ARCTIC Region

(RCES) Regional Cluster
Excellence Scorecard

esca
European Secretariat
for Cluster Analysis

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Introduction

The methodology used for the Regional Cluster Excellence Scorecard (RCES) was developed by the European Secretariat of Cluster Analysis (ESCA). It is based on the cluster benchmarking methodology of the European Cluster Excellence Initiative and aggregates the benchmarking results from all cluster initiatives of a given region towards a **regional picture**. In times when regions tend to use cluster as a tool to implement their Regional Innovation Strategies (in Europe mainly Smart Specialisation Strategies S3), the regional cluster portfolio becomes of significant importance. Actors involved have to gain an understanding whether the regional cluster portfolio is even capable and in the position to act as proper tool to implement the Regional Innovation Strategies. Being aware of the common strengths and weaknesses of the clusters within a given region also helps regional policy makers to support the development of cluster initiatives in the region in a much more detailed way than before by focusing on dedicated weaknesses.

The European Cluster Excellence Initiative (ECEI), co-financed by the European Commission, DG GROWTH (2009-2012) built the methodology applied for the RCES. Since the end of 2011, all follow-ups activities of ECEI related to benchmarking, analysing and advising cluster organisations and cluster policy stakeholders under the brand "ESCA – European Secretariat for Cluster Analysis". Consequently, ESCA, with its internal experts and a broad international network of specifically trained experts throughout and even beyond Europe, provides cluster management organisations, policy makers and program agencies with cluster related analysis and advice as a one-stop shop. The headquarters of ESCA is located in Berlin.

The activities of ESCA are well recognised by cluster organisations and cluster policy stakeholders worldwide. In many cluster support programmes, related activities for improving cluster management and aiming to be awarded with the respective label are implemented. The European Commission (DG GROWTH) acknowledges these approaches as well.

This report presents the results of cluster benchmarking analyses done in Norway within the last three years, the data collected from benchmarking of 6 cluster organisations in Troms and Finnmark and aggregates the individual findings in an anonymised way. The collected individual data are treated with absolute confidentiality and will not be made available to any other third party, unless the cluster organisation has agreed beforehand in written manner. It is the sole decision of the cluster management organisation to publish the report or parts of it.

1 Cluster Excellence and the Cluster Management Benchmarking Approach

1.1 Cluster Excellence

For the purpose of this benchmarking activity, clusters are considered as networks of companies and research/education institutions (including universities, schools, private research and development organisations, etc.) that have a thematic focus, are regionally concentrated, institutionally organised and managed by a cluster manager or a cluster management team (the so-called cluster organisation). The cluster may also include other actors such as public agencies.

The cluster organisation is a management agency that coordinates the activities of the participants within the cluster. The cluster organisation is mandated by the cluster participants to represent the cluster, both internally and externally, and to develop and implement activities that support the development of the cluster and generate added value for each of the participants.

Many countries have developed cluster policies and programmes to enhance the impact of re-search and innovation. Clusters provide governments with a strategic opportunity to address social and economic challenges through business development and innovation support programmes. Cluster management excellence is considered as one of the most promising approaches to increase the contribution of clusters to sustainable economic development.

In this context, the European Commission and cluster policy makers in various countries encourage cluster organisations to take part in the ESCA benchmarking in order to promote cluster management excellence and mutual learning by comparing cluster organisations in Europe and even beyond. The benchmarking directly addresses managers and staff of the cluster organisations. Benefits for them are new insights and findings presented in this report, which can pro-mote cluster management excellence and the quality of cluster services for participating enterprises and further stakeholders.

Benchmarking can support this process as it offers the opportunity for active learning through a comparison with other clusters. By relying on qualitative and quantitative indicators and by comparing cluster-specific results among peers (e. g. clusters from the same country and/or the same technology area / industrial sector), benchmarking can be used to document success and to identify opportunities for improvement. The findings are of interest to the cluster participants as well as to the cluster organisations.

The objective of the benchmarking exercise is not to rank or evaluate individual clusters but to provide cluster organisations with a better understanding of how to improve the quality and effectiveness of their work. Thus, in all cases the individual results should always be interpreted individually, taking the specific environment, the strategic objectives, and other individual characteristics of the cluster and the cluster organisation into consideration.

In order to discuss the results of the benchmarking exercise and to improve the quality of the cluster management organisations work, ESCA collaborates with more than 130 benchmarking experts from more than 30 countries who are always be able to consult the cluster management organisations in the specific country. All benchmarking experts were specifically trained by senior experts from ESCA and have been working with clusters and cluster organisations for many years. A current list of benchmarking experts is provided on www.cluster-analysis.org/esca-experts.

1.2. Indicators for Cluster Management Benchmarking

The benchmarking is 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 dimensions and indicators of the cluster benchmarking, which are analysed for this report, are presented in Figure 1.

Figure 1: ECEI Indicators
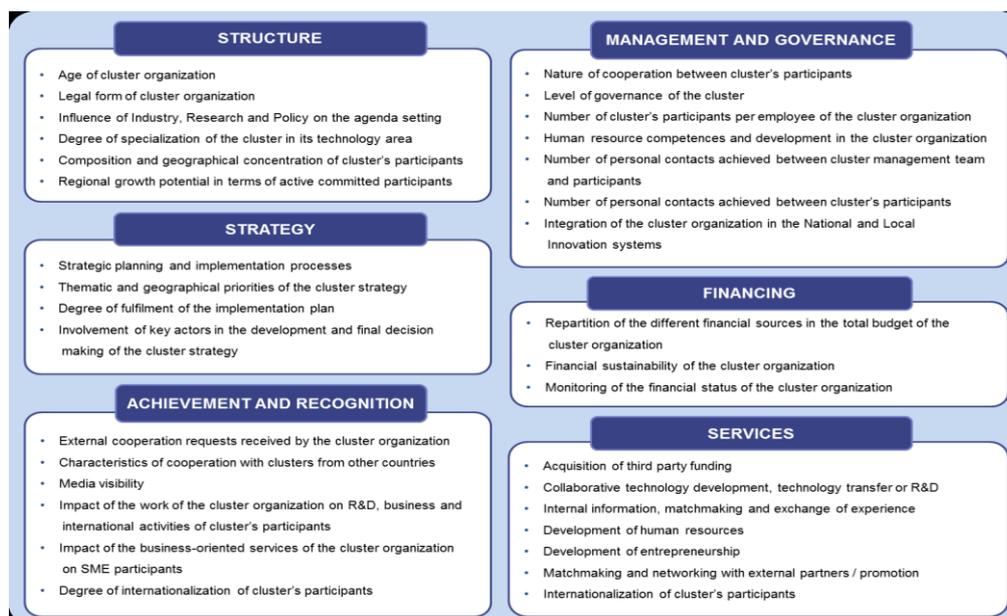
For the Regional Cluster Excellence Scorecard (RCES) the most relevant of this set of ESCA quality indicators are grouped in 8 new dimensions as described in detail in section 2.1 below.

These 8 dimensions are:

1. **Structure:** The cluster organisation, the membership, geographic coverage and growth potential.

2. **Strategy:** Development process, member involvement, documentation og cluster strategy.

3. **Capacity of Cluster Management**: The competence, experience and capacity of the cluster management team.

4. **Activities and Services:** The quality and volume of services offered to members of the cluster.

5. **Degree of Cooperation:** To what extent do the members trust each other and collaborate actively on projects, workgroups, marketing initiatives and entrepreneurship.

6. **Embedment in the Regional Eco-System:** To what extent do the cluster organisation collaborating with all actors in the regional innovation system and are they being actively used?

7. **Cluster Dynamics:** Are the cluster organisation challenging its current goals and strategies.

8. **Sustainability**: Do the cluster organisation have a long term and diversified set of income sources that is in line with the number of cluster members they serve.

These dimensions and the indicators are explained in section 2.1 and 3.

2. The Peer Group

The Peer Group exists of 6 cluster initiatives from the Counties of Troms and Finnmark, currently named Arctic region, all having benchmarked themselves in summer 2017. The majority of the cluster initiatives do not belong to any national funding schemes.

Official Norwegian Name	English Name	Cluster Organisation Location
BioTech North	BioTech North	Tromsø
Arena Lønnsomme Vinteropplevelser	Winter Experiences Northern Norway	Tromsø
Sjømatklyngen Senja	N/A	Finnsnes
Arena Arktisk Vedlikehold	N/A	Hammerfest
Seafood Cluster North	Seafood Cluster North	Båtsfjord
Smart Construction Cluster	Smart Construction Cluster	Alta

Table 1: The Arctic region cluster organisation portfolioThe Arctic cluster portfolio then compared with:

- 28 Norwegian cluster organisations benchmarked since 2014.
- 7 cluster organisations in Nordland benchmarked in august 2016.

2.1 The Cluster Excellence Scorecard Approach

The data applied for the RCES are based on information provided to ESCA in previous benchmarking exercises the Norwegian clusters have participated in. During these exercises, the cluster managers were expected to provide fair answers in order to present a realistic view on the position of the cluster compared to the comparative portfolios. Benchmarking is a self-assessment and therefore cannot be compared to an evaluation.

However, the values gained during the benchmarking exercises can be compared against so called cluster management excellence values, which have been defined within the European Cluster Excellence Initiative. For further information, please check the Gold Label Criterial of ECEI (http://www.cluster-nalysis.org/downloads/130226_PublicDocumentforGOLDAssessmentpreparation.pdf). This approach provides detailed information, where a given cluster management is already well matured and where might be still some room for improvement. The colours in the RCES summary results in Fig. 2 below indicate the three following levels:

- GREEN: Excellent, the threshold of the ECEI for Cluster Management Excellence approach would be fulfilled (given the fact that the information given are reliable and evidence based). Only minor improvements are - if at all – possible;

- YELLOW: Reasonable, the threshold of the ECEI for Cluster Management Excellence approach would be just missed (given the fact that the information given are reliable and evidence based). However, the is potential for improvement;

- RED: Certain minimal criteria for good practice in cluster management according to the ECEI approach are not met. It is recommended to consider this issue for improvement.

In order to gain a comprehensive picture of the cluster portfolio of a given region or on national level, some of the most relevant quality indicators have been selected and grouped according to following eight dimensions:

Structure: The structure of the cluster of the regional cluster portfolio matters. There must be a critical mass of cluster actors gathered within the cluster and the composition, meaning a proper mix of cluster actors from industry, academia and policy, must represent the regional competences in business and science. Typically 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.

Strategy: 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. It is also important that during the strategy development process the majority of the cluster actors had been actively involved and the strategy in continuously reviewed and adopted.

Capacity of Cluster Management: Cluster managements are the key drivers to bring cluster actors together and make them innovate. This can be reached by different business support services designed and implemented by cluster managements. Thus, the competence and experience of cluster management as well as the sufficient staffing of cluster managements is of high importance.

Activities and Services: Activities and services, summarized as business support services, are the main tools of cluster management to make a cluster a success. The services have to fit to the overall strategy, have to be demand oriented and implemented in a professional way. The cluster management team shall provide a certain spectrum of services for the cluster participants like improving innovation capability, exploring business opportunities, fostering entrepreneurship, education & training, inter-nationalisation, etc.).

Degree of Cooperation: Cluster participants shall be involved in bilateral and/or multilateral 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.

Embedment in the Regional Eco-System: The cluster organisation shall maintain good co-operation 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.

Cluster Dynamics: Cluster dynamics is characteristic to express to what extent a cluster is able to further develop, to cope with new challenges and fuel the innovation pipeline. The objectives of the

cluster work as well as the services shall be continuously further developed. Cross-sectoral topics, which significantly influence the competitiveness of the cluster participants, shall be regarded in the cluster strategy to a given time.

Sustainability: The activities of cluster 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.

3. The Regional Cluster Excellence Scorecard

3.1 At a Glance

For the RCES all the ESCA quality indicators are grouped in 8 different dimensions. In sum these dimensions describe the maturity of the regional cluster portfolio by different perspectives. Figure 2 displays the RCES for the Arctic Region, Nordland region and the national Cluster Excellence Scorecard (CES) of Norway.

Figure 2: RCES for Arctic (A&F), Nordland and CES Norway
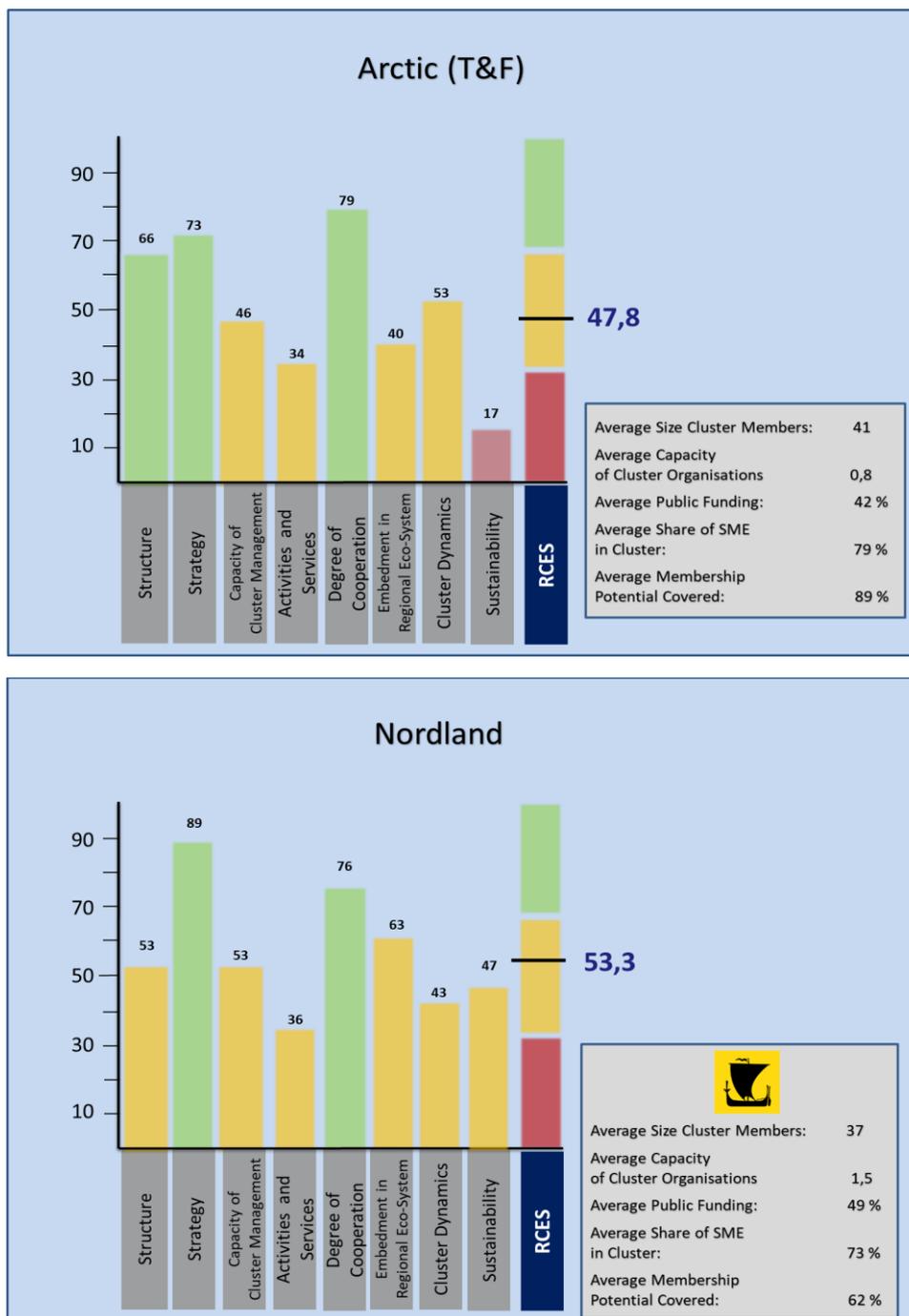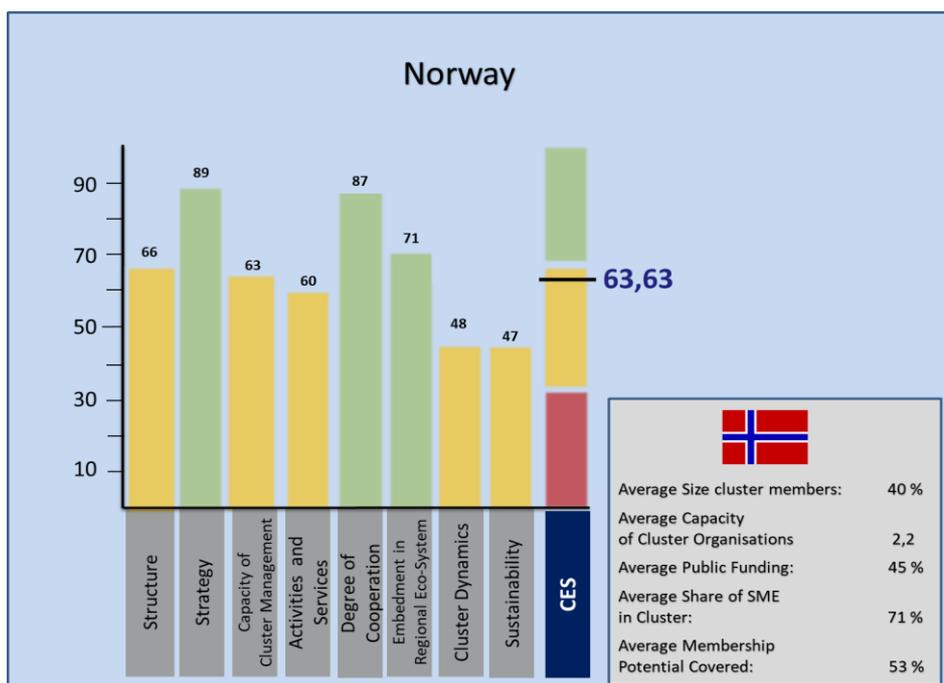
The graphs explained:

The RCES/CES summary contain three key elements:

1. Indictors to describe key facts on the cluster organisation portfolio (the grey box): Average # cluster members, average capacity of the Cluster Management team (in Full Time Equivalents), average % of public funding of total cluster organisation funding, average share of SMEs in the cluster and average number of committed cluster members compared to maximum potential number of cluster members.

2. For each dimension, illustrated as a bar in green, yellow or red, the number represent the total number of green indicators earned by the 6 clusters in the portfolio compared to all clusters achieving green «light» on all quality indicators included in the dimension. If the number is below 30, the bar is red, and if it is above 65, the bar is green. Example; 17 on the red bar for the sustainability dimension indicate that 17% of the 6 clusters, i.e. only one out of six clusters, earned a green «traffic light» on the quality indicator «Prospects of the Financial Resources of the Cluster organisation».

3. The RCES/CES bar to the right is a summary of all the 8 dimensions. The number (above; 47,8) indicates the number of green quality indicators across all 8 dimensions compared with the maximum achievable number of «green» (100%).

Observations – Overall scores:

Norway have had a well-recognised cluster program since the early 2000´s and more than 70 cluster initiatives are or have been developed towards national and international recognition by the national programs. For the annual calls for the national program in 2017, 30-50 new cluster initiatives showed interest. This indicate that many regions of Norway are now having critical mass of cluster organisations, most of them not being members of the national cluster program «Norwegian Innovation Clusters». The regions can now focus more on developing the quality of the regional cluster portfolios

and use the clusters actively as implementation instruments for regional development plans. Most regions of Norway are now providing some regional funding, and to a growing extent, support services to the regional group of cluster organisations to develop the cluster organisations quality and capacity to take a key role in the implementation of the regional Innovation Strategies (increasingly S3 based strategies)

Both Troms and Finnmark counties have developed regional innovation strategies where developing high quality clusters are a key element in the strategy and action plans. However, the RCES show that the Artic cluster portfolio has a number of severe quality challenges and will need a focused quality and capacity lift in order to be able to be strong implementation instruments for the regional innovation strategies. The most important quality issues revealed by the RCES summary are:

- The prospect of financial resources for the cluster organisation, the funding horizon. Most of the clusters have a secured funding horizon shorter than 12 months.

- The level of resources available for cluster management. On average the Arctic clusters have 41 members, but only 0.8 Full Time Equivalents (FTE) in the cluster organisation. ESCA requirement for a «green» quality indicator is 2 FTEs at 50 cluster members. 41 members would require 1.6 FTEs, a doubling of current capacity.

- The cluster members are offered a very limited set of services and activities. This reduces significantly the value of cluster membership and the impact on the growth and profitability of the SMEs in the clusters. This also limit the private funding the cluster organisation can get from membership feeds and other payable services.

- The clusters are poorly integrated/embedded in the regional innovation system.

3.2 The RCES in Detail

In the following the eight different dimensions and their status of maturity will be further discussed. The illustrations show how the cluster portfolio compare to Nordland and Norway portfolios on all of the ESCA quality indicators in each of the 8 quality dimensions.

Structure:

Figure 3: The details of the structure quality dimension
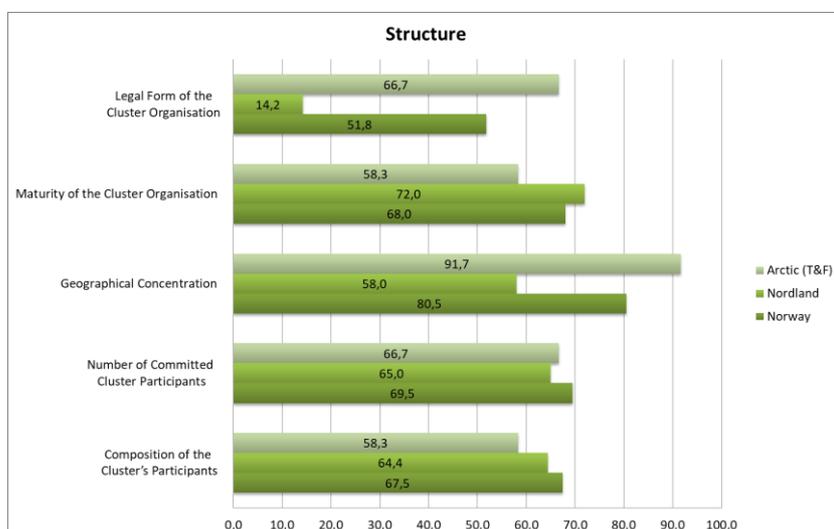
Observation - Structure dimension:

For this dimension the Arctic cluster portfolio perform reasonable well compared to both Nordland and the Norwegian cluster portfolio. The portfolio is a mix of three very mature clusters with a history of membership in the national cluster program Arena and three young cluster initiatives with ambition to enter the Arena program. 2/3 of the cluster organisations are organised as independent legal entities.

Strategy:

Figure 4. The details of the Strategy quality dimension
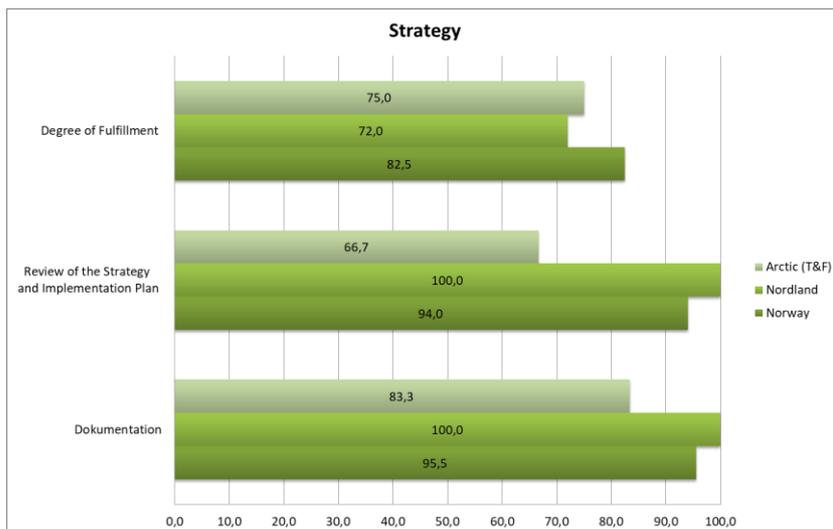
Observations – Strategy dimension:

The Arctic clusters fare quite well but lag in terms of processes for review of strategy and the implementation plan. To score well here is natural because strategy and implementation plan is a precondition for any kind of national and regional funding. However, having a strategy and reviewing it does not automatically indicate a high quality strategy and implementation plan.

Capacity of Cluster Management

Figure 5: The details of the Capacity of Cluster Management quality dimension
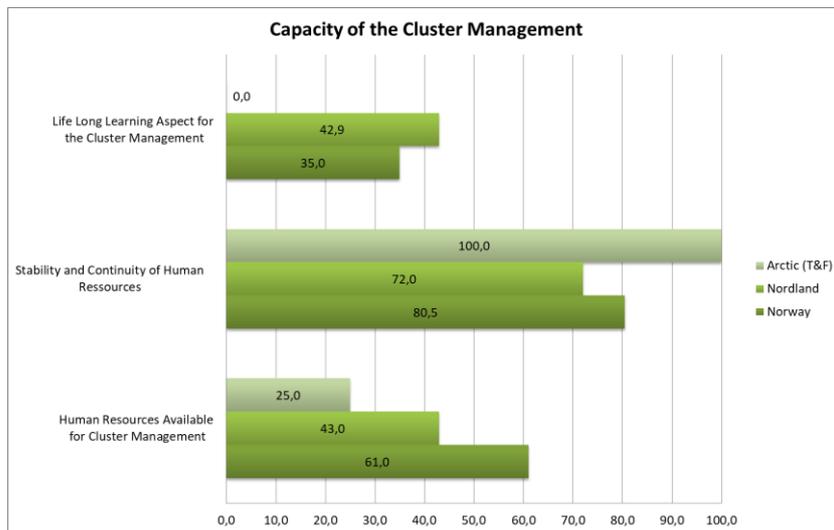
Observations – Capacity dimension:

This dimension reveals that the Arctic clusters are understaffed when looking at # of cluster members and the number of Full Time Equivalents (FTE) in the cluster team. The Arctic clusters are a lot worse off than their Nordland and Norwegian peer groups.

An excellence cluster can only be developed by an appropriately staffed, experienced and well trained cluster team. The lifelong learning indicator, developing the cluster management skills of the cluster organisation team, is an indicator where all three cluster portfolios score alarmingly low. The combination of being understaffed and the lack of targeted long-term training of the staff, calls for improvement actions. As a group of clusters they should be in the position to initiate joint efforts to secure both budget and a training offering to all teams. The regions should consider cross regional efforts to make sure the cluster teams are offered affordable and relevant training and mentoring services

Activities and Services

Offering high value services to cluster members is an important basis for two key aspects of developing excellent cluster organisations:

1. Economic sustainability: To build long term private funding from member services increasing the economic sustainability of the cluster organisation.

2. Impact: There is a direct link between the quality and volume of member services and the impact on members innovation results.

Key service areas are: ability to acquire 3rd party funding for joint market and technology development, joint branding and communication, joint development of human resources, entrepreneurship and internationalisation.

It is important to understand that member services needs to be first developed and then marketed and delivered to the cluster members. The cluster organisation do not necessarily need to be the

producer of the member services, a service can be provided/coproduced by the members them-
selves, by regional innovation service providers in the innovation system or by external suppliers.

An important aspect is the business model development of member services, far to many clusters
bundle a large package of members services into a fixed and very low membership fee so that the
value created for the members is not reflected in what they pay/contribute to the cluster initiative
funding.

Figure 6: Activities and services in the three cluster portfolios.
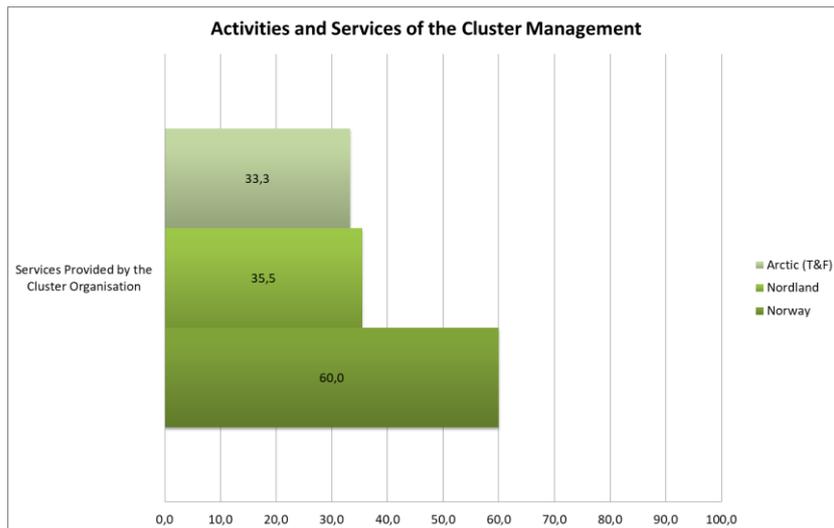

Observations – Services to cluster members

The Arctic portfolio is very weak on members services and fare poorly compared to the Norwegian
Cluster portfolio.

Experience indicates that the development of high quality members services, sustainable business
models and involvement of members in the service production is very demanding for individual clus-
ter organisations. As the services are similar across all clusters in the Arctic portfolio this is an im-
provement area the clusters should collaborate in joint service and business model development
projects.

Degree of Cooperation

Figure 7: Details of the Degree of Cooperation among cluster members
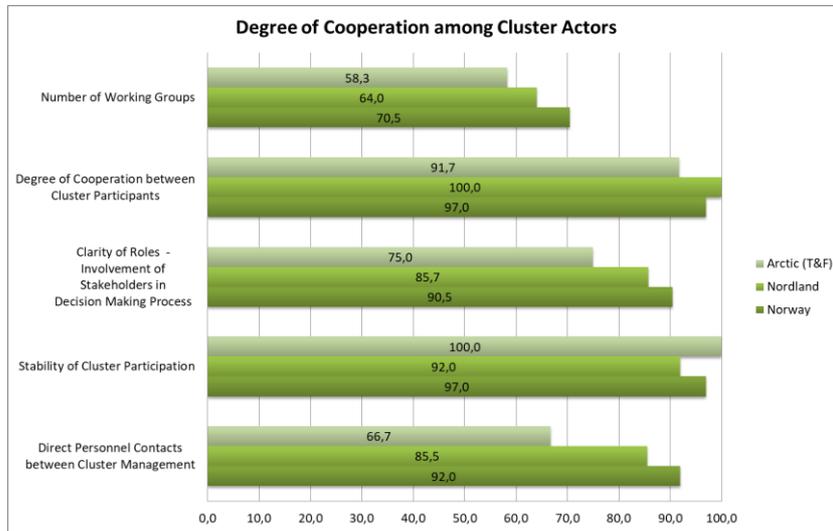
Observations – Cooperation dimension

In Norway cluster development has a long history and a number of research and innovation support services, most targeting individual SMEs, are well integrated into the cluster support services and the regional innovation systems. Consequently, cooperation and communication among the cluster participants are well developed. The weak areas for the Arctic clusters are a low score on # of direct personal contacts between cluster members and the cluster management and few working groups.

Embedment in the Regional Eco-System

Figure 8: Details of the dimension Degree of integration in regional Eco-system
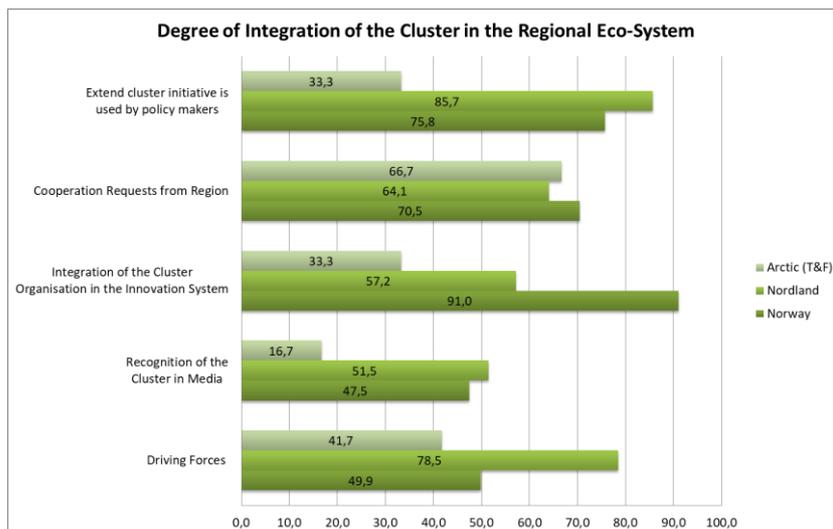
Observations – Degree of integration in regional ecosystem

Clusters can be seen as tools for the implementation of Regional Innovation Strategies (RIS). There is good evidence that strong cluster organisations, embedded in strong clusters, can help regional authorities implement their strategies and related policies. Thus, clusters have to be well embedded in the regional eco-system and have to be well connected to all innovation (support) actors.

The RCES summary (Fig. 2) reveals a weak overall score for the Arctic region on this dimension (40). The clusters organisations themselves do not feel well embedded and used in the regional eco system with significantly lower ranks than for the Norwegian and Nordland peer group. Policy makers (i.e) the counties seem to lack contact with the clusters in the Arctic portfolio. This is illustrated in Figure below.

Figure 9: Involvement and contribution of cluster initiatives from Nordland (green) and Arctic Clusters (blue) in the development and implementation of the regional development plan
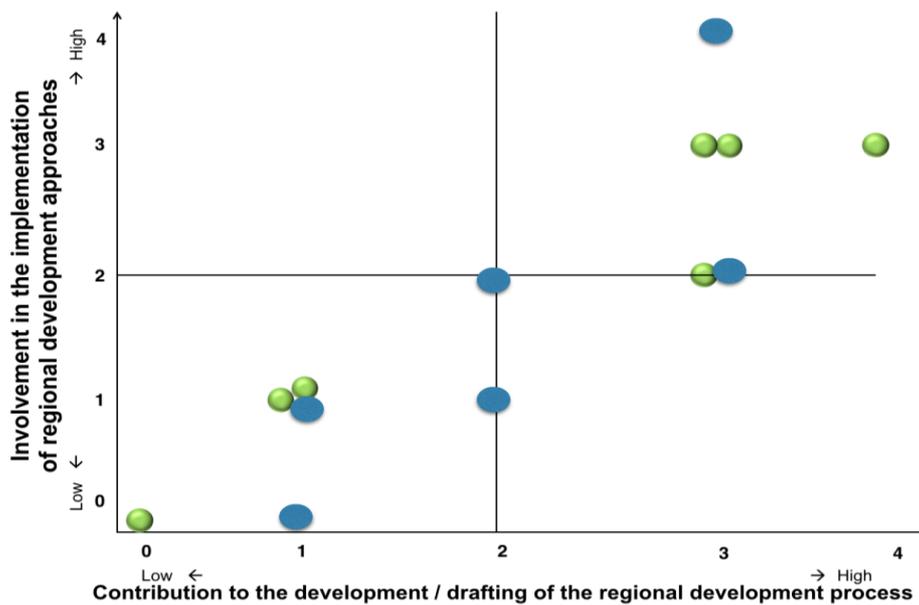
Cluster Dynamics

Cluster dynamics describes the potential of clusters to further develop, to adopt their objectives to the recent industrial trends and to expand their thematic boundaries according to the regional needs. International cooperation is a good indicator how attractive and dynamic a given cluster is by an outside perspective.

Figure 10: Details of the cluster dynamics dimension
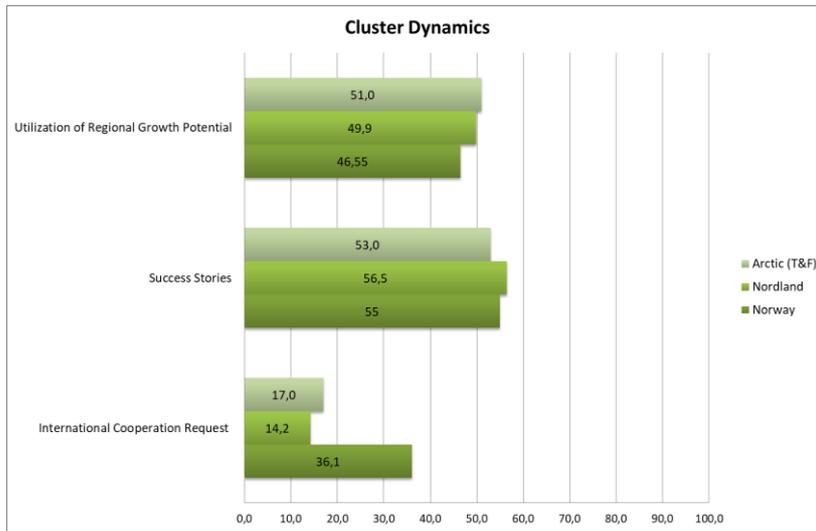
Observations – Cluster Dynamics quality dimension

As far as the Arctic clusters are concerned, the number of international requests is very low (see Figure 10). This observation is well in line with the fact that many cluster organisations do not offer (enough) services with regards to internationalisation. Again, external communication and branding is crucial to get requests and this is a very weak area for the Arctic Clusters.

Sustainability

Figure 11: Details of the sustainability of the cluster initiative dimension
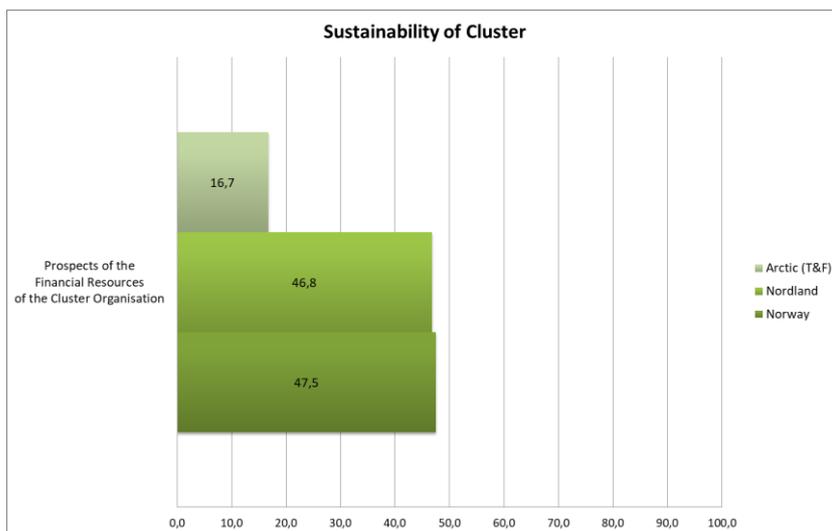
Observation: - Sustainability

In general, the financial sustainability of most clusters in Norway and Nordland is clearly insufficient with only half of the clusters scoring «green». The sustainability indicator focuses the horizon of secured funding. Secured funding for the portfolio generally seems to short to support a long-term focus. This is a real challenge. The situation in the Arctic region is alarmingly weak with only one of the clusters scoring green on this indicator, most clusters have a secured funding horizon of less than 12 months.

We have earlier identified that most of the Arctic clusters are seriously understaffed and underfunded compared to # of cluster members (figure 5). The public funding share of the Arctic clusters are 42% and comparable to Nordland (49%) and Norway (47%) so the members/public funding balance is ok, but at budget levels at only 50% of what they should be. Usually immature clusters need higher % public funding in early development phases and the focus on building services and business models building higher membership and services funding.

4. Summary and recommendations

More and more European regions move towards using their regional cluster initiatives as tools to implement regional innovation strategies based on the Smart Specialisation Strategies(S3) approach. Hence the quality of the regional portfolio of cluster initiatives and the embedment of these cluster initiatives in the regional development work becomes of significant importance.

Nordland County was the first region in Europe to coordinate the individual quality benchmarking for all their regional cluster initiatives and then aggregate the quality benchmarking data into a regional picture in a Regional Cluster Excellence Scorecard (RCES).

Now the counties Troms and Finnmark have copied the Nordland approach of creating a baseline for the improvement of the Cluster Management Excellence in the Arctic cluster portfolio. In the RCES we have included comparison with the Nordland portfolio of seven cluster organisation and with the 28 cluster organisation in the Norwegian cluster portfolio.

This effort provide both the individual cluster initiatives and Nordland County with the opportunity of initiating a joint continuous improvement effort up to July/August 2019 when all the Arctic cluster quality labels expire (2 year validity). At the ESCA label expiry point or earlier, all clusters in the portfolio should be benchmarked again to renew their bronze label or upgrade to a silver or gold quality label. This also enables the renewal of the RCES to measure progress in Cluster Management Excellence at the regional/cluster portfolio level.

The RCES results show that the Arctic region cluster portfolio has very serious quality and sustainability challenges that should be addressed in improvement plans at three levels:

1. Individual cluster improvement plans on areas each cluster can address alone.
2. Joint improvement projects across all clusters on improvement areas where all clusters are weak and where each cluster are not able to, or should not develop individual improvement activities.
3. Improvement activities at the regional level for the policy makers and the providers of support services and funding for the clusters.

The improvement program should be an integral part of the further development of «Klyngeforum Arktis» as the driver of quality improvements in cluster policy and Cluster Management Excellence.

Below we have indicated some elements in the required effort to develop the clusters in the Arctic portfolio into high quality tools in the implementation of the regional innovation strategies of the Arctic region.

4.1 Suggested focus areas for Cluster Management Excellence improvement goals and actions

The RCES reveal some serious weaknesses shared by all or most of the cluster initiatives in the regional portfolio:

1. The volume of services offered to cluster members are very limited (Fig. 6). There is a direct link between the members services offered and the ability to influence the impact on cluster members research and innovation outcomes. The pricing levels and the business model of the current member services should be challenged. All cluster initiatives should search for members service areas where companies are prepared to pay for high quality services and set goals for increasing the revenue from member services.

2. The cluster initiatives in the Arctic region are not very visible neither inside nor outside the region and thus get a very limited number of collaboration request. There is a lot of room for improvement in cluster branding and internal and external communication from the cluster initiatives. Both internal and external communication would benefit from a joint effort between clusters, regions and cities. The same probably hold true in terms of internationalisation of the cluster value chain and markets).

3. The cluster initiatives are seriously understaffed and underfunded compared to number of clusters members (Fig 5). To obtain a green indicator, a cluster initiative with 41 members (Arctic average) will need 1,6 FTEs in the team. Currently the Artic clusters on average have 0,8 FTEs. The new regional indicators developed also show a potential to improve the use of Working Groups to mobilise more influence and more resources from members companies in the development of member service and the portfolio of joint innovation projects. Involvement of members and mobilising of in kind contribution is an important addition to cash funding.

4. The quality of the cluster initiative staff in terms of international experience, education, work practice and cluster development skills is proven to be closely linked with the ability to create impact on cluster members. Being part of a cluster development team is very demanding role. The arctic portfolio score very low on development/training/mentoring of the personell in the cluster management teams. There is an obvious potential to move towards a more planned lifelong learning approach focused on making sure the skills of the staff are improved methodically over time (Fig. 5).

5. The new ESCA indicators detailing how well integrated the cluster portfolio are in the development and implementation of the regional development plan indicate a potential to include even the new more immature clusters in the regional development work. There is also a potential in actively promoting cluster dynamics and in focus on cross sector innovation opportunities.

6. The cluster initiatives in the Arctic region are still quite dependent on public funding and all of the clusters have a very limited horizon on their secured public funding. (Fig. 11). There is a high risk of collapse of the cluster initiatives if public funding levels in a build up phase is not increased. Developing a high quality cluster initiative takes a long time and a team where

the funding horizon is very short risk loosing both cluster members and good cluster organisation team members. They also risk spending too much time on funding their work in the critical early phases. The counties and Innovation Norway Arctic should consider how it could be possible to provide both a longer funding horizon and higher funding levels to those cluster initiatives demonstrating rapid improvement in Cluster Management Excellence and in impact on their members business, research and innovation results. The clusters themselves should focus much more on building membership funding from membership fees and payable members services.

4.2 Suggested joint actions for the cluster portfolio up to summer 2019

Use the RCES as a baseline for setting measurable improvement goals up to expiry date
Using the regional cluster portfolio actively as implementation instruments in the regional development work is a long term effort that require a minimum quality and maturity level for the cluster initiatives involved and for the regional policy makers.

We would recommend putting some special measures in place for the more immature cluster initiatives to bring them faster up to a minimum quality requirement level so they can be reliable cluster partners both in regional and international cluster to cluster relations. We would also recommend discussing the process of how and when to integrate new cluster initiatives into the portfolio. In terms of overall improvement Cluster Management Excellence goals for the Arctic region we would suggest to look into the experiences of Denmark. In their national cluster strategy they set overall national goals in terms of how many cluster initiatives they should have at different ESCA labelled quality levels at a given point of time. We would recommend Artic to consider setting measurable regional cluster excellence goals and minimum quality requirements for their cluster portfolio.

In terms of timing we would suggest to consider setting improvement periods linked to the 2-year validity of the new bronze labels starting August 2017; i.e, setting improvement goals for summer 2019. We would also recommend using the RCES as a baseline for setting measurable improvement goals for the cluster portfolio on 3-4 of the most important of the six main improvement areas listed above.

A focused and joint improvement program for the portfolio will speed the quality improvement of the Arctic clusters. This will increase the probability of lifting those Artic clusters with a national and international potential into the national cluster program. The competition for national funding from the Norwegian Innovation Clusters program is extremely hard and only excellent cluster initiatives promoted and supported by their region will succeed. Currently the Artic has no clusters in the national cluster program.

Further develop the Arctic Cluster Forum meetings into a two year improvement program.
Each of the Arctic cluster organisations are very small. The cluster teams are on average 0.8 Full Time Equivalents (FTE). Most of the available resources for cluster development on a one year horizon are already committed and there is only limited room for larger improvement efforts unless the cluster initiatives develop joint efforts and get additional resources for the joint improvement work from the region and the cluster members.

In addressing the six main improvement areas listed above we would strongly advice to make the cluster improvement work a joint regional effort. If the continuous improvement work is left to the underfunded and understaffed individual cluster organisations alone, we will only see slow improvements if any at current funding levels. The region has initiated the Arctic Cluster Forum and should actively develop the role of this forum as the driver of quality improvement work for the cluster portfolio and the regional development work.

Collaborative improvement actions and projects would provide more impact for the same resource input and at the same time provide better learning for the individual cluster team members and for the other important actors in the regional innovation system.

The RCES is a shared baseline for the regional innovation partnership and we would recommend linking a series of 3-5 Arctic Cluster Forum training and improvement workshops into a two year regional Cluster Management Excellence improvement program. The improvement program should focus both the training needs of the individual cluster team members (Fig. 5), the six main Cluster Management Excellence improvement areas listed above and the regional development issues.

Here are some ideas for such a program with 4-5 Arctic Cluster Forum workshops over a 2-year improvement cycle. For each Cluster Forum there should be preparations and follow up tasks both for the individual cluster team members, the cluster organisation as a whole and for the regional innovation actors.

First Forum workshop - Preparing the improvement program -Tromsø October 30th
- Discuss the RCES and set the overall improvement goals for the Arctic cluster portfolio up to 2019.
- The roles, responsibilities of the Arctic Cluster Forum in the light of the RCES, the individual benchmarking reports and the issues related to merging of Troms and Finnmark counties and their individual regional development strategies and plans.
- Facilitate and help the individual clusters set their own measurable Cluster Management Excellence improvement goals up to end of 2018 based on the individual benchmarking reports and a template for Cluster Excellence Improvement plan offered by ESCA and Innovation performance AS.
- Define two joint (and separately funded) improvement projects to be jointly developed and managed as a shared improvement project portfolio over the next two years.

Forum Workshop # 2-3 Sharing, learning and improving
- Integrate training of the cluster teams into the Arctic Cluster Forum. Select two focused improvement themes from the list of six main improvement areas above for each of these workshop and have the entire cluster team from all clusters participate to work jointly on discussing best practices for the selected topic areas. This is probably one of the best cluster training methods available if done in the right way and linked directly to the improvement plans of the cluster organisations. Invite leading national and international Cluster Managers to present their Cluster Management practices for inspiration.
- Set one regional development topic for each workshop, invite keynote speakers f.ex. related to Cluster Dynamics, regional branding, internationalisation or other aspects related to either

the development or the implementation of the regional development plan in Nordland. Split in groups and work on the joint improvement projects targeting the joint improvement areas.

 Forum Workshop #4 may/June 2019- Planning the next two year improvement cycle
- Preparations: Data for an updated Arctic RCES is collected and a new RCES is developed.
- All clusters report progress on their individual improvement goals. The Arctic region policy makers report progress on the goals for the entire portfolio.
- All actors develop first rough version of learning and improvement goals for the next two year program up to 2020.
- The rough schedule for Arctic Cluster Forum improvement program 2019-2021 is developed.

We would recommend taking these initial suggestions as a basis for internal discussions among the Artic region innovation partnership when they meet for the Artic Cluster forum in Tromsø Oct 30-31.

ANNEX I: European Cluster Excellence Initiative

The "European Cluster Excellence Initiative (ECEI)" 2009-2012, was an international project, co-financed by the European Commission, DG Enterprise and Industry (today DG GROWTH), which aimed to develop measurement procedures and approaches to assess cluster management excellence and appropriate tools for its improvement. An independent, voluntary proof of cluster organisation management excellence, which is accepted and recognised all over Europe, or even beyond, was sought. A methodology was developed, aiming to identify weak spots and to motivate cluster managers to take part in an improvement process, to be-come better by comparing themselves to others and learning from the best.

Thus, materials and tools were elaborated and provided in order to help cluster managers to become "excellent cluster managers", today available by the "European Foundation for Cluster Excellence (EFCE). Secondly, a "Cluster Organisation Management Excellence Label (Quality Label)" was to be developed to award "excellent cluster managers", based on a set of harmonised indicators. This development resulted in the "Cluster Management Excellence Label GOLD – Proven for Cluster Excellence" now being offered by ESCA to interested cluster organisations worldwide.

The cluster benchmarking approach and the approach for assessing cluster management excellence according to ECEI are very similar and are built on one other. Many of the indicators used within the benchmarking exercise are the same as in the ECEI approach. The main difference is that the benchmarking exercise approach is a self-assessment and no further proof for the data is required. In contrast, the ECEI approach is based on an external assessment which states whether a cluster management fulfils certain quality criteria or not, based on proof of evidence being provided. Consequently, the ECEI indicators reflect excellence thresholds, which is not the case in the benchmarking exercise.

A set of 31 quality indicators, measurement procedures and excellence thresholds have been elaborated in ECEI.

A list of these quality indicators is published under www.cluster-analysis.org. A process was defined leading to the "Cluster Management Excellence Label GOLD – Proven for Cluster Excellence" for excellent cluster organisations.