method provided (enterprises/clusters must be provided with suitable advanced tertiary sector services and with incentives for technological development thus enhancing level of R&D). This would include the improvement of physical infrastructures, thus enhancing the cluster policy as an integrated policy taking into account human capital, the improvement of the role of Intermediaries in term of technological offer for enterprises and clusters and the improvement of knowledge and capacities for cluster and network management. At the same time they should enhance companies' trust in cluster networks, joint project added value and understanding of cluster's requirements to improve the degree of correlation between regional innovation and cluster policies.

Table 45: Main barriers for cluster development

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Lack of financial resources.	4,75
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	4,50
Lack of knowledge about clusters and network structures, unfamiliarity.	3,67
Lack of support from top management in companies.	3,50
Lack of knowledge concerning the management of clusters and network structures.	3,25
Lack of human resources.	3,00
Objections from company owners.	2,75
Not-included experts to advice on the development of clusters.	2,75
Mistrust between cluster members.	2,75
The positive effects of clusters are visible only in the long run.	2,75
We found that clusters do not produce the expected results.	1,50

The **biggest challenges from the stakeholder perspective** in the early stages of cluster development are technology and project development.

The **Biggest challenges in clusters in the early stages** are seen in accessing the economy, internationalisation and technology development. The challenges in **later phases of cluster development** are seen in innovation, financial resources, promotion, and financial autonomy.

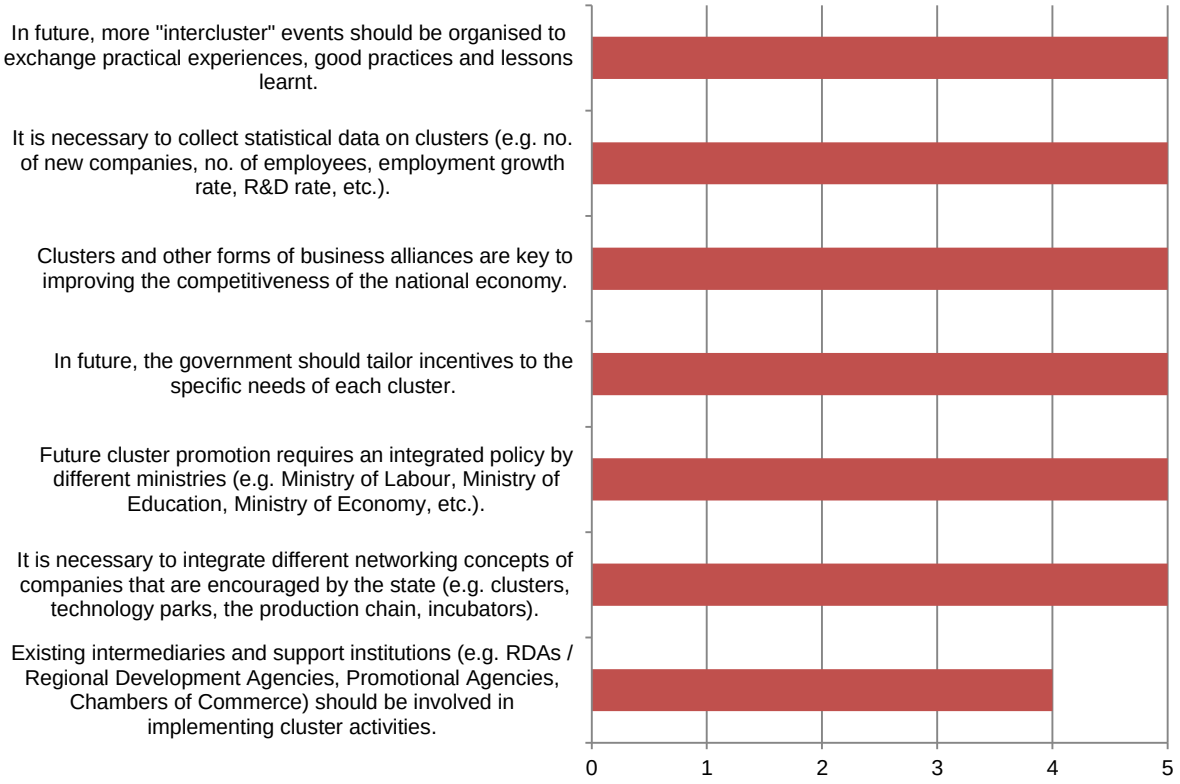
Implications for further cluster policy development

The clusters of the Marche region see the importance of the role of the state in promoting cluster development especially in the areas of co-financing of joint projects carried out in the cluster and the promotion of research and technological development. From the clusters' point of view the state has the lesser role in co-financing the cluster office, adaptation of existing institutions relevant to the proper functioning of clusters and help in recruiting.

Clusters on average point to the implications for further cluster policy development mainly in future cluster promotion requiring an integrated policy by different ministries as well as clusters and other forms of business alliances being key to improving the competitiveness of the national economy, while they think it is least important to organize more "intercluster" events to exchange practical experiences, good practices and lessons learnt in the future (Figure 78).

For promoting cluster development in the future, one cluster suggests the direct involvement of social issues of which the cluster should also take care.

Figure 78: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder/policy marker perspective

The role of National level towards cluster identification and development comprises the actions settled up by Ministry Of Economic Development and the recent call for proposal granted by Italian Ministry For Education, Universities And Research aimed at integrating research/training/innovation through the support of National Technology clusters development. These programmes represent an opportunity to create excellent collaboration at national level and for regional clusters (regional intelligent productive chains) to become national competitors. However, further to national level additional measures at regional level should be implemented both to leverage the national policy and to guarantee the support of productive identity of regional territory. New development assets for traditional regional sectors have to be identified in order to increase regional competitiveness and national level has to be informed about the regional policies' achievements at now (at this purpose the "observatory for innovation & research" aiming at mapping the best cases in R&D sector could be a useful tool).

From the stakeholder perspective the main areas / topics of cluster policy making **where Marche Region could learn the most from other regions' experiences are** cooperation actions between public and private actors and better communication between technology providers and users, improving stakeholder through interactive cooperation including demand side vision, establishment of Monitoring indicators and evaluation plan, scenario development, entrepreneurial process of discovery, and to learn how to support cluster development and improvement of existing ones in order to meet the objectives of smart specialisation and strengthen local and international cluster cooperation, in particular for addressing emerging industries.

ITALY – REGION VENETO

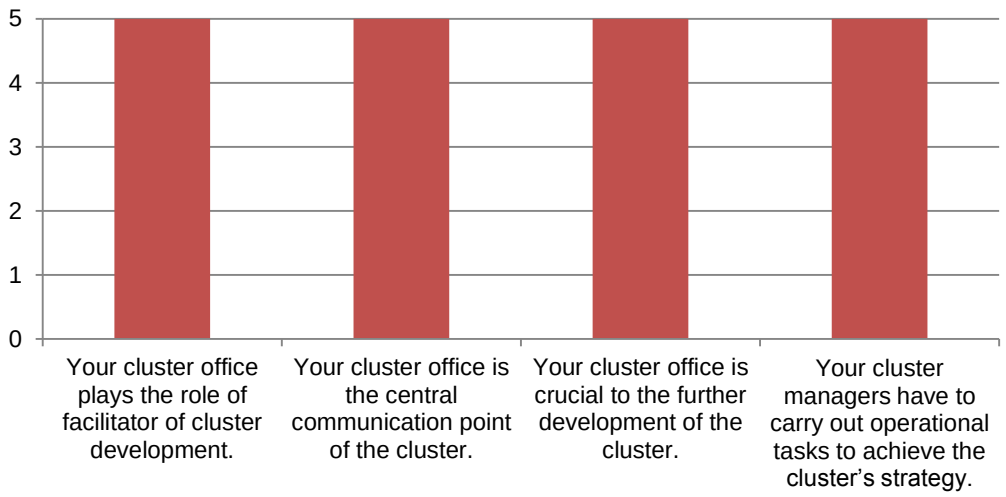
4.9 Italy (Veneto)

For Italy's Veneto (north-eastern region) the survey has received one questionnaire from the region's cluster organisation.

4.9.1 Basic information about the cluster

All of the mentioned statements are seen as most and equally important by Veneto's cluster: plays the role of facilitator of cluster development, is the central communication point of the cluster, is crucial to the further development of the cluster, and cluster managers have to carry out operational tasks to achieve the cluster's strategy (Figure 79).

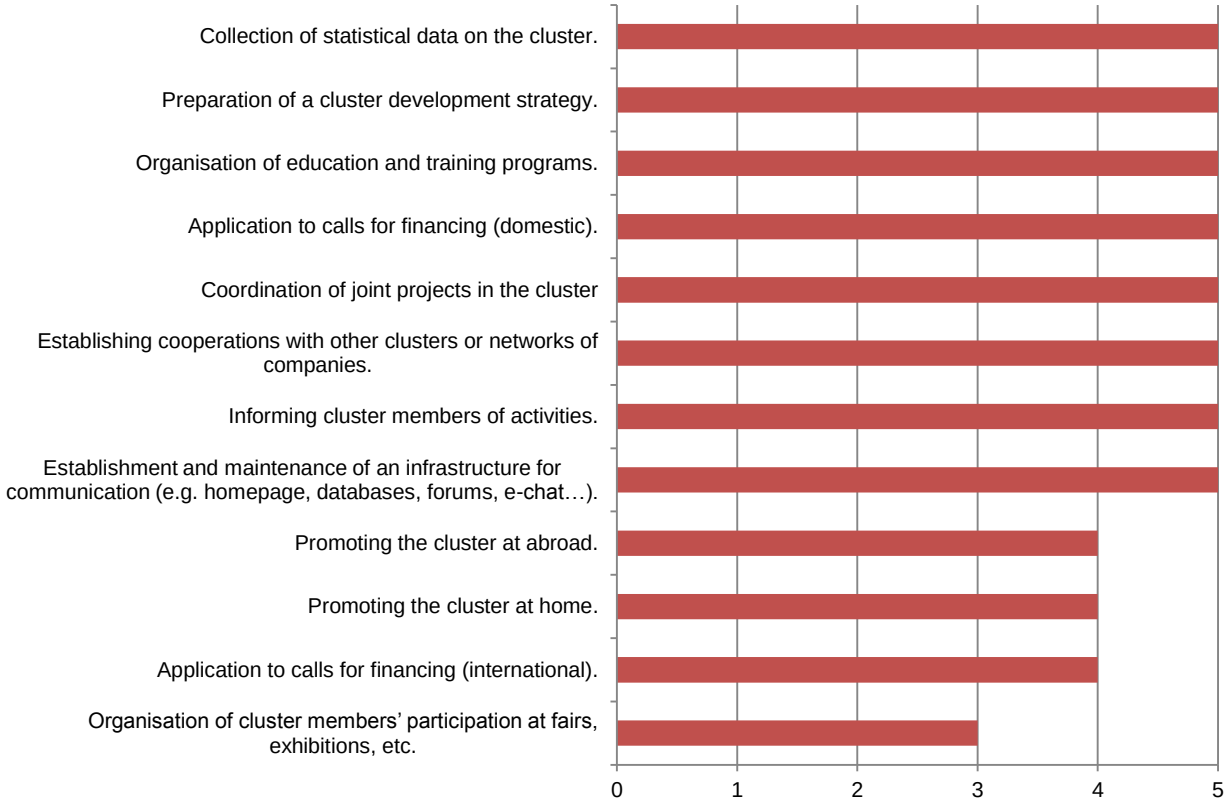
Figure 79: The role of the cluster office (1 disagree - 5 fully agree)



The most important tasks of cluster office are considered: the establishment and maintenance of an infrastructure for communication, informing cluster members of activities, establishing cooperation with other clusters or networks of companies, coordination of joint projects in the cluster, application to calls for financing, organisation of education and training programs, preparation of a cluster development strategy, and collection of statistical data on the cluster (Figure 80).

The three most important skills that cluster leader should possess are: trust and credibility, the capacity for matching enterprises needs and Public Administration benefits/support, and following closely cluster projects.

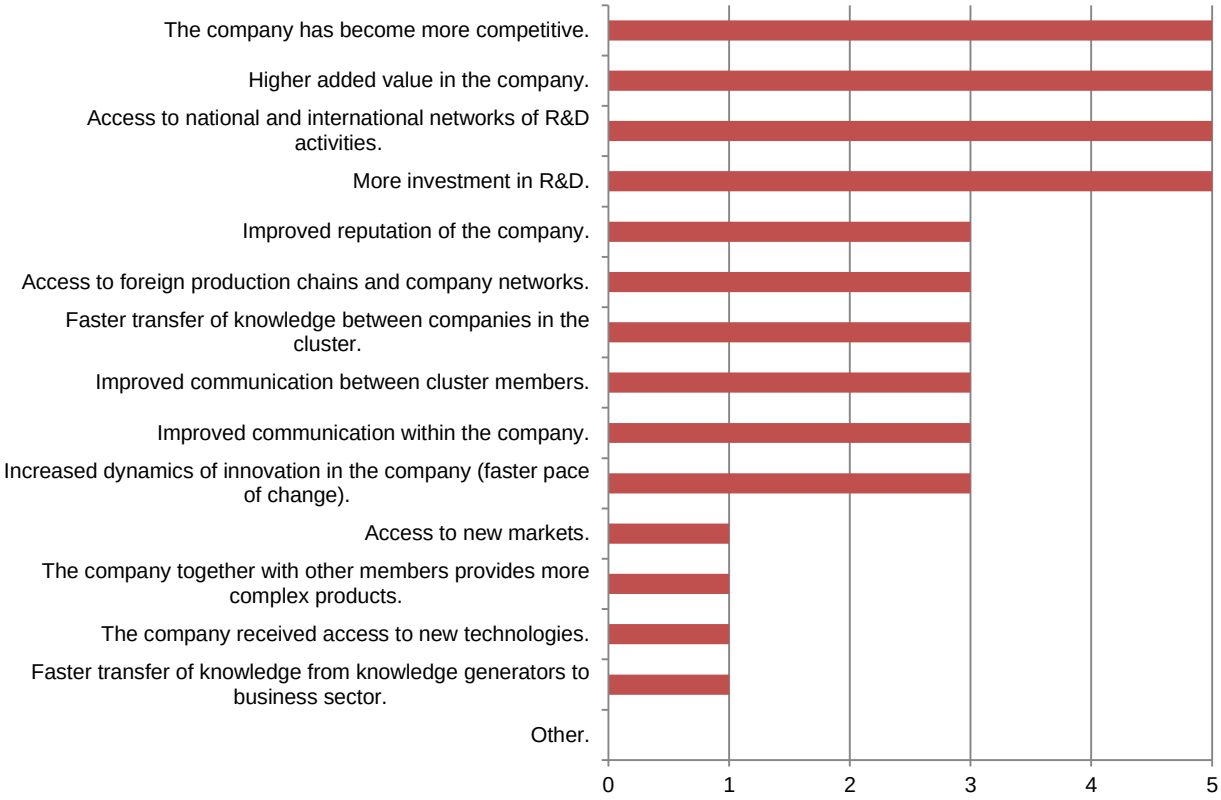
Figure 80: The importance of cluster office in different tasks (1 not at all important - 5 very important)



4.9.2 Cluster impact assessment

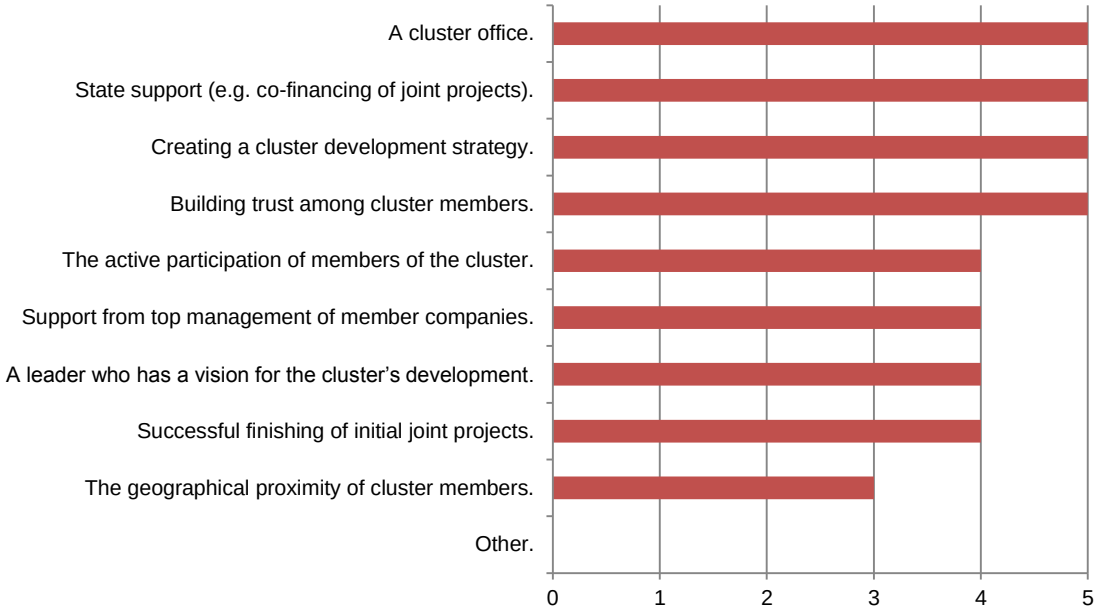
The highest added value of cluster membership from the perspective of cluster organisations is in more investment in R&D, the access to national and international networks of R&D activities, higher added value in the company, and the need for the company to become more competitive. The lowest added value are considered the claims that the company received access to new technologies, the company together with other members provides more complex products, and access to new markets (Figure 81).

Figure 81: Added value of membership in clusters (1 negligible effects – 5 very strong effects)



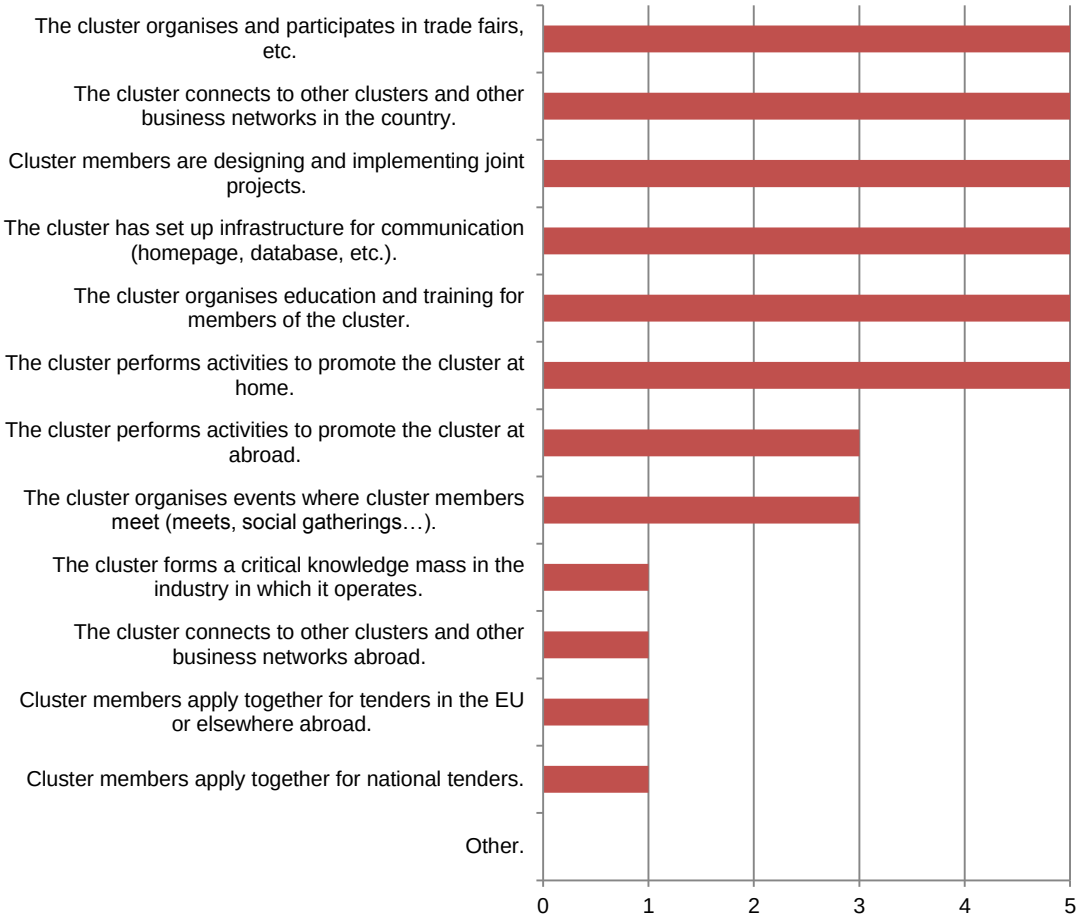
The most important success factors of clusters are building trust among cluster members, creating a cluster development strategy, state support and a cluster office. The least important success factor is considered the geographical proximity of cluster members (Figure 82).

Figure 82: Key success factors of clusters (1 not at all important - 5 very important)



The highest level of implemented activities are the cluster performing activities to promote the cluster at home, organizing education and training for members of the cluster, the setting up of the infrastructure for communication, designing and implementing joint projects, connecting to other clusters and other business networks in the country and organizing and participating in trade fairs, etc. The lowest level of implementation of activities is considered in cluster members applying together for national tenders and for tenders in the EU or elsewhere abroad, the cluster connecting to other clusters and other business networks abroad, and forming a critical knowledge mass in the industry in which it operates (Figure 83).

Figure 83: Implementation of activities in clusters (1 not implemented – 5 fully implemented)



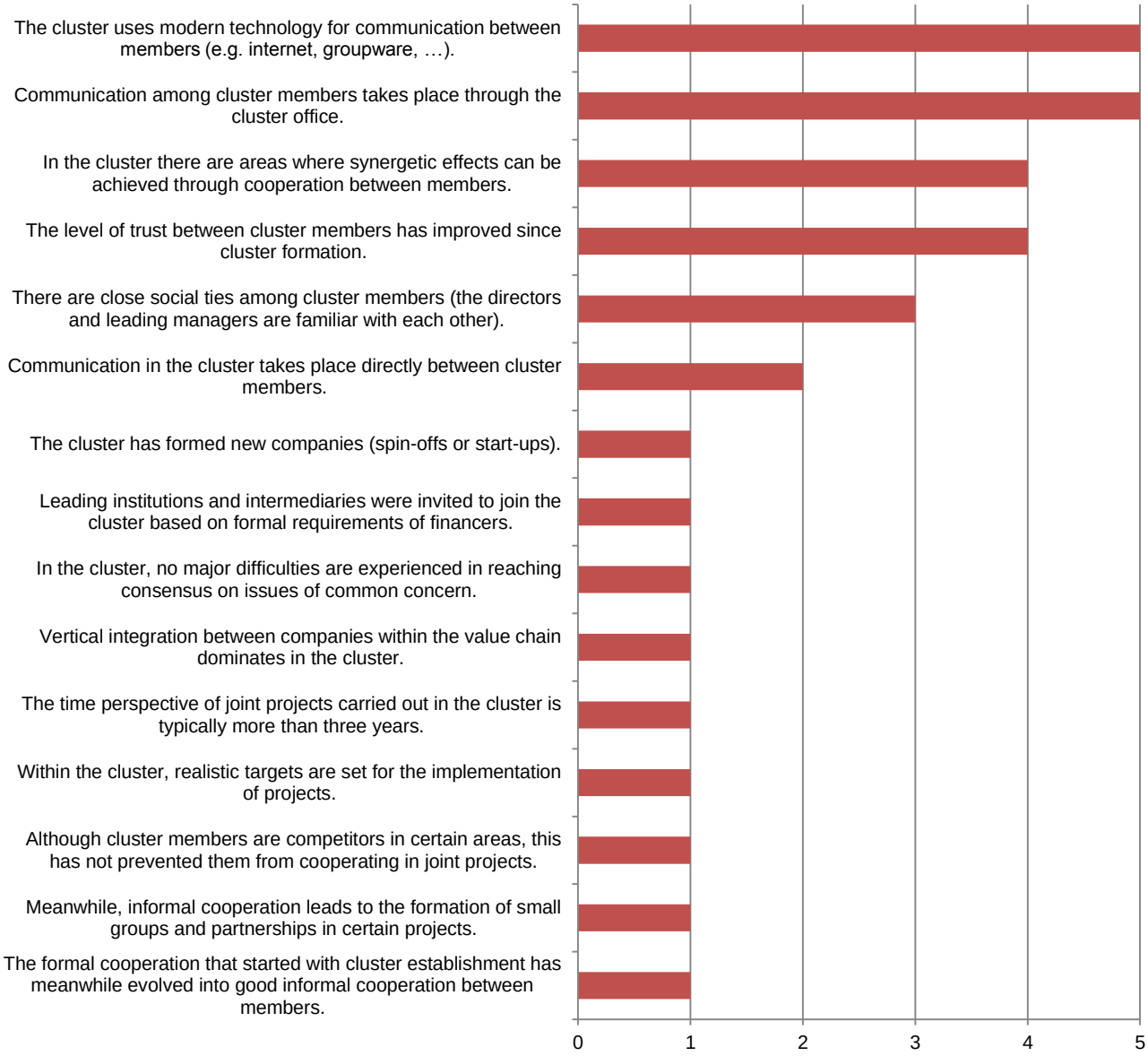
4.9.3 Cooperation and networking

The most common cooperation and networking characteristic are communication among cluster members that takes place through the cluster office and that the cluster uses modern technology for communication between members. The lowest cooperation on average is seen in formal cooperation that started with cluster establishment has meanwhile evolved into good informal cooperation between members (Figure 84

Figure 84).

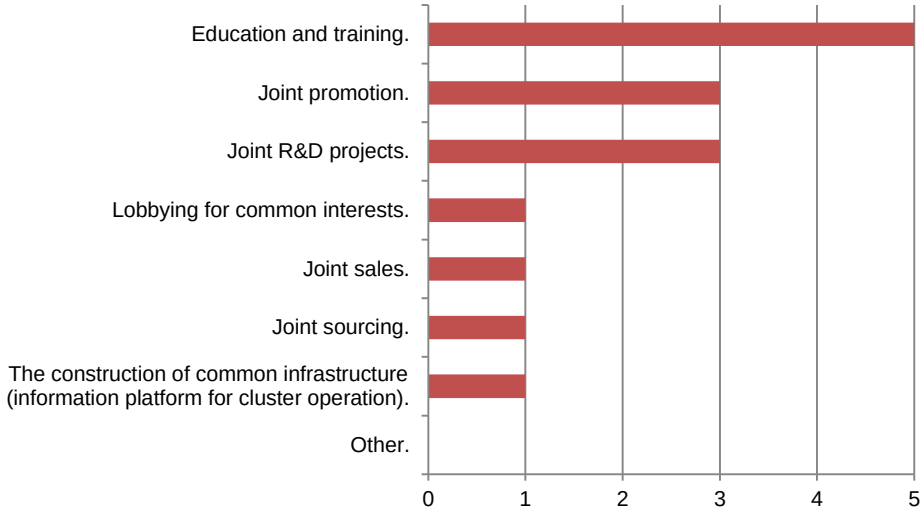
Veneto's cluster never communicates with their national financer (ministry, state), has meetings with the directors of the company members at least once a month, and communicates with cluster members from at least once a weak.

Figure 84: Cooperation and networking characteristics (1 disagree - 5 fully agree)



The most common areas of cluster cooperation is education and training, while the most rare areas of cooperation are in the construction of common infrastructure, joint sourcing, joint sales and lobbying for common interests (Figure 85). The future plans of the clusters point into education and training.

Figure 85: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

The Veneto cluster selects its projects depending on the firms' needs that arise from meetings. Cooperation in their projects is not allowed to non-cluster members.

The clusters' are currently comprised of large companies, small innovative companies, consulting firms, companies providing specialised services, venture capital funds, and educational institutions. In the future, the clusters see the need to include more of the abovementioned members, except for venture capital funds.

4.9.4 Innovation R&D

R&D projects

The Veneto cluster states the strengthening of research, development and innovation as the key goal of its cluster strategy. In the last three years they elaborated 3,5 project ideas, of which 2,5 of them were realised.

Forms of organisation for support of R&D

The cluster is familiar with all the concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment.
The cluster is not in contact with similar organisations in Italy or abroad. It is carrying out (or has finished) only a joint project with other clusters in its country. The Veneto cluster is not actively involved in the preparation and in discussions of the innovation policies on regional, national and EU level.

4.9.5 Sustainability

The participating cluster states that the regional/national cluster programme does not set objectives with regard to support of eco-innovation, and its strategy does not include objectives related to eco-innovation.

4.9.6 Internationalisation

The participating cluster has an internationalisation strategy. The strategy it currently follows includes participation of companies in international events, trade fairs, study visits, etc., and B2B matchmaking (Table 46). The cluster thinks that internationalisation is important (5 on a scale from 1-5), but has not cooperated with any foreign clusters (yet).

Table 46: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	1
B2B matchmaking.	1
Participation of companies in international projects.	1
Participation of cluster organisation in international projects.	1
Inclusion of foreign companies in the cluster.	1
Cluster office / representation abroad.	1

4.9.7 Financing

The cluster is mainly self-financed. The membership fee is 750 EUR, while self-financing is not seen as an important goal of the cluster.

Financing structure

The structure of funding of the cluster sees as the main resource own sources (60 %), followed by regional funds (40 %). The cluster has carried out activities/joint projects in the cluster without national/EU co-financing (i.e. just with member co-financing). The cluster is currently not considering applying for EU funding in 2013/2014. The ideal model of the cluster is seen in support of public finance as compulsory in order to establish a cluster office and promote cluster activities.

4.9.8 Smart Specialisation

The Veneto cluster is not involved in smart specialisation strategies in its region.

4.9.9 New skills and job creation

The cluster thinks that the objective “new skills and job creation” is important in regard to their cluster strategy. The achievement of this objective will be executed through training and life-long learning during work activities.

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focus mostly on informing cluster members of training and qualification programs for their staff, the organisation of seminars to offer training and education to cluster members' and cluster office' staff, support and motivation of young entrepreneurs, and promoting incentives for young entrepreneurs to take-up learning opportunities, coaching (Table 47).

Table 47: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	5
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	5
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	3
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	3
Awareness-raising concerning the retention of older, qualified staff in the workforce.	3
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	3
Promoting the hiring of disadvantaged staff.	3
Support and motivation of young entrepreneurs.	5
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	5
Involvement in elaborating curricular for high schools and vocational training centres.	3

4.9.10 Barriers and implications for cluster development

Main barriers for cluster development

The cluster main barriers for further development are: the mistrust between cluster members, the lack of financial resources, and bank financing, while the least barrier is seen in objections of company owners and in the lack of support from top management in companies (Table 48).

Table 48: Main barriers for cluster development on average

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Mistrust between cluster members.	5
Lack of financial resources.	5
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	5
Lack of human resources.	4
Not-included experts to advice on the development of clusters.	4
Lack of knowledge about clusters and network structures, unfamiliarity.	4
Lack of knowledge concerning the management of clusters and network structures.	4
Lack of support from top management in companies.	3
Objections from company owners.	3
We found that clusters do not produce the expected results.	1
The positive effects of clusters are visible only in the long run.	1

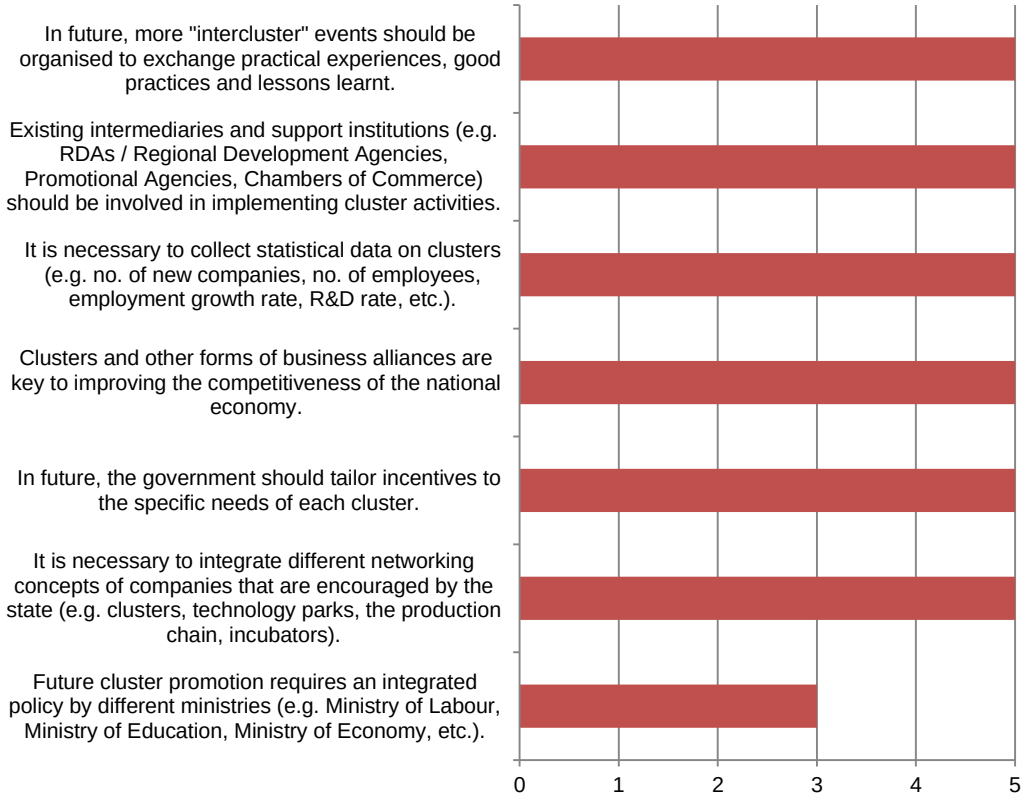
The **Biggest challenges in cluster in the early stages** ware in having a common vision, long term planning and entrepreneurial culture. The challenges in **later phases** are seen in the common vision and more structured firm actions.

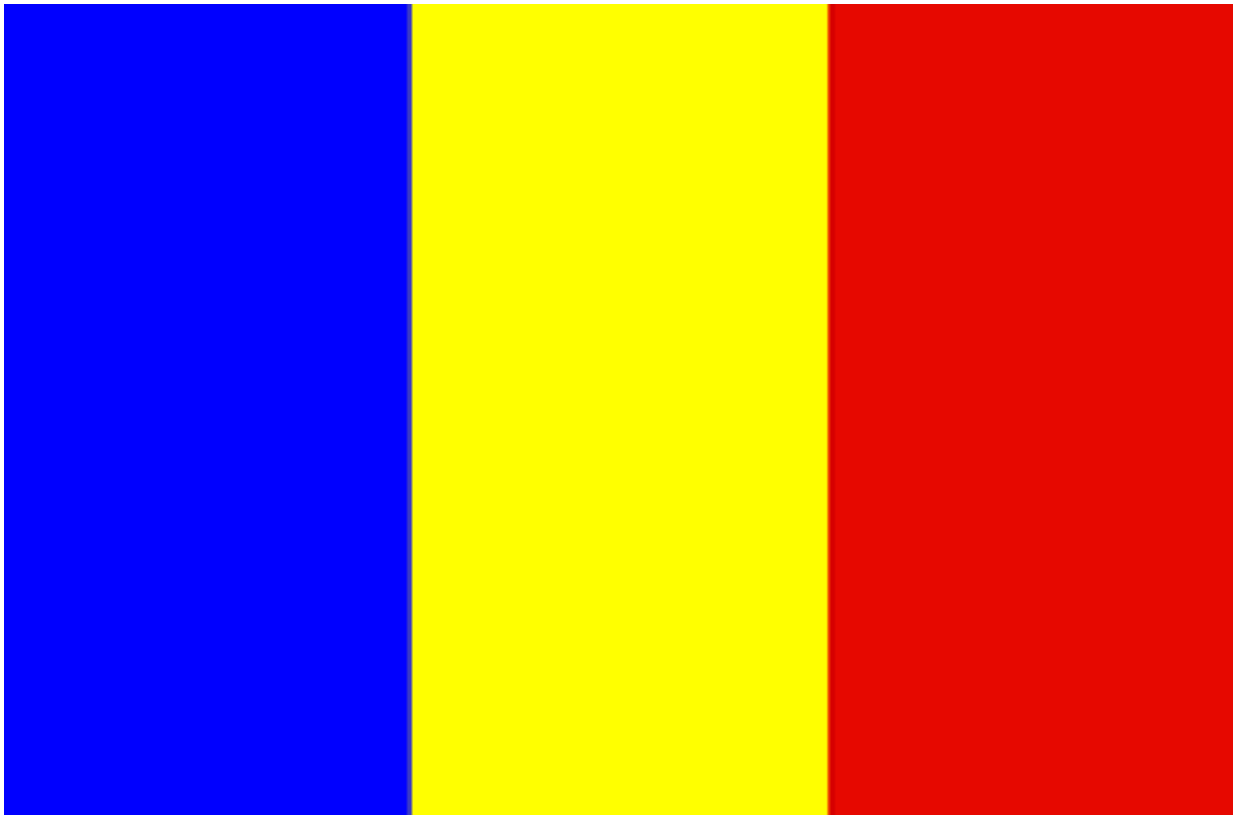
Implications for further cluster policy development

The cluster of the Veneto region sees the importance of the role of the state in promoting cluster development especially in the areas of co-financing of the cluster office, co-financing of joint projects carried out in the cluster, promoting the concept of clusters and network structures in the economy, diffusion of information, accessibility for businesses (databases, info-centres…), and internationalisation of clusters. From the clusters' point of view the state has the lesser role in protecting the environment and supporting eco-innovations.

Cluster points to the implications for further cluster policy development mainly in the aspect that it is necessary to integrate different networking concepts of companies that are encouraged by the state, the government tailoring incentives to the specific needs of each cluster, clusters and other forms of business alliances being key to improving the competitiveness of the national economy, the necessity to collect statistical data on clusters, the need for existing intermediaries and support institutions to be involved in implementing cluster activities, more "intercluster" events being organised to exchange practical experiences, good practices and lessons learnt (Figure 86).

Figure 86: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)





ROMANIA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Kosova
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България
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4.10 Romania

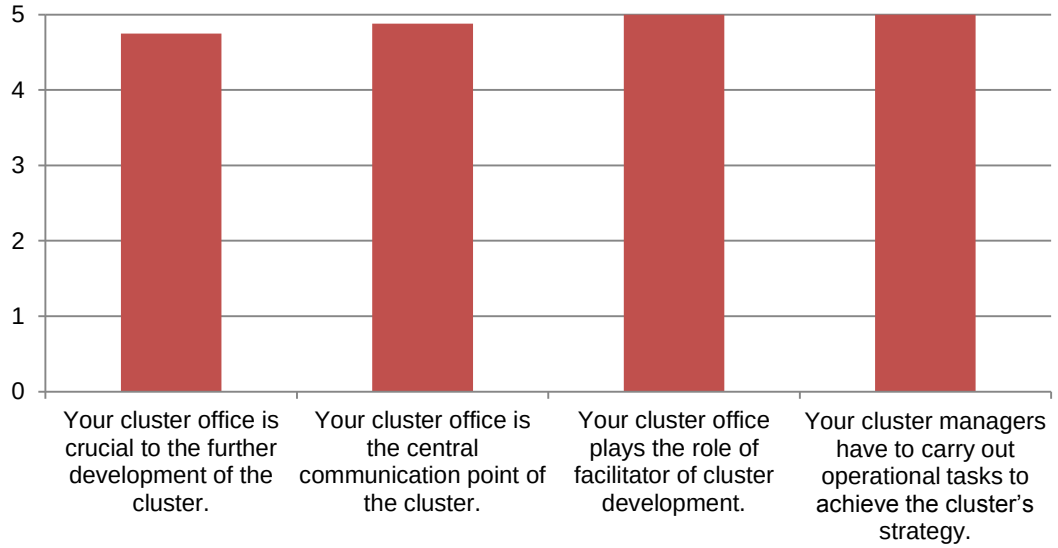
4.10.1 Basic information about clusters

Romania is one of the countries which has number of cluster members below the average, while they are above the average in export rate of company cluster members, also above the average regarding R&D rate of companies cluster and cluster management staff. We have received 3 filled questionnaires form Romanian cluster organisations.

In case of Romania we have to highlight that subsequently (after analyses already done) we have received additional 5 questionnaires from Romanian clusters and included the results just in a quantitative part of the analysis (therefore all the tables and figures are updated according to the new analyses comprising 8 completed questionnaires), while not in the qualitative one.

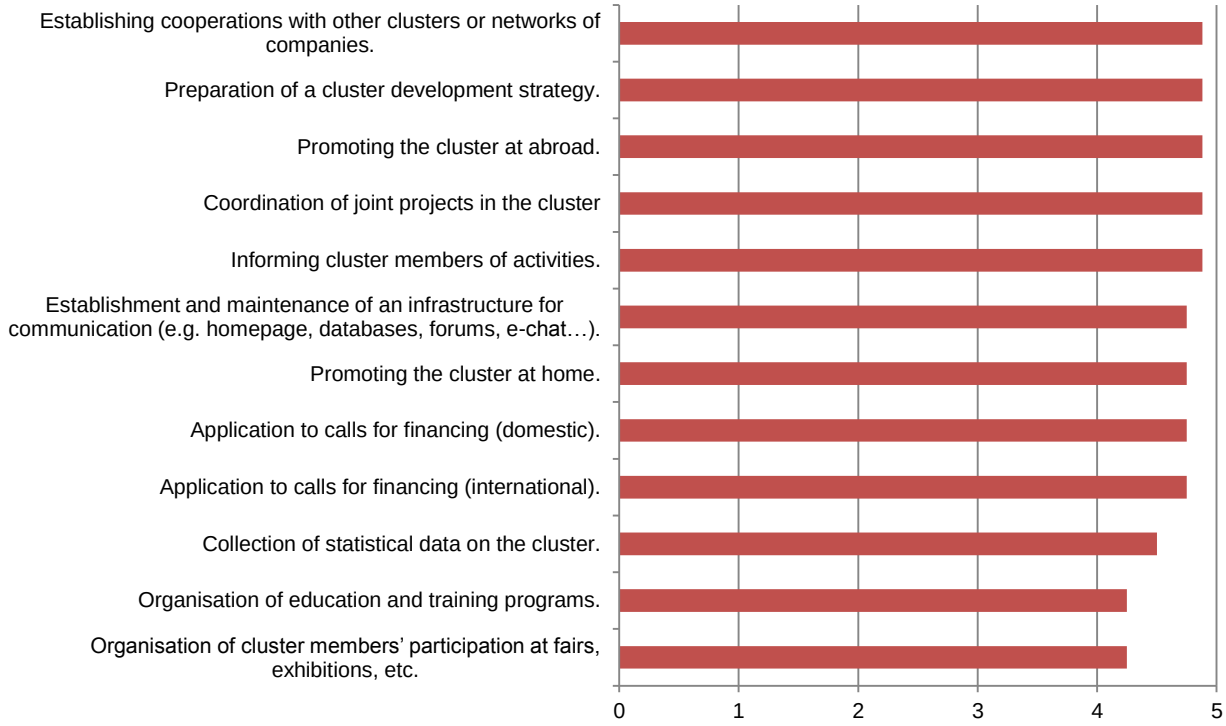
The most important role of cluster office is seen in the role of carrying out operational tasks from cluster managers to achieve the cluster's strategy and cluster playing the role of facilitator of cluster development, while the least important role of cluster office is the role of being crucial to the further development of the cluster (Figure 87).

Figure 87: The role of the cluster office (1 disagree - 5 fully agree)



The most important tasks of cluster office are considered: establishment of cooperation with other clusters or networks of companies, preparation of a cluster development strategy, promoting the cluster at abroad, informing cluster members of activities and coordination of joint projects in the cluster. The least important tasks of cluster office are considered organisation of cluster members' participation at fairs, exhibitions, etc. and organisation of education and training programs.

Figure 88: The importance of cluster office in different tasks on average (1 not at all important - 5 very important)



Three most important skills that cluster leader should possess expressed by clusters are:

- Good communication skills, good organizing skills and good leader skills (Cluster 1).
- Negotiator, reliable and visionary (Cluster 2).
- Initiative, having a vision, good communication (Cluster 3).

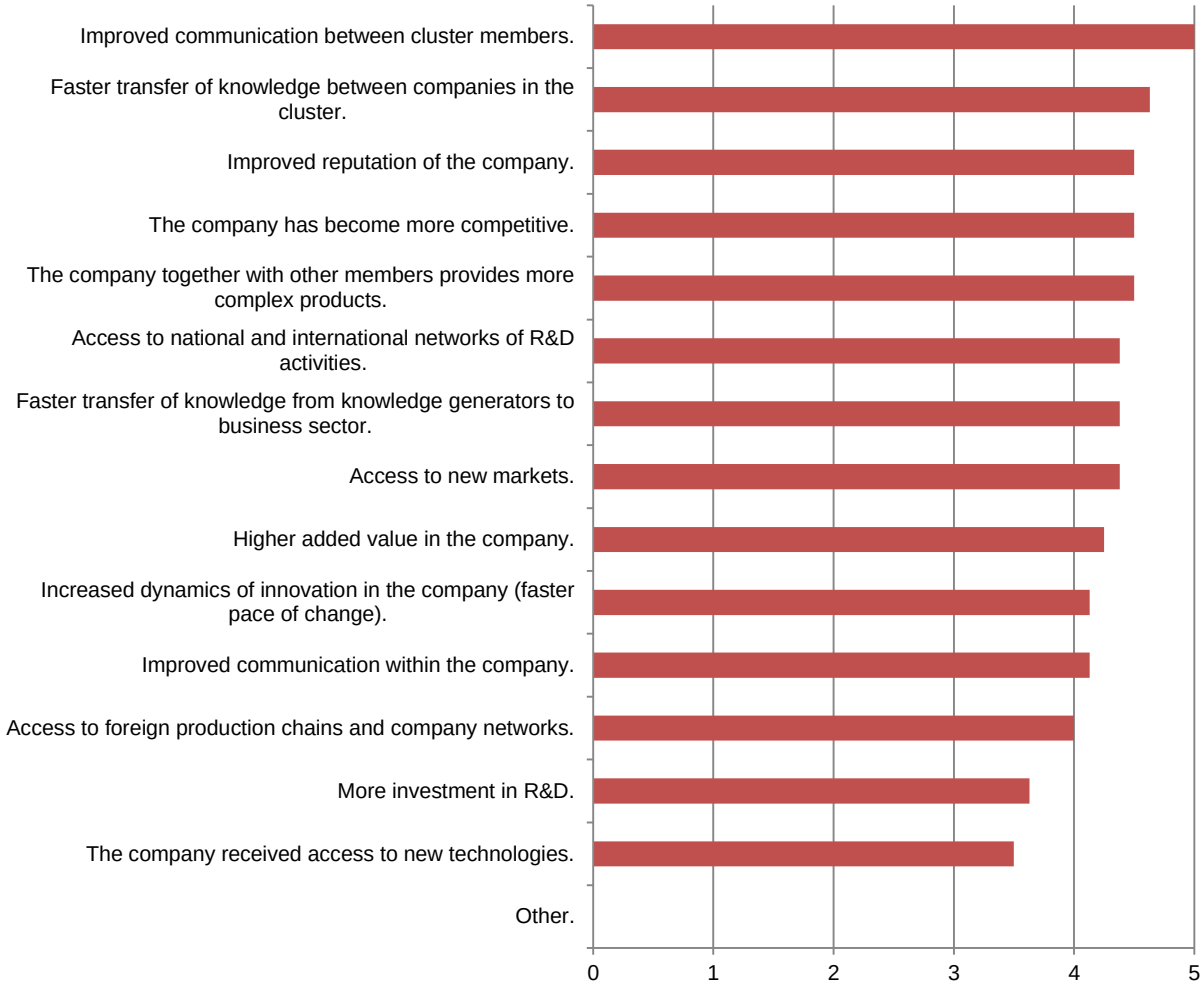
We can see that clusters are very much in line, especially regarding possessing a vision and being a good communicator as a cluster leader.

4.10.2 Cluster impact assessment

Added value of membership

The highest added value of cluster membership from the perspective of cluster organisations is in improved communication between cluster members, while the lowest added value is perceived in the statement that the company received acess to new technologies (Figure 89).

Figure 89: **Added value of membership in clusters (1 negligible effects – 5 very strong effects)**

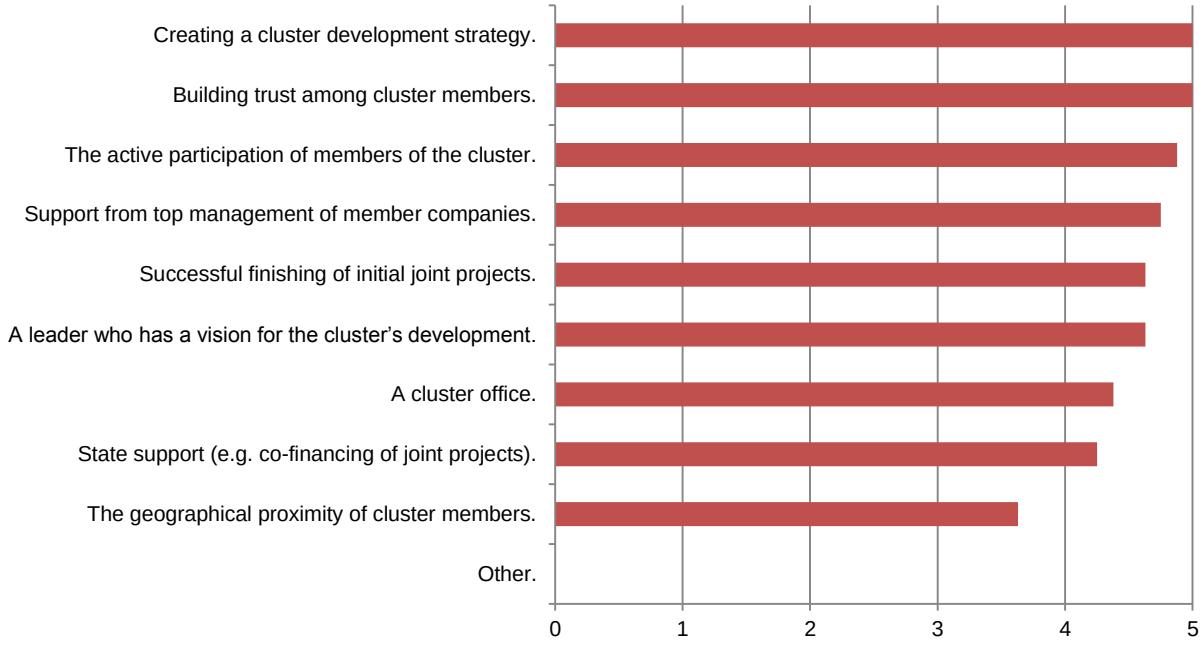


Currently there are 5 active clusters in the North-East Region of Romania in the fields of textile industry, tourism, IT-New Media, machinery and equipment and health. The textile cluster (ASTRICO NE) was built around a 40 years long tradition of a big fibre producer, RIFIL. The touristic cluster was built in order to better promote the regional tourist destination Bucovina, one of the most important in the country. On the other hand, ICONIC, the IT New Media Cluster was driven by business and technological constraints as the traditional media entered a severe decline. Ind-Agro-Pol is a national research driven pole of competitiveness in the field of machinery and equipment designed for agriculture well represented at regional level, while IMAGO MOL is a R&D focused medical cluster in the field of nuclear imaging.

Key success factors

The most important success factors of clusters are: building trust among cluster members and creating a cluster development strategy. The least important success factor is the geographical proximity of cluster members (Figure 90).

Figure 90: **Key success factors of clusters (1 not at all important - 5 very important)**



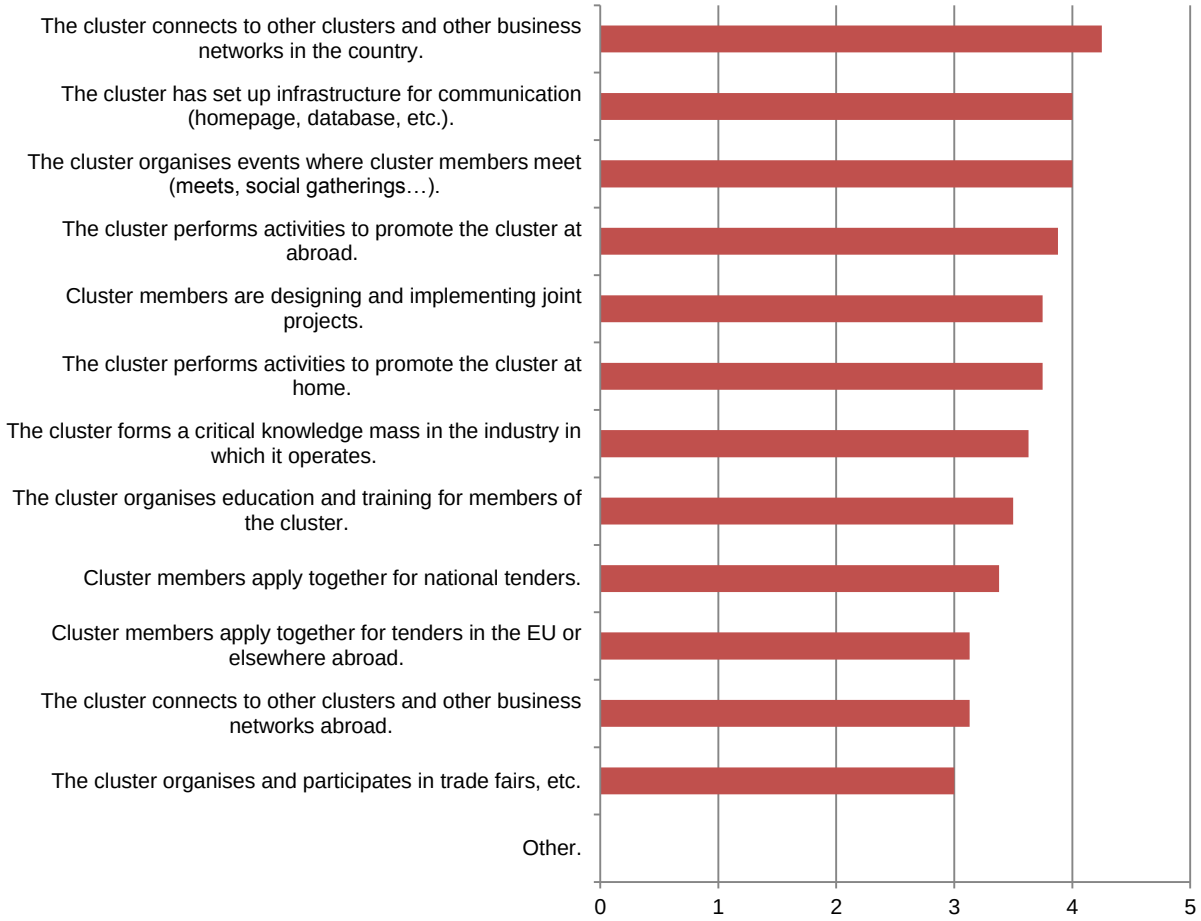
Overall, following key success factors of the clustering process from the stakeholder's perspective in the North-East Region are to be mentioned:

- **Industry as main driver of cluster generation processe**s: 3 out of 5 are business driven clusters;
- **The role of the cluster driving organisation**: all clusters in the region are built around strong committed organisations: large enterprise (textile), small enterprise (ICONIC), industrial association (tourism), RDA (medical) and R&D Institute (Ind-Agro Pol);
- **Innovative financing schemes**: as no official public cluster financing has been available yet, clusters have developed innovative financing solutions: own contribution from members (ICONIC, textile, Ind-Agro-Pol), FP7 (IMAGO MOL), or a mix of financing sources: membership fees + projects by cluster members indirectly used also for cluster development processes + sales (Touristic Cluster).

Implementation of activities

Fully implemented activities in Romanian clusters include connecting to other clusters and other business networks in the country. While the least implemented activities include cluster's organisation and participation in trade fairs etc. Figure 91).

Figure 91: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

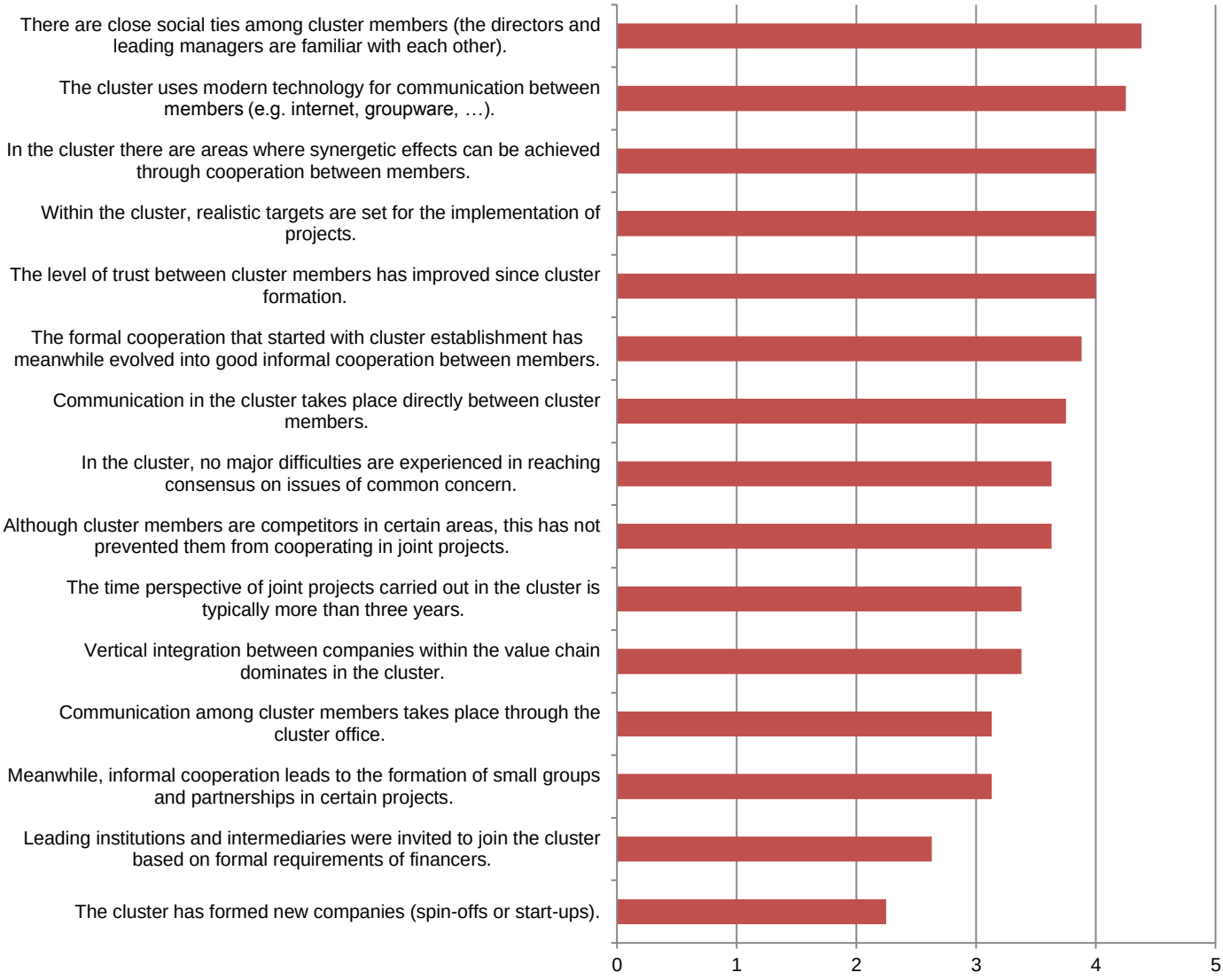


4.10.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristics of Romanian interviewed clusters are close social ties among cluster members (the directors and leasing managers are familiar with each other). The clusters mostly disagree with the following claim that the cluster has formed new companies (Figure 92).

Figure 92: **Cooperation and networking characteristics (1 disagree - 5 fully agree)**

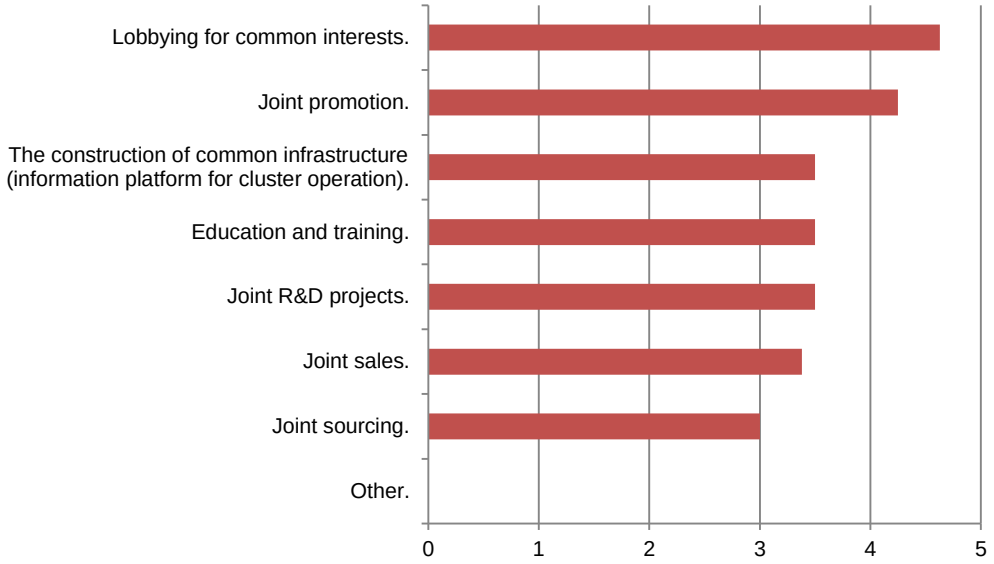


We have also asked the clusters about their frequency of communication with national financer, cluster members and directors of the company members. In Romania clusters communicate on average with national financer (ministry, state, etc.) at least once a month (M=3), while they on average communicate with cluster members only a few times a year (M=2,33) and they also meet the directors of the company members a few times a year (M=2,33). The prevailing forms of communication are mainly indirectly through the cluster office (e-mail, newsletter) and also directly between cluster members through meetings, e-mail and phone calls.

Areas of cooperation

The most common areas of cluster cooperation are lobbying for common interests, while they did not cooperate in joint sourcing (Figure 93).

Figure 93: **Areas of cooperation (1 do not cooperate – 5 cooperate a lot**)



In near future Cluster 1 from Romania plans the most activities in following areas: R&D projects, the construction of common infrastructure and joint promotion. While Cluster 2 plans its most activities: development of international common projects in order to promote the region as international tourist destination and improving the quality of tourism services of the members and bringing them to the European standard. Finally, Cluster 3 plans its activities in: R&D projects, joint promotion and education and training.

Selection of cluster projects and partners

The Romanian cluster 1 selects and implements their projects according to the profile of the cluster and the possibilities, while Cluster 2 selects and implements their projects based on member needs. Finally Cluster 3 implements and selects their projects regarding effect for as many members as possible, aiming to increase the competitiveness of the members and the added value of the products made by the companies. For all three Romanian clusters cooperation in their projects is allowed also to non-cluster members, while just one cluster has already experienced the presence of companies which are not a member of the cluster, but they have already been involved in joint projects.

All three Romanian clusters currently have no venture capital funds and neither technology parks. Members in all three Romanian clusters consist of: small innovative companies (less than 50 employees), consulting firms (e.g. legal / financial / tax consultancy, marketing…), companies providing specialised services (e.g. IT support, process automation, certification…), educational institutions (e.g. universities, colleges…), research institutions (e.g. institutes, laboratories…) and incubators. Large companies (more than 250 employees) are members just in 2 clusters, while one cluster does not have large companies as cluster members.

Clusters believe that in future will be very important to include in cluster members also small innovative companies (less than 50 employees), educational institutions (e.g. universities, colleges…), research institutions (e.g. institutes, laboratories…) and incubators. A little less important they perceive that in future they should include in clusters large companies (more than 250 employees), companies providing specialised services (e.g. IT support, process automation, certification…) and venture capital

funds. The least important for them is to include in cluster members: consulting firms (e.g. legal/financial/tax consultancy, marketing,…) and technology parks (both with the mean value 2,33 on scale from 1-3).

4.10.4 Innovation R&D

R&D projects

Two Romanian clusters stress the importance of research, development and innovation, which is evident also from their project activities in the last three years, while one cluster do not stress the importance of research, development and innovation. 2 clusters have on average elaborated 6,5 R&D&I project ideas within the clusters, while they have 2,5 of these ideas implemented within the clusters and 1,5 of them realised within the clusters.

Forms of organisation for support of R&D

The analysed Romanian clusters all know the concepts of organisations that support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. Cluster 1 is in contact in their home country with clusters, technology parks and technology networks, while they do not have contact with centres of excellence and they are carrying out / have finished a joint project with incubators. Cluster 2 is in contact with clusters, technology parks, technology networks and incubators in their home country. Meanwhile Cluster 3 is in contact just with incubators in their home country and are also in their home country carrying out / have finished a joint project with clusters, while they have no contact in their home country with technology parks, technology networks, centres of excellence and other types of business networks.

Regarding situation of contacts abroad, Cluster 1 is in contact with clusters abroad and also incubators, but they do not have contact with technology parks, technology networks and centres of excellence. Cluster 2 is in contact abroad with: clusters, technology parks, technology networks, centres of excellence and also incubators. Cluster 3 have abroad contact just with clusters, meanwhile they do not have any contact abroad with: technology parks, technology networks, centres of excellence, incubators and other types of business networks.

Cluster 1 is actively involved in the preparation and/or public discussions of the innovation policies and instrument creation on regional and national level, while does not participate on EU levels. On national level they are involved in Membership in the Romanian Cluster Association-CLUSTERO www.clustero.eu for regional they have not responded. Meanwhile cluster 2 is actively involved in the preparation and/or public discussions of the innovation policies and instrument creation on regional, national level and also EU levels. On regional and also national level they are involved in working groups, while on EU level they are involved in EU Programmes. Cluster 3 is actively involved in the preparation and/or public discussions of the innovation policies and instrument creation just on national level. On national level they are involved in membership of the Export Council, they are members of the Association of the Textile Engineers, they also took part in public discussion for making the application guide lines for European financing for clusters and competitiveness poles.

4.10.5 Sustainability

Cluster 2 did not set any objectives related to the support of eco innovation and does not carry out any activities of this type, therefore they cannot supply any good practices. Meanwhile Clusters 1 and 3 have set objectives with regard to support of eco innovation and their cluster strategies also include objectives related to eco innovation. In Cluster 1 they are also primarily focused on sustainability/ eco innovation and they carry out a wide range of activities related to eco innovation, while not in Cluster 3.

Activities related to eco innovation

Cluster 1 has carried out the following activities of eco innovation: awareness-raising, distribution of information and initiation of / participation in eco-R&D projects, while Cluster 2 has not set any objectives related to eco innovation and therefore has not carried out any activities related to eco innovation. Cluster 3 has carried out the following activities of eco innovation: awareness-raising, distribution of information, support for introduction of eco-standards, support for investments to improve eco-friendliness and initiation of / participation in eco-R&D projects, while they have not carried out any training related to eco innovation.

Examples of good practices of eco-innovation

As we have already written, Cluster 2 has not set up any objectives regarding eco innovation and neither carried out any activity related to eco innovation. While examples of good practices of Cluster 2 are following: identification of R&D project topics, organizing different events, promotion of the cluster and taking examples of best-practice. Cluster 3 has expressed their examples of good practices as: »The companies that produce fabrics, woven and non-woven, are using state of the art technologies regarding the sanitization of the fabrics / the ENVICONTEH project, “Integrated systems of monitoring and controlling wastewater, the quality and security of textile products commercialized in Romania and Bulgaria” – in implementation / project for making eco-products by eco-friendly procedures of finishing the 100% natural fabrics – submitted, waiting for the approval«.

4.10.6 Internationalisation

Internationalisation strategy is set as very important (nor mentioned how on the scale from 1-5) in all Romanian clusters, this is evident also from their response, because all Romanian clusters have an internationalisation strategy. The strategy they currently follow includes the following activities: participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking, participation of companies in international projects and participation of cluster organisation in international projects (Cluster 1). While Cluster 2 currently follows the strategy which includes the following activities: participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking, participation of companies in international projects, participation of cluster organisation in international projects, inclusion of foreign companies in the cluster and cluster office/representation abroad. Strategy of Cluster 3, which they currently follow, includes the following activities: participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking, participation of companies in international projects and inclusion of foreign companies in the cluster.

Table 49: **Main activities contained in internationalisation strategy**

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	8
B2B matchmaking.	8
Participation of cluster organisation in international projects.	7
Participation of companies in international projects.	6
Inclusion of foreign companies in the cluster.	3
Cluster office / representation abroad.	2

We can see that all eight Romanian clusters have the internationalisation strategy which they currently follow and which includes the following activities: participation of companies in international events, trade fairs, study visits, etc. (8), B2B matchmaking (8) and participation of cluster organisation in international projects (7), followed by participation of companies in international projects (6), inclusion of foreign companies in the cluster (3) and cluster office / representation abroad (2) (

Table 49). Internationalisation is for Romanian clusters very important. Cluster 1 cooperates with: Körösvölgyi Környezettechnológiai Cluster – Gyula (Hungary), Ecopanonia Cluster – Novi Sad (Serbia) and Archenerg Cluster Szeged (Hungary), while Cluster 2 cooperates with Bulgarian Clusters and SME's form Tourism and Cluster 3 cooperates within the FP7 international projects, where they have worked with individual companies.

4.10.7 Financing

Cluster 1 is now financed through membership fees and projects, while in the future they expect to finance it with the help of projects, membership fees, and some help from the authorities. Cluster 2 is for the moment financed from the contribution of the members, while in the future they intend to finance activity cluster through European Programmes. Cluster 3 is currently financed by the professional Association that has initiated the cluster (through the membership fees paid by the members of the association and by offering various services to companies not members of the cluster), in the future they intend to submit a project for cluster management, with European financing. On average their membership fees of the clusters are 50,00 € (the lowest fee is 50,00€, while the highest is 100,00€), which amount does not depend on number of company's employees or else. Self-financing is for all three Romanian clusters important goal. On average they should have 87,50 members in their clusters to be independently funded (with membership fees), while in this precise moment they are on average moderately capable of self-financing.

Financing structure

The current structure of funding on average of Romanian clusters is: 85 % of own resources (brought in by members of the cluster), 8,33% of funding from the Structural Funds and other EU-funds and 23,33% of sponsorships. While their ideal structure of financing would be: 34,38% of own resources, 38,33% of national funds – REGIONAL, followed by 28,57% of funding from the Structural Funds and other EU-funds, 15% of other and 10% of sponsorships (Table 50).

Table 50: **Cluster financing structure (current and ideal)**

Cluster (incl. activities and projects) financing structure (current -% of total funding)	
A) Current rate of funding (in total 100 %)	
a) Own resources (brought in by members of the cluster)	85
b) National funds - REGIONAL	0
c) Funding from the Structural Funds and other EU-funds	8,33
d) Sponsorships	0
e) Other:	23,33
please specify "Other" (text):	*Incubation Programme, Association of SME's*
Ideal rate of funding (in total 100 %)	
Own resources (brought in by members of the cluster)	34,38
National funds - REGIONAL	38,33
Funding from the Structural Funds and other EU-funds	28,57
Sponsorships	10,00
Other:	15,00

Applications for financing

All 3 of Romanian clusters have carried out activities/joint projects in the cluster without national/ EU co-financing (i.e. just with member co-financing).

On average Romanian clusters are going to apply for funding from: CF Cohesion Fund (6), ERDF European Regional Development Fund (7), ESF European Social Fund (4), EAFRD European Agricultural Fund for Rural Development (3), EMFF European Maritime and Fisheries Fund (1), FP 7 / Horizon 2020 (2), COSME (1) and EUREKA (3) (Table 51).

Table 51: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
CF Cohesion Fund	6
ERDF European Regional Development Fund	7
ESF European Social Fund	4
EAFRD European Agricultural Fund for Rural Development	3
EMFF European Maritime and Fisheries Fund	1
FP 7 / Horizon 2020	2
COSME	1
EUREKA	3
Other	/

Ideal financing model

For the future the ideal model of cluster financing for Cluster 1 would be: 80% national financing and 20% of own (from fees etc.), for Cluster 2 the ideal model of financing should be based on multisource: members contribution, national funding and EU Programmes, while Cluster 3 has proposed 50% national funding + 50 % European funding. A 100% self-financing of the cluster initiative is not intended.

4.10.8 Smart Specialisation

Two of Romanian clusters are involved in elaborating and implementing (future) smart specialisation in their region.

Characteristics and implementation of smart specialisation

Romanian clusters have expressed as the most important characteristics and implementation of smart specialisation the following statements all equally presented: the cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies, further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation and strengthening cluster members' capability regarding collaboration. While as the least important statement they have suggested the following one: the cluster is regionally focused and its formation is based on a comprehensive SWOT analysis (Table 52).

Table 52: Characteristics and implementation of smart specialisation strategies (1 – not important, 5 – very important)

	1 - Not important, 5 - Very important
The cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies.	4,75
Further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation.	4,75
How important is it to strengthen cluster members' capability regarding collaboration?	4,75
The cluster primarily addresses the implementation of sectorial strategies.	4,33
The cluster is a key player of the regional innovation system.	4,25
Good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand.	4,25
The cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies.	4,00
In addition, the cluster is an important player of the national innovation system.	4,00
The cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.)	4,00
The cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation.	3,75
Tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities.	3,75
The cluster is regionally focused and its formation is based on a comprehensive SWOT analysis.	3,50

Romanian clusters have expressed by their opinion that t**he 3 main relevant topics regarding elaboration of smart specialisation strategies** are: prioritization of sectors to become a core element of RIS3, performance of the region through its firms and diagnostics: drivers of firm performance (nature of regional value chains; skills, logistics etc.), expressed by Cluster 1, while Cluster 2 has expressed the following 3 main relevant topics regarding elaboration of smart specialisation strategies: market needs, human resource specialized and services. At last Cluster 3 has expressed the following 3 main relevant topics regarding elaboration of smart specialisation strategies: boosting innovation process, access to specialized labour, materials and equipment and price competition.

Followed by **3 main relevant topics regarding implementation of smart specialisation strategies**; has Cluster 1 expressed: information on clusters at regional level and linkages, spill overs and diffusion of best practices, efficient access to funds; Cluster 2: human resource specialized, cohesion between members and leadership and at last Cluster 3: access to information, access to funds and diffusion of best practices. Cluster 1 does not see their cluster (office) role neither in designing nor in implementing region's smart specialisation strategy at this moment, while Cluster 2 sees their cluster (office) in both – designing and implementing roles of region's smart specialisation strategy (Members of ACEPT CLUSTER are relevant at Romanian Bulgarian Cross border area and are involved in different project with impact at cross border region) and Cluster 3 does not know in this moment which role it would adopt.

4.10.9 New skills and job creation

The clusters think that the objective «new skills and job creation» is moderately important (M=4 on scale from 1-5) in regard to their cluster strategy. Their importance is described as «development of services quality in tourism, attracting of new tourist in cross border area, high qualification of human resource» by Cluster 2 and «17 investments, R&D and soft projects submitted for approval, all of them creating new jobs» by Cluster 3.

Main implementation activities of new skills and job creation

The clusters strategy implementation activities related to new skills and job creation focuses mostly on informing cluster members of training and qualification programs for their staff and organisation of seminars to offer training and education to cluster members' and cluster office' staff, while informing of the potential of immigrant staff as well as assisting and supporting immigrant staff is of least importance (Table 53).

Table 53: **Main implementation activities of new skills and job creation**

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	4,25
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,25
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	4,13
Support and motivation of young entrepreneurs.	3,75
Involvement in elaborating curricular for high schools and vocational training centres.	2,88
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	2,75
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	2,63
Awareness-raising concerning the retention of older, qualified staff in the workforce.	2,00
Promoting the hiring of disadvantaged staff.	2,00
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,50

4.10.10 Barriers and implications for cluster development

Main barriers for cluster development

The main barriers regarding cluster's development are: other (one cluster answered as direct involvement of public bodies as drivers of clusters leads to overlapping and confusion), followed by lack of financial resources and bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions). While the least important barrier seems to be that clusters do not produce the expected results (Table 54).

Table 54: **Main barriers for cluster development**

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Other: *direct involvement of public bodies as drivers of clusters leads to overlapping and confusion (1 answer).*	5,00
Lack of financial resources.	4,63
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	4,50
Lack of knowledge concerning the management of clusters and network structures.	4,38
Lack of knowledge about clusters and network structures, unfamiliarity.	4,25
The positive effects of clusters are visible only in the long run.	3,75
Lack of human resources.	3,63
Not-included experts to advice on the development of clusters.	3,50
Mistrust between cluster members.	3,25
Lack of support from top management in companies.	3,00
Objections from company owners.	2,88
We found that clusters do not produce the expected results.	2,75

Building of trust and communication channels between cluster members is one of the most crucial challenges in the beginning phase of the cluster life, as regarded by cluster in the North-East Region of Romania. This has several explanations: 1) the communist past where people were forced “to collaborate for the common benefit” left traces which are still to be overcome after 20 years 2) it is very difficult to understand and to evaluate the ratio between competition and collaboration in a cluster-like structure as well as the value added of cluster participation in the absence of a collaborative tradition and tangible results (yet).

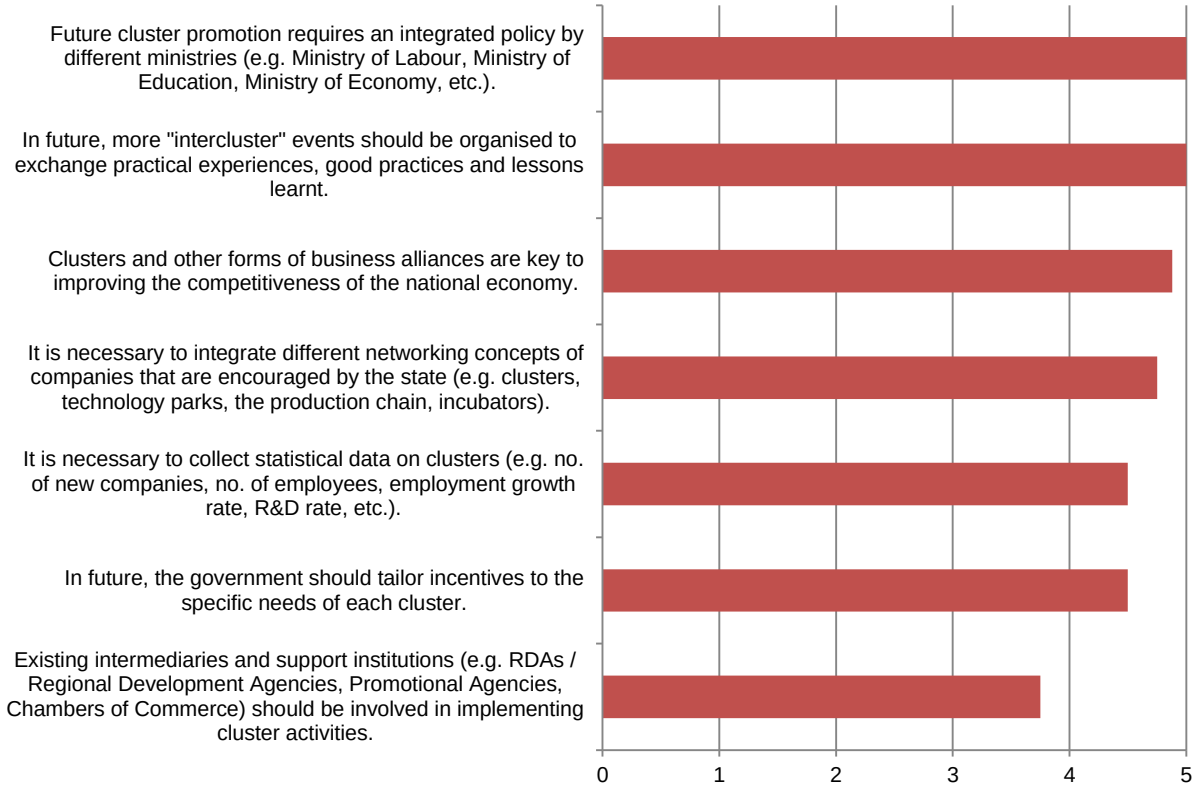
Starting with the development phase, the financial issue becomes the most important challenge for the cluster, and especially the financing mix: public funds, membership fees, share of turnover generated by companies as a result of cluster membership, direct sales by the cluster (e.g. touristic promotion materials), and sponsorship. Another related issue is the methodology of reaching consensus on projects to be promoted by the cluster in terms of issue, partnership, value etc.

The biggest challenges in clusters in the early stages are in: financial area and lack of understanding between the members (Cluster 1), mistrust between cluster members, lack of financial resources and lack of knowledge about clusters and network structures, unfamiliarity (Cluster 2) and the lack of knowledge on the role and future of the clusters, which makes it difficult to gather the necessary members and the lack of national financing for establishing the cluster (Cluster 3). In **later phases of cluster development the biggest challenges in clusters are following**: financial area and the lack of financing for the possible joint projects.

Implications for further cluster policy development

The most important implications for further cluster (policy) development on average are the claims: future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.) and in future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt. The least important implication on average is the claim that existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities (Figure 94).

Figure 94: **Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)**



In future clusters suggest the following improvements to promote cluster development:

- More exchange of practical experiences and more events should be organized (Cluster 1).
- A good promotion of the concept “Cluster” at local/regional/national level and among on the company, to assure finance from EU/National Programmes for Clusters management (Cluster 2).
- Programs to support the development of clusters and cluster management, involvement of clusters in networks and various EU projects, exchange of best practices with other EU Member States, candidate countries etc. and organisation of innovation tours for clusters (Cluster 3).

Role of the state in promoting cluster development in certain areas

Clusters have indicated how important is the role of the state in promoting cluster development in certain areas. For the most important roles of state they have indicated: participation in EU projects and promoting the concept of clusters and network structures in the economy. As the least important state role the Romanian clusters have indicated help in recruiting (Table 55).

Table 55: Role of the state in promoting cluster development in certain areas (1 – not at all important, 5 – very important)

Role of the state in promoting cluster development in certain areas	1- Not at all important, 5 - Very important
Participation in EU projects.	4,88
Promoting the concept of clusters and network structures in the economy.	4,88
Diffusion of information, accessibility for businesses (databases, info-centres…).	4,75
Internationalisation of clusters.	4,75
Increasing exports.	4,50
Protecting the environment.	4,50
Supporting eco-innovations.	4,50
Co-financing of the cluster office.	4,50
Co-financing of joint projects carried out in the cluster.	4,50
Promotion of research and technological development.	4,50
Adaptation of existing institutions relevant to the proper functioning of clusters.	4,50
Education in the field of clusters and other network structures.	4,38
Development of physical infrastructure (esp. telecommunications, transport ...).	4,38
Education and training.	4,38
Promoting the creation of enterprise networks.	4,13
Promoting start-ups and the creation of small businesses (incubators).	4,00
Organisation of cluster events.	3,88
Attracting foreign investment.	3,75
Improving access to venture capital.	3,50
Help in recruiting.	3,13

Comparing North-East Romania to other regions' experiences, the following issues should be particularly addressed:

- Elaboration of smart specialisation strategies in terms of methodological approach, selection of topics, stakeholders involved, evaluation tools, monitoring system etc.
- Financing cluster models: types of programmes, eligibility, value
- HR Development Programmes: fostering education to business cooperation
- Technology Transfer and Innovation: support to collaboration between business and R&D
- Cluster internationalisation: support programmes, selection of markets to be addressed.

SERBIA


Pécs
Zagreb
Sisak
Timişoara
Novi Sad
(Нови Сад)
România
(Romania)
Ploieşti
Bucureş
Ruse
(Русе)
Bosna i
Hercegovina
(Bosnia and
Herzegovina)
Beograd
(Београд)
Craiova
Knin
Srbija
(Serbia)
Užice
(Ужице)
Sarajevo
(Сарајево)
Niš
(Ниш)
Trogir
Split
Tijabara
(Тијабара)
Crna Gora
(Montenegro)
Orepak
Kosova
(Kosovo)
Sofia
(Софија)
България
(Bulgaria)
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4.11 Serbia

We have received 5 filled questionnaires from Serbian cluster offices.

4.11.1 Basic information about clusters

The most important role of cluster office are: the cluster office is crucial to the further development of the cluster, while they believe on average that cluster managers have to carry out tasks to achieve the cluster's strategy least important role of the cluster office (Figure 95).

Figure 95: The role of the cluster office (1 disagree - 5 fully agree)

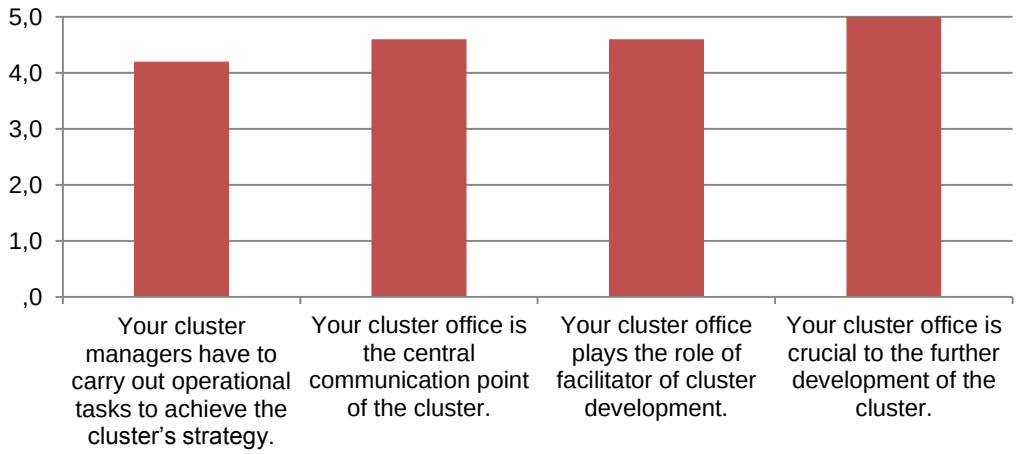
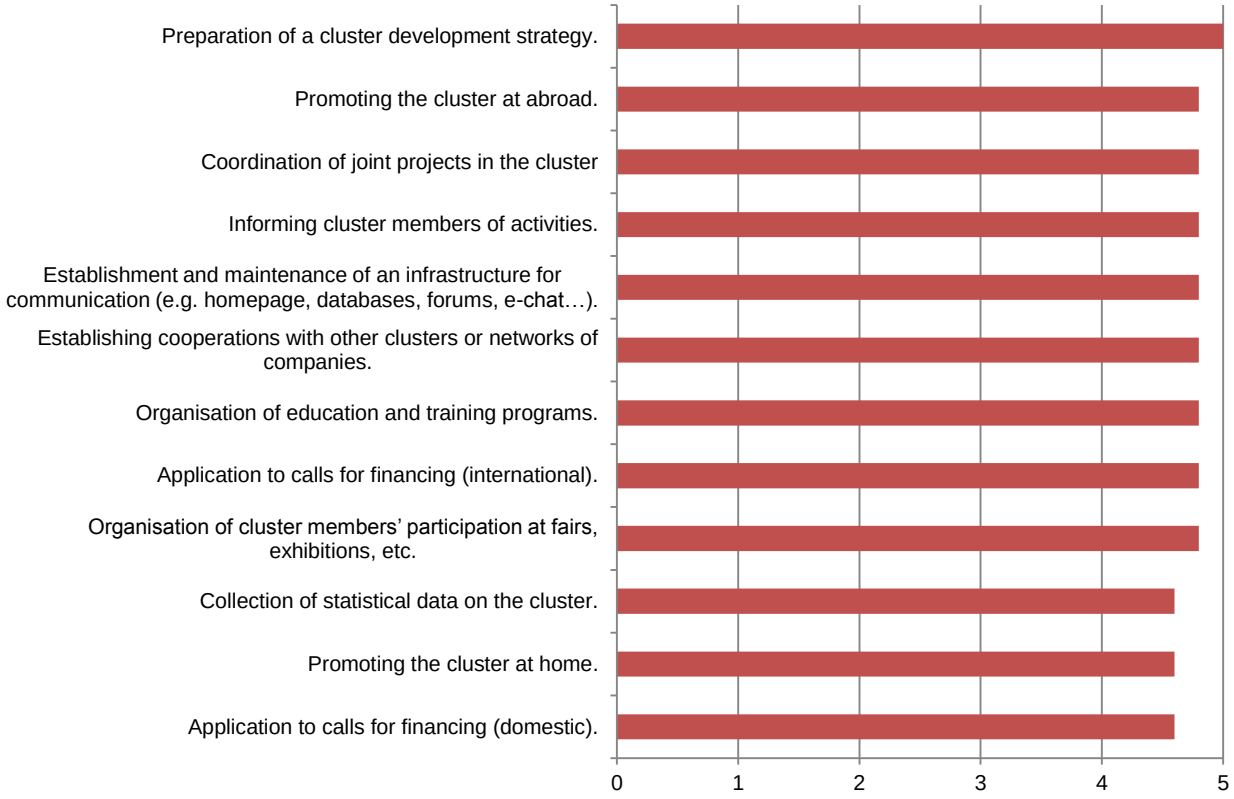


Figure 96: The importance of cluster office in different tasks (1 not at all important - 5 very important)



The most important task of cluster office is considered preparation of a cluster development strategy, while the less important tasks are: application to calls for financing (domestic), promoting the cluster at home and collecting of statistical data on the cluster (Figure 96).

The most important skills that cluster leader should possess are: organisation, finance management, experience in the sector, experience in the public sector, management and PR skills, knowledge and constantly upgrading the knowledge, skills of assessment of the environment (social, institutional and politics decision makers) and market, communication skills with the members of cluster and with all relevant stakeholders (establishing partner relations with relevant stakeholders), project management, strategic management, insomnia tolerance, ability to learn a lot in short periods of time.

4.11.2 Cluster impact assessment

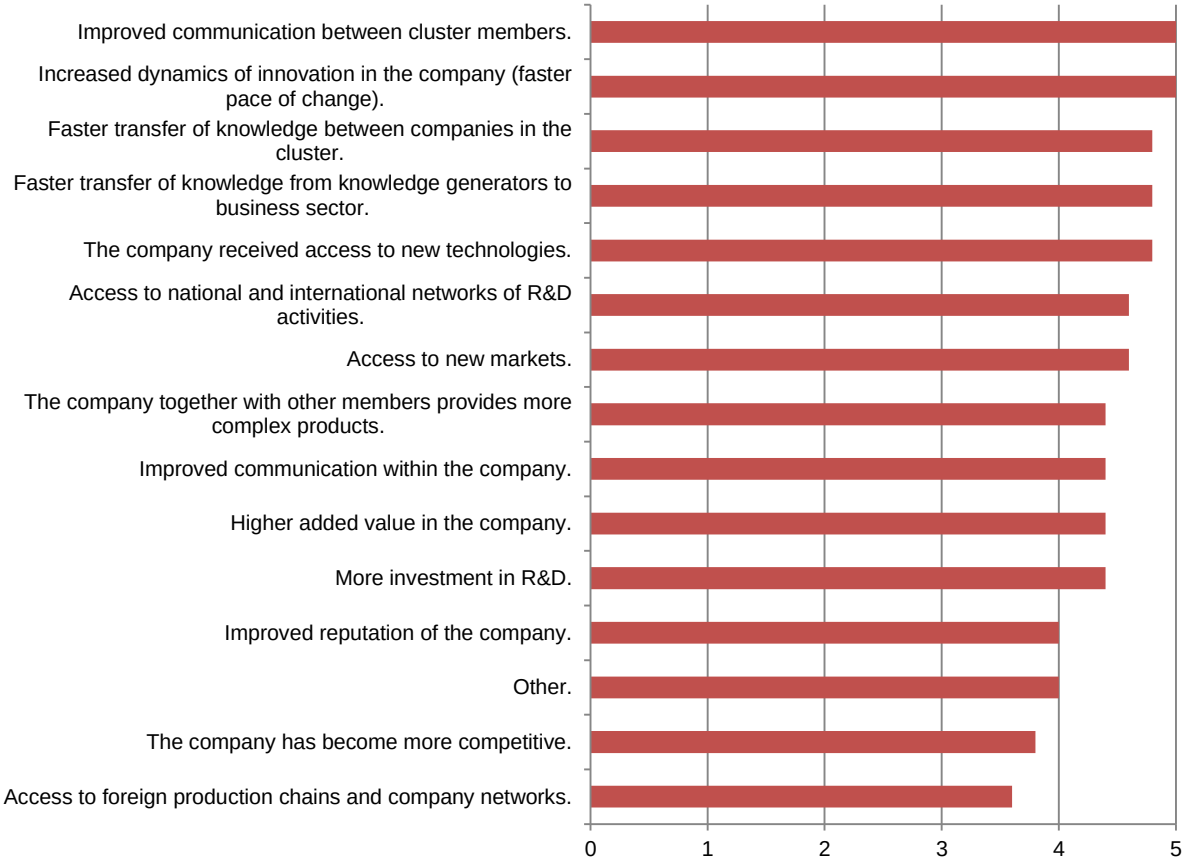
Added value of membership

Following section presents different perspectives of cluster impact assessment, including added value of membership, key success factors and implementation of cluster activities.

The highest added value of cluster membership from the perspective of cluster organisations is seen in improved communication within the company and increased dynamics of innovation in the company

(faster pace of change). The lowest added values are considered access to foreign production chains and company networks and the claim that the company has become more competitive (Figure 97).

Figure 97: Added value of membership in clusters (1 negligible effects – 5 very strong effects)



Key success factors

Discussion about key success factors of clusters stakeholder stress the geographical significance of the region. Vojvodina is the most developed region in the whole Balkan, not only in terms of economic indicators, but also in quality of business environment. Importantly, its geography positions Vojvodina on the top of the list of best places for doing business in Balkan. Since Vojvodina is situated in the northern part of the Republic of Serbia, the date of 1st May 2004 when Hungary entered the European Union was one of the most important days for Vojvodina, as it became the EU border region. On the east, Vojvodina borders with another EU member state – Romania. On the west, a third EU new member state – Croatia.

Road and rail corridors crossing Vojvodina were heavily used in the past for the connection of Greece and ex-Yugoslavia with Western Europe. The importance of these corridors will grow again. A good transport connection to Belgrade, the capital of Serbia, which has the ambition to become a Balkans hub for international travel and cargo, gives Vojvodina another opportunity for growth.
The diversity of languages, religions and ethnical backgrounds of the people of Vojvodina is a value that nourishes creativity and ability to communicate with other nations. The inhabitants are proud of the

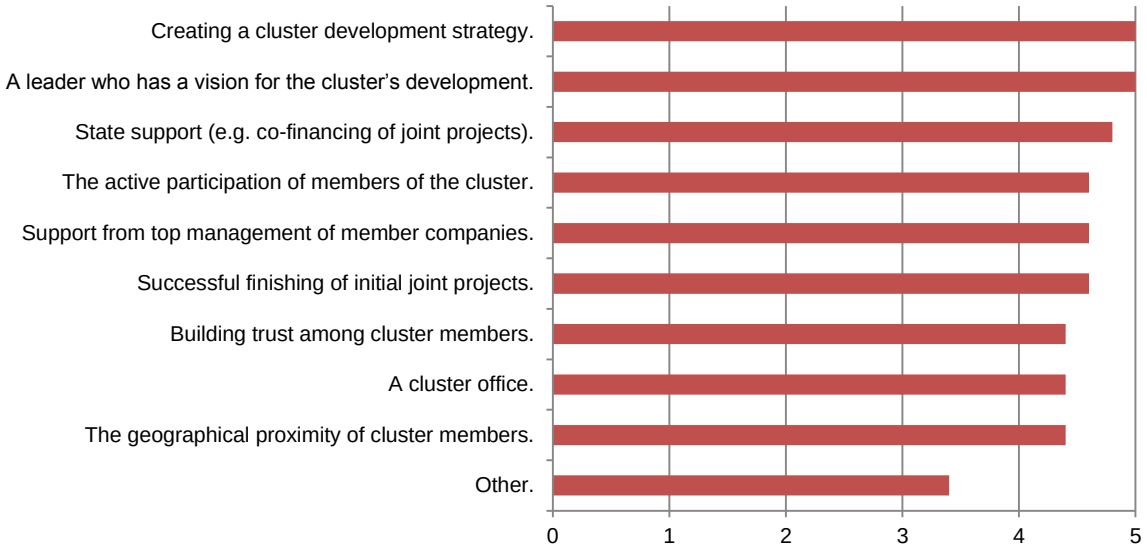
heterogeneous structure of their region and this attribute should be considered as an exploitable asset even in business.

The country is a natural transportation hub for all Southeast Europe. It is the only state in Southeast Europe that borders every other state in Southeast Europe. It connects Europe and the Near East by the shortest possible route, with reconstructed road and railway infrastructure, river transport via the Danube, and access to the Mediterranean Sea via port of Bar on the Adriatic Sea. The Danube (water corridor VII) is a natural connection between Middle East, Central Europe and the developed countries of Western Europe. The Budapest-Belgrade-Bar rail line is the fastest and cheapest connection between the natural resource rich countries that emerged out of the former Soviet Union, and the Mediterranean basin. The shortest land route (highway) connecting Western, Central and Eastern Europe with Greece, Turkey and the Near East countries is Corridor X, which runs the full length of Serbia. Provincial Secretariat for Economy, Employment and Gender Equality has recognized clustering in the economy, business connecting and networking as one of the strategic measures for economic development, with the aim of grouping industrial capacity and strengthening the competitiveness of the region.

From clusters managers perspective the most important success factor of clusters on average are considered a leader who has a vision for the cluster's development and creating a cluster development strategy. The less important success factor is considered the geographical proximity of cluster members (

Figure **98**).

Figure 98: Key success factors of clusters (1 not at all important - 5 very important)



Implementation of activities

Fully implemented activities in clusters are organising events where cluster members meet (meets, social gatherings…) and connecting to other clusters and other business networks in the country. The lowest levels of implementation of activities are considered the following activities: applying together for national tenders and for tenders in the EU or elsewhere abroad (Figure 99).

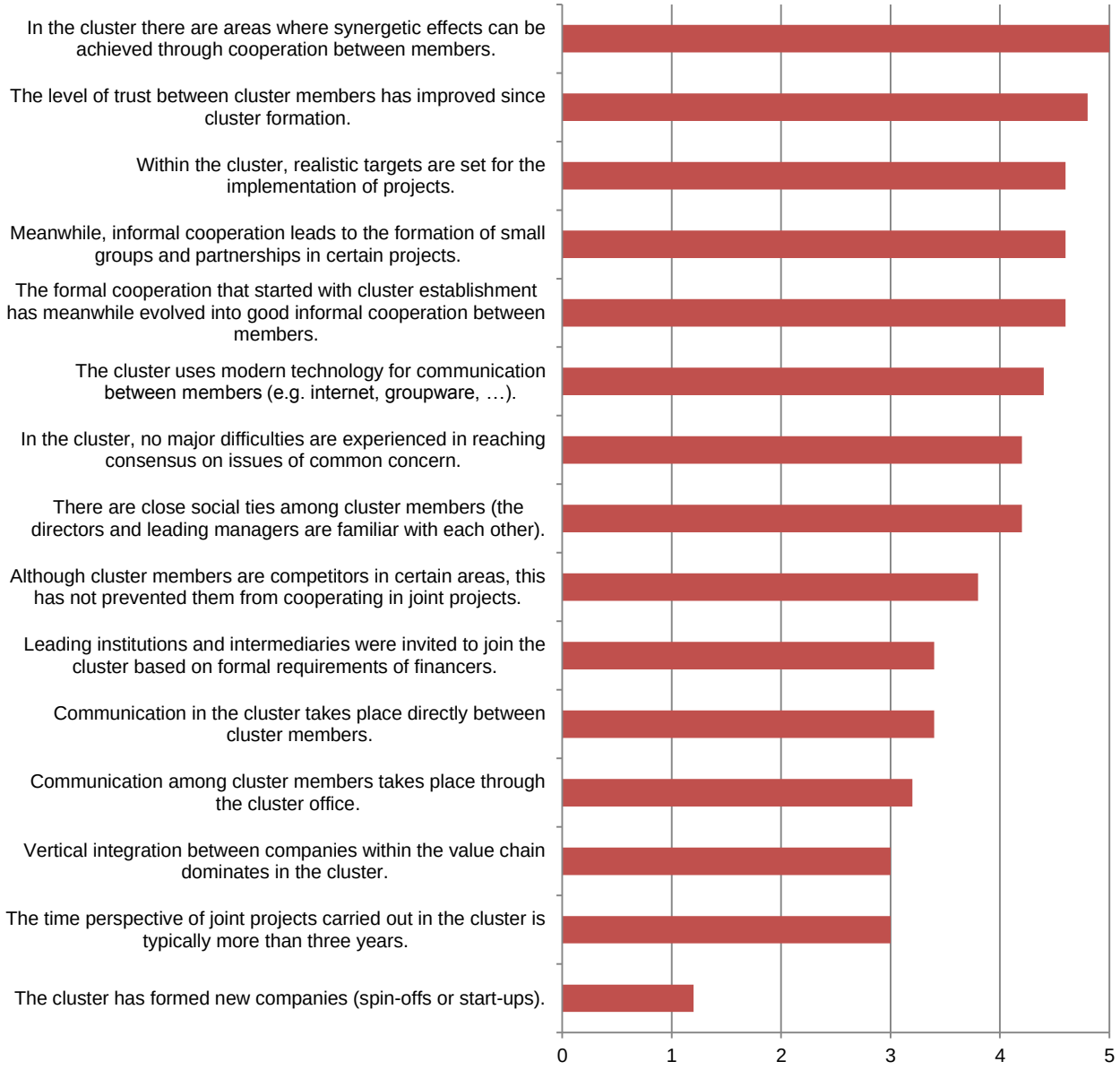
Figure 99: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

4.11.3 Cooperation and networking

Cooperation and networking characteristics

The highest level of cooperation and networking in clusters s connected to those areas, where synergetic effects can be achieved through cooperation between members and where level of trust between cluster members has improved since cluster formation. The lowest level of networking on depends on the time perspective of joint projects carried out in the cluster, which is typically more than three years and vertical integration between companies within the value chain (Figure 100).

Figure 100: Cooperation and networking characteristics on average (1 disagree - 5 fully agree)



Serbian cluster managers are communicating on average with the national financer (ministry, state, …) at least once a month, while communication with cluster members is taking place on daily basis. Meetings of the directors of the company members take place at least once a month. Prevalent form of communication in direct communication between cluster members are mainly personal contacts (via telephone, e-mail or at cluster events), while indirect communication through the cluster office is taking place on cluster events or by sending information circulars.

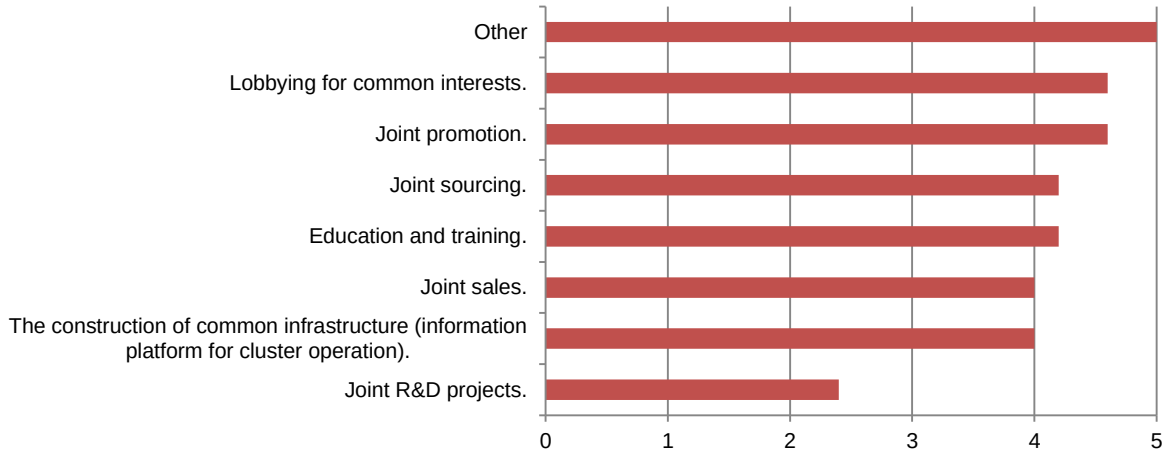
Areas of cooperation

From the In the near future most of activities in Serbian clusters are planned in the areas of joint R&D projects, lobbying for common interests and joint promotion.

Figure 101 we can see that the most common cluster cooperation areas are lobbying for common interests and joint promotion, while the most rarely area of cooperation is joint R&D projects.

In the near future most of activities in Serbian clusters are planned in the areas of joint R&D projects, lobbying for common interests and joint promotion.

Figure 101: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

Analysed Serbian clusters select and implement their projects on the basis of mapping the needs of the member cluster, analysing the data and final planning of project activities. The members are also free to start their own initiative and use the cluster as a platform for implementation along with other members interested in particular project. Companies that are formally not cluster members are able to cooperate in cluster projects and all of those clusters which enable such cooperation have already involved non-members companies in their cluster projects.

In all analysed Serbian clusters are represented small innovative companies (less than 50 employees), companies providing specialised services (e.g. IT support, process automation, certification…), educational institutions (e.g. universities, colleges…) and research institutions (e.g. institutes, laboratories…). On the other hand venture capital funds, technology parks and large companies (more than 250 employees) are presented in significantly small number. Cluster managers on average believe it is important to have educational institutions (e.g. universities, colleges…) and research institutions (e.g. institutes, laboratories…) included in clusters also in the future.

4.11.4 Innovation R&D

R&D projects

All Serbian clusters stress the importance of research, development and innovation. They elaborated on average 2 R&D&I project ideas within the cluster over the past three years (2010–2012). On average one project was implemented within the cluster, but so far only one cluster have successfully realised such project.

Forms of organisation for support of R&D

The analysed clusters in Serbia are familiar with all concepts of organisations which support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. Most of them are preparing or carrying out projects with other clusters and incubators in Serbia. They also have some contacts with technology parks, but less with technology networks and centres of excellence.

Majority of Serbian clusters are also preparing or carrying out projects with foreign clusters and have contacts with technology parks, centres of excellence and incubators abroad or they even preparing or have already finished some projects with them. On average Serbian clusters are actively involved in the preparation and / or public discussion of innovation policy and instrument creation on regional level (participation in regional government bodies: team for cluster development of Province government, cooperation and partnership with centre for competitiveness and cluster development from FTN Novi Sad, Regional SME development agency Subotica, participation in different working groups), but not on national and EU-level.

4.11.5 Sustainability

According to the national cluster programme objectives with regard to support of eco-innovation, all of analysed Serbian clusters include this objectives in their strategies, however they are not primarily focused on sustainability / eco-innovation. Activities related to eco-innovation are on average limited to awareness-raising and distribution of information.

Examples of good practices of eco-innovation

Serbian clusters stress some examples of good practices of eco-innovation as following EU policies regarding design, exploring the ways of including Serbia in EU eco label system, supporting member in developing eco camp, supporting members in promotion of the “Say yes to eco bags” project, supporting members in producing product of eco paper and materials, distribution of information of active projects which support eco innovations, support for introduction of ISO 14001 standard, awareness-raising projects, eco education and trainings for cluster members, distribution of information to cluster members,…

4.11.6 Internationalisation

For analysed Serbian clusters internationalisation is quite important. Most of them have an internationalisation strategy, including following activities: participation of companies in international events, trade fairs, study visits, etc., B2B matchmaking, participation of companies in international projects and participation of cluster organisation in international projects (Table 56).

Table 56: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	N. of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	3
B2B matchmaking.	3
Participation of companies in international projects.	3
Participation of cluster organisation in international projects.	3
Inclusion of foreign companies in the cluster.	1
Cluster office / representation abroad.	1
Other	1

Serbian cluster managers consider internationalisation as very important for their clusters. They are collaborating with Bulgarian metal cluster, Hód Industry Cluster (Hungary), Mstyria (Austria), Delalfodert agency in Szeged and its Food Cluster (Hungary), Agriculture and Food Cluster from Szentes, which is located at the Szent Istvan University Department for Water management (Hungary), Balkan Cluster Network, InfoPolus (Hungary), Steinbeis Europa Zentrum (Germany), CyberForum (Germany), IT for Work (Germany), MFG (Germany), different clusters and incubators from Slovenia, Croatia, Austria, Finland…

4.11.7 Financing

Financing structure

Current rate of funding of Serbian clusters is consisted of own resources (22%), national funds (40%) and EU-funds (23%). In future, they are planning to assure funding in even more equal shares by rising funding from EU funds in order to relieve national funds of a financing. Although they are carrying out activities in the clusters without national/EU co-financing as well. Average membership is about 400 EUR and depends in most cases on agreement between cluster members. Cluster managers consider self-financing as an important goal, however they see their clusters not capable of self-financing and estimate that on average 140 members should be included into the cluster to be independently financed from fees only.

Applications for financing

All of analysed Serbian clusters are planning to apply for EU funding in 2013/2014. They intend applying mainly to European Regional Development Fund, while to Cohesion Fund, European Social Fund, European Agricultural Fund for Rural Development and FP 7 / Horizon 2020 only in some cases (
Table 57).

Table 57: Intended funds from applying

Funds from applying for funding	N. of clusters intended applying for funds
ERDF European Regional Development Fund	3
CF Cohesion Fund	1
ESF European Social Fund	1
EAFRD European Agricultural Fund for Rural Development	1
FP 7 / Horizon 2020	1

Ideal financing model

One of Serbian clusters stresses that the current system of short time project base funding and expecting from each cluster 50 % of its own participation is not adequate and can enable only the development of those clusters which have been found and financed from the very beginning by EU projects or national or regional institutions (ICT cluster, AUTOMOTIVE CLUSTER, METAL CLUSTER, etc.), while other clusters which represent endogenous initiatives of local companies have no chance to develop and get adequate institutional support. Therefore, they believe that distribution of support should be more equal. It shall not be concentrated only on few above mentioned clusters which have ensured already their existence and development, through enormous EU funds. The cluster support shall be permanent, throughout the year – not only project based and short time limited. It shall be rendered to clusters which have already shown results in integration, common market approach, development of own profile and activities in accordance with the strategy that they have defined. The regional Secretariats shall set up criteria and finance particular activities up to 100 % (B2B meetings, networking with foreign clusters, common development of projects with foreign clusters, transfer of technology from abroad, etc.) to all clusters that have potential sectoral partners abroad, having a potential of developing their business based on cooperation with foreign clusters or other development institutions. The Secretariats shall also participate in financing cluster office on the level of at least 50 % of its annual costs. More assets shall be devoted to direct clusters support and less to educational and other centres which render usually a kind of education and training which is of general and not particularly practical nature. Therefore, clusters shall be allowed themselves to identify a kind of knowledge they need and then select the source of knowledge they really need and organisation that can offer it. The same relates to advising services.

4.11.8 Smart Specialisation

Characteristics and implementation of smart specialisation

All of analysed Serbian clusters are involved in elaborating and implementing (future) smart specialisation strategies in the region. Their managers consider as important following claims: the cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.), the cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies, importance of strengthening of cluster members' capability regarding collaboration. Meanwhile following claims are seen as less important: the cluster is regionally focused and its formation is based on a comprehensive SWOT analysis, the cluster is a key player of the regional innovation system, the cluster is an important player of the national innovation system.

According to analysed Serbian clusters the main relevant topics regarding elaboration of smart specialisation strategies are elaboration of existing pertinent specialisation domains, elaboration of the best opportunities for development, research, acquaintance of cluster members in the direction of region's SMART specialisation strategy, analysis of local resources, analysis of future trends, development and decision on possible strategy, making people understand the concept, top down support and bottom up acceptance. Regarding implementation of smart specialisation strategies main relevant topics are the discovery of existing pertinent specialisation domains, public support, education, support of relevant stakeholders, support from public sector (up-down component), good planning process and realistic goals, awareness of the role of agriculture and food processing in the region's SMART specialisation, methodology of inclusion of clusters into implementation of the SMART specialisation strategy.

From the clusters managers' perspective the role of their cluster office is either designing or implementing the region's smart specialisation strategy. On one hand cluster is seen more in the implementation of region's smart specialisation strategy due to excellent contact with SME's, knowledge of situation of the field and practical skills possessed by management and cluster members' organisation employees. On the other hand they see themselves in the role of designing, because members and the cluster have knowledge and experience that can be woven into it. Clusters have already experience participating in drawing strategies in region (Subotica), as well as in implementing it. They deem that the participative form of the development of strategies means that when public bodies finalize strategy they will have better prepared non-profit and private sector to participate in such strategies implementation.

4.11.9 New skills and job creation

On average the objective 'new skills and job creation' is highly important for analysed Serbian clusters. The most important ways in which this objective is achieved are: improving business and entrepreneurship environment in culture and creative industries sectors, new projects, trainings, increasing competitiveness of cluster members, support and motivation of young entrepreneurs, promoting incentives for young entrepreneurs to take-up learning opportunities, coaching, carrying out needs assessments to exploit job potentials for the future and support for adequate skills popularization of IT studies, improvement of Curricula.

Main implementation activities of new skills and job creation

The cluster strategy implementation activities related to new skills and job creation focuses mainly on support and motivation of young entrepreneurs, informing cluster members of training and qualification programs for their staff and promoting incentives for young entrepreneurs to take-up learning opportunities, coaching, while awareness-raising concerning the retention of older, qualified staff in the workforce and informing of the potential of immigrant staff as well as assisting and supporting immigrant staff are on average less presented (

Table 58).

Table 58: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Support and motivation of young entrepreneurs.	5,00
Informing cluster members of training and qualification programs for their staff.	4,80
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	4,80
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	4,40
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	4,40
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	4,00
Involvement in elaborating curricular for high schools and vocational training centres.	3,80
Promoting the hiring of disadvantaged staff.	3,60
Awareness-raising concerning the retention of older, qualified staff in the workforce.	3,40
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	3,40

4.11.10 Barriers and implications for cluster development

Main barriers for cluster development

From the stakeholder perspective the main barriers regarding cluster development are: Statistical data and information flows, lack of financial resources, bank financing: lack of understanding of cluster's requirements, lack of knowledge concerning the management of clusters and network structures, lack of knowledge about clusters and network structures.

According to stakeholder more effective cluster policy making could be achieved considering following solutions:

- Creation of Cluster Development Strategy 2014–2020 for the period when the budget of the European Union is being programmed, which will define the strategic clusters, or areas of the economy that Vojvodina will develop.
- Capacity building for cluster management and business associations.
- Education and learning of new skills by the cluster members and cluster management.
- Financial support to clusters and business associations that have been approved funding on EU Calls for Proposals.
- Promotion of clustering in the economy and clusters as examples of good practice.

On the other hand **Serbian clusters see their main barriers** in the lack of human and financial resources, while the claim that clusters do not produce the expected results and objections from company owners are not seen as relevant as above mentioned (Table 59).

Table 59: Main barriers for cluster development

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Lack of human resources.	5,00
Lack of financial resources.	4,80
Lack of knowledge concerning the management of clusters and network structures.	4,40
Lack of knowledge about clusters and network structures, unfamiliarity.	4,00
Not-included experts to advice on the development of clusters.	3,80
Mistrust between cluster members.	3,80
The positive effects of clusters are visible only in the long run.	3,80
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	3,80
Lack of support from top management in companies.	3,60
Objections from company owners.	2,60
We found that clusters do not produce the expected results.	2,40

Biggest challenges in clusters in the early stages are office functioning, management operations, collaboration between members, ensuring the financial viability, building trust, finding dedicated cluster manager, identification of the key direction for the cluster development. **Later phases of cluster development they include:** joint project management, education, finding co/financing for project implementation, when the programs foresee high percentage of cluster co-financing, keeping the attention of all cluster members to core activities of the cluster office, maintaining trust, developing sets of services to members, networking, understaffing, tackling the stagnation and post-stagnation phase, implementation of cluster strategy and action plan.

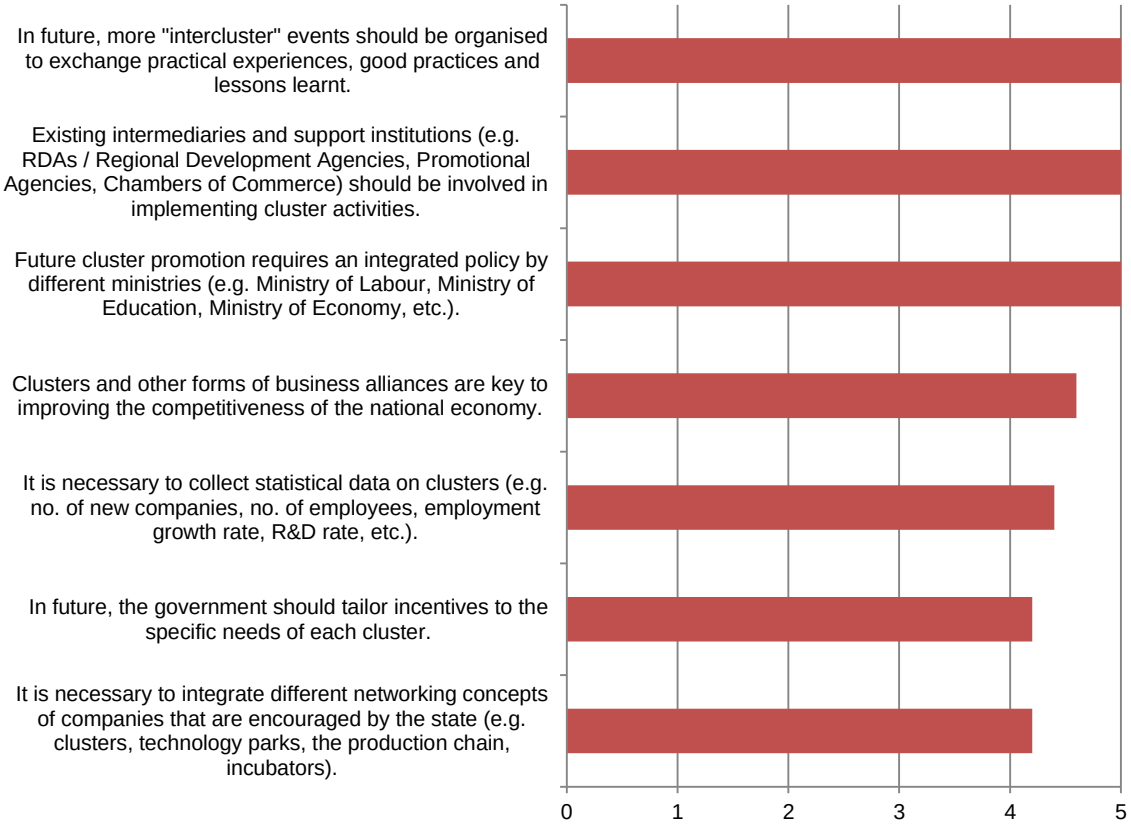
Implications for further cluster policy development – cluster perspective

For managers of analysed Serbian clusters the most important role of the state promoting cluster development is in the following areas: co-financing of the cluster office, co-financing of joint projects carried out in the cluster, promoting the concept of clusters and network structures in the economy, education and training, promoting start-ups and the creation of small businesses (incubators), participation in EU projects.

The most important implications for further cluster (policy) development are: future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.), existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities and in future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt. The less important implications are that it is necessary to integrate different networking concepts of companies that are encouraged by the state (e.g. clusters, technology parks, the production chain, incubators) (
Figure 102).

To promote cluster development in future, Serbian cluster managers suggest branding of national policies and measures, two-way promotion: public-cluster, member-cluster, joint public-cluster projects, promotion of benefits of cluster membership through popularization on television, media, interactive surveys, setting up system of permanent and coordinated national and regional support to clusters, similar to the one that was implemented in Hungary till 2010 and creation of a cluster development fund.

Figure 102: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder perspective

From the stakeholder perspective the focus of local governments should be on the clusters and on the benefits to the local development of the relationship between business, industry and support institutions. The local government should be a member of the cluster as a supplier of public goods and services, and it could also benefit from the development of clusters through the increases in tax revenues. It should also strive to increase the benefits of cooperation by providing the highest quality of services. Essentially, the local government needs to create a stimulating environment for the private sector in general, to reduce taxes, and to improve specific infrastructure investments in order to act through pre-financing as a precursor to the cluster development becoming a priority in terms of financial incentives, business premises, planning and building site.

From the stakeholder perspective the main areas / topics of cluster policy making where Vojvodina could learn most from the other region's experiences are: Tailor-made funding programmes,

infrastructure support for cluster operating, system of permanent and coordinated national and regional support to clusters and a clearly stated cluster policy by the national authorities.

SLOVAKIA


Praha
ská republika
Czech Republic)
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Rzeszów
Lviv
(Львів)
Ostrava
Bielsko-Biała
Przemyśl
Žilina
Brno
Prešov
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(Slovakia)
Košice
Trnava
Linz
Wien
Bratislava
Miskolc
Parcul
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stria)
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Oradea
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4.12 Slovakia

We have received 4 filled questionnaires from Slovak cluster organisations.

4.12.1 Basic information about clusters

The most important role of cluster office on average is seen as the cluster office is the central communication point of the cluster. Less important roles of cluster office are seen in the role of facilitator of cluster development and carrying out operational tasks to achieve the cluster's strategy (Figure 103).

Figure 103: The role of the cluster office (1 disagree - 5 fully agree)

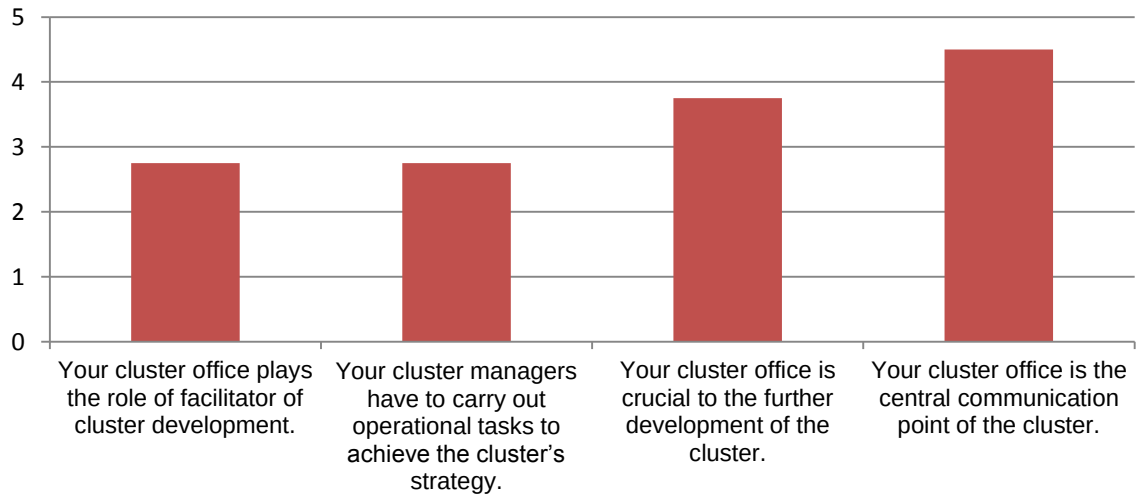
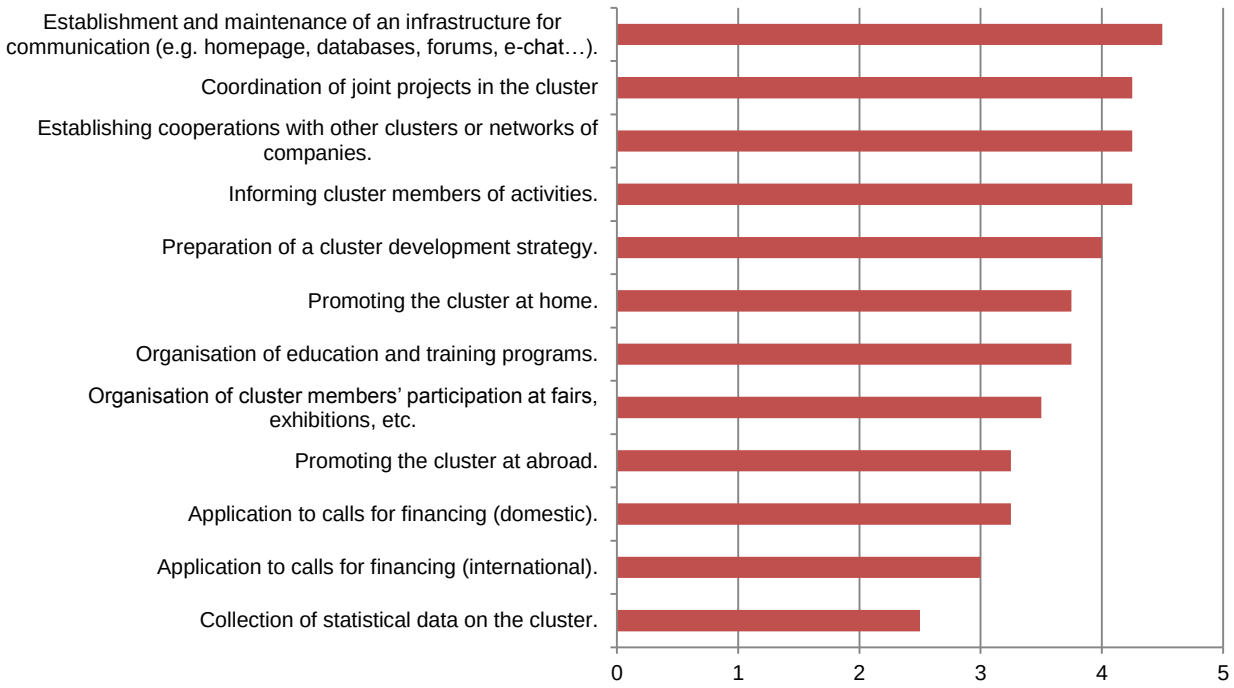


Figure 104: The importance of cluster office in different tasks (1 not at all important - 5 very important)



The most important task of cluster office is considered establishment and maintenance of an infrastructure for communication (e.g. homepage, databases, forums, e-chat…), while the least important task is considered collection of statistical data on the cluster – maybe because the members of cluster are not willing to provide the data (Figure 104).

The most important skills that cluster leader should possess are following: expertise, communication skills, managerial skills, leadership and motivation, problem solving and decision making, creativity and empathy of the member's needs.

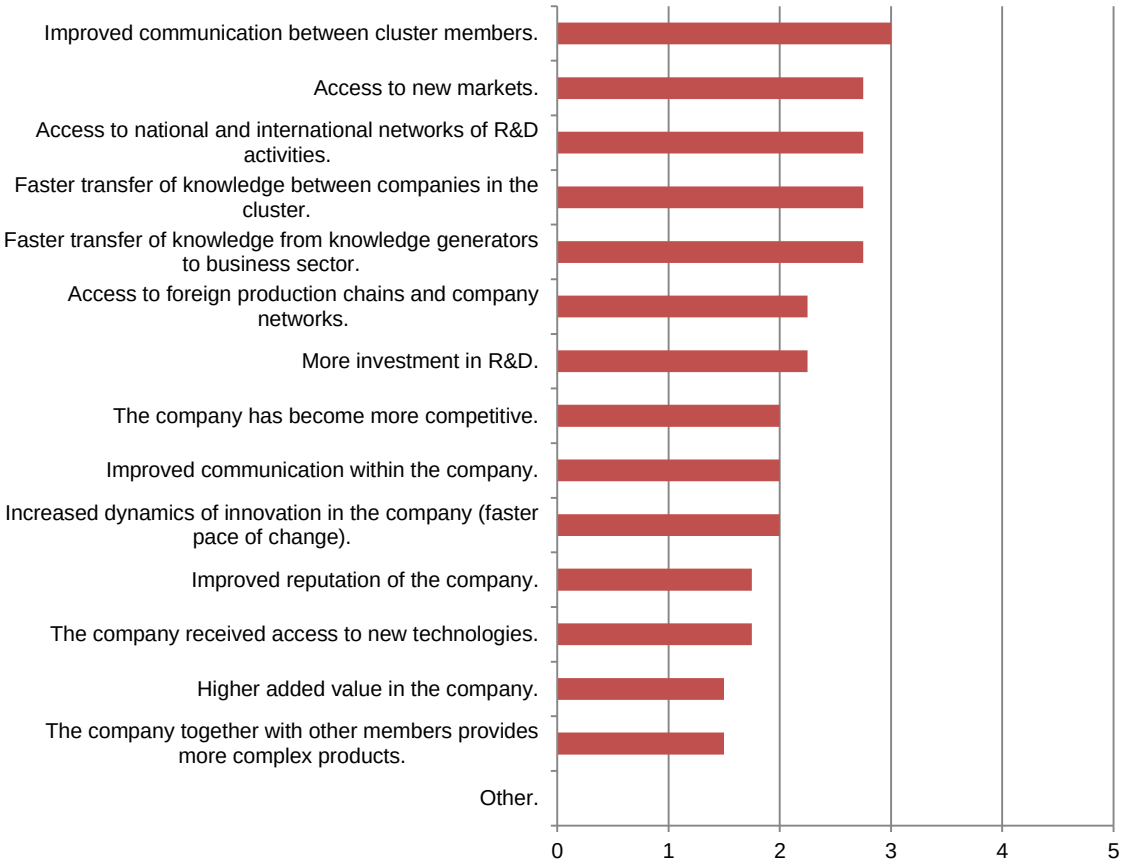
4.12.2 Cluster impact assessment

Added value of membership

Following section presents different perspectives of cluster impact assessment, including: added value of membership, key success factors and implementation of cluster activities.

The highest added value of cluster membership from the perspective of cluster organisations is in improved communication within the company, while the lowest added values are considered the claims that the company together with other members provides more complex products and higher added value in the company (Figure 105).

Figure 105: Added value of membership in clusters (1 negligible effects – 5 very strong effects)

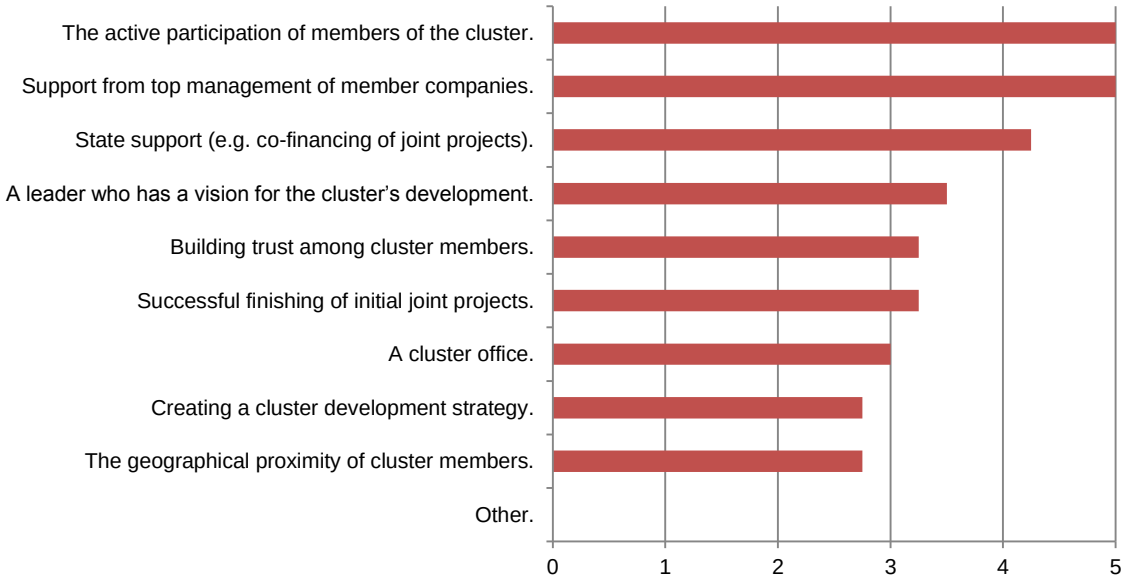


Key success factors

From the stakeholder perspective success factors of Trnava clusters are connected to region's natural resources. The main natural resources of the Western Slovakia can be found in agriculture, forestry, water and geothermal sources. Power engineering, agriculture, automotive industry, and electrical engineering are the most important industries in Trnava. For this reason, several clusters were established in the region: Energy Cluster – Western Slovakia, Electrical cluster – Western Slovakia, Automotive cluster Slovakia. Trnava Self-governing Region is the main promoter of clusters not just in Trnava region, but also in whole Slovakia.

From the clusters perspective the most important success factor of clusters are considered support from top management of member companies and the active participation of members of the cluster. The less important success factor is considered the geographical proximity of cluster members (Figure 106).

Figure 106: Key success factors of clusters (1 not at all important - 5 very important)

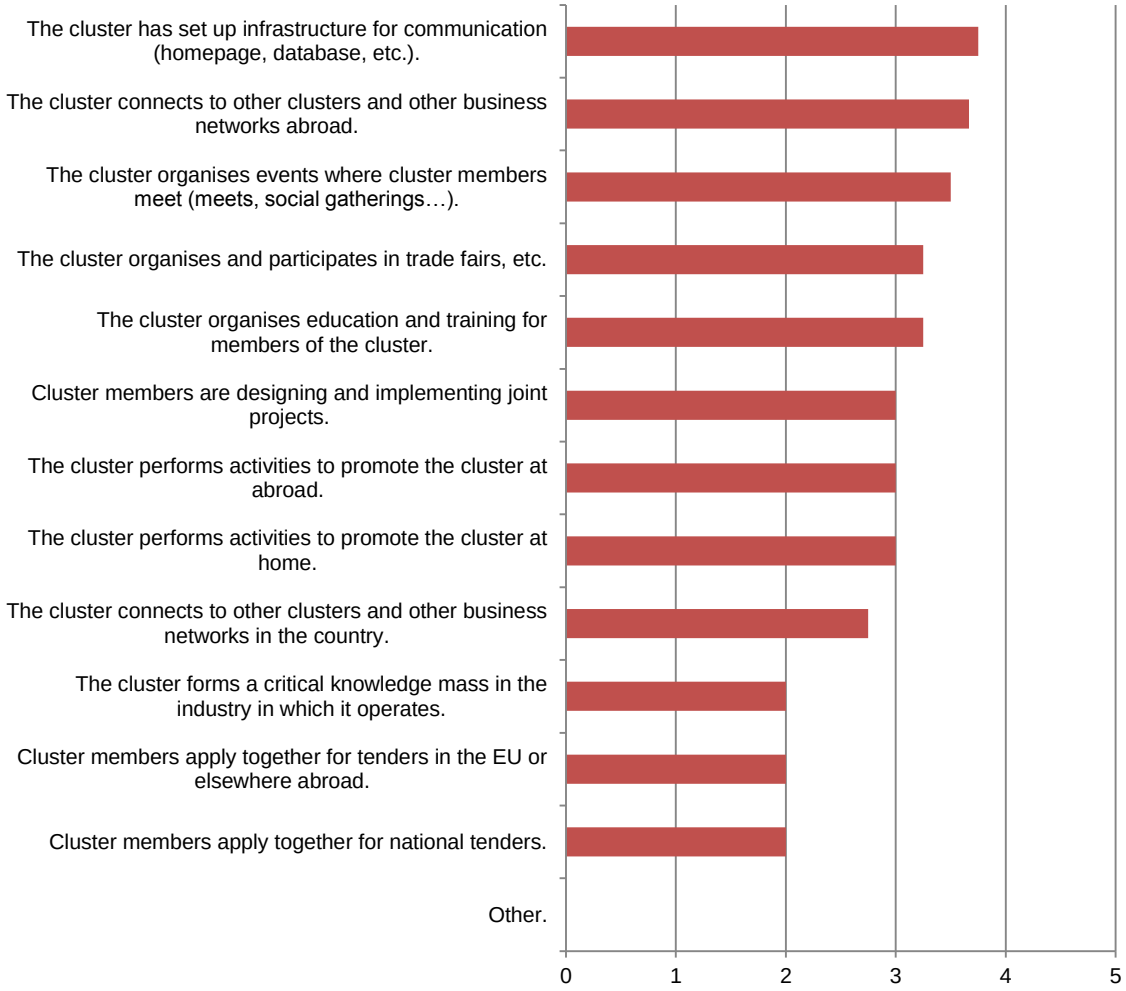


Implementation of activities

The most implemented activities in clusters are setting up infrastructure for communication (homepage, database, etc.) and organising events where cluster members meet (meets, social gatherings…). The lowest level of implementation of activities are considered the common cluster members' application for national tenders, tenders in the EU or elsewhere abroad and forming a critical knowledge mass in the industry in which it operates (

Figure **107**).

Figure 107: Implementation of activities in clusters (1 not implemented – 5 fully implemented)



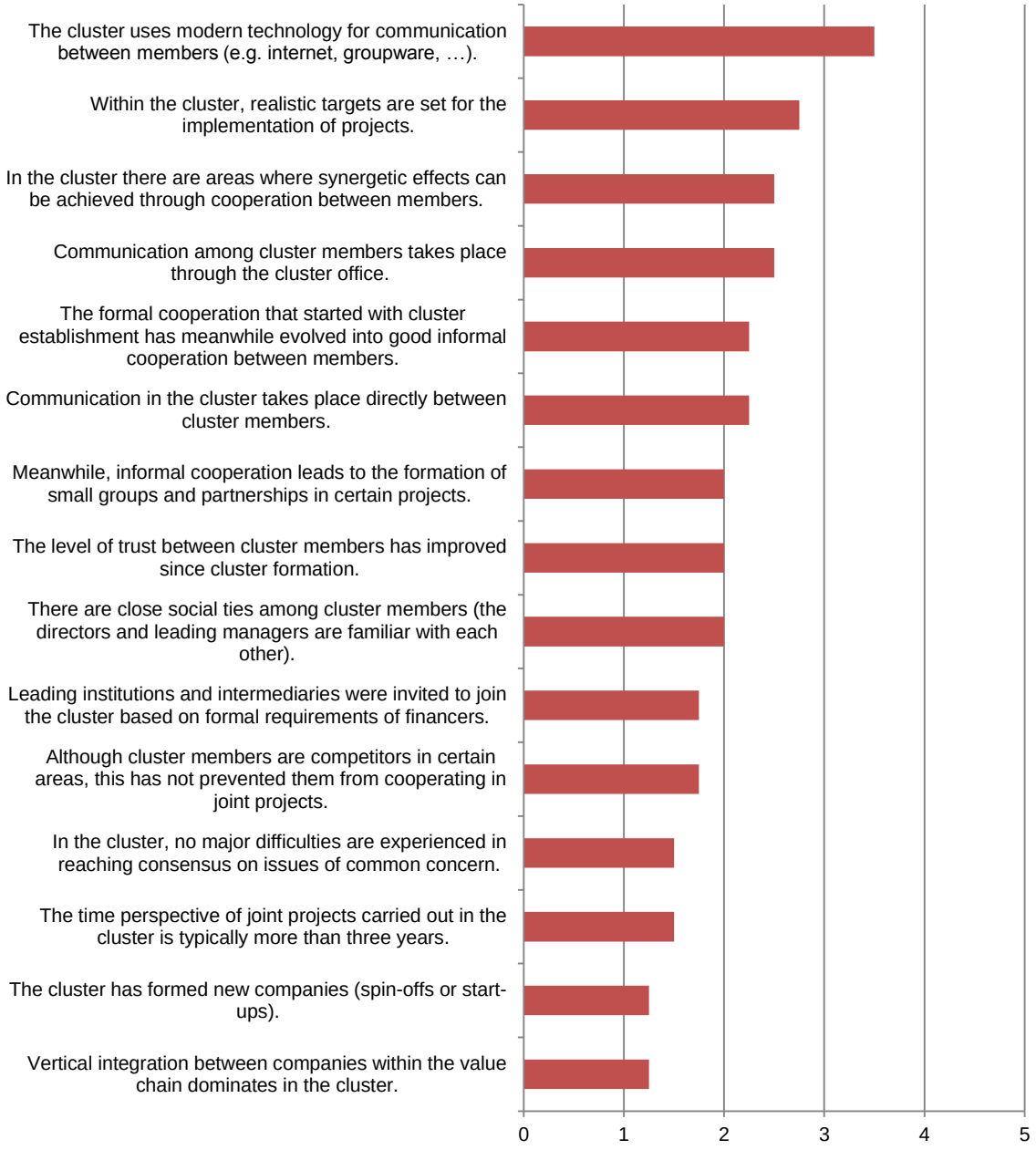
4.12.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristics in clusters is usage of modern technology for communication between members (e.g. internet, groupware, …). The lowest cooperation on average are the claims that vertical integration between companies within the value chain dominates in the cluster and the cluster has formed new companies (spin-offs or start-ups) (

Figure 108).

Figure 108: Cooperation and networking characteristics (1 disagree - 5 fully agree)

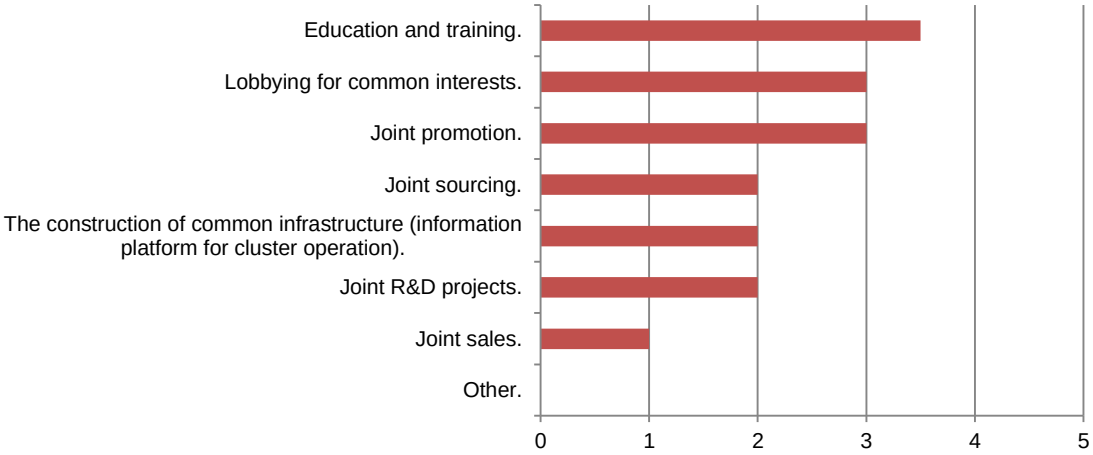


Slovak cluster managers are communicating on average with cluster members and with the national financer (ministry, state, …) a few times a year. Prevalent form of communication directly between cluster members or indirectly through the cluster office is in both cases by e-mail.

Areas of cooperation

From the Figure 109 we can see that the most common cooperation area on average is education and training, while the most rarely area of cooperation is joint sales. In the near future most of activities in Slovak clusters are planned in the area of education and training and participation in national and EU projects.

Figure 109: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

Analysed Slovak clusters select and implement their projects through the calls for proposals on the internet in regard to the final outcome of the project, which should be beneficial for the development of the cluster and the cooperation of the members. Companies that are formally not cluster members can cooperate in cluster projects and almost all of analysed Slovak clusters have already experienced such cooperation.

In analysed Slovak clusters are typically represented small innovative companies (less than 50 employees), educational institutions (e.g. universities, colleges…), consulting firms (e.g. legal / financial / tax consultancy, marketing…) and in lesser extent also research institutions (e.g. institutes, laboratories…) and large companies (more than 250 employees). Meanwhile incubators, technology parks, companies providing specialised services (e.g. IT support, process automation, certification…) and venture capital funds are represented in very little cases. Cluster managers stress that the representation of educational institutions is very important also in the future.

4.12.4 Innovation R&D

R&D projects

The objective ‘strengthening research, development and innovation (R&D&I) is the key goal of strategy of half of analysed Slovak clusters. They elaborated on average 3 R&D&I project ideas within the cluster over the past three years (2010–2012) and one of them on average were implemented and realised.

Forms of organisation for support of R&D

Although the analysed clusters in Slovakia are familiar with all concepts of organisations which support know-how and technology transfer, the cooperation of companies and institutions and strengthening of

the support of the environment, they are currently collaborating only with other clusters in Slovakia and abroad.
All of them were or are still actively involved in the preparation and / or public discussion of innovation policy and instrument creation on regional level (participation in working groups, regional energy policy creation, seminary organizing, day-to-day contact with other regional clusters) most of them on national level as well (communication through Slovak Innovation and Energy Agency and ad hoc contacts), but only one of them on the EU-level (work on the project of cross border cooperation “ITE”).

4.12.5 Sustainability

According to the national cluster programme’s objectives with regard to support of eco-innovation, most of analysed Slovak clusters include these objectives in their strategies and half of them are primarily focused on sustainability or eco-innovation.

Activities related to eco innovation

Most of analysed Slovak clusters carry out activities concerning awareness-raising, distribution of information and training, while activities to support for introduction of eco-standards, support for investments to improve eco-friendliness and initiation of / participation in eco-R&D projects are significantly less presented.

Examples of good practices of eco-innovation

Slovak clusters stress some examples of good practices of eco-innovation concerning energy savings and energy-ecology audit for town municipalities, project “Intelligent energy” in the frame of Operational Programme Cross Border Cooperation Slovak Republic – Austria, implementation of five pilot projects in the ITE (Action "Day green energy", municipal wastes, laboratory equipment for Secondary Vocational Electrotechnical School, et al.), development of Eco-Check (Bohunice, Trnava, Senica, Topoľníky, Pestana), comparative study of energy security for TTSK and Burgenland.

4.12.6 Internationalisation

For analysed Slovak clusters internationalisation is fairly important and half of them have an internationalisation strategy. Main activities contained in this strategy are participation of companies in international events, trade fairs, study visits, etc., participation of companies in international projects and participation of cluster organisation in international projects (Table 60).

All of them have experiences in collaborating with foreign clusters or networks of companies: Internacional Energy Cluster Centrope, Technologie Offensive Burgenland (TOB), Plastikarsky klastr (CZ), Automotive Cluster Vienna Region (AT), Technical university Vienna (AT), Comunimpresse S.C.A.R.L (IT), Automovite cluster of Slovenia (SL), Mid-Pannon Regional Development Company (HU), Saxony Economic Development Corporaton (DE), Moravskoslezký automobilový klastr (CZ), Sub-Carpathian Chamber of Commerce (PL), West Pannon Regional Development Company (BUL), Lower Austria Chamber of Commerce.

Table 60: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	Number of clusters involved in the activity
Participation of companies in international events, trade fairs, study visits, etc.	2
Participation of companies in international projects.	2
Participation of cluster organisation in international projects.	2
B2B matchmaking.	1
Inclusion of foreign companies in the cluster.	1
Cluster office / representation abroad.	1

4.12.7 Financing

Financing structure

Currently, Slovak clusters are financed mainly from membership fees (78% on average), combining only in one case from national and international funds (65% of required financing). However on average they have not carried out any activities in clusters without national / EU co-financing. Membership annual fee is on average 2.500 EUR and it either depends on the legal form, number of employees and turnover of member or it is fixed. Self-financing is an important goal for a half of analysed clusters, but they see their clusters as only moderate capable or not capable at all of self-financing. They assume that on average 64 members should have to be included to assure cluster's independent funding from membership fees only.

Applications for financing

Analysed Slovak clusters are quite reluctant to applying for EU funding in 2013/2014. Only half of them is planning or possibly planning to apply to European Regional Development Fund (ERDF) and European Social Fund (ESF) and one of them to FP 7 / Horizon 2020 (Table 61).

Table 61: Intended funds from applying

Funds from applying for funding	Number of clusters intended applying for funds
ERDF European Regional Development Fund	2
ESF European Social Fund	2
FP 7 / Horizon 2020	1

Ideal financing model

Ideal rate of funding for Slovak clusters should be more dispersed, comprising on average own financing (33%), Structural Funds and other EU-funds (29%), national and regional funds (19%) and other funds (26%).

4.12.8 Smart Specialisation

Among analysed Slovak clusters only one is involved in elaborating and implementing (future) smart specialisation strategies in the region.

Characteristics and implementation of smart specialisation

Slovak cluster's managers consider as quite important all following claims (they have ranked all of them as equally important, therefore no ranking of importance is possible) : the cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies; further development of the regional economy, business' competitiveness and capabilities in fostering innovation will primarily depend on regionally tailored specialisation; the cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation; the cluster is regionally focused and its formation is based on a comprehensive SWOT analysis; the cluster is a key player of the regional innovation system; in addition, the cluster is an important player of the national innovation system; good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand; the cluster primarily addresses the implementation of sectorial strategies; the cluster primarily addresses the implementation of thematic-based (cross-sectorial) strategies; it is important to strengthen cluster members' capability regarding collaboration; the cluster (office) deals with the analysis of identification and development of strengths and assets of the region (industry, tourism, culture, services, etc.); tools for monitoring, evaluation and benchmarking are implemented for steering cluster activities.

4.12.9 New skills and job creation

Main implementation activities of new skills and job creation

On average the objective 'new skills and job creation' is moderately important for analysed Slovak clusters. The most important ways in which this objective is achieved are informing cluster members of training and qualification programs for their staff and organisation of seminars to offer training and education to cluster members' and cluster office' staff. Meanwhile activities such as offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc., carrying out needs assessments to exploit job potentials for the future and support for adequate skills and promoting the hiring of disadvantaged staff are presented only to a certain extent (Table 62).

Table 62: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	4,00
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	3,75
Involvement in elaborating curricular for high schools and vocational training centres.	2,50
Support and motivation of young entrepreneurs.	2,25
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	1,75
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,50
Awareness-raising concerning the retention of older, qualified staff in the workforce.	1,25
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	1,00
Promoting the hiring of disadvantaged staff.	1,00
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	1,00

4.12.10 Barriers and implications for cluster development

Main barriers for cluster development

From the **stakeholder perspective** the main barriers regarding cluster development are: no financing provided by Slovak national authorities (most Slovak clusters are start-ups which needs to be financed at least at the beginning of their action), disability to participate in many interesting EU projects which need to be co-financed, and the lack of human resources caused by the lack of funding.

According to stakeholders more effective cluster policy making could be achieved considering following solutions: several amendments to existing legislation in the Slovak Republic related to clusters would be the best solution (unless this financial support be integrated into existing legislation of Slovakia, clusters will get no money), that would solve also the problem of lack of human resources. The Union of Slovak Clusters is currently working on it based on reports received from project partners.

On the other hand **Slovak clusters see their main barriers** in the lack of financial resources and in the claim that the positive effects of clusters are visible only in the long run (while everyone expects immediate results), while mistrust between cluster members and objections from company owners are not seen as relevant as above mentioned (Table 63).

Table 63: Main barriers for cluster development on average

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Other	5,00
Lack of financial resources.	5,00
The positive effects of clusters are visible only in the long run.	4,25
Lack of support from top management in companies.	3,75
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	3,75
Lack of knowledge about clusters and network structures, unfamiliarity.	3,25
Lack of knowledge concerning the management of clusters and network structures.	3,00
Not-included experts to advice on the development of clusters.	2,75
Lack of human resources.	2,50
We found that clusters do not produce the expected results.	2,50
Mistrust between cluster members.	2,00
Objections from company owners.	1,75

Biggest challenges in clusters in the early stages are seen in financing and funding options, coordination, design of new projects, lack of trust and in **later phases of cluster development in** acquiring new members and awareness rising among them, project cycle management, funding, question how to realise quality projects for the members that will increase competitiveness.

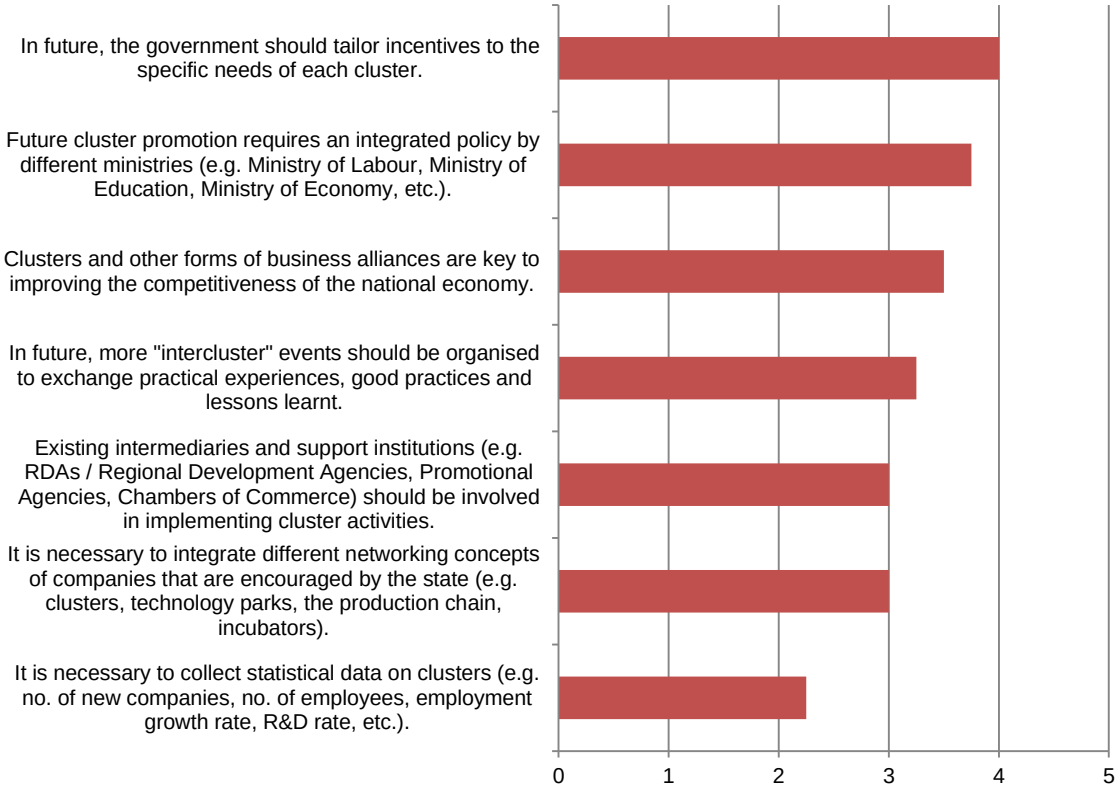
From the **stakeholder perspective the biggest challenges of participating clusters for their development** are: energy development focused on renewable energy sources (water, wind, solar and geothermal energy); the effective use of energy (low energy buildings); and the use of new technologies in energy consumption. Potentially some other challenges affect Slovak clusters in general.

Implications for further cluster policy development – cluster perspective

For managers of analysed Slovak clusters the most important role of the state promoting cluster development is in the following areas: co-financing of the cluster office, co-financing of joint projects carried out in the cluster, education in the field of clusters and other network structures, promoting the concept of clusters and network structures in the economy, education and training, increasing exports, supporting eco-innovations, participation in EU projects.

The most important implication for further cluster (policy) development is that future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour, Ministry of Education, Ministry of Economy, etc.). The less important implication is that it is necessary to collect statistical data on clusters (e.g. no. of new companies, no. of employees, employment growth rate, R&D rate, etc.) (Figure 110). To promote cluster development in future, Slovak clusters' managers suggest stronger institutional support, better networking on all levels, tailor-made funding programmes and better funding support.

Figure 110: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder perspective

From the stakeholder perspective the role of the state in promoting cluster development is to provide clusters with funding, mainly at the beginning of their operation. They see the main areas / topics of cluster policy making where Trnava region could learn the most from other regions' experiences in:

- international cooperation among clusters with focus on same activities;
- cooperation within the same IT networks of clusters;
- cooperation in organising international workshops and trainings.

SLOVENIA


Graz
Spittal an der Drau
E66
Klagenfurt am Wörthersee
Zalaegerszeg
Cortina d'Ampezzo
Villach
Maribor
E653
Nagykanizsa
Jesenice
Tržič
Bled
Celje
Varaždin
Kranj
Koprivnica
Udine
Škofja Loka
Slovenija
(Slovenia)
E59
E65
E55
Bjelovar
Gorizia
E61
Zagreb
E70
Trieste
Kočevje
E71
Koper
Karlovac
Sisak
E751
Rijeka
E65
E70
Nova
Map data ©2013 GeoBasis-DE/BKG (©2009), Google

4.13 Slovenia

We have received responses from 4 cluster organisations.

4.13.1 Basic information about clusters

The most important roles of cluster office are: the cluster office is the central communication point of the cluster, the cluster office is crucial to the further development of the cluster and cluster managers have to carry out operational tasks to achieve the cluster's strategy (Figure 111).

Figure 111: The role of the cluster office (1 disagree - 5 fully agree)

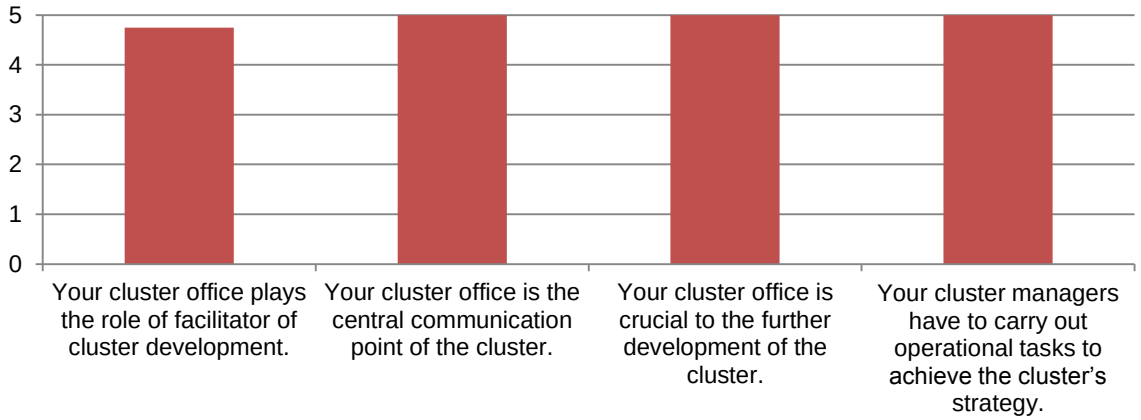
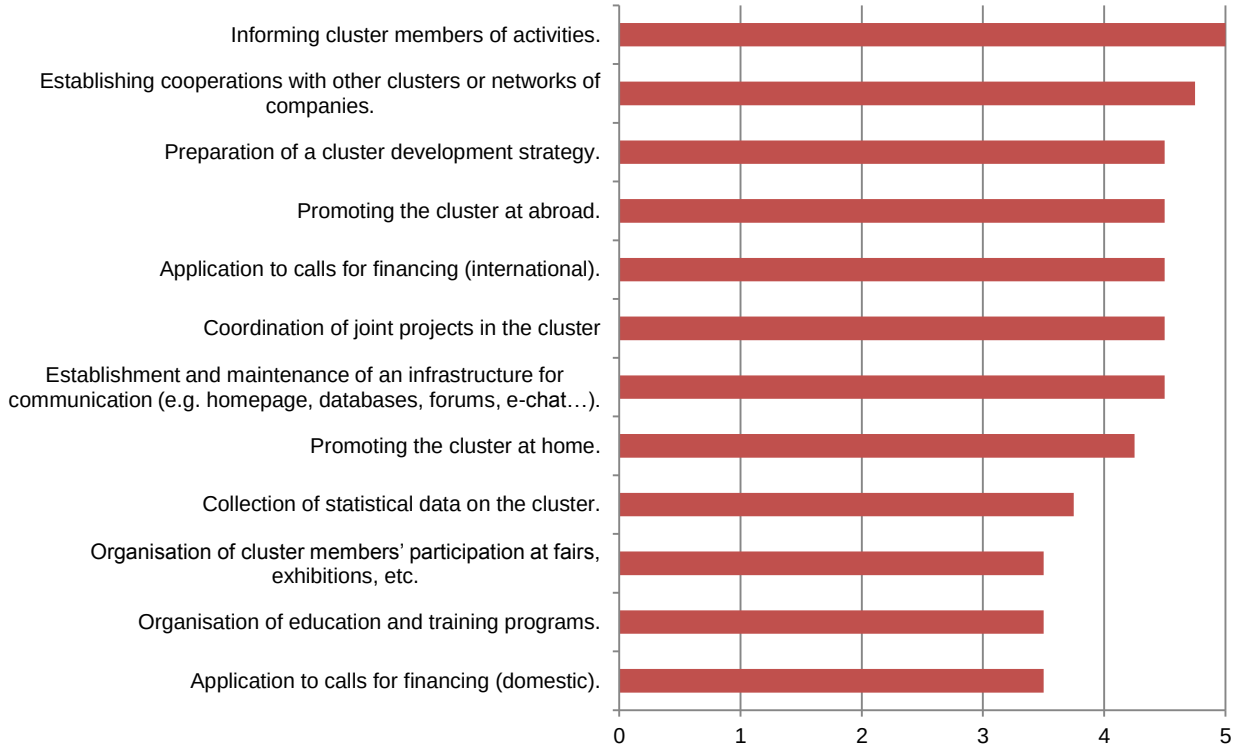


Figure 112: The importance of cluster office in different tasks (1 not at all important - 5 very important)



The most important task of cluster office is considered informing cluster members of activities, while the least important tasks are applications to calls for financing (domestic), organisation of education and training programs and organisation of cluster members' participation at fairs, exhibitions, etc. (Figure **112**).

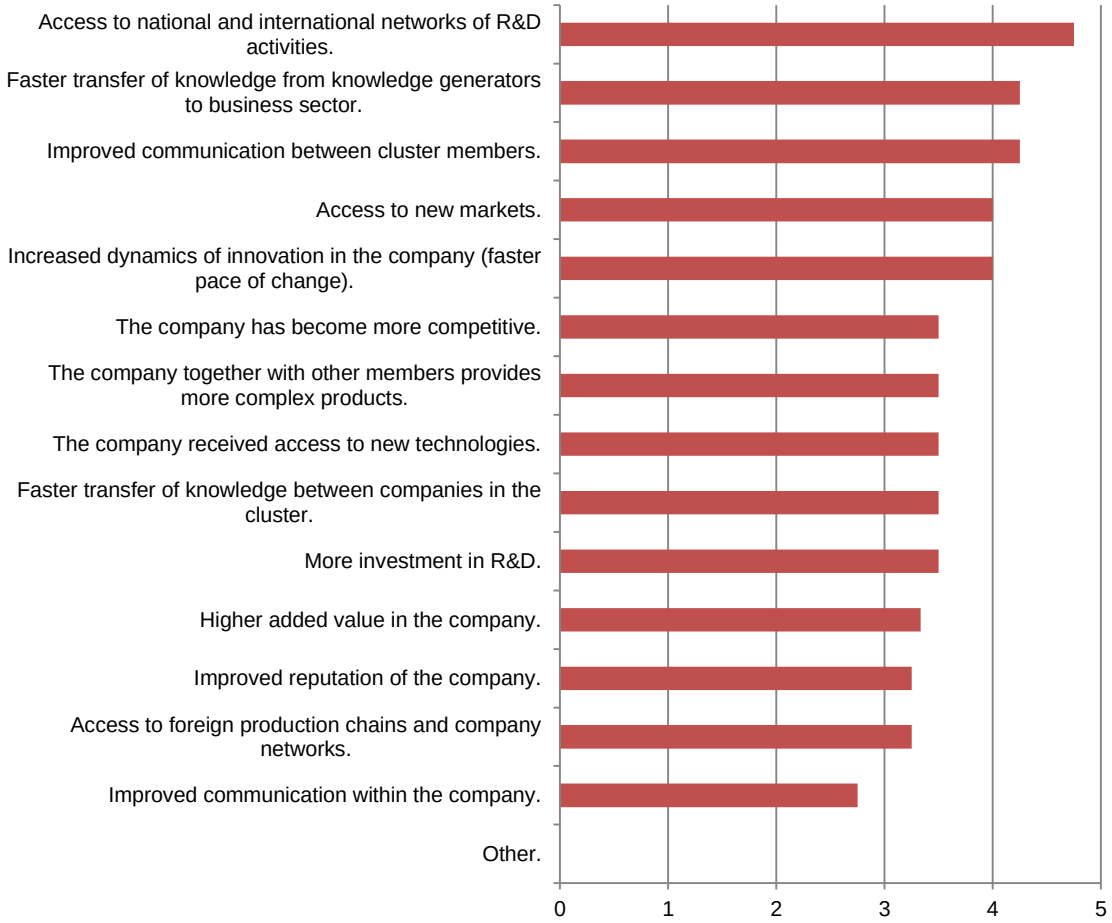
The most important skills that cluster leader should possess are: leadership, motivation, organisation, good knowledge about the industry, good coordination skills, good lobbystic skills, communication with different organisation in different fields, being able to engage them in different projects and activities, broad – generalized knowledge in different professional areas (from technical fields to economy), communication – English language, project management, develop and sharing vision of cluster development, non-conflict character, persistence, and personal charisma.

4.13.2 Cluster impact assessment

Added value of membership

The highest added value of cluster membership from the perspective of cluster organisations is on average seen in access to national and international networks of R&D activities. The lowest added value is considered improved communication within the company (Figure 113).

Figure 113: Added value of membership in clusters (1 negligible effects – 5 very strong effects)

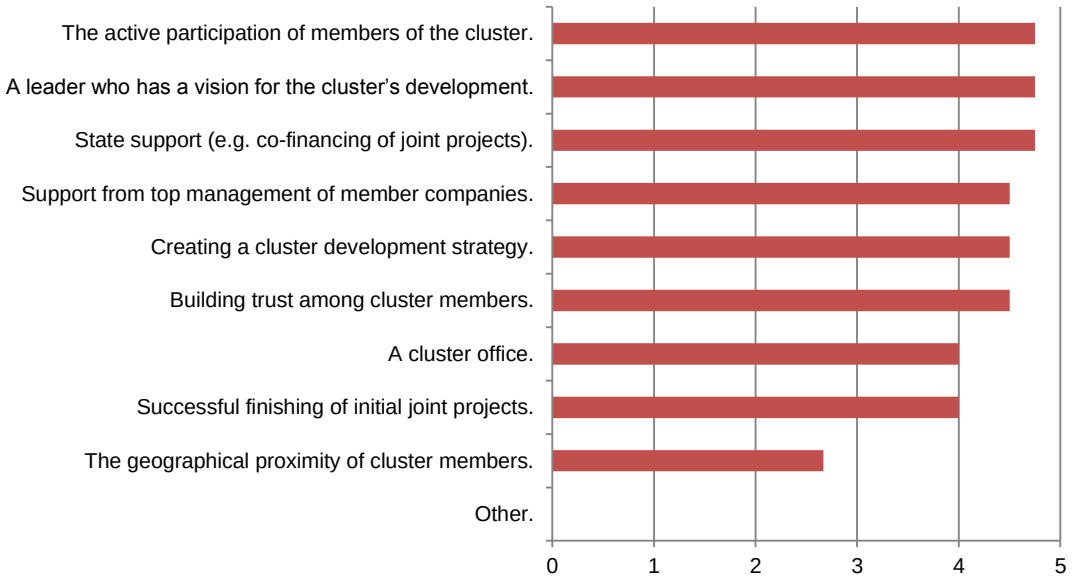


From the stakeholder view the key success factors of clusters is the fact that they are mostly based on traditional industries based in Slovenia with high quality products/services and supported by national leading companies in these sectors (automotive industries, construction, wood processing industry, plasttechnic, tool industry,...). The existing clusters were led by quite experienced managers working in their sector for several years and with good links to the industry. The country has also available necessary infrastructure (local schools, universities, technology centres with researchers, communication,...)

Key success factors

From Figure 114 we can see, that the most important success factor of clusters on average are considered state support (e.g. co-financing of joint projects), leader who has a vision for the cluster's development, and the active participation of members of the cluster. The less important success factor is considered the geographical proximity of cluster members.

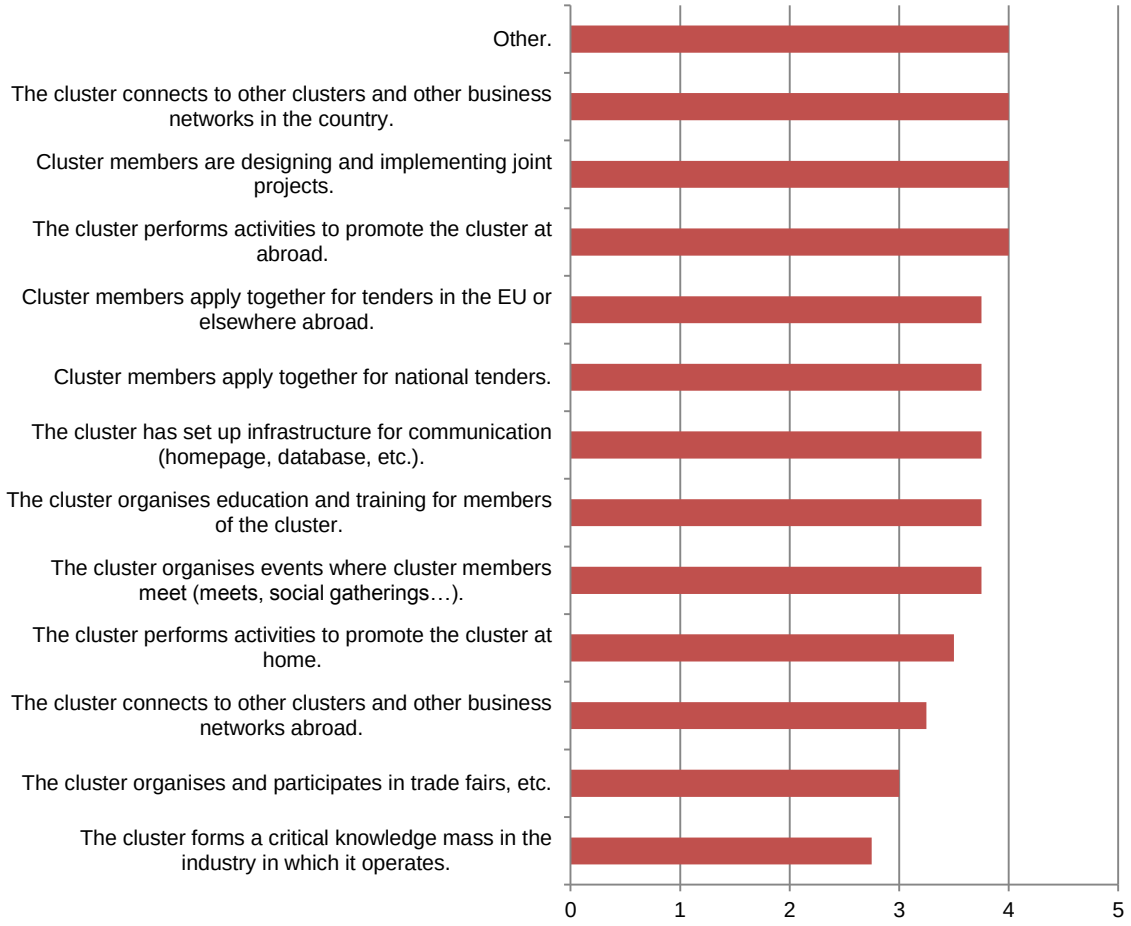
Figure 114: Key success factors of clusters (1 not at all important - 5 very important)



Implementation of activities

The most implemented activities in analysed Slovenian clusters are performances of activities to promote the cluster at abroad, design and implementation of joint projects from cluster members and the cluster connects to other clusters and other business networks in the country. The lowest level of implementation of activities is considered formation of a critical knowledge mass in the industry in which it operates (Figure 115).

Figure 115: Implementation of activities in clusters (1 not implemented – 5 fully implemented)

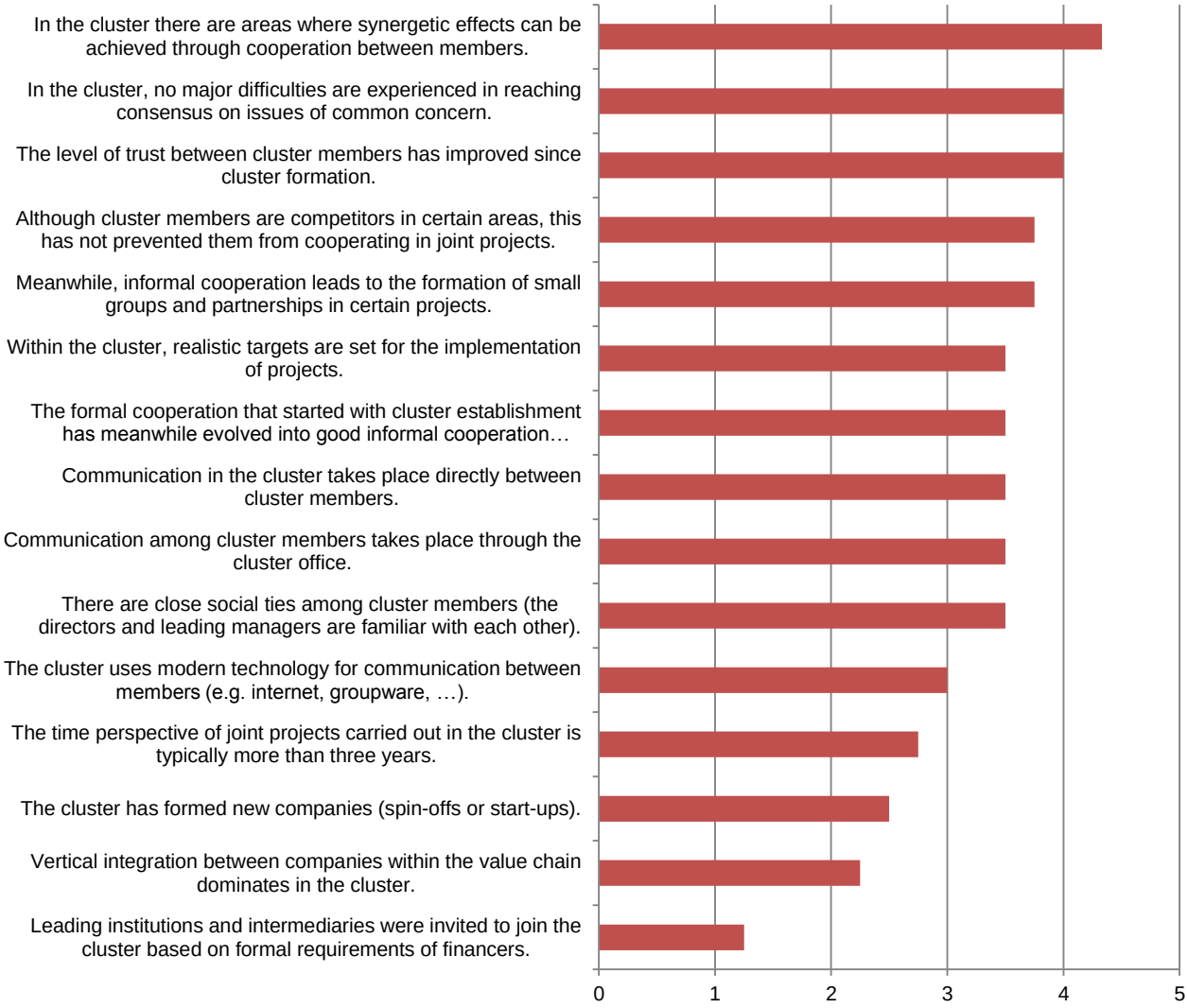


4.13.3 Cooperation and networking

Cooperation and networking characteristics

The most common cooperation and networking characteristics is the claim that in the cluster there are areas where synergetic effects can be achieved through cooperation between members. The lowest cooperation on average is seen the claim that leading institutions and intermediaries were invited to join the cluster based on formal requirements of financers (Figure 116).

Figure 116: Cooperation and networking characteristics on average (1 disagree - 5 fully agree)



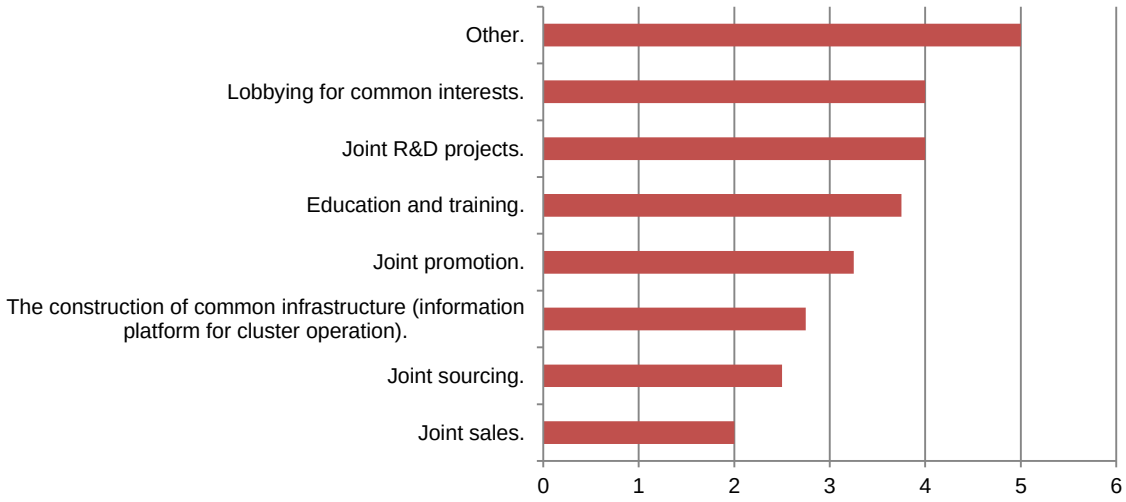
Slovenian cluster managers are communicating on average with cluster members at least once a week and with the national financer (ministry, state, …) a few times a year. Meetings of the directors of the company members are taking place also a few times a year. Prevalent form of communication is indirectly through the cluster office.

Areas of cooperation

From the Figure 117 we can see that the most common cluster cooperation areas are lobbying for common interests and joint R&D projects, while the most rarely area of cooperation is joint sales.

In the near future most activities in Slovenian clusters are planned mostly in the areas of joint R&D projects, internationalisation and lobbying for common interests.

Figure 117: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



Selection of cluster projects and partners

Analysed Slovenian clusters select and implement their projects on the basis of expressed interests from the side of members, yearly plans and strategy of cluster, depending on the needs of cluster members and available financing, including public financing. Companies that are formally not cluster members can cooperate in cluster projects. All analysed Slovenian clusters have already experience of such cooperation.

In analysed Slovenian clusters are typically represented small innovative companies (less than 50 employees) and educational institutions (e.g. universities, colleges…), but also large companies (more than 250 employees) and research institutions (e.g. institutes, laboratories…), while consulting firms (e.g. legal / financial / tax consultancy, marketing…), incubators, technology parks, companies providing specialised services (e.g. IT support, process automation, certification…), and venture capital funds are represented in significantly lesser extent or are not represented at all. They are planning to the same structure of represented companies / institutions in future as well.

4.13.4 Innovation R&D

R&D projects

Analysed Slovenian clusters stress the importance of research, development and innovation. They elaborated on average 25 R&D&I project ideas within the cluster over the past three years (2010–2012). On average 6 projects were implemented and realised as well.

Forms of organisation for support of R&D

The analysed clusters in Slovenia are familiar with all concepts of organisations which support know-how and technology transfer, the cooperation of companies and institutions and strengthening of the support environment. They have contacts or they are already collaborating with other clusters, technology parks, technology networks, centres of excellence and incubators in Slovenia and, except centres of excellence and incubators, also abroad.

Most of analysed Slovenian clusters are actively involved in the preparation and in discussions of the innovation policies on regional (collaborating with regional development agency and its working groups), and EU-level (participating in working groups, Enterprise Europe Network, Sector group of Sustainable construction (EACI), CLEPA association, European Construction Technology Platform, E2B Association, EUREKA BUILD umbrella project), but only partly on the national level (participating in working groups at different ministries, Association or clusters in Slovenia, Chamber of Industry, Chamber of Crafts, Chamber of Engineers).

4.13.5 Sustainability

Despite the national cluster programme's objectives with regard to support of eco-innovation, only one of analysed Slovenian clusters has included this objective in their strategy.

Activities related to eco innovation

Slovenian clusters on average carry out some activities related to eco-innovation on the areas of awareness rising, distribution of information and training and partly on the areas of support for introduction of eco-standards and initiation of / participation in eco-R&D projects.

Examples of good practices of eco-innovation

A few examples of good practices related to eco-innovation which have Slovenian clusters carried out in the past 3 years can be listed: organisation of training seminars for SMEs, Project ACE - Advanced pre-Commercialization of Eco rubber material; E-mobility projects (Autoclusters, ELMO, S-LIFE), participation in EU ECO innovation project RECTYRE, participating in FP/ OPENHOUSE project development of the indicators for assessment of sustainable building and its promotion.

4.13.6 Internationalisation

For analysed Slovenian clusters internationalisation is very important and all of them have internationalisation strategy. Most common activities contained in this strategy are B2B matchmaking, participation of companies in international projects and participation of cluster organisation in international projects, while foreign company is included in only one cluster (Table 64).

They are collaborating with clusters in Austria (Passivhaus Austria, Passivhaus Steiermark-Burgenland, CLUSTERLAND), Croatia (Automotive cluster of Croatia), Czech Republic (Centrum pasivního domu CPD, Silesian-Moravian Automotive cluster), Greece, Germany (Passivhauskreis Rosenheim Traunstein e.V, Automotive cluster Stuttgart, WFS Saxony), Italy (COMMUINPRESE), Poland, Russia (Automotive Clusters in Russia), Serbia (Automotive cluster Serbia), Slovakia (Automotive cluster West Slovakia), Spain, Turkey (TAYSAD) and elsewhere.

Table 64: Main activities contained in internationalisation strategy

The main activities contained in internationalisation strategy	N. of clusters involved in the activity
B2B matchmaking.	4
Participation of companies in international projects.	4
Participation of cluster organisation in international projects.	4
Participation of companies in international events, trade fairs, study visits, etc.	3
Cluster office / representation abroad.	2
Inclusion of foreign companies in the cluster.	1

4.13.7 Financing

Financing structure

Current funding of analysed Slovenian clusters depends mainly on projects (R&D&I projects financed by EU represents on average almost 60% of required funding and national funding on average 10%), while membership fees are covering a smaller part of financing – cca. 20% (there are quite low fees depending on the members size or annual turnover). However majority of Slovenian clusters are carrying out also activities / joint projects without national or EU co-financing.

They consider self-financing as important goal of their clusters and see them currently as moderate or fully capable of self-financing. Membership fees in the clusters range from few hundred EUR to 1000 EUR and depend on company size and annual turnover. Cluster managers are estimating that cca. 100 membership fees would be needed to being independently financed from fees. Ideal rate of analysed Slovenian clusters' financing would be consisted of own resources, national or regional funds and Structural Funds and other EU-funds, all in approximately one-third share.

Applications for financing

All of analysed Slovenian clusters are planning to apply for EU funding in 2013/2014. They intend applying mainly to FP 7 / Horizon 2020, COSME, European Regional Development Fund (ERDF), and to a lesser extent also to the European Social Fund (ESF) and EUREKA (Table 65).

Table 65: Intended funds from applying

Funds from applying for funding	N. of clusters intended applying for funds
ERDF European Regional Development Fund	3
FP 7 / Horizon 2020	3
COSME	3
ESF European Social Fund	2
EUREKA	2
CF Cohesion Fund	1

4.13.8 Smart specialisation

Among analysed Slovenian clusters half of them are involved in elaborating and implementing (future) smart specialisation strategies in the region.

Characteristics and implementation of smart specialisation

Managers of Slovenian clusters on average consider as important following activities or characteristics: the cluster (office) should be (more) involved in discussions, seminars and workshops regarding design and implementation of smart specialisation strategies, the cluster members are convinced of the importance of collaboration; they support joint projects although such projects demand more openness and active participation, good cooperation exists between the cluster on one hand and the business sector, research institutions and training facilities on the other hand, the cluster primarily addresses the implementation of sectorial strategies, importance of strengthening cluster members' capability regarding collaboration.

According to responses of one Slovenian cluster the main relevant topics regarding elaboration of smart specialisation are innovation, economic crisis and international cooperation. Regarding implementation of smart specialisation strategies main relevant topics are promoting the transfer of knowledge and technology diversity, improvement the economy and providing a critical mass of resources.

The same cluster is also participating in designing the smart specialisation strategy. Currently it is coordinating (in close cooperation with Ministry of Economic Development and Technology) the preparation of an Action plan for sustainable mobility and competitiveness of the automotive industry in Slovenia where smart specialisation plays key important role. However, at later stage cluster will take the active role of the implementing (mainly facilitating the implementation) of the defined strategies.

4.13.9 New skills and job creation

On average the objective 'new skills and job creation' is quite important for analysed Slovenian clusters. The most important ways in which this objective is achieved are: monitoring of SMEs needs, networking the SMEs needs with regional and international training providers, facilitation of cooperation with higher education institutions and industry in order to create profiled experts with specific knowledge, promotion of technical professions among young people, tailor-made trainings and workshops for cluster members, training in the field of sustainable building in the whole value chain, training in innovation, development of competences for international innovation collaboration, and training for international business activities.

Main implementation activities of new skills and job creation

The cluster strategy implementation activities related to new skills and job creation focuses mostly on informing cluster members of training and qualification programs for their staff and organisation of seminars to offer training and education to cluster members' and cluster office' staff, while informing of the potential of immigrant staff as well as assisting and supporting immigrant staff and offering

seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc. are on average less presented (Table 66).

Table 66: Main implementation activities of new skills and job creation

How strongly does your cluster strategy focus on the following topics?	1 - Negligible focus, 5 - Strong focus
Informing cluster members of training and qualification programs for their staff.	4,00
Organisation of seminars to offer training and education to cluster members' and cluster office' staff.	3,50
Support and motivation of young entrepreneurs.	3,25
Carrying out needs assessments to exploit job potentials for the future and support for adequate skills.	3,25
Promoting incentives for young entrepreneurs to take-up learning opportunities, coaching.	2,75
Involvement in elaborating curricular for high schools and vocational training centres.	2,50
Offering seminars on challenges regarding balancing of family and work life, changes in learning methods, labour law, etc.	1,75
Awareness-raising concerning the retention of older, qualified staff in the workforce.	2,25
Promoting the hiring of disadvantaged staff.	2,00
Informing of the potential of immigrant staff as well as assisting and supporting immigrant staff.	1,25

4.13.10 Barriers and implications for cluster development

Main barriers for cluster development

From the stakeholder perspective the main barriers regarding cluster development are:

- Lack of financial resources: due to the global economic crisis and crisis of banking system the financial resources are limited and/or available under unfavourable conditions
- The positive effects of clusters are visible only in the long run: intensive national policy was present only for a period of 4 years; later the policy has changed significantly
- Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions)
- Lack of human resources: there is a lack of well-trained cluster management staff and R&D staff
- Objections from company owners and Lack of knowledge about clusters and network structures, unfamiliarity.

According to stakeholders more effective cluster policy making could be achieved considering following solutions: cluster development policy should be an important part of regional policy development documents, main stakeholders should agree about the SMART specialisation strategy and role of clusters in future regional development; main SME supporting institutions should agree about their future role in creation and leadership of new cluster initiatives, including the available resources they could provide; stronger links between SMEs/industry and university should be developed in order to provide R&D as well as technology transfer activities.

On the other hand **Slovenian clusters see their main barriers** in the lack of financial resources and bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions), while mistrust between cluster members, lack of knowledge concerning the management of clusters and network structures and exclusion of experts to advice on the development of clusters are not seen as relevant as above mentioned (Table 67).

Table 67: Main barriers for cluster development

What in your experience are the biggest barriers to cluster development in your country?	1- Not relevant, 5 - Very relevant
Other	5,00
Lack of financial resources.	4,25
The positive effects of clusters are visible only in the long run.	4,00
Bank financing: lack of understanding of cluster's requirements (e.g. financing of cooperative projects involving several companies and institutions).	4,00
Lack of human resources.	3,75
Objections from company owners.	2,75
Lack of knowledge about clusters and network structures, unfamiliarity.	2,75
We found that clusters do not produce the expected results.	2,50
Lack of support from top management in companies.	2,33
Lack of knowledge concerning the management of clusters and network structures.	2,00
Not-included experts to advice on the development of clusters.	2,00
Mistrust between cluster members.	2,00

Biggest challenges in clusters in the early stages are seen in support to new initiatives (expertise and financial support to clusters-start-ups), missing initiative to create a cluster (after the potential has been confirmed), financing, building the trust among members, attracting the critical mass of companies, missing strategy, lack of good programme of activities, passivity of cluster members, and in **later phases of cluster development in** financial sources for common projects (bank loans, national co-financing sources), long term support of stakeholders in the region, offering quality services, opening new markets, passivity of cluster members, fluctuation of cluster members.

From the stakeholder perspective the biggest challenges in the early stages of **cluster development are**: support to new initiatives (expertise and financial support to clusters-start-ups), missing initiative to create a cluster (after the potential has been confirmed), building the trust among members, attracting the critical mass of companies, while in later phases they include: financial sources for common projects (bank loans, national co-financing sources), long term support of stakeholders in the region / on national level and opening new markets.

Implications for further cluster policy development – cluster perspective

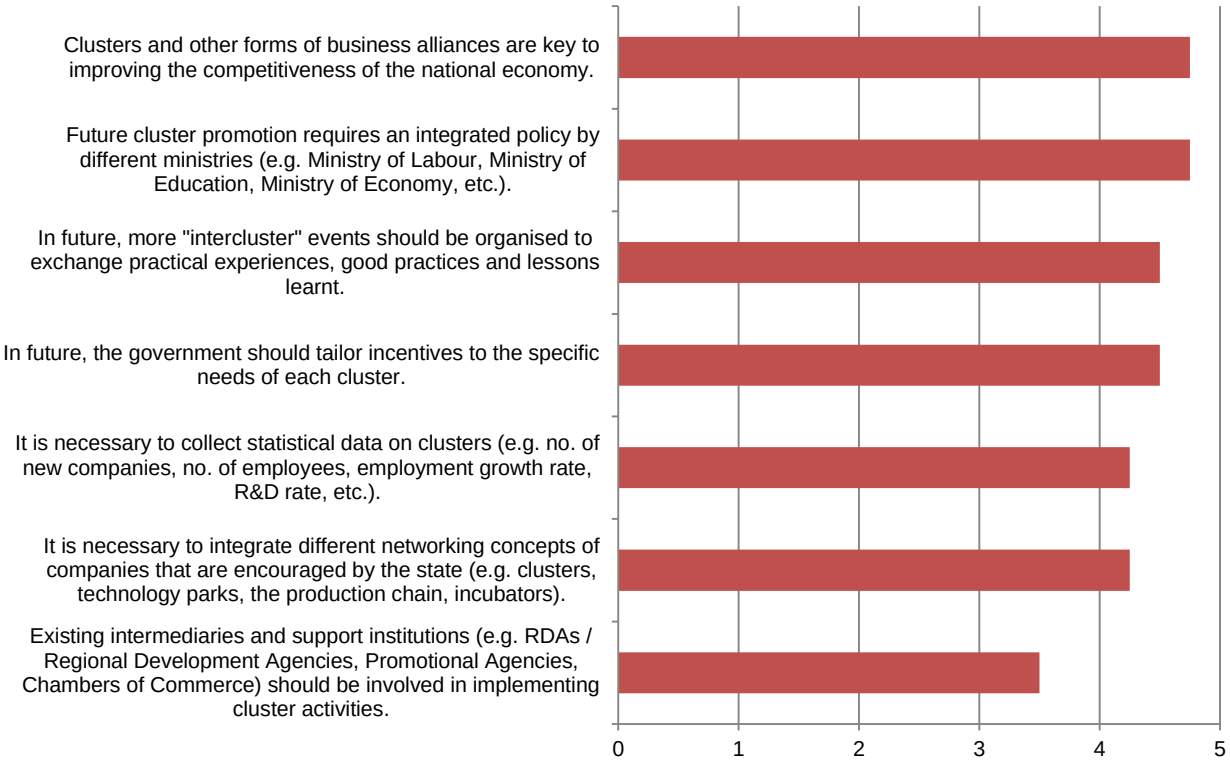
For managers of analysed Slovenian clusters the most important role of the state promoting cluster development is in the following areas: promoting the creation of enterprise networks, protecting the environment and supporting eco-innovations.

The most important implications for further cluster (policy) development on average are the claims that future cluster promotion requires an integrated policy by different ministries (e.g. Ministry of Labour,

Ministry of Education, Ministry of Economy, etc.) and clusters and other forms of business alliances are key to improving the competitiveness of the national economy. The less important implications is that existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities (Figure 118).

To promote cluster development in future, Slovenian clusters' managers suggest beside the support to transnational and national clusters, more support to creation of new clusters, regional clusters / networks.

Figure 118: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Implications for further cluster policy development – stakeholder perspective

From the stakeholder perspective the role of the state/region should be present in all development stages of clusters and business networks. Starting with the support in creation of clusters / networks the support should be long term oriented (at least for first 5 years of cluster development). Afterwards the support can be more projects oriented. The support on national level must be implemented in the way that different ministries should work co-ordinately and use different measures in the sense towards the same goal and to promote both competition and cooperation. Ensure the implementation of transparency measures. The state/region should not interfere in the formal / informal form of clusters.

Generally seen the following measures are important for the development of clusters: development of physical infrastructure (telecommunications, energy, environment), education and training, research &

technological development, measures to attract companies to the area of the cluster, measures to support employment in the cluster, actions to promote the internationalisation of clusters.

From the stakeholder perspective the main areas / topics of cluster policy making where Slovenia could learn the most from other regions' experiences are: education and training (mostly the question of future cluster skills), elaboration of prefeasibility studies (critical mass of resources needed for creation of a cluster / network), development of measures to attract companies to the area of the cluster, and development of measures to support employment in the cluster.

OVERALL CLUSTER POLICY ANALYSIS

5. Overall cluster policy analysis across 6 cluster development areas

In this section all received questionnaires (N=47) are analysed together, which represents an aggregated analysis of the cluster policies of the SEE region.

Most of the analysed clusters see themselves **playing the role of facilitator of cluster development**, except for Slovakia and Albania, which have a more neutral approach to this question (2,75 – 3,00). The same goes for the affirmation, that the **cluster office is the central communication point of the cluster** (only the Albanian cluster disagrees) and that the **cluster office is crucial to the further development** of the cluster (this question is the most homogenic, as the differences between the involved clusters are very small). The Slovak clusters are the only which do not think that cluster managers have to carry out operational tasks to achieve the cluster's strategy.

Figure 119: The role of the cluster office (1 disagree - 5 fully agree)

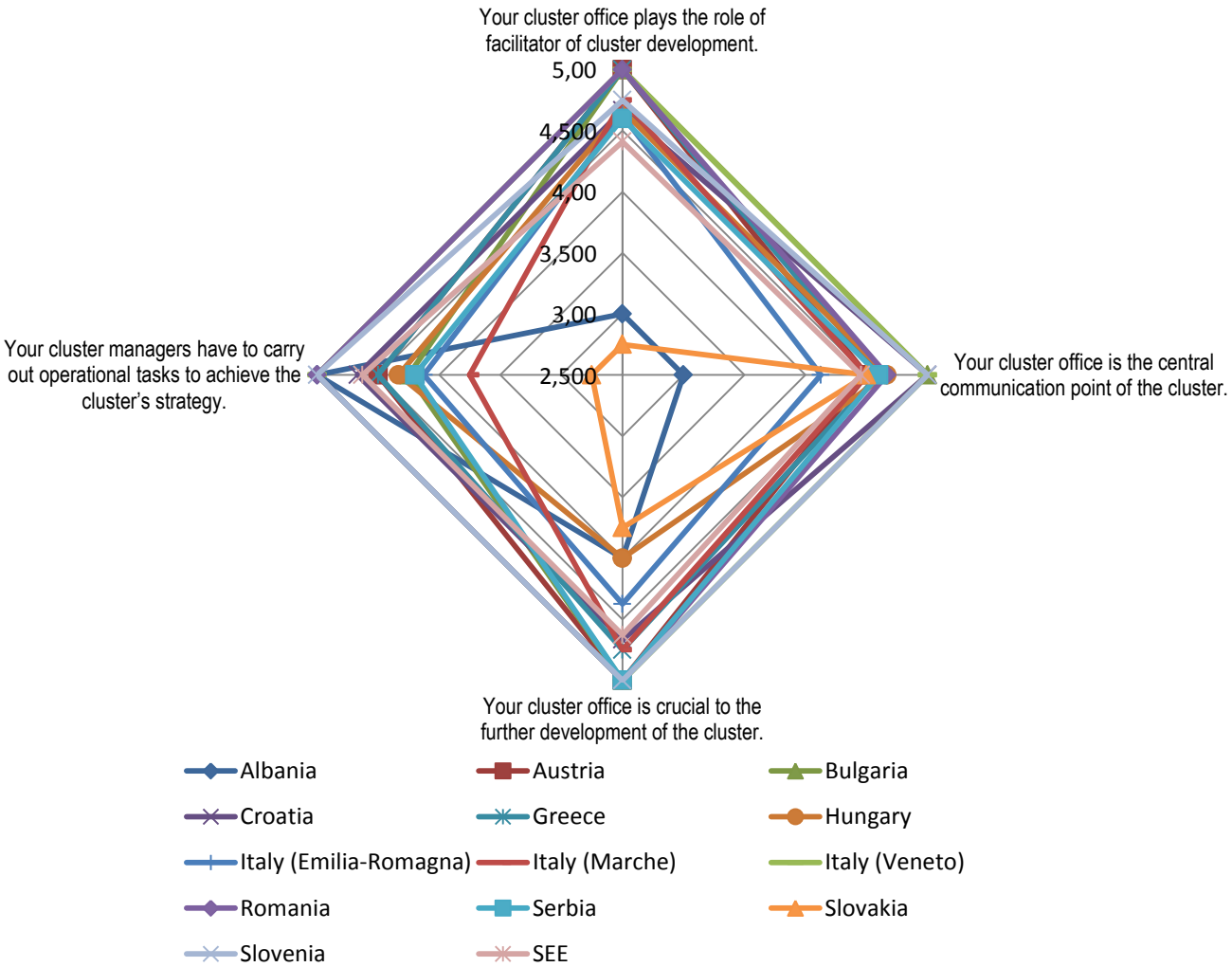
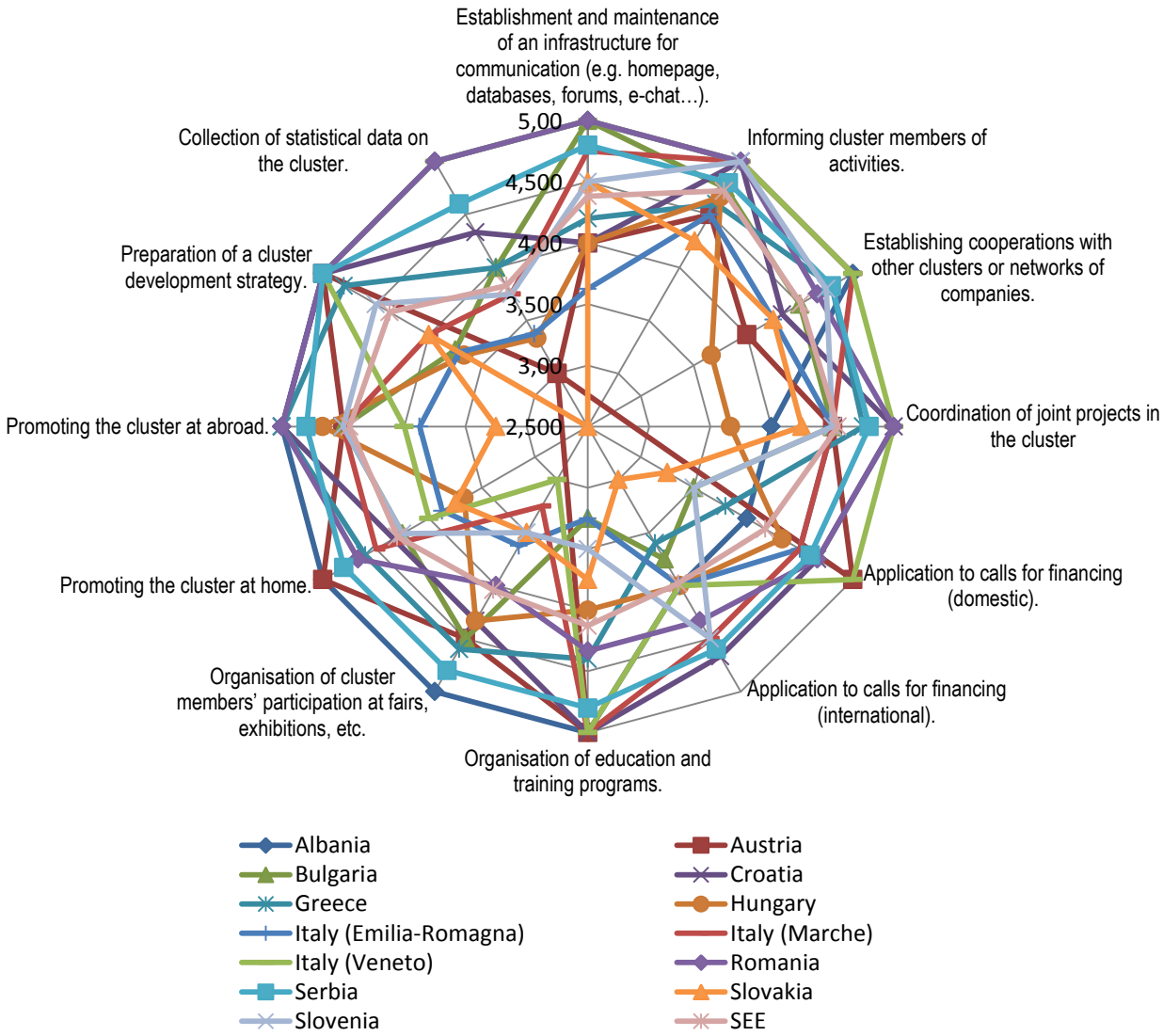


Figure 120: The importance of cluster office in different tasks (1 not at all important - 5 very important)



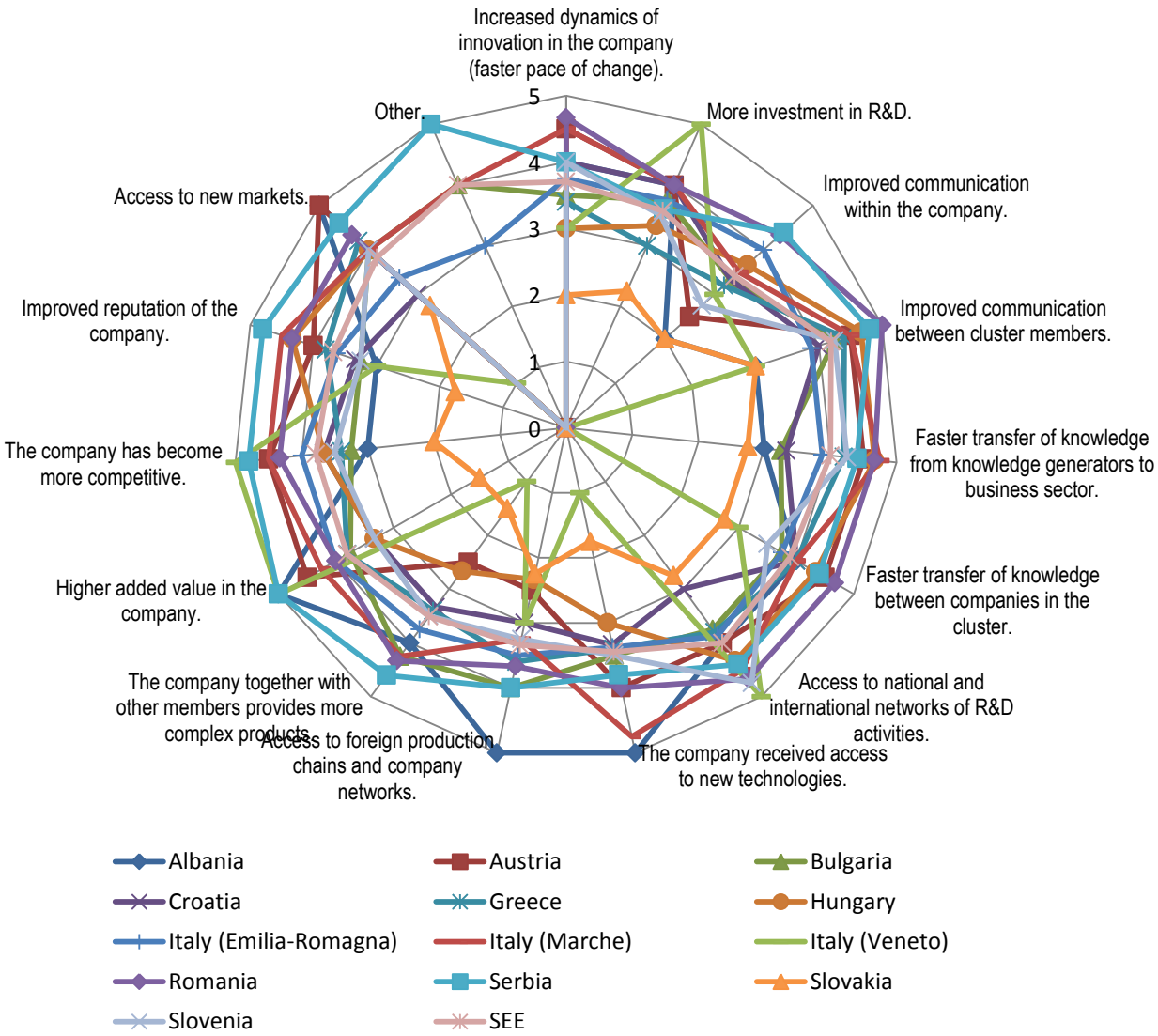
Most of the clusters see the importance of the cluster office in different tasks very similarly, with a few exceptions. **The establishment and maintenance of an infrastructure for communication** is seen as an important task of the cluster office, except for Italy's Emilia-Romagna cluster, which is rather neutral regarding the importance of this task.

Establishing cooperation with other clusters or networks of companies and the coordination of joint projects in the cluster are seen as important aspects of the cluster office's work (the Hungarian cluster has a slightly lower average of 3,67). The Slovak and Austrian clusters seem to give less importance to the cluster office regarding **application to calls for financing** – Slovakia being less confident about this role for domestic calls (3,25), while the Austrian clusters think it is not the cluster office's task to apply to international calls (2,00). Some deviance is to be found also in the aspect of

the collection of statistical data on the cluster, where Slovakia and Austria think that this task is not of importance for the cluster office (2,5 and 3,0 respectively).

All of the clusters agree that the cluster office has to inform cluster members of activities, organize education and training programs, organise cluster members' participation at fairs, exhibitions, etc., promote the cluster at home and abroad, and prepare a cluster development strategy.

Figure 121: Added value of membership in clusters
(1 negligible effects – 5 very strong effects)

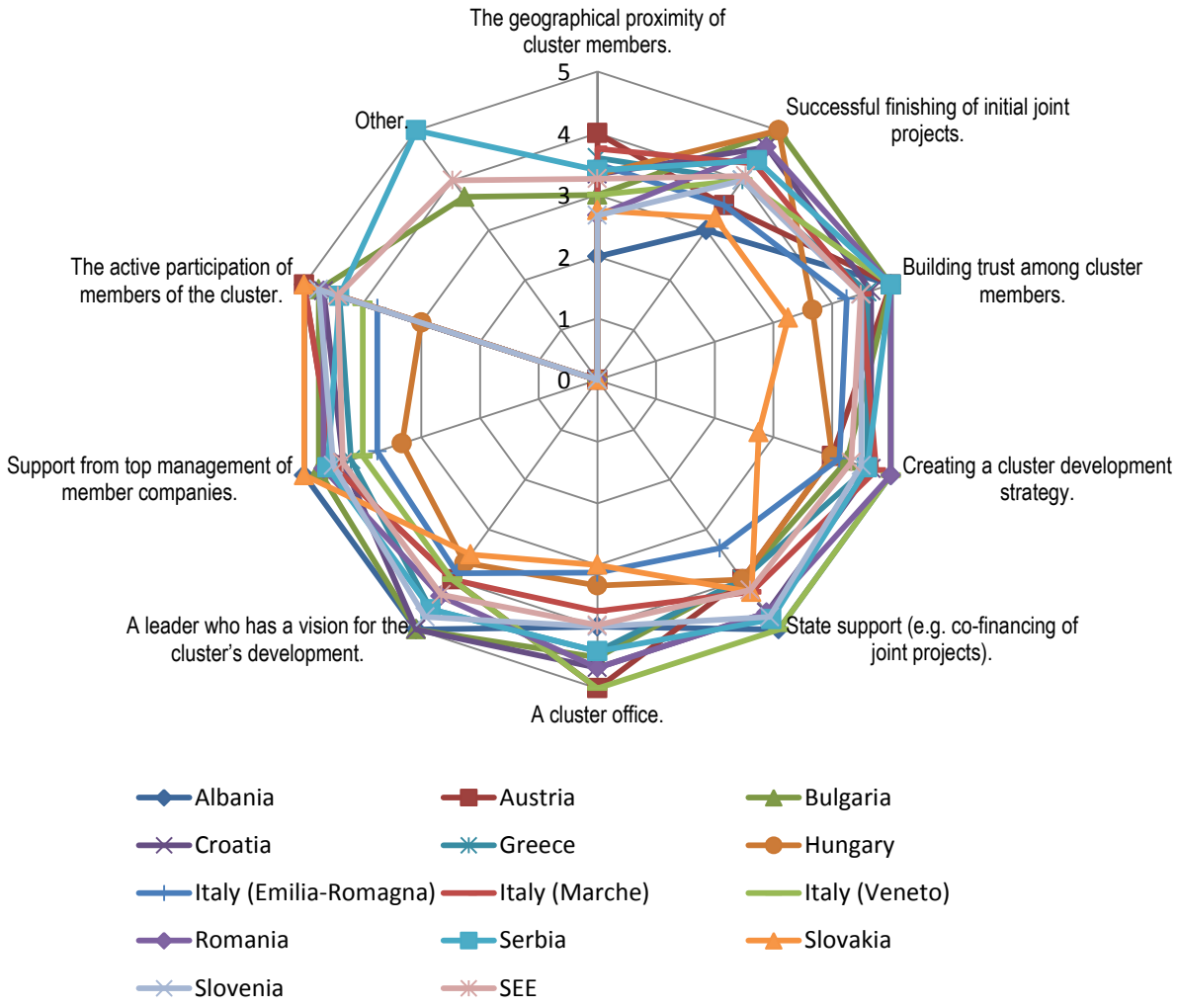


The effects of the added value of membership in clusters are seen differently among different countries. The highest differences are found in the role of increased dynamics of innovation in the company (faster pace of change), which have a very strong impact in Romania and almost negligible effects in Slovakia. The case is similar with the added value of more investment in R&D, where the Veneto region sees very strong effects, while Slovakia sees this factor as negligible. On the other hand the Veneto region sees negligible effects in cluster members receiving access to new technologies, while this is absolutely the case for Albania, where membership is also an important aspect of accessing foreign production chains and company networks (while Slovakia thinks that membership does not bring this added value; 2,25). Serbian and Veneto clusters see the membership in clusters bringing higher added value to companies (5,00), while the contrary is true for Slovakia (1,5).

Membership in clusters increased competitively in Veneto, while, again, this is not true for Slovak cluster members. Cluster membership brings to improved reputation of the companies in Serbia (but not in Slovakia), and access to new markets in Austria (but not in Veneto).

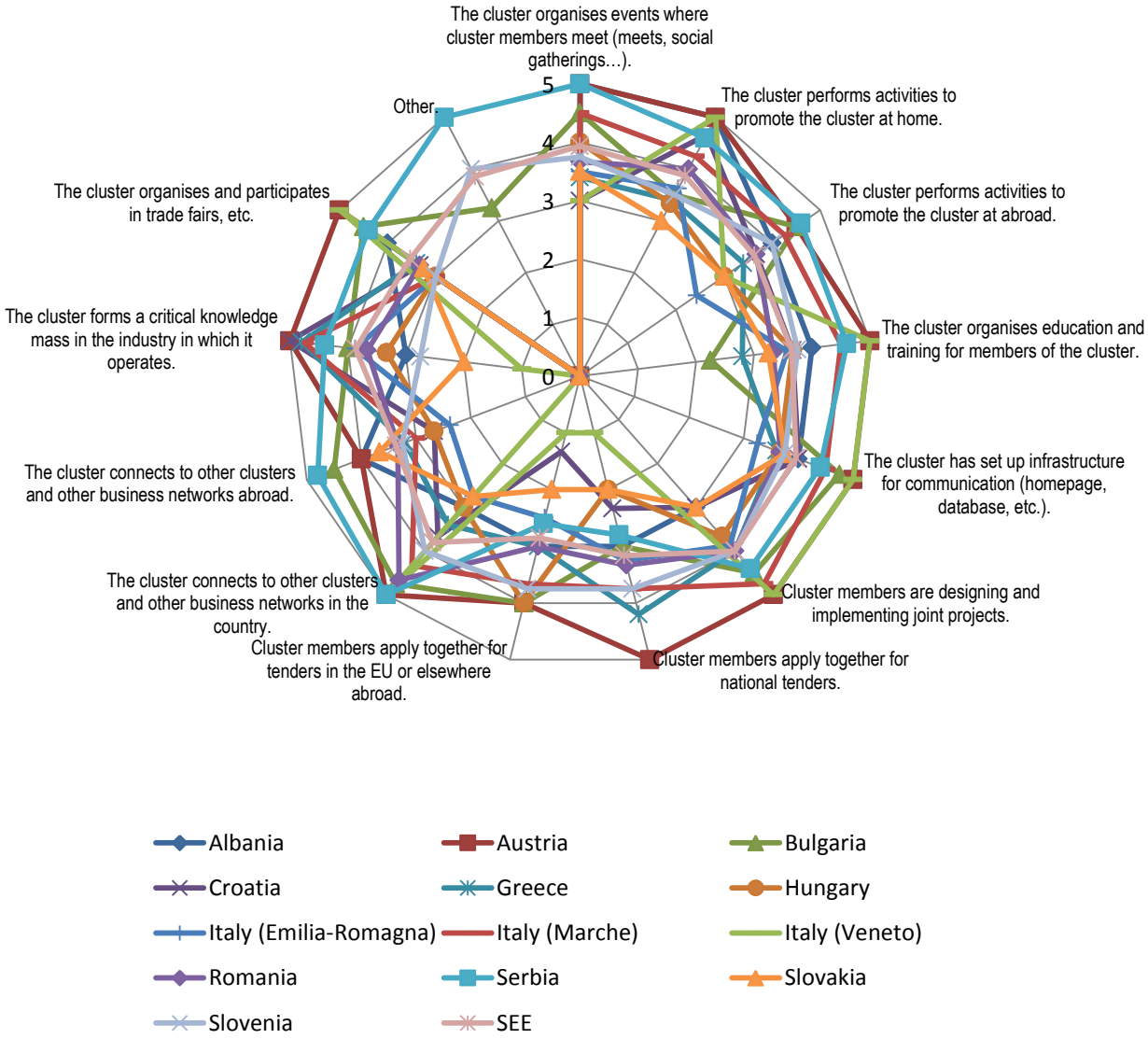
Other aspects of membership are seen equally important among the clusters, included in our survey, with some exceptions. Thus Slovakia and Albania do not see added value in the membership bringing improve communication within the company and between cluster members. Slovakia seems to have a more negative view on the added value of cluster membership, as it sees negligible effects in the faster transfer of knowledge from knowledge generators to business sector, the faster transfer of knowledge between companies in the cluster, the access to national and international networks of R&D activities, and the company together with other members providing more complex products (where Veneto has an even lower average than Slovakia – 1,00).

Figure 122: Key success factors of clusters (1 not at all important 5 very important)



All of the involved clusters see the **key success factors of clusters in a relatively similar way.** The **largest difference is in the importance of the geographical proximity** of cluster members, which is not important in Albania (2,00) and very important in Austria (4,00). Emilia-Romagna's cluster seems to be a little less convinced than the others about the **importance of state support** (3,38), while Hungary, on average, has a slightly more negative view on the importance of clusters in **building trust among cluster members** (also Slovakia), the support from top management of member companies, and the active participation of members of the cluster. Slovakia sees a slightly lesser importance in the importance of creating a cluster development strategy.

Figure 123: Implementation of activities (1 not implemented – 5 fully implemented)

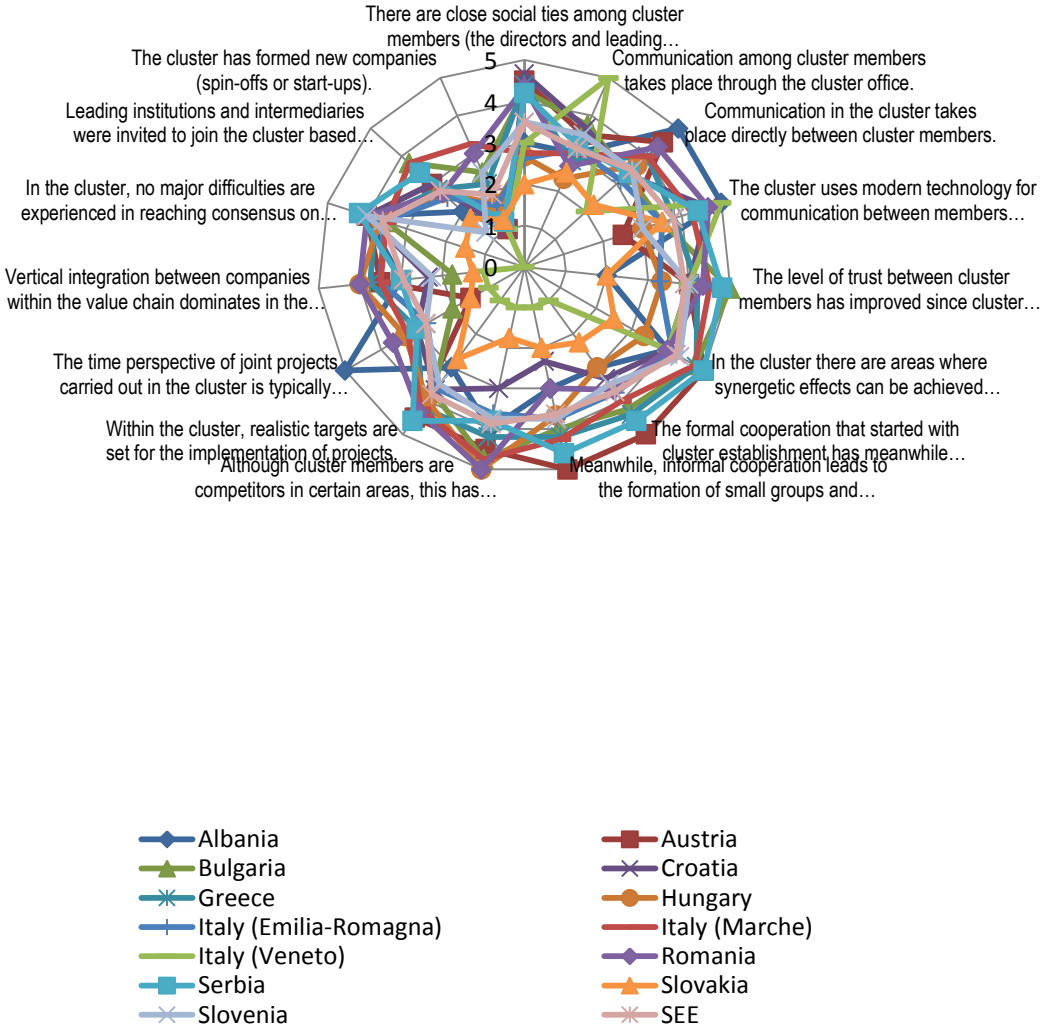


The implementation of cluster activities varies among countries, but most of them implement all of the mentioned actions. Major differences are found in the organisation of events where cluster members meet (Serbia and Austria implement them fully, while Croatia and Veneto partially), the performance of activities to promote the cluster at home (little in Slovakia, but to a full extent in Veneto, Serbia, and Albania), the performance of activities to promote the cluster abroad (a lot in Serbia and little in Emilia-Romagna), the joint application for national tenders (full in Austria and little in Slovakia and Hungary), and the connection to other clusters and other business networks abroad (important in Serbia but not in Emilia-Romagna).

Some countries do not execute a lot of activities such as the organisation of education and training for members of the cluster (Bulgaria and Greece), joint applications for tenders in the EU or elsewhere abroad (Veneto and Croatia), connecting with other clusters and other business networks in the country (Emilia-Romagna and Slovakia), and the forming of a critical knowledge mass in the industry in

which they operate (Veneto and Slovakia). Cluster members designing and implementing joint projects is of high importance in Austria and Veneto.

Figure 124: Cooperation and networking characteristics (1 disagree - 5 fully agree)



The highest differences in the cooperation and networking characteristics of clusters are in the statements**: "The formal cooperation that started with cluster establishment has meanwhile evolved into good informal cooperation between members**" (Austria 5,00, Veneto 1,00), "Meanwhile, informal cooperation leads to the formation of small groups and partnerships in certain projects" (Austria 5,00, Veneto 1,00), and "**The time perspective of joint projects carried out in the cluster is typically more than three years"** (Albania 5,00, Veneto 1,00).

The communication among cluster members takes place through the cluster office in the Veneto cluster, while this is not the case in Hungary (the most direct communication between cluster members

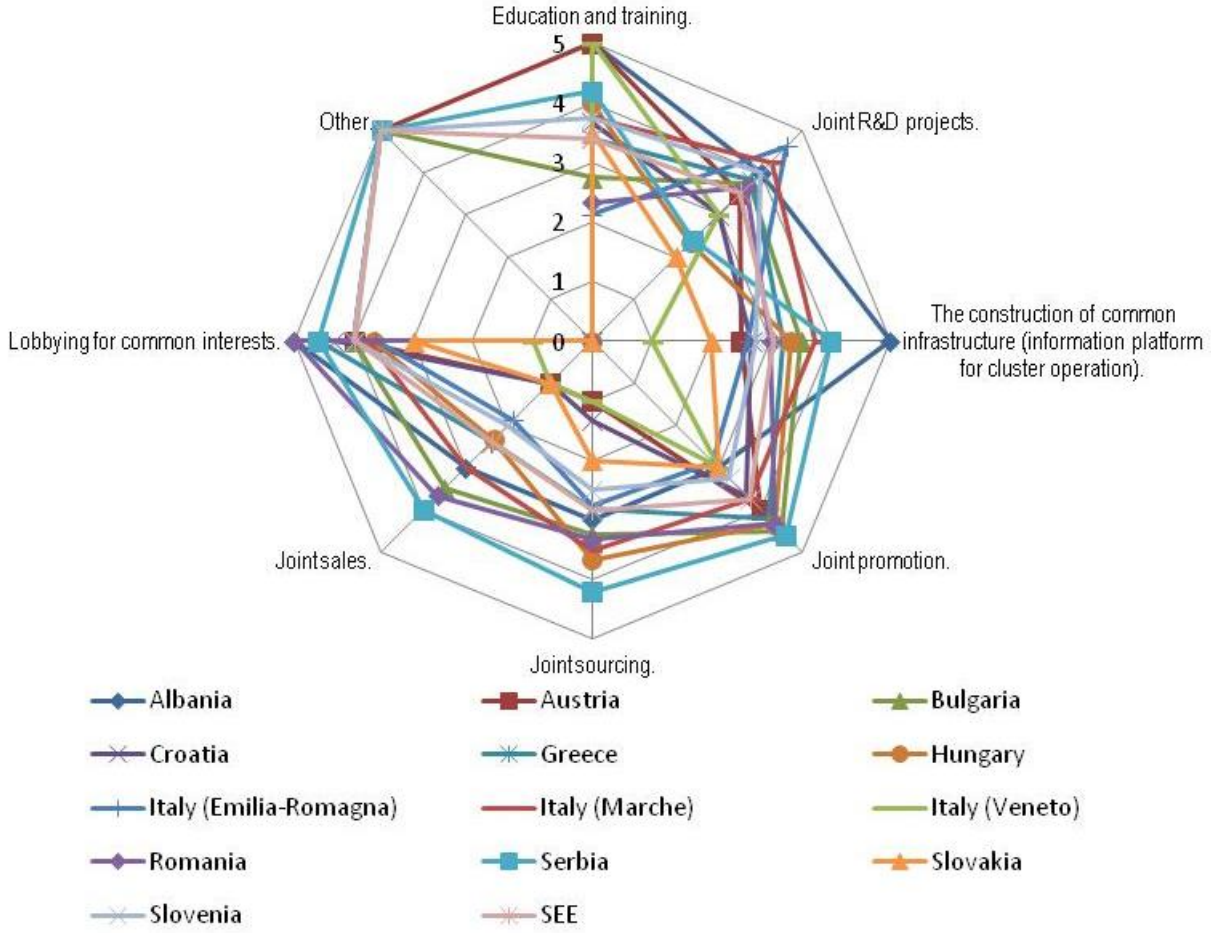
is found in Albania). The Veneto and Albanian clusters use modern technology for communication between members (e.g. internet, groupware, …), while Austria is less inclined to these communication means.

Cluster formation has been positive, since it improved the level of trust between cluster members, especially in Bulgaria, while this does not hold true for Slovakia and Albania. Slovakia also experiences weaker social ties among cluster members (Greece has the strongest), which may be the cause in experiencing difficulties in reaching consensus on issues of common concern (consensus is the highest in Serbia). Cooperation seems to be a general problem in the Slovak cluster (partially also in the Hungarian).

Competition between cluster members has hindered their cooperation in joint projects in Veneto and Slovakia, which eventually prevents realistic targets to be set for the implementation of projects. Also, in these two countries/areas, the vertical integration between companies within the value chain does not dominate.

Leading institutions and intermediaries are not invited to join the cluster based on formal requirements of financers especially in Slovenia and Slovakia (more in Marche and Bulgaria). Only the Marche and Romanian clusters have partially formed new companies (spin-offs or start-ups).

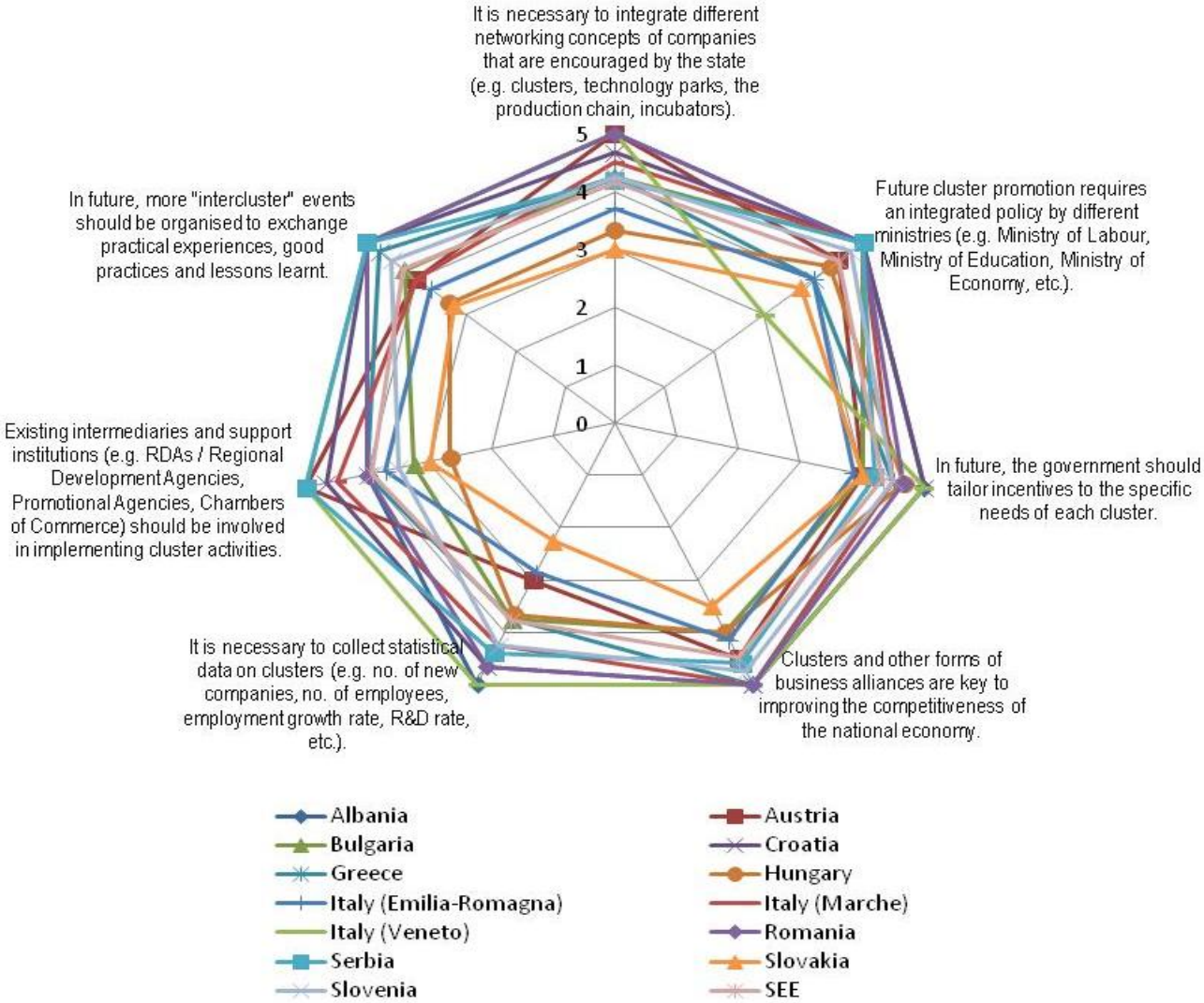
Figure 125: Areas of cooperation (1 do not cooperate – 5 cooperate a lot)



The analysed clusters seem to cooperate in all the mentioned areas, but some deviations are found, for example, **in the construction of a common infrastructure** (information platform for cluster operation), where the Albanian cluster fully cooperates, while the Veneto clusters fail to do so. Lobbying for common interest also seems to be very important in Romania, while not having any importance in Veneto.

Education and training are important aspects of cooperation in Austria and Veneto, a lot less in Emilia-Romagna. What regards joint cooperation, it is most prominent in Serbia in the fields of promotion (the least in Emilia-Romagna), sourcing (with a low in Veneto and Austria) and sales (not being important in Slovakia, Veneto, Austria and Croatia). The Emilia-Romagna clusters strongly cooperate in the area of joint R&D projects, while the contrary is true for Slovakia.

Figure 126: Implications for further cluster (policy) development (1 fully disagree – 5 fully agree)



Some of the involved clusters slightly disagree on some implications for further cluster policy development, especially Slovakia, on the points of collecting statistical data on clusters (together with Emilia-Romagna and Austria), the necessity to integrate different networking concepts of companies that are encouraged by the state (also Hungary), and that the future cluster promotion requires an integrated policy by different ministries (also Veneto's point of view).

The statements, that unify all of the clusters, are the necessity of the government tailoring incentives to the specific needs of each cluster, and the belief, that clusters and other forms of business alliances are key to improving the competitiveness of the national economy.

Hungary and Slovakia share a disagreement with the claims "Existing intermediaries and support institutions (e.g. RDAs / Regional Development Agencies, Promotional Agencies, Chambers of Commerce) should be involved in implementing cluster activities" and "In future, more "intercluster" events should be organised to exchange practical experiences, good practices and lessons learnt."

6. Implications and limitations of the study

The following sections discuss the presented results, propose certain implications and present the limitations of the present study.

6.1.1 Discussion with implications

The major evidence arising from the analyses performed is the huge difference in the level of cluster policy development and operations of cluster organisations that affects all main cluster development areas, namely cooperation and networking, financing, sustainability; Innovation, R&D, New skills and Jobs creation, regional specialisation. So the biggest challenge for policy makers will be in the lowering such differences and in homogenization of operating conditions for clusters, with focused actions adapted to their level of development. One of the biggest opportunities lies in the knowledge transfer and the transfer of good practices from more to less developed regions/countries/cluster organisations. One potential solution to lower such disparities would be also in the development of focused international cluster networks, with an aim to transfer accumulated knowledge, good practices and experiences on different levels; policy makers, cluster organisation's and cluster members.

In most cluster organisations there is a wider problem of financing and obtaining financial resources for further cluster development and operations, either for cluster organisations of their members. The problem differs depending on the level of development of cluster policy, country and prior cluster tradition in it. One potential solution to this problem could be the more intensive involvement of financial institutions in the membership in cluster organisations (within all clusters there are only 3 institutions). In this way the cluster members would be able to get in closer contacts with financing institutions, which would help them to better present their operations and companies and potentially receive the credits for their operations.

In terms of cluster financing there are very big differences related to the share of public and private funds. An implication to cluster organisations would be to adequately balance the structure between public and private financing, especially to those where public financing exceeds thresholds of 50%. From the responses is evident that those countries (cluster organisations), where public financing sources exceeds proposed levels, focus their lobbing mostly toward "national" policy makers, while where there are little possibilities. To overcome such financial constraints, certain clusters have also developed innovative solutions (e.g. Romania).

6.2 Limitations of the study

One of the biggest limitations of the study is the huge difference in the level of development and operations of cluster policy and therefore was hardly to derive some generalized conclusions. Being a limitation, big differences in the level of cluster policy bring at the same time also opportunities for learning and improving them, especially with the possibility of knowledge transfer and implementation of best practices across countries and regions.

The second limitation was the selection of “representative” clusters, proposed by partners in their country region, which is related also to the comparability of knowledge of the way in which the data collection was performed by different interviewers. It was almost impossible to verify this element, because certain countries have very little clusters, with a short cluster policy history (e.g. Albania), while in other countries there is a rich cluster presence and “history”.

The next limitation concerns the sampling. Actually project partners selected to interview the clusters the wished, but such cluster may not be really representative for their region or country. This is also related to the number of clusters in certain country or region. In less developed countries, actually clusters just started “to establish” and it is expected they would deal with totally different problems and challenges as clusters in developed countries, with longer cluster policy tradition. In case of Romania we have to highlight that subsequently (after key iterations and presentations of analyses that have already been done) we have received additional 5 factsheets and 5 questionnaires from Romanian clusters. Therefore the report includes the last final number of their questionnaire in different way. The factsheet analsis presents resulting changes as opinings, while the country cluster anylisis includes them just in a quantitative part of the cluster analysis (therefore all the tables and figures are updated according to the new analyses comprising 8 completed questionnaires), while not in the qualitative one.

Another important limitation could be respondent bias. Certain partners in performing the interviews (probably because of easier access) interviewed cluster members instead of representatives of cluster organisation. This could be a very serious limitation, because in certain aspects the interest may vary between these two target groups. Unfortunately we do not know exactly which countries/clusters decided to approach such way of data collection and respondents selection. Potentially in the future research another questionnaire could be developed and targeted to cluster members, to verify the potential differences between cluster organisation representatives and cluster members.

One of the last limitations is the fact that the average value is much affected by Italy and Austria and thus increased (reaching an edge). Therefore in any case it should be taken into consideration that most of SEE partners are either at an initial development phase of clusters or at incubation phase of the first clusters developed.

Even with the limitations presented above, we believe that that the present study represents a solid analysis for setting further cluster policy strategies and initiatives.

7. Appendices

7.1 Cluster factsheet analysis questionnaire

7.2 Questionnaire about main cluster areas

7.3 Policymaker's questionnaire perspective about main barriers and challenges

8. Literature (selected references)

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