



The Bio-Based Cluster Excellence Initiative

Current Status of Cluster Management Excellence in Bioeconomy with focus on the Danube Region

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1 RATIONALE OF THE STUDY – THE BIOBASED CLUSTER EXCELLENCE INITIATIVE (BBCEI)

The BioBased Cluster Excellence Initiative (BBCEI)¹ aims at supporting bio-based cluster organisations in the Danube region in improving cluster management excellence in order to better address the upcoming challenges in the field of bio-based industry within and beyond the DanuBioValNet project. This can be achieved by mutual benchmarking and Bronze Labelling of cluster organizations according to the European Cluster Excellence Initiative (ECEI) approach.²

Excellent cluster management is crucial for maximizing the benefits that can be achieved by cluster initiatives in their efforts to support industry, research, and education in the region. In parallel, these strategic cluster activities support public authorities in their regional development efforts focusing on improvements in competitiveness.

Cluster initiatives focusing on bio-based industries face significant challenges as they operate within an emerging industry with specific demands that cannot be properly addressed by traditional networking and matchmaking. Recent investigation made within the DanuBioValNet project revealed that in some sectors of Bioeconomy comparable strong cluster have been emerged, like in Phytopharma or Eco-Construction. Furthermore, many of these clusters are located in the Danube Region.³

This ECEI initiative, supported by the European Commission, DG GROWTH, introduced a framework of indicators and an assessment methodology to identify cluster management organisations with excellent working practices, which could potentially serve as key partners for policymakers in achieving their goals for regional economic and social development. The initiative has also developed a training concept and training measures to support cluster management organisations in their quest for excellence.

The DanuBioValNet synthesis report⁴ has identified more than 75 cluster initiatives dealing with elements of Bio-based industry. At least 50 of them address the core topics of this sector. So far, 25 Bio-based cluster initiatives from six Danube countries (Czech Republic, Germany, Romania, Serbia, Slovakia and Slovenia) have been benchmarked according to the ECEI criteria and provided important information on the current status of cluster emergence.

This report outlines the results of the BBCEI benchmarking exercise. By comparing the current 25 BBCEI clusters with cluster initiatives from all over Europe (EU28 plus Norway), it offers valuable insights to cluster organisations operating Bio-based clusters in the Danube region. The BBCEI is a joint undertaking of the DanuBioValNet project and the European Secretariat for Cluster Analysis (ESCA).

2 INTRODUCTION

Since the launch of the BBCEI in August 2017, 25 cluster organisations from six Danube countries took part in joint benchmarking exercises with the aim of getting a clear development route to management excellence. The individual benchmarking reports provided valuable insights on size, structure, financial models and main objectives of the cluster initiatives. Cluster managers received first ideas and recommendations on how to strengthening their cluster organisations in order to better support the competitiveness of their SME members.

The current report provides a comprehensive overview of cluster management excellence of these 25 benchmarked BBCEI clusters. The condensed results are compared with over 288 cluster initiatives from the EU28 (plus Norway).

The ECEI methodology has already been applied to more than 1.000 cluster organisations all over Europe and beyond, incorporating new insights and developments from the European Cluster Excellence Initiative, a 3-year project (2009-2012) cofunded by the European Commission Directorate General Enterprise and Industry within the PRO INNO Europe® initiative.

1) <http://www.interreg-danube.eu/news-and-events/project-news/901>

2) see www.cluster-excellence.eu

3) Meier zu Köcker, G., Dermastia, M. (2018), Cluster Mapping Synthesis Report Phytopharmaceutical Industry, Published by DanuBioValNet project, http://www.interreg-danube.eu/uploads/media/approved_project_public/0001/14/c4ee467fd-27c757629fc92025686fe15257952d6.pdf

4) http://www.interreg-danube.eu/uploads/media/approved_project_public/0001/13/13342f880ccf7f7472fae03879951066f678062f.pdf

2.1 BIO-BASED ECONOMY

While there are many definitions of the bioeconomy, or bio-based economy, this study refers to definition applied within the DanuBioValNet project. Bioeconomy comprises those parts of the economy that use renewable biological resources from land and sea – such as crops, forests, fish, animals and microorganisms – to produce food, materials and energy. Current EU development strategies, such as the Europe 2020 Strategy, the Bioeconomy Strategy for Europe and the Research and Innovation Strategies for Smart Specialisation (RIS3) are the main guiding principles to bring Bioeconomy in Europe forward.

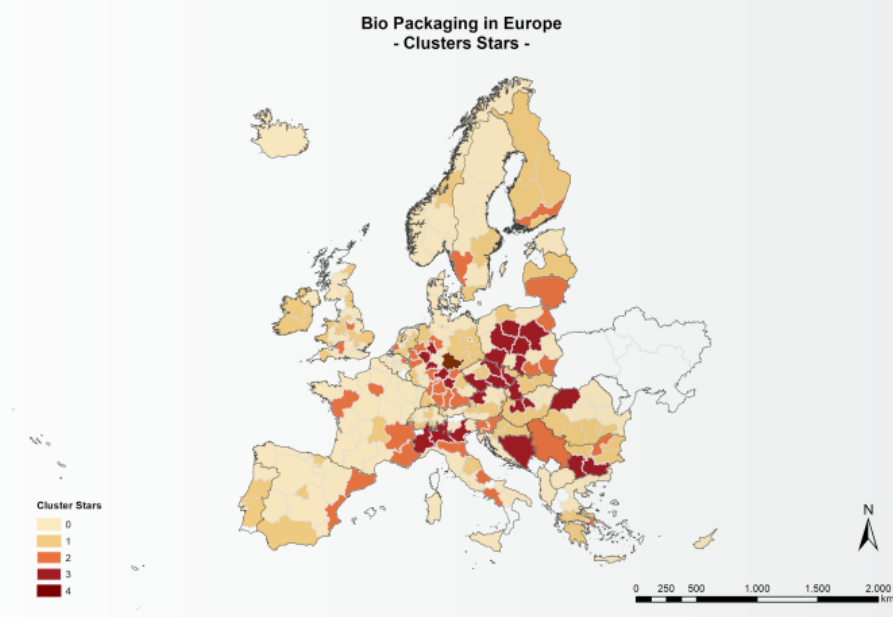
Danube Regions provide good opportunities for production of biomass due to the large amount of available forest and agricultural land. The agricultural land and forest area remained relative constant in all regions/countries. As Figure 1 reveals there are many strong clusters located in

the Danube Region, e. g. in the field of Bio-based packaging.

There are three prevailing types of biomass within the Danube Region: Wood, agricultural biomass and biowaste, but their use in the industry varies from region to region. Mostly, the biomass that is not used for food and feed is used as primary energy for power and heating plants, for domestic use as the combustion, and for the production of biofuels and biogas.

Major shortcomings in most of the Danube Regions include the lack of supportive policies, programs and measures, sources of funding and lack of regional bio-based industry strategies. In all regions/countries the Strategies for Smart Specialisation (S3) are implemented, but only a few cover bioeconomy in a dedicated way (Croatia, Slovakia and Slovenia).

Figure 1: European top clusters in Bio-based Packaging Industry (Cluster Stars, 2014)⁵



5) Meier zu Köcker, Sedlmayr (2018), Cluster Mapping Synthesis Report – Bio-Packaging, published by DanuBioValNet-Project

2.2 CLUSTER EXCELLENCE

In contrast to evaluations and economic impact assessments, benchmarking of Cluster Management Excellence is an efficient way to identify the potential of a cluster and to develop strategic recommendations for its further development within a short time frame. Benchmarking is a comparative analysis of structures, processes, products and services. It compares an entity to peers in the same field of activity and/or to best practices from entities in other areas. The objective of benchmarking is to learn from better performing peers or other entities in order to improve own structures, processes, products and services.

Benchmarking of cluster organisations provides orientation in terms of the developmental status of the cluster organisation. However, it is the first

step towards improving quality of cluster management. ESCA cluster benchmarking is based on a personal interview of about two hours duration with the manager of a cluster organisation.

Data is collected through individual benchmarking interviews with cluster managers and an impartial ESCA benchmarking expert. By focusing on 36 indicators, the interview captures data on different dimensions of the cluster and the cluster organisation, including the structure of the cluster, the cluster management and the governance structures of the cluster, financing of the cluster organisation, services provided by the cluster organisation, communication within the cluster and achievements and recognition of the cluster and the cluster organisation.

2.2.1 INDICATORS FOR CLUSTER MANAGEMENT EXCELLENCE

The indicators for cluster management excellence are focused on the cluster organisation that is responsible for managing the cluster and its activities, and – to a certain extent – on the community of the cluster actors. Economic or other effects of the cluster on entire industrial sectors or the development of regional strengths cannot be reliably measured through benchmarking and are therefore not part of this analysis.

The indicators and the threelevel evaluation system used in this analysis are based on the one developed in the framework of the European Cluster Excellence Initiative.

- GREEN: Excellent. Only minor improvements are - if at all - possible.
- YELLOW: Reasonable. Potential for improvement.
- RED: Certain minimal criteria for good practice in cluster management are not met. It is recommended to consider this issue for improvement.

Table 1: Benchmarking indicators

STRUCTURE OF THE CLUSTER
Age of the cluster organisation
Legal form of the cluster organisation
Nature of the cluster: driving forces
Nature of the cluster: degree of specialisation
Composition of the cluster participants (Committed participants)
Geographical concentration of the cluster participants (Committed participants)
Utilisation of regional growth potential
International participants of the cluster
Nature of cooperation between cluster participants
CLUSTER MANAGEMENT AND GOVERNANCE / STRATEGY OF THE CLUSTER ORGANISATION
Clear definition of the roles of the cluster manager / Implementation of a governing body / Degree of involvement of the participants of the cluster in the decision making process.
Number of cluster participants per employee (full-time equivalents) of the cluster organisation
Human resource competences and development in the cluster organisation
Strategic planning and implementation processes
Thematic and geographical priorities of the cluster strategy
FINANCING OF THE CLUSTER MANAGEMENT
Repartition of the different financial sources (public funding, chargeable services, membership fees and other private sources) in the total budget of the cluster organisation in relation to the age of the cluster
Financial sustainability of the cluster organisation
SERVICES PROVIDED BY THE CLUSTER ORGANISATION (SPECTRUM AND INTENSITY)
Acquisition of third party funding
Collaborative technology development, technology transfer or R&D without third party funding
Information, matchmaking and exchange of experience among participants
Development of human resources
Development of entrepreneurship
Matchmaking and networking with external partners / promotion of cluster location
Internationalisation of cluster participants
ACHIEVEMENTS AND RECOGNITION OF THE CLUSTER ORGANISATION
Number of external cooperation requests received by the cluster organisation
Geographical origin of external cooperation requests
Characteristics of cooperation with other international clusters
Visibility in the press
Impact of the work of the cluster organisation on R&D activities of the cluster participants
Impact of the work of the cluster organisation on business activities of the cluster participants
Impact of the business-oriented services of the cluster organisation on SME participants
Degree of internationalisation of cluster participants

2.2.2 COMPARATIVE PORTFOLIOS

The comparison of the 25 BBCEI clusters in the context of Cluster Management Excellence is done with clusters 288 from the EU28 (plus Norway), belonging to various sectors.

The BBCEI clusters having participated in this study belong to Germany (Bavaria and Baden-Württemberg), Czech Republic, Montenegro, Romania, Serbia, Slovakia and Slovenia. They can be associated with at least one of the bioeconomy's three categories (biomass, transformation, Bio-based products).

The second comparison group is composed of 234 benchmarked clusters from the EU's 28 Members States and Norway. The 25 BBCEI clusters are not included in this group in order to allow for a proper comparison.

All comparative portfolios result from data collected by ESCA between March 2016 and March 2018. Table 2 lists the total number of benchmarked Bio-based clusters whose data was used in the context of the analysis for this report.

Table 2: Comparison portfolio

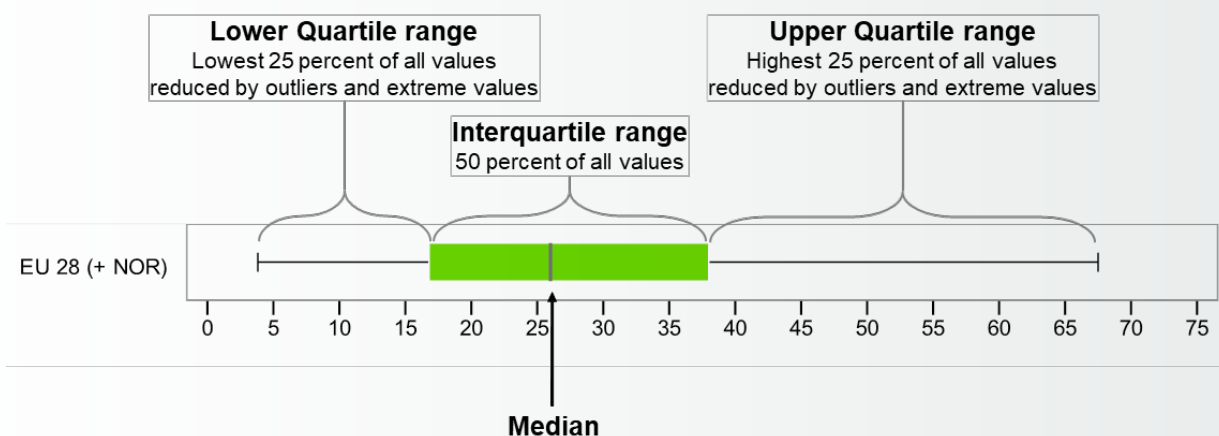
Region	Number of clusters per region
EU 28 (plus Norway)	288
BBCEI partners	25

2.2.3 EXPLANATION OF FIGURES USED IN THIS REPORT

Boxplot

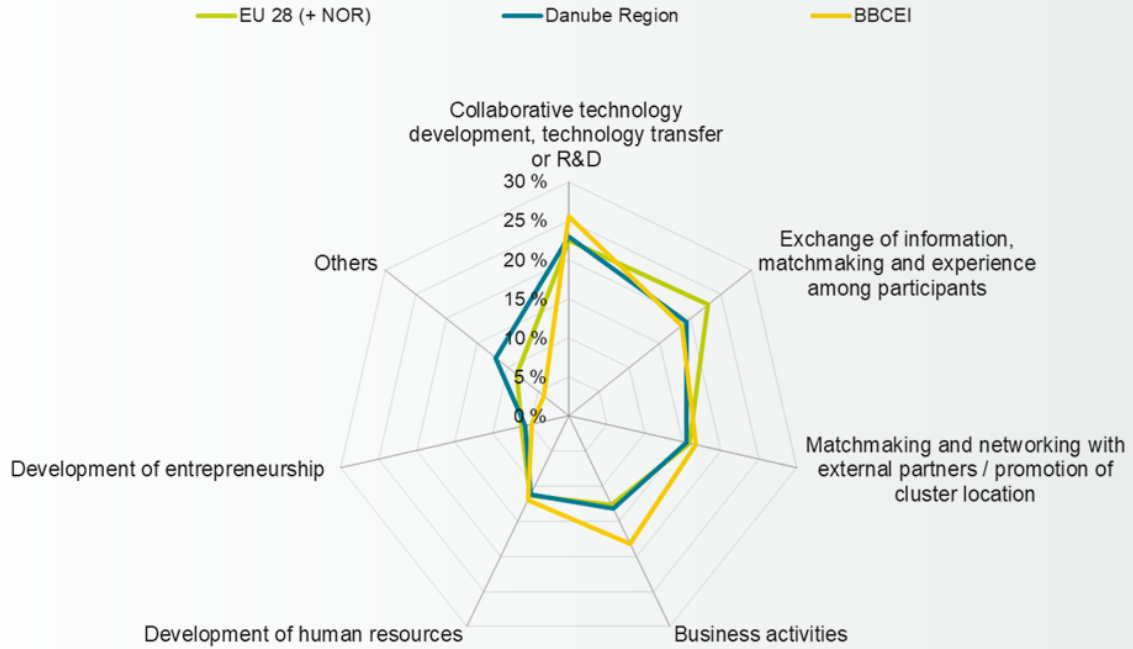
Boxplots display distributions of statistical data. The box represents 50 % of the statistical population (the interquartile range), 25 % higher and 25 % lower than the median value which is marked inside the box. The whiskers represent the lower quartile and the upper quartile of the data. For more homogeneity and representativeness of the

results, the length of the whiskers is determined by the lowest and the highest value of the data being presented AND shall not be larger than 1.5x the size of the interquartile range. By this, the whiskers include up to 25 % of the entire data, reduced by significant statistical outliers. Thus, very special individual values are not considered.



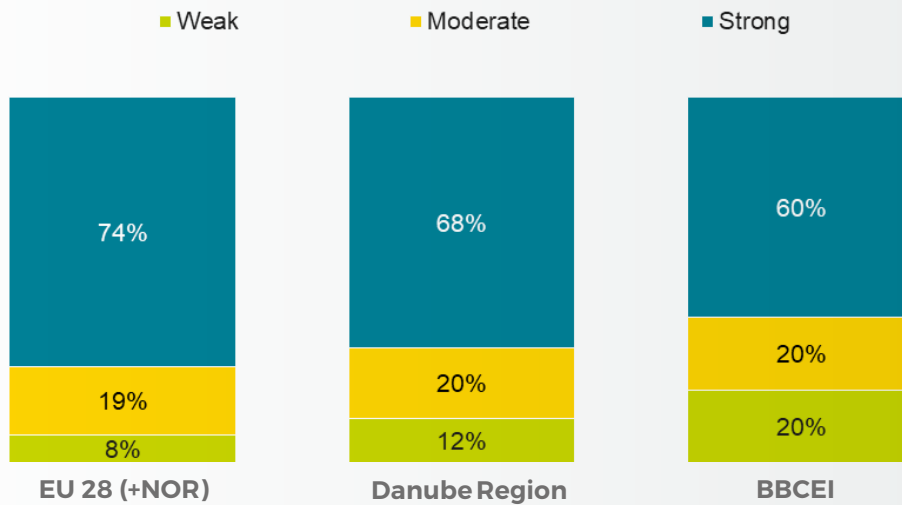
Radar Charts

The radar chart is a graphical method of displaying multivariate data in the form of a twodimensional chart of quantitative variables represented on axes starting from the same point.



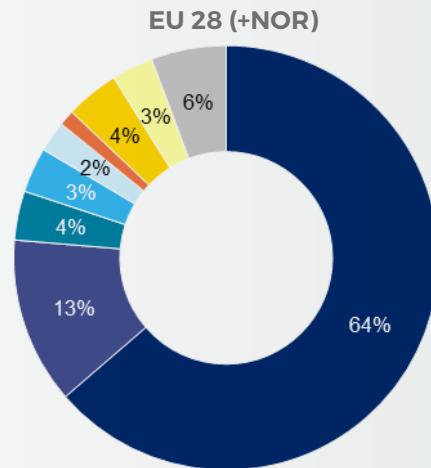
Stacked Bar Chart

A stacked bar chart is a comfortable method for comparing elements of a category with each other and comparing elements across groups. The cumulative proportion of each stacked element totals 100 %. That is useful to compare the share of a category for each group separately.



Ring Chart

A ring chart displays a circle divided into different sectors. Each sector shows the percentage distribution of a category related to the sum of all categories. The bigger the slice of the ring chart, the more of this data category was gathered.



3 BBCEI CLUSTERS IN COMPARISON WITH EUROPEAN PEERS

3.1 THE CLUSTER AND ITS CLUSTERS ACTORS

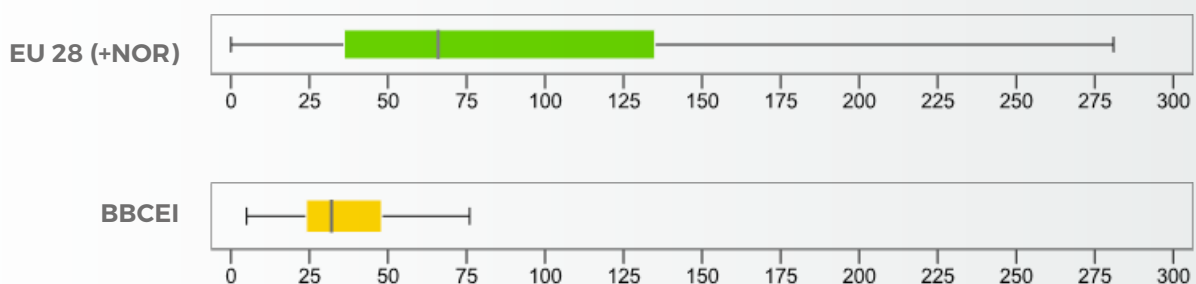
3.1.1 TOTAL NUMBER OF CLUSTER PARTICIPANTS

The benchmarking analysis concentrated on participants in the sense of committed participants. A cluster participant is committed if it actively contributes to the activities of the cluster through e. g. paying membership fees or providing financial support for the cluster management on a regular basis (this may also include in-kind contributions or staff working time) or regularly participating in cluster projects or working groups. Commitment is not reflected by a registration for a newsletter or by a single participation in an event organised by the cluster organisation. A noncommitted cluster participant is a passive participant who shows interest in the cluster's activities going beyond the mere registration for a newsletter or similar (e. g. through regular participation in events), but does not contribute actively to any of the cluster's activities.

The number of cluster participants is important in order to gain critical mass. Critical mass is needed to assure a minimum of interaction between the cluster participants and to create an input that contributes to regional development. Practice has shown that a minimum of 30 - 40 cluster participants are beneficiary.

As far as cluster initiatives from EU28 are concerned, 50 % of them gather between 40 and 130 members with a median value of 70. BBCEI clusters are, compared to their European peers, relatively small in size with an average number (as per Median) of committed participants of 30 compared to 70 in rest Europe.

Figure 2: Total number of committed cluster participants



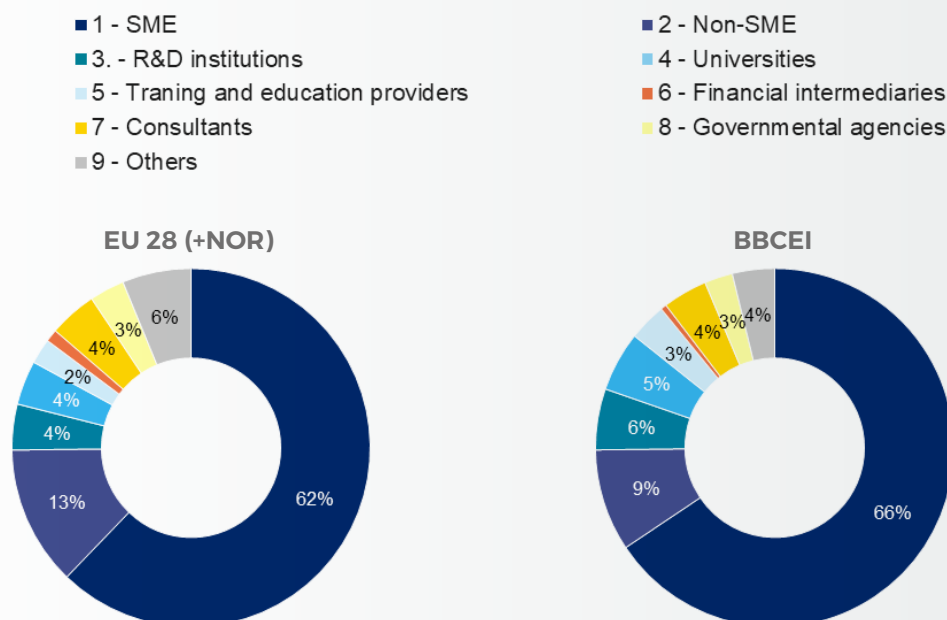
3.1.2 COMPOSITION OF THE CLUSTER PARTICIPANTS

The composition of cluster participants is very important for a successful cooperation within the cluster. Bundling of different competences is necessary for the facilitation of innovation and competitiveness of all cluster actors. If certain key actors and key competences are missing, this might have a negative impact on the innovation capability of the cluster. In all represented cluster initiatives the share of industrial participants is predominant and particularly the SME.

It is worth to point out that the share of SME gathered in the cluster initiatives has significantly increased since 2012, when the respective average value was about 50 %.

While BBCEI clusters may differ in size from their European peers, the composition of their cluster participants is more or less congruent, with larger corporations/non-SME playing a slightly smaller role.

Figure 3: Composition of committed cluster participants



3.1.3 GOVERNANCE OF THE CLUSTER

The existence of different stakeholders of cluster governance as well as their role in the decision making process for cluster strategy and cluster governance were assessed. In this respect, the three following elements of cluster governance were analysed:

- Clear definition of the tasks and responsibilities of the cluster manager, like team management, day-to-day business and strategic activities of the cluster, etc., are in place.
- A governing body such as a steering committee or advisory board exists and is responsible for making decisions and supporting the cluster management in implementing the action plan, survey and review of the progress of the cluster work as well as the work of the cluster management. Its responsibilities are understood by all

participants and meetings take place on a regular basis.

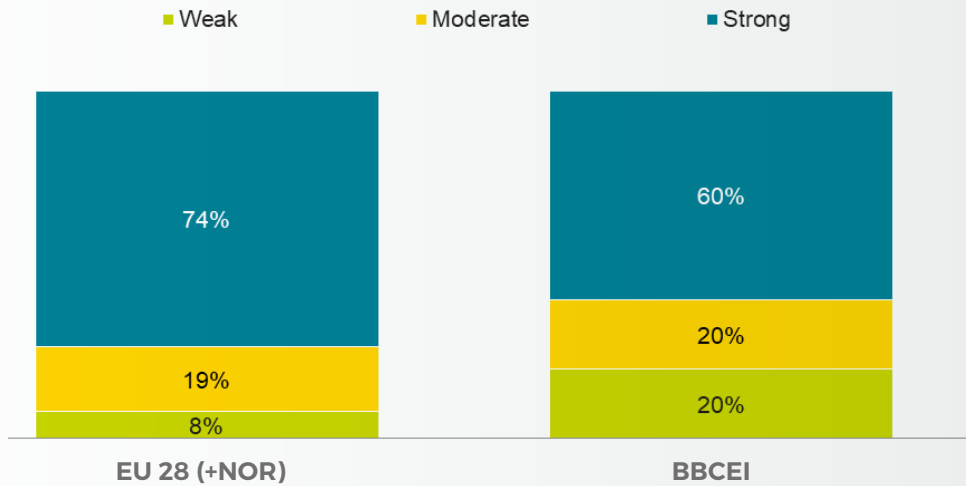
- Participants of the cluster are involved in the decision making and strategic orientation of the cluster organisation, for example through general meetings or other forms of consultation.

For a successful networking all cluster actors have to understand and respect their tasks and responsibilities. In collaboration with relevant cluster participants, the cluster management must define dedicated governance structures and turn them into practice. The three elements described above were reflected in a composite indicator. Three levels were defined in order to identify whether there is a strong, moderate or weak system of cluster governance in place.

The majority of all cluster initiatives succeeded in building comparatively strong governance structures. There are no macroregional patterns at all, even when having a closer look at both comparative portfolios. With 20 %, the share of BBCEI clusters showing “weak” governance structures is

comparatively high. The rationale is for this observation is the fact that most of those that reveal “weak” governance are still in an embryonic stage. Those 60 % with a “strong” governance are comparable well matured.

Figure 4: Governance of the clusters per region



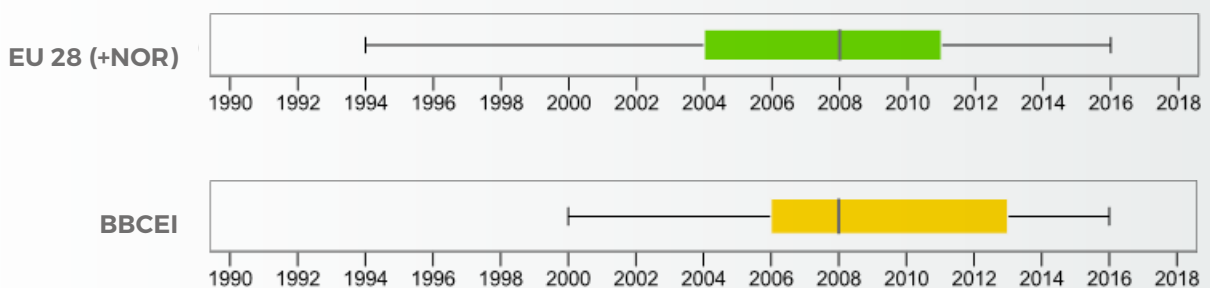
3.2 THE CLUSTER MANAGEMENT ORGANISATION

3.2.1 AGE OF THE CLUSTERS

The maturity of a cluster organisation is often related to its age. As it takes time to successfully develop and implement activities within cluster initiatives, it is supposed that a cluster organisation needs at least four years to yield satisfying results. The year in which the cluster management activities were initiated (not necessarily as a legally independent organisation) is positioned in the following graphs and compared to the different comparative portfolios. The age of the cluster as such may be older than the age of its management body.

There is not much difference in terms of age related to cluster initiatives from both portfolios. The median value is, in both cases, at 2008. BBCEI clusters are on average (as per Median) no older or younger than their European peers. This observation comes a bit as a surprise, since Bioeconomy is considered to be a young industry. Although the average age is around 10 years, a more detailed look illustrates that the share of those having been established after 2010 is comparable high.

Figure 5: Year of Establishment of the clusters



3.2.2 NUMBER OF EMPLOYEES OF THE CLUSTER ORGANISATION

The number of active employees in the cluster management team was expressed in full-time equivalents (FTE). The analysis of FTE provides a better understanding of the human resources that are effectively available for the cluster management in terms of working hours. Full-time equivalent employment (FTE) is the number of full-time equivalent jobs, defined as total hours worked divided by average annual hours worked in full-time jobs.

A more relevant factor for assessing whether the quantity of human resources of the cluster management is sufficient is the ratio of the number of cluster participants and the FTE in the cluster management staff. This indicator gives the numerical value of the number of cluster participants which one FTE of the cluster management has to serve. Higher capacities of the cluster organisation are expected to allow the development and provision of more tailor-made and demand-oriented services or a better direct support for the cluster participants.

Cluster managements in the EU28 tend to have a higher capacity than their BBCEI peers. This finding is connected to a much better public support scheme in the EU28. Cluster policy in these countries provides much higher funding over many years, whereas the support scheme for many BBCEI cluster initiatives is comparable weak. As mentioned earlier, only a few Danube Regions have implemented a dedicated Bioeconomy strategy with related support schemes. Higher public funding allows cluster organisations to finance more staff for day-to-day management

However, BBCEI cluster initiatives, being smaller in size in general (see 3.1.1), also show a lower number of cluster participants per FTE. This means that those cluster management organisations can take better care of their individual cluster participants with approx. one FTE per 15 - 20 cluster participants.

Figure 6: Number of employees in the cluster management team (FTE)

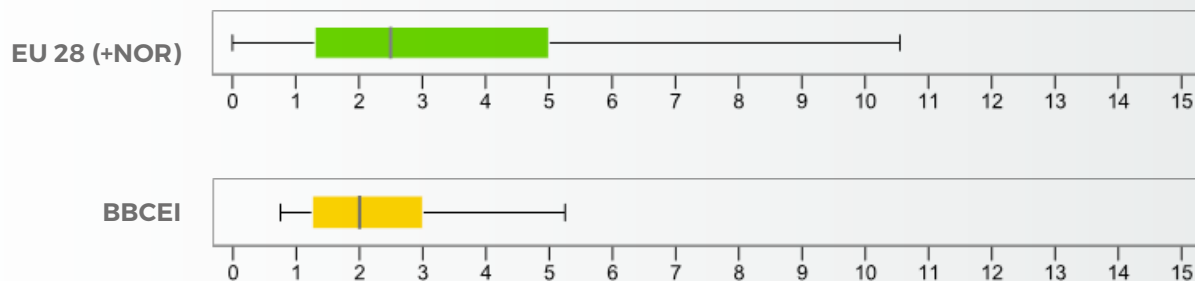


Figure 7: Number of participants per employee of the cluster management team (FTE)



3.2.3 FINANCIAL SOURCES OF CLUSTER MANAGEMENT

The total budget of the cluster organisation includes the budget dedicated to management tasks or to activities performed by the cluster management organisation for cluster participants (staff and non-personnel expenses). It excludes the specific budget for R&D projects or any other projects conducted by the cluster participants alone, or conducted by the cluster organisation as a task not related to the actual cluster management.

The origin of the total budget of the cluster is split between the following categories: public funding, income generated from chargeable services, membership fees, as well as other private sources like private foundations or donations. In-kind contributions (non-cash contributions) are considered as private source income and are accordingly not represented in the following graphs.

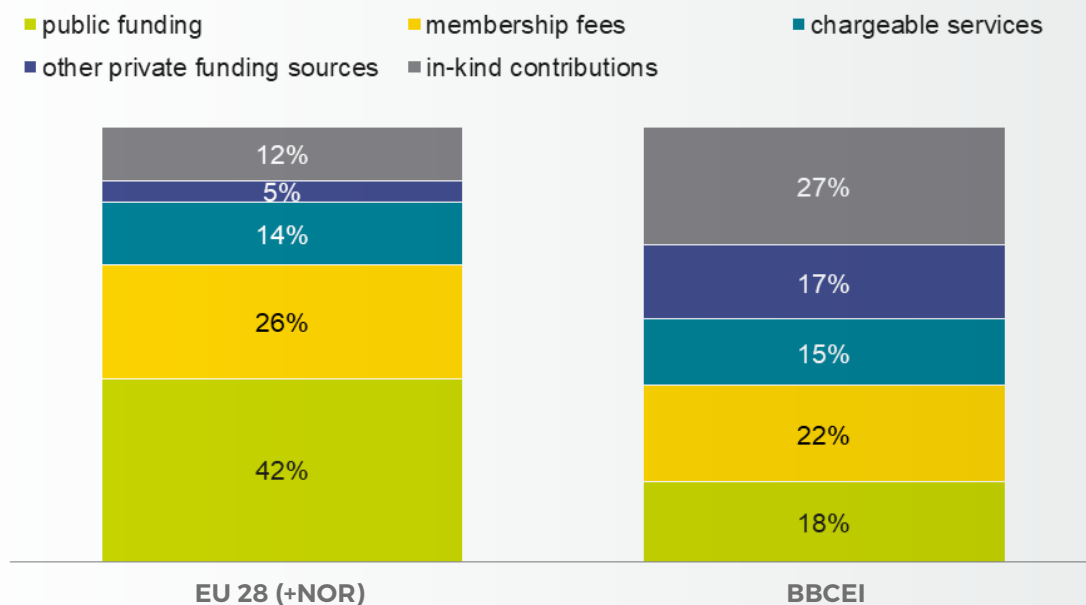
Many cluster organisations were established with significant public support. As public support is mostly limited in time, it is crucial for a cluster management to tap other sources of financing. The

substitution of public funding by private means over time can indicate good cluster management practises as products and services are sold to cluster participants or other parties.

In general, experience shows that a broad mix of various sources of income has proven to best for the sustainable existence and development of a cluster management organisation. Such a mix is the most resistant against failure of one of the financial sources.

The comparison of both portfolios reveals, again, the different conditions cluster initiatives operate in. EU 28 cluster initiatives, on average, receive 42 % public funding, compared to 18 % for BBCEI cluster initiatives. The share of membership fees and chargeable services is similar, whereas BBCEI cluster managements succeeded to attract more additional private funding sources than their EU28 peers (17 %). These findings point out that cluster initiatives in the EU28 are significantly more dependent on public funding than BBCEI cluster initiatives.

Figure 8: Share of private financing in the total budget of cluster organisations



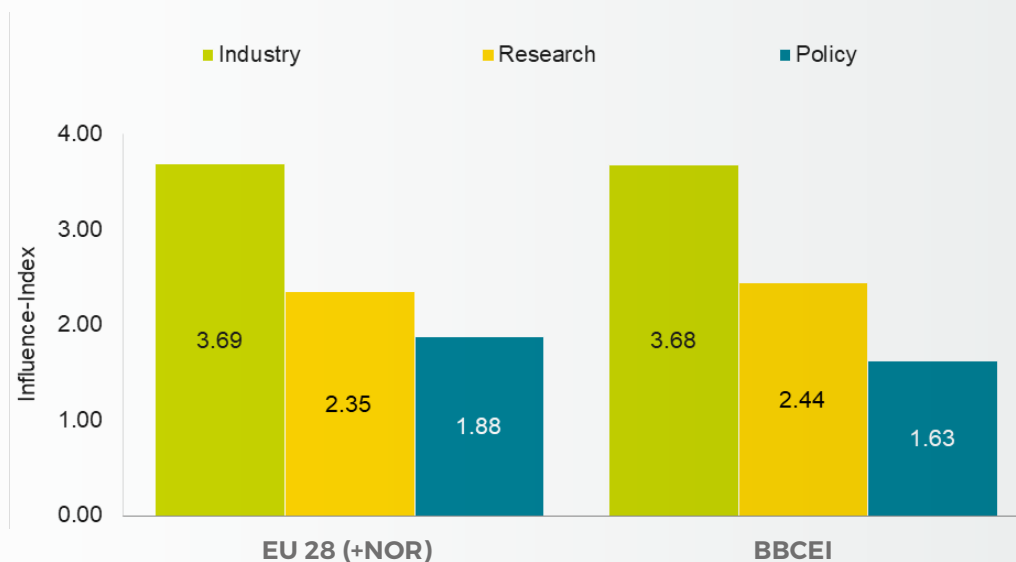
3.3 CLUSTER STRATEGY AND SERVICES

3.3.1 DRIVING FORCES OF THE CLUSTER; INDUSTRIAL VS: R&D

The cluster participants influence the agenda setting of the cluster initiative as well as strategic priorities. The cluster managers were asked to indicate on a scale from 0 (no influence) to 4 (very strong influence) to which extent the cluster is driven by the industry, research and policy stakeholders for the agenda setting of the cluster.

The findings confirm previous investigations that mainly the industry is setting the agenda. There is also a certain kind of influence of policy due to the fact the cluster initiatives depend on public funding and programme owners tend to influence the day-to-day agenda accordingly. Furthermore, due to the fact that in many cases cluster initiatives are used as a tool for regional development, the public sector also sets the agenda as regards regional development.

Figure 9: Influence of research, industry and policy stakeholders in establishing the strategic priorities and activities of clusters



3.3.2 THEMATIC PRIORITIES OF THE CLUSTER STRATEGY

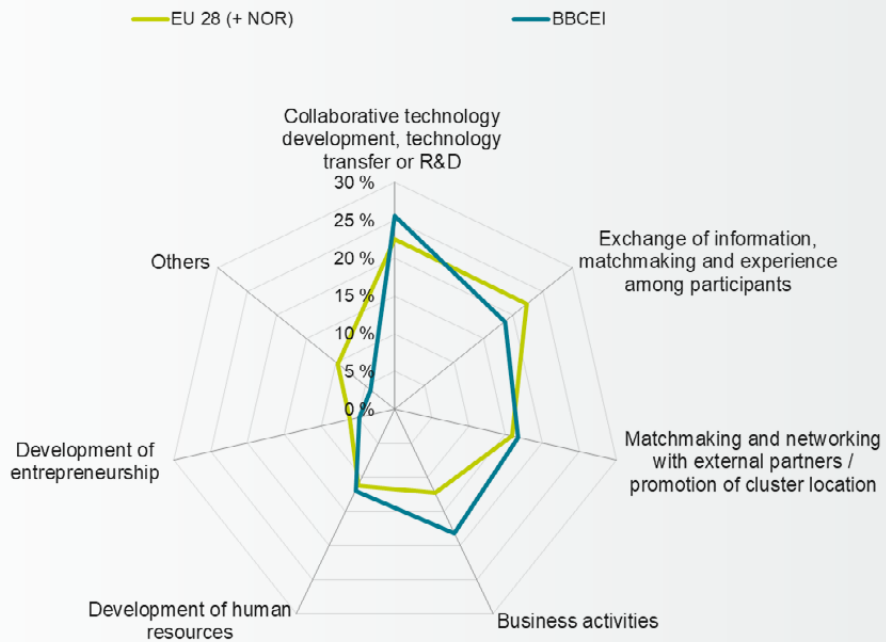
In the figure below, the thematic priorities of cluster initiatives from both comparative portfolios are compared. In general, the thematic priorities of a cluster strategy result in a portfolio of tailor-made services adapted to cluster participants' needs.

It can be seen that the thematic priorities of European clusters follow a similar tendency, irrespective of their nationality, with "Collaborative

technology development, technology transfer and R&D" and "Exchange of information, matchmaking and experience among participants" being their predominant strategy priorities.

For BBCEI clusters, both business-related activities as well as "Collaborative technology development" enjoy a somewhat higher priority than in rest Europe.

Figure 10: Thematic priorities of cluster strategy



3.3.3 SERVICE INTENSITIES OF THE CLUSTER ORGANISATION

One of the main aims of cluster organisations is to provide need-oriented structures of cooperation and to make cooperation between members in the innovation business more efficient. The success of clusters therefore also depends on the extent to which the cluster management succeeds in supporting the cluster participants with need-oriented services.

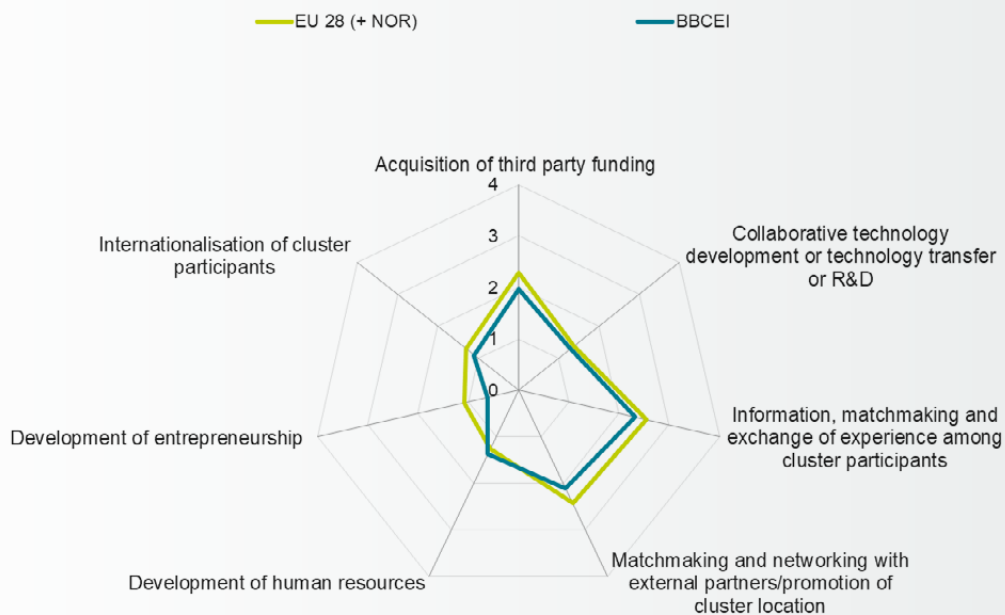
In doing this, it is crucial for cluster participants to be able to concentrate on their specific core competences and that the expenditure of time and financial resources by individual approaches is thus reduced. It is important that services are geared to needs in such a way that they generate high added value for participants. Hence, it is crucial to consider first of all the needs and requirements of the cluster participants and, in particular,

the specific features of the cluster in the sense of an “optimal tailoring.”

For each service category, the diversity and the intensity of the services have been analysed and are represented in a normalised manner on a scale from 0 (no actions) to 4 (very high activity level).

The figure below illustrates a similar pattern for cluster initiatives from both comparative portfolios. The fact that almost all values are slightly higher for cluster initiatives in the EU28 results due to the fact that their cluster management has a higher capacity (FTE) and, thus, can offer more services. Nevertheless, activities related to networking and matchmaking dominate in both cases.

Figure 11: Intensity and diversity for each service category



3.3.4 READINESS FOR INTERNATIONALISATION

With the indicator “Readiness for Internationalisation” the entire data of the cluster benchmarking exercise is used to determine a level of readiness of the cluster organisation and the cluster as such regarding the status and the degree of being prepared for successfully initiating and implementing internationalisation. Three areas are considered in this context and build the bars of the chart below, normalised on a scale from (0 = not prepared at all) to (4 = all prerequisites fulfilled and internationalisation as a pillar of cluster management is already successfully implemented):

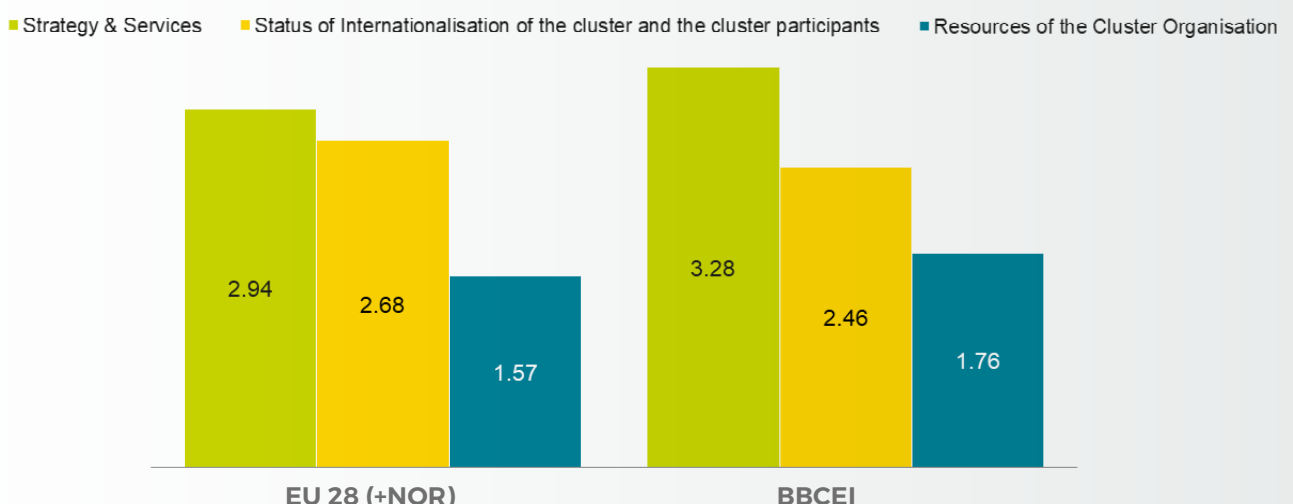
- **Status of internationalisation of the cluster organisation and the various groups of cluster participants:** It is considered as very helpful, if at least major groups of the cluster participants are already acting in an international context and thus themselves have a clear view on their specific additional demands for activities within the cluster. The cluster organisation itself can benefit if experiences regarding internationalisation already exist and a certain status/brand of the cluster is visible on an international level.
- **Resources and competences of the cluster organisation:** Internationalisation requires longerterm significant efforts from the cluster management. Thus, financial resources should be sufficiently available to the cluster management on at least mediumterm and personnel resources. Besides these quantitative aspects, skills and experiences regarding internationalisation, including language skills, are obviously required among the cluster management team in order to be well prepared for successfully acting in the international environment.

- **Strategy and already implemented services regarding internationalisation:** Depending on the different interests and experiences for the various cluster participants, the elaboration of a specific internationalisation strategy for the cluster is required which should not copy, but complement the individual internationalisation strategies of the cluster participants. The internationalisation strategy of the cluster should focus on aspects which cluster participants cannot address alone and where the cooperation within the cluster is a valuable asset (topics to be elaborated which generate added value to a group of cluster participants). As every strategy only can lead to effects when complemented with related activities and services, any existing experiences regarding international activities are valuable. As efforts for such activities normally are rather high, they should be carefully evaluated in order to learn from the experiences and to use the experiences to sharpen the focus of future internationalisation activities.

Building an average of the scores in all three axes leads to a total score regarding the readiness for internationalisation between (0) and (4).

Although the respective values of both comparative portfolios are more or less similar, BBCEI cluster initiatives show slightly higher values on average. Smaller domestic markets or a stronger involvement in international Bio-based value chains require a higher international orientation. For example, when taking a closer look within the comparative portfolios, it becomes obvious that German cluster initiatives are less internationally oriented than their Scandinavian peers. Cluster initiatives e.g. from the Baltic region or from Slovenia show the highest values in this regards.

Figure 12: Readiness for Internationalisation of the clusters



3.3.5 CHARACTERISTICS OF COOPERATION WITH FOREIGN CLUSTERS

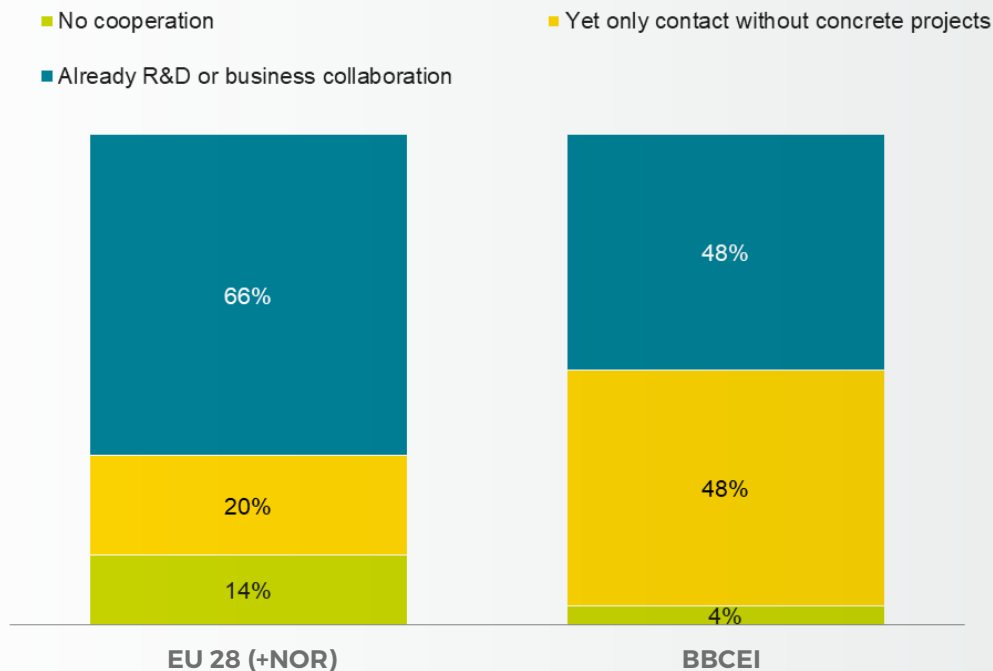
The cooperation with foreign partners can follow different objectives and can be more R&D or business-oriented. In any case, the reasons for cluster participants to become internationally active are usually threefold: to maintain their technological level, to get a better access to new markets or to fill skills gaps within the cluster.

As cluster participants, particularly SME, often lack sufficient internal resources to go international, they benefit from the cluster which takes

responsibility for the internationalisation efforts of its members and offers adapted measures and instruments for internationalisation.

The analysis shows that almost all BBCEI clusters (96 %) have already established contacts with potential partners abroad. However, only 48 % are involved in actual crossborder activities, be it R&D or business related. This figure is significantly below the 66 % level of their European peers.

Figure 13: Type of cooperation with foreign clusters



3.3.6 PRESENCE IN MEDIA

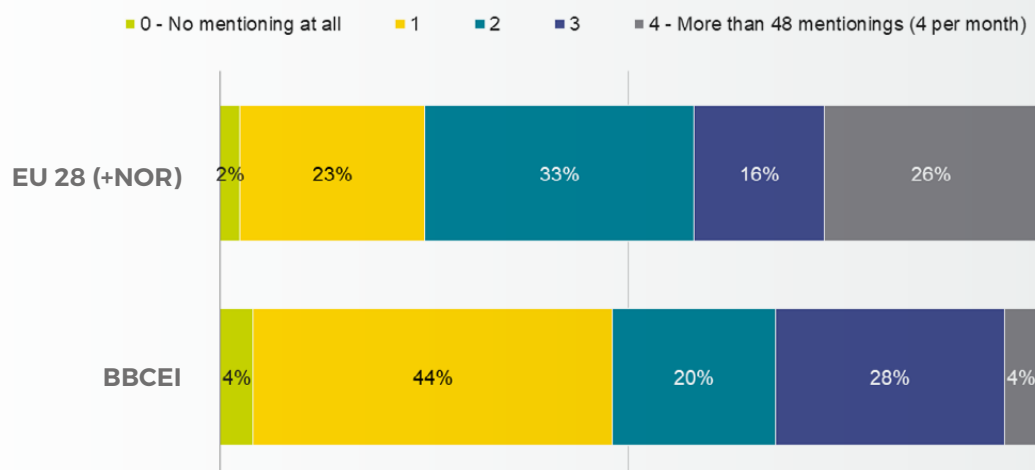
Visibility and reputation are very relevant for cluster initiatives. Thus, many cluster initiatives are investing in public relation efforts in order to increase the awareness of interested parties about the cluster and its success. Regional branding is also often a driving force. Cluster initiatives well known and acknowledged for their potentials, it is much easier for them to attract new participants, convince policy makers of the importance of the cluster or to get involved in international cooperation projects. Public relation should be increased locally, on national and international level as well as within the industrial sector.

The visibility of the cluster was analysed on a scale ranging

- from 0 (None);
- to 4 (High), which is more than 48 media appearances in the past twelve months (equals four media appearances per month).

With 48 % of the BBCEI clusters reporting no or very limited presence in the media (vis-à-vis 25 % in rest Europe). However, one third of them succeeded to be in the media more frequently.

Figure 14: Frequency of mentioning the cluster in publications, press and media



3.3.7 EFFECT ON BUSINESS ACTIVITIES

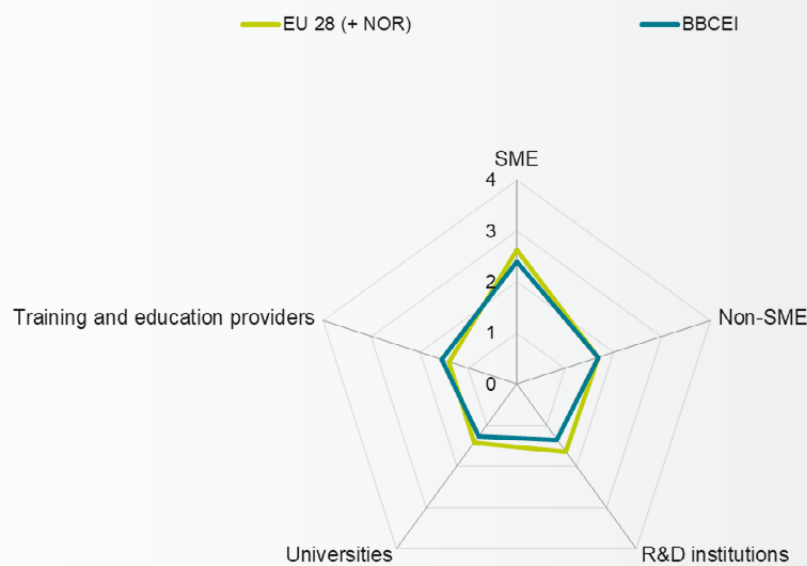
The impact of the cluster organisation's work on business activities of cluster participants is indicated by the following figure. The spectrum and the frequency of services provided by the cluster management team, with respect to business development, are expected to influence the business activities of cluster participants. The cluster managers self-assessed the effect of their work according to the following scale:

- (4) Significant and sustainable impacts on a significant number of cluster participants in the field of business development;
- (3) Significant and sustainable impacts on a reasonable number of cluster participants in the field of business development;

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

The selfassessment covers different categories of cluster participants (SME, Non-SME, universities, R&D organisations, and training and education providers). It is interesting to see that a similar impact on business activities of all groups can be found for both comparative portfolios.

Figure 15: Effect of the work of the cluster organisation on business activities of cluster per country



4 BBCEI CLUSTERS IN COMPARISON WITH EUROPEAN PEERS

The following figure highlights the condensed results of both comparison portfolios in order to be even more representative. It can be considered as the **European Cluster Management Excellence Scorecard**. The 31 indicators used in this analysis are based on a three level approach and based on same methodology developed in the framework of the European Cluster Excellence Initiative (ECEI), described in the ANNEX. The three levels are:

- GREEN: Excellent. The indicator value is in full compliance with the ECEI standard and meets the related threshold. .
- YELLOW: Reasonable. The indicator value is close the related threshold. There is some potential for improvement.
- RED: Certain minimal criteria for good practice in cluster management are not met, the indicator value is far below the threshold. It is recommended to consider this issue for improvement.

The Figures below display the European Cluster Management Excellence Scorecard for both comparative portfolios. It illustrates were cluster initiatives in Danube tend to be well developed (high percentage of green) as well as where it is room for improvements (high percentage of red).

The European Cluster Management Excellence Scorecards confirm that significant progress in terms of professional cluster management has

been reached. Some Danube countries/regions, like Austria, Baden-Württemberg, Bavaria, Hungary, Romania or Slovenia put significant efforts to promote Cluster Management Excellence over the last years. Consequently, good progress has been reached. Most cluster initiatives are following their cluster strategies and have set up dedicated governance structures. Many of them became an import part of the region ecosystem.

However, financial stability, longterm skill development for cluster managers and success stories related to outcome and impact of the cluster initiatives remain a challenge for most of the cluster initiatives in both comparative portfolios, BBCEI cluster initiatives also tend to struggle more to find a wellbalanced composition of cluster participants and gain proper visibility in the public.

The financial uncertainty is mainly caused by a lack of long term perspective of cluster initiatives support. Many cluster initiatives, which were sufficiently funded when they emerged, still rely on a continuation of public funding. Interestingly, cluster initiatives in the Danube Region, mostly lacking substantial public support, report less financial uncertainty due to the fact that they learned how to cope with it over time. However, this results in often smaller cluster initiatives with the risk of lower impact on regional development.

Figure 16: Cluster Management Excellence Scorecard for BBCEI clusters

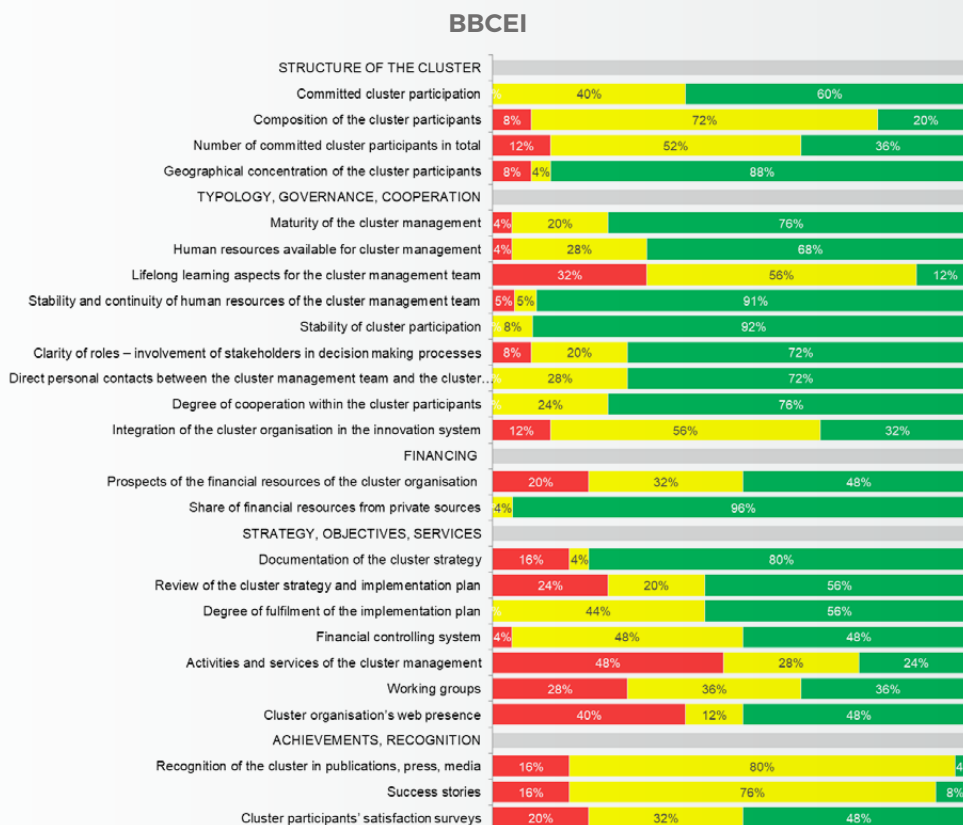
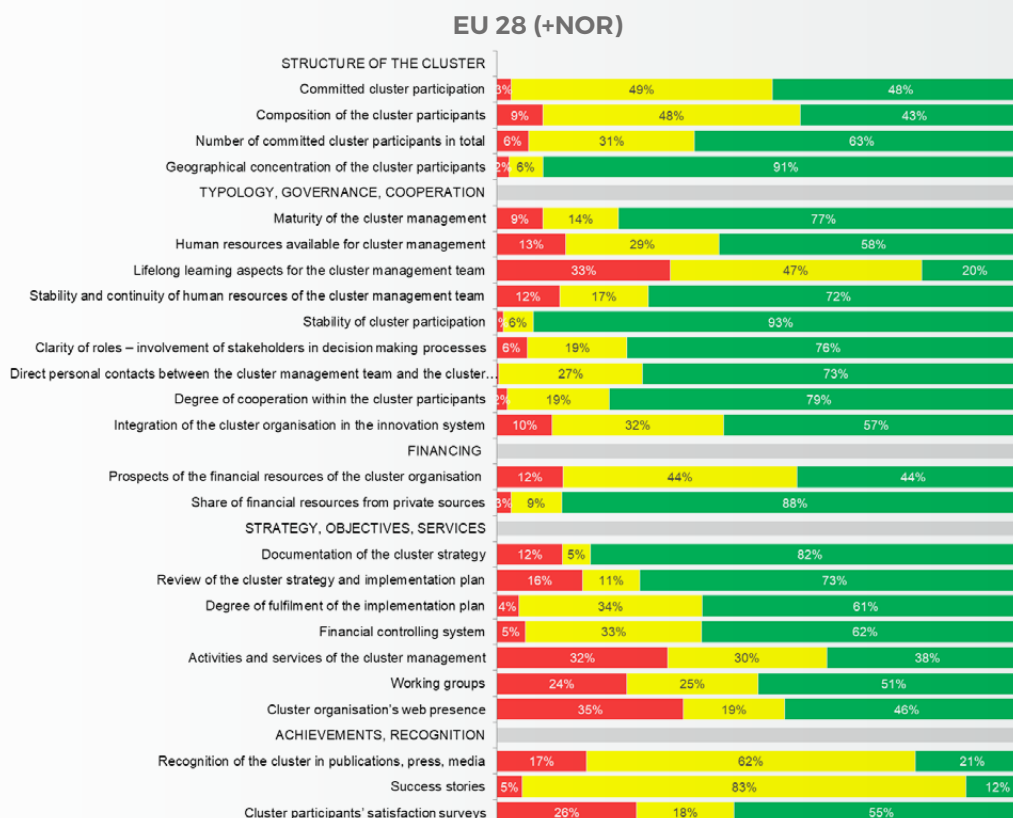


Figure 17: Cluster Management Excellence Scorecard for EU28 (+NOR) clusters



5 ANNEX: EUROPEAN CLUSTER EXCELLENCE BASELINE AND THE INDICATORS DEVELOPED IN THE EUROPEAN CLUSTER EXCELLENCE INITIATIVE

An important aim of the European Cluster Excellence Initiative (ECEI) is to propose a set of indicators, discussed and agreed by cluster experts from all over Europe, for assessing the excellence status of a cluster management organisation and to prepare the path for a “Cluster Management Excellence Label GOLD – Proven for Cluster Excellence” for excellent management performance. An overall set of 31 indicators has been elaborated and is used in a process of assessing the quality of cluster management by neutral assessment through specifically trained external “Cluster Analysis Experts”. The aim is to award a label to cluster organisations that have reached a certain excellence status, but also to provide cluster managers with recommendations how to further improve.

Within ECEI an international experts working group defined these indicators and regarding specific indicators as well a set of minimum requirements. Looking to the minimum criteria, this can be considered as an “entrance level” for cluster organisations to participate in the labelling process. These minimum requirements are described in this chapter, the further indicators are here mentioned shortly and in an incomplete manner only. It is obvious however, that only reaching minimum criteria is not sufficient for excellence, but can be considered as a very first step towards working for being assessed regarding the “Cluster Management Excellence Label GOLD – Proven for Cluster Excellence”.

Further information regarding the indicators and the entire assessment and labelling process can be found under:

<http://www.cluster-analysis.org/gold-label-new>

5.1 GOLD LABEL INDICATORS REGARDING STRUCTURE OF THE CLUSTER

The cluster management should consider that the cluster is clearly structured and that the participants are committed to the cluster organisation and also confirmed their participation through some kind of written form. The cluster should furthermore represent a critical mass of companies in relation to its sector or field of activity.

Committed cluster participation

The cluster shall be dominated by so-called “committed cluster participants”. A cluster participant is committed if it actively contributes to the activities of the cluster through e.g. membership fees, signing of a declaration of accession, a letter of intent or a partnership agreement, etc. The cluster may as well have non-committed passive participants who show an interest in the cluster’s activities going beyond the mere registration for a newsletter or similar (e.g. through regular participation in events), but who do not contribute

actively to any of the cluster’s activities. However, the number of non-committed participants shall be less than 90 % of all participants (committed and non-committed).

Composition of cluster participants

More than half of the committed cluster participants shall be businesses (industry/service providers) within the cluster relevant sector or field of technology. The cluster shall also have research organisations and/or universities among its committed partners.

Number of Committed Cluster Participants in Total

Only groupings of at least 15 clearly “committed participants” are considered as sufficient for asking for a quality label for cluster management. The number of any additional “non-committed cluster participants in this context is not of any matter.

5.2 GOLD LABEL INDICATORS REGARDING TYPOLOGY, GOVERNANCE, COOPERATION OF AN WITHIN THE CLUSTER

Clusters characteristically change over time and have to adapt their strategy and activities accordingly. The cluster management has to have structures implemented for decisionmaking processes with clear roles of participants and other stakeholders in order to facilitate and balance continuity on one side and change on the other side.

Maturity of the cluster management

The cluster organisation management activities must have been started at least two years ago.

Qualification of the cluster management team

The personnel involved in the cluster organisation, responsible for managing the cluster shall be well qualified for the required management tasks to be performed. A certain minimum threshold of a mixture of education, work experience and skills in management, communication and leadership shall be reached.

Clarity of Roles – Involvement of Stakeholders in the Decision Making Processes

How can the different groups of stakeholders within the cluster influence the clusterinternal opinionbuilding and decision processes? The cluster organisation should not be the only party, operating this process more or less detached from the “committed cluster participants”.

Direct Personal Contacts between the Cluster Management Team and the Cluster Participants

Within one year, the cluster management team must have been in direct contact with at least

20 % of the cluster participants, meaning

- a contact during a visit at the participants premises or a visit of the participant in the premises of the cluster organisation,
- an extensive bilateral exchange of information and experience via telephone or email, or
- a joint work of the cluster management team and representatives of the participant in specific projects, working groups, and/or other joint activities.

Degree of Cooperation within the Cluster

Within one year at least 15 % of the cluster participants shall be involved in bilateral and/or multi-lateral cooperation activities with each other, not necessarily facilitated by specific actions of the cluster organisation management. Participation in regular working groups, projects, delegation visits (incoming and outgoing), joint trade fair activities, lecturing activities, etc. shall be considered here, with a minimum effort of two working days spent. Passive participation in seminars, workshops, courses shall not be considered in this context.

Integration of the Cluster Organisation in the Innovation System

The cluster organisation shall maintain good cooperation contacts with stakeholders and organisations of institutional innovation support and service providers, etc. on a regular basis. These organisations are not necessarily committed participants of the cluster.

5.3 GOLD LABEL INDICATORS REGARDING THE FINANCING OF THE CLUSTER MANAGEMENT

The activities of cluster management organisations can be very diverse. Furthermore very different expectations of cluster participants require very specific actions. A cluster management organisation therefore requires sufficient resources for a successful operation. A secure financial situation with diversified sources for financial income allows

a concentration of the core work of managing the cluster and its activities. However considered a very important issue, the indicators related to financing are not minimal requirements due to the different cluster financing approaches and patterns in Europe and worldwide.

5.4 GOLD LABEL INDICATORS REGARDING STRATEGY, OBJECTIVES, SERVICES OF THE CLUSTER ORGANISATION

The elaboration and implementation of a strategic positioning of the cluster is considered as one main issue for cluster management. A clear and well prepared strategy and a strong link to the cluster participants builds the base for implementing and performing a spectrum of actions, serving the needs of the cluster participants in the most successful manner.

Strategy Building Process

The involvement of companies in the process of strategic analysis is mandatory. Furthermore, a minimum of two of the following strategic instruments shall be used, in the context of strategic analysis:

- Identification of the industry and market challenges, e.g. by conducting an industry analysis on the attractiveness of the strategic segments where the cluster participants compete or could compete, based on own studies and/or existing studies
- Analysis of the value chain and value systems for the existing industrial/technological sector and for the needed value system for the transformation of the cluster strategy
- Benchmarking against Advanced Buyers Purchase Criteria (locally and globally) in the new strategy, identification of key success factors to compete and benchmark the new value chain activities against best practices worldwide
- Further strategic planning tools like SWOT or similar instruments

These steps of analysis shall be performed by the cluster management team and shared with the cluster participants through participatory processes, for example:

- Integration of results of member feedbacks (by surveys, specific feedback workshops, etc.)
- Utilisation of other strategic planning workshops or similar instruments

Documentation of the Cluster Strategy

The cluster's strategic challenges shall be outlined in a documented (written format, Power-Point, multi-media, ...) format, describing the previous analysis, the strategic options for the participants of the cluster and the way in which the cluster organisation plans to support them in the long, medium, and short term, stating aims and objectives.

Implementation Plan

The cluster organisation shall have available and develop further a written action and implementation plan with measurable targets and dedicated

budgets. The implementation plan shall be in line with the cluster strategy and the documented strategic challenges.

Financial Controlling System

An easy-to-use tool for day-to-day financial controlling and reporting system for the cluster organisation's activities on at least quarterly basis shall be in place.

Review of the Cluster Strategy and Implementation Plan

A process to review and update the documented cluster strategy and the strategic challenges for the cluster and the according implementation plan for the cluster organisation shall be foreseen at least every two years, either due to requirements of any public funding or due to intrinsic strategic planning cycles. If no review of strategy was done during the past two years, a review must be planned for the near future (< 6 months).

Performance Monitoring of Cluster Management

There shall be a controlling system in place and be used to monitor the performance of the cluster organisation on a regular basis (at least annually).

Activities and Services of the Cluster Organisation

The cluster management team shall provide a certain spectrum of services for the cluster participants with significant intensity in its 3 most important fields of activities (e.g. improving innovation capability, exploring business opportunities, fostering entrepreneurship, education & training, inter-nationalisation, etc.).

Performance of the Cluster Management

The cluster organisation must have fulfilled at least 50 % of the targets set in the cluster organisation's performance monitoring system or in the annual implementation plan in the last 12 months.

Cluster Organisation's Web Presence

The cluster organisation must initiate and regularly update its web presence (webpage, social networks), giving overviews and details of the cluster and of the work of the cluster organisation and maybe even of the industrial and/or technological sector in general, as well as important contact points in the local language. Furthermore, as internationalisation of clusters is regarded as an important issue, basic information and contact data shall also be accessible in English.

5.5 GOLD LABEL INDICATORS REGARDING ACHIEVEMENTS AND RECOGNITION OF THE CLUSTER AND THE CLUSTER ORGANISATION

The “Cluster Management Quality Label GOLD – Proven for Cluster Excellence” should apply to all types of cluster organisations in all possible technological and/or industrial/commercial areas. Therefore, the direct impact achieved is

only comparable on the basis of success stories and media appearance. Furthermore tools for assessing customer satisfaction shall be in place to give an indication if the expectations of the cluster’s stakeholders and participants are fulfilled.