



# **STRENGTHENING**

## THE CAPACITIES OF CLUSTERS **IN THE DANUBE REGION**

KONSTANTIN SCHNEIDER  
DR. OLIVER ZIEGLER  
DR. GERD MEIER ZU KÖCKER

DECEMBER 2019



# Table of Contents

<b>Glossary .....</b>	<b>3</b>
<b>Summary .....</b>	<b>5</b>
<b>1 Introduction.....</b>	<b>6</b>
1.1 The EU Strategy for the Danube Region (EUSDR) .....	6
1.2 The White Paper on Strengthening Capacities of Clusters in the Danube Region .....	8
<b>2 The Danube Region.....</b>	<b>12</b>
2.1 The Cluster Landscape in the Danube Region .....	12
<b>3 Status Quo Cluster Management Excellence in the Danube Region .....</b>	<b>15</b>
3.1 Cluster Management Excellence – General remarks .....	15
3.1.1 Indicators for Measuring Cluster Management Excellence.....	16
3.1.2 Explanation of figures used in this report .....	17
3.2 Results of the Danube Region .....	18
3.2.1 Total Number of Cluster Participants .....	19
3.2.2 Composition of Cluster Participants .....	20
3.2.3 Governance of the Cluster Organisations .....	20
3.2.4 Maturity of the Cluster Organisations .....	21
3.2.5 Capacities in Cluster Organisations .....	22
3.2.6 Financing Conditions.....	23
3.2.7 Driving Forces of the Cluster Initiatives.....	23
3.2.8 Thematic Priorities of the Cluster Strategies.....	24
3.2.9 Service Portfolios .....	25
3.2.10 Readiness for Internationalisation .....	26
3.2.11 Media Presence .....	27
3.2.12 Summary of Main Findings .....	28
3.3 Key Actions to Improve Cluster Management Excellence in the Danube Region .....	31
3.3.1 Considering Cluster-based Regional Development as a Serious Approach (policy level) .....	32
3.3.2 New partnership between clusters and regional developers (policy level) ...	33
3.3.3 Elaborating and Implementation of a Sound Cluster Strategy (cluster level) ...	33
3.3.4 Offering Customised and Need-based Cluster Services (cluster level) .....	34
3.3.5 Ensuring a Sustainable Financing Model.....	36
3.3.6 Promoting (International) Visibility.....	36
<b>4 Future Role of Cluster Initiatives in the Context of Macro-Regional Economic Development .....</b>	<b>38</b>
4.1 Identifying the Actors for Cross-Sectoral and Interregional Cooperation .....	38
4.2 Defining New Areas for Macro-Regional Cooperation.....	40
4.3 Implementing Support Schemes for Cross-Sectoral and Trans-regional Activities...	42
<b>5 Conclusions .....</b>	<b>45</b>

## Strengthening the Capacities of Clusters in the Danube Region

FIGURE 1: EUSDR COUNTRY PARTICIPATION. SOURCE: <a href="https://danube-region.eu/">HTTPS://DANUBE-REGION.EU/</a> .....	7
FIGURE 2: EUSDR PILLARS AND PRIORITY AREAS. SOURCE: <a href="https://danube-region.eu/">HTTPS://DANUBE-REGION.EU</a> .....	7
FIGURE 3: WHERE STRENGTHENING OF CLUSTER CAPACITIES CAN BE APPLIED.....	9
FIGURE 4: BENCHMARKED CLUSTER ORGANISATIONS IN THE DANUBE REGION (2017-2019) .....	19
FIGURE 5: TOTAL NUMBER OF COMMITTED CLUSTER PARTICIPANTS .....	19
FIGURE 6: COMPOSITION OF COMMITTED CLUSTER PARTICIPANTS .....	20
FIGURE 7: GOVERNANCE OF THE CLUSTER ORGANISATIONS PER REGION .....	21
FIGURE 8: YEAR OF ESTABLISHMENT OF THE CLUSTER INITIATIVES .....	21
FIGURE 9: NUMBER OF EMPLOYEES IN THE CLUSTER MANAGEMENT TEAM (FTE) .....	22
FIGURE 10: CLUSTER PARTICIPANTS PER FTE OF THE CLUSTER MANAGEMENT TEAM .....	22
FIGURE 11: SHARES OF FUNDING SOURCES OF CLUSTER ORGANISATIONS .....	23
FIGURE 12: INFLUENCE OF RESEARCH, INDUSTRY AND POLICY STAKEHOLDERS ON STRATEGIC PRIORITIES ...	24
FIGURE 13: THEMATIC PRIORITIES OF CLUSTER STRATEGY .....	25
FIGURE 14: INTENSITY AND DIVERSITY FOR EACH SERVICE CATEGORY .....	26
FIGURE 15: READINESS FOR INTERNATIONALISATION OF THE CLUSTERS .....	27
FIGURE 16: FREQUENCY OF MENTIONING THE CLUSTER IN PUBLICATIONS, PRESS AND MEDIA.....	28
FIGURE 17: EUROPEAN CLUSTER MANAGEMENT EXCELLENCE SCORECARD FOR DANUBE REGION (LEFT) AND EU 28 (RIGHT), BASED ON ECEI INDICATORS .....	29
FIGURE 18: DIFFERENCES OF FULFILMENT OF SELECTED ECEI INDICATORS BETWEEN CLUSTER INITIATIVES FROM THE DANUBE REGION AND EU28 .....	30
FIGURE 19: CLARITY OF TASKS OF CLUSTER INITIATIVES GIVEN IN S3 VS. THE AMOUNT OF FUNDING AVAILABLE FOR CLUSTER INITIATIVES.....	31
FIGURE 20: INVOLVEMENT OF THE DIFFERENT ACTORS IN THE DIFFERENT PHASES OF THE DEVELOPMENT OF A REGIONAL INNOVATION STRATEGY .....	33
FIGURE 21: SERVICE PORTFOLIO OF A CLUSTER ORGANISATION (OWN ILLUSTRATION).....	35
FIGURE 22: SUSTAINABLE CLUSTER FINANCING MIX (OWN ILLUSTRATION) .....	36
FIGURE 23: PRIORITY AREAS OF EUSDR AND HOW THEY ARE COVERED BY SELECTED CLUSTER INITIATIVES FROM THE DANUBE REGION (EXPLAINED USING THE EXAMPLE OF “IMPROVEMENT OF MOBILITY AND TRANSPORTATION CONNECTION”).....	39
FIGURE 24: PRIORITY AREAS OF EUSDR AND HOW THEY ARE COVERED BY SELECTED CLUSTER INITIATIVES FROM THE DANUBE REGION (EXPLAINED USING THE EXAMPLE OF “IMPROVEMENT OF MOBILITY AND TRANSPORTATION CONNECTION”) .....	40
FIGURE 25: S3-SYNEGY DIAMOND FOR SELECTED FIELDS OF STRENGTHS AND RELATED TRANSFORMATIVE ACTIVITIES .....	41
FIGURE 26: PORTFOLIO TO PRIORITISE TRANSFORMATIVE ACTIVITIES .....	42
TABLE 1: CLUSTERS AND RELATED QUALITY LABELS IN THE DANUBE REGION .....	12
TABLE 2: BENCHMARKING INDICATORS ACCORDING TO EUROPEAN CLUSTER EXCELLENCE INITIATIVE ECEI. 17	
TABLE 3: REAL COMMON POT FUNDING SCHEME (JOINT CALL).....	43
TABLE 4: VIRTUAL COMMON POT FUNDING SCHEME (SYNCHRONISED CALL) HIGHLIGHTS .....	44

## Glossary

In the last 20 years a lot of different definitions for terms like cluster, cluster initiatives, cluster policy, Smart Specialisation etc. can be found all over Europe. This Glossary should help to get a common understanding of these technical terms used in this study.

<b>Cluster</b>	Clusters are geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also cooperate <sup>1</sup> .
<b>Cluster Management Excellence</b>	Cluster Management Excellence is a philosophy arising from the recommendation given by the European Cluster Policy Group in 2008 in order to strengthen the performance of cluster initiatives. This recommendation was turned into practice within the European Cluster Excellence Initiative in 2011 – 2012. It is based on the comparative analysis (benchmarking) of cluster initiatives.
<b>Cluster initiative</b>	Cluster initiatives are organised effort to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community <sup>2</sup> .
<b>Cluster organisation</b>	By a cluster organisation, one should understand organised efforts to facilitate cluster development, which can take various forms, ranging from non-profit associations, through public agencies to companies. (Source: PricewaterhouseCoopers (2011). <i>Uncovering excellence in cluster management</i> , p. 6)
<b>Cluster management</b>	Cluster management can be defined as the organisation and coordination of the activities of a cluster in accordance with certain strategy, in order to achieve clearly defined objectives <sup>3</sup> .
<b>Cluster participants</b>	Cluster participants are representatives of industry, academia or other intermediaries, who are commonly engaged in a cluster initiative. Given the case a cluster initiative has a certain legal form, like association, cluster participants are often called cluster members.
<b>Cluster policy</b>	Cluster policy is an expression of political commitment, composed of a set of specific government policy interventions that aim to strengthen existing clusters and/or facilitate the emergence of new ones. Cluster policy is to be seen as a framework policy that opens the way for the bottom-up dynamics seen in clusters and cluster initiatives. This differs from the approach taken by traditional industrial policies which try (and most often fail) to create or back winners <sup>4</sup> .
<b>European Secretariat for Cluster Analysis</b>	ESCA was established in 2012 in order to disseminate the results of the European Cluster Excellence Initiative (ECEI). ESCA is hosted by VDI/VDE-

---

<sup>1</sup> Porter, M. (1998). *On Competition, Updated and Expanded Edition*. Harvard Business Review Book, p. 213)

<sup>2</sup> Sölvell, Ö., Lindqvist, G. Ketels, Chr. (2003). *The Cluster Initiative Greenbook*, p. 9)

<sup>3</sup> PricewaterhouseCoopers (2011). *Uncovering excellence in cluster management*, p. 3)

<sup>4</sup> European Commission (2016). Smart Guide to Cluster Policy, *Guidebook Series: How to support SME Policy from Structural Funds*, p. 11)

<b>(ESCA)</b>	IT and acts as neutral coordination body for cluster initiatives interested in cluster management excellence. ESCA offers cluster benchmarking and labelling on different levels (bronze, silver and gold). ESCA has labelled more than 1.500 cluster initiatives in 46 countries since 2012. <a href="http://www.cluster-analysis.org">www.cluster-analysis.org</a>
<b>Regional Research and Innovation Strategies for Smart Specialisation (RIS3)</b>	<p>Regional research and innovation strategies for smart specialisation (RIS3) are integrated, place-based economic transformation agendas that do five important things:</p> <ul style="list-style-type: none"><li>- They focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures;</li><li>- They build on each country's/region's strengths, competitive advantages and potential for excellence;</li><li>- They support technological as well as practice-based innovation and aim to stimulate private sector investment;</li><li>- They get stakeholders fully involved and encourage innovation and experimentation;</li><li>- They are evidence-based and include sound monitoring and evaluation systems.<sup>5</sup></li></ul>
<b>Macro-Regional Strategies (MRS)</b>	<p>A macro-regional strategy is an integrated framework endorsed by the European Council, which may be supported by the European Structural and Investment Funds among others, to address common challenges faced by a defined geographical area relating to Member States and third countries located in the same geographical area which thereby benefit from strengthened cooperation contributing to achievement of economic, social and territorial cohesion. Four EU macro-regional strategies, covering several policies, have been adopted so far:</p> <ul style="list-style-type: none"><li>• The EU Strategy for the Baltic Sea Region (2009)</li><li>• The EU Strategy for the Danube Region (2010)</li><li>• The EU Strategy for the Adriatic and Ionian Region (2014)</li><li>• The EU Strategy for the Alpine Region (2015)<sup>6</sup></li></ul>
<b>Transformative Activities</b>	<p>A Transformative Activity (TA) is neither an individual project nor a sector, but a collection of related innovation capacities and actions, extracted from existing structures, to which extra-regional capacities can be added, and oriented toward a certain direction of change.<sup>7</sup></p>

---

<sup>5</sup> European Union (2012), Guide to Research and Innovation Strategies for Smart Specialisations (RIS 3), Luxembourg, [https://ec.europa.eu/regional\\_policy/sources/docgener/presenta/smart\\_specialisation/smart\\_ris3\\_2012.pdf](https://ec.europa.eu/regional_policy/sources/docgener/presenta/smart_specialisation/smart_ris3_2012.pdf)

<sup>6</sup> See [https://ec.europa.eu/regional\\_policy/de/policy/cooperation/macro-regional-strategies/](https://ec.europa.eu/regional_policy/de/policy/cooperation/macro-regional-strategies/)

<sup>7</sup> Foray, D., Keller, M., Bersier, J. and Meier zu Köcker, G. (2018). Transformative Activities for Smart Specialisation: Considerations on a Workshop Methodology. Working paper EPFL / HES-SO HEIA-FR / ClusterAgentur, <https://hesso.tind.io/record/2759>.

## Summary

The White Paper on Strengthening the Capacities of Cluster in the Danube Region deals with a bunch of comparable new philosophies, approaches and concepts. E.g. the cluster approach is just 30 years old (which is short compared to many other economic approaches). Cluster initiatives were set up mostly 10 – 20 years before, whereas the concept of Cluster Management Excellence was introduced by the European Cluster Policy Group in 2008 at the same time like Dominique Foray et al.<sup>8</sup> developed the idea of Smart Specialisation. And, finally, the macro-regional approach for the Danube Region is just eight years old.

All these concepts sound convincing in theory, but the recent practice looks different. One can imagine that it becomes even more complicated when all these theories and concepts have to be applied all together. And this is the case regarding the topics stressed in this study, which considers how to improve Cluster Management Excellence of cluster initiatives in the Danube Region.

The study does neither aim to evaluate the success of the EUSALP nor does it assess the impact of cluster initiatives. It provides a snap shot of the current stage of Cluster Management Excellence in the Danube Region. For there, ideas and reflections are given how and where to improve such excellence and where to make better use of cluster initiatives.

The study basically tackles two upcoming challenges in the field of regional development, which go beyond the Danube Region. Firstly, how to use cluster initiatives after having them funded and supported over many years in order to harvest the public given over many years. Secondly, how to apply the approach of Smart Specialisation in a way that provides better impact than so far.

The findings clearly reveal cluster initiatives in the Danube Region made good progress over the recent past in terms of Cluster Management Excellence. The disparity between cluster initiatives within the Danube Region, but also with EU28 peers are more and more shrinking. Many cluster initiatives from the Danube Region gained international visibility, way beyond the Danube Region itself. This conclusion is even more striking since the framework conditions for cluster development and support of cluster initiatives were fragile over the recent years. On the other side the study revealed that cluster initiatives in the Danube Region appear to be disconnected from regional development (e.g. Smart Specialisation) and from EUSDR (EU Strategy for the Danube Region).

Thus, the study provides not only ideas how to further strengthening the capacity of cluster initiatives in the Danube Region, it also provides ideas how to link the cluster, Smart Specialisation and macro-regional approach in the future. The current post2020 period is the idea time to start a more detailed discussion about this issue. .

---

<sup>8</sup> See Foray, D., David, P.A. and Hall, B. (2009). Smart specialisation: the concept, Knowledge for Growth: Prospects for Science, Technology and Innovation, Report, EUR 24047, Brussels, European Commission.

# 1 Introduction

The Danube Region is a particularly diverse area as it encompasses 9 EU countries (Austria, 2 German regions: Baden-Württemberg and Bayern, Czech Republic, Slovak Republic, Slovenia, Croatia, Hungary, Romania and Bulgaria) and 5 non-EU countries (Bosnia and Herzegovina, Montenegro, Moldova, Serbia and South-Western and Southern regions of Ukraine) of which some are accession countries and others are neighbourhood countries.

The Danube Region is characterised by highly different development paths, high disparity of living standard, industrial competitiveness and research and innovation (R&I) output. This results in various innovation and competitiveness rankings, such as the Global Competitiveness Report or the EU Innovation Scoreboard.<sup>9</sup> The 2015 study “Socio-Economic Assessment of the Danube Region,” which was commissioned by the Ministry of Finance and Economics Baden-Württemberg on behalf of the European Commission discusses the socio-economic situation of the Danube Region in detail and calls for a more nuanced approach towards the different sub-regions.<sup>10</sup> The study confirms findings to which the strong heterogeneity of the macro-region impeded the emergence of a macro-regional identity across countries, even after ten years of its existence.

## 1.1 The EU Strategy for the Danube Region (EUSDR)

On 8 December 2010, the European Commission proposed a macro-regional strategy to boost the development of the Danube Region.<sup>11</sup> Member States endorsed the EU Strategy for the Danube Region at the General Affairs Council on 13 April 2011 (Council Conclusions). The Strategy (hereinafter referred to as the EUSDR) was jointly developed by the Commission, together with the Danube Region countries and stakeholders, in order to address common challenges together. It seeks to create synergies and coordination between existing policies and initiatives taking place across the Danube Region.

The Danube Strategy encompassed 14 Danube River Basin States: Germany (the Federal States of Baden-Württemberg and Bavaria), Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine, Czech Republic, Slovenia, Bosnia and Herzegovina and Montenegro.

Areas of action within the EUSDR are divided into the four thematic pillars “Connecting the region,” “Protecting the Environment,” “Strengthening the Region,” and “Building Prosperity” (see Figure 1). Implementation takes place through 12 Priority Areas, hereinafter referred to as PAs, each coordinated by two countries.<sup>12</sup>

---

<sup>9</sup> See <https://www.weforum.org/reports/global-competitiveness-report-2019> and [https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards\\_en](https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en)

<sup>10</sup> The authors divided the whole group of Danube Region countries into five subregions: Member States Area 1 (Baden-Württemberg, Bavaria and Austria), Member States Area 2 (Hungary, the Czech Republic, the Slovak Republic, and Slovenia), Member States Area 3 (Romania, Bulgaria and Croatia), the Accession Countries (Serbia, Bosnia and Herzegovina, and Montenegro) and the Neighbouring Countries (Moldova and Ukraine). See <http://ftp.zew.de/pub/zew-docs/gutachten/DanubeRegionFinalReportPartII.pdf>

<sup>11</sup> See Commission Communication - EU Strategy for the Danube Region 2010. [Commission Communication - EU Strategy for the Danube Region](#)

<sup>12</sup> Regional stakeholders, which have been interviewed for this study, agree that ten years after the formal adoption of the Danube Region strategy, the four pillars aptly capture the main challenges of the macro-region while both the profile and focus of the PAs and the related Working Groups could be redesigned in order to better address new socio, economic or policy trends.

### Country Participation



Figure 1: EUSDR Country Participation. Source: <https://danube-region.eu/>

Under the 3<sup>rd</sup> pillar “Building Prosperity in the Danube Region”, the Republic of Croatia is the coordinator of PA 8 “Competitiveness of SMEs, including Cluster Development”, under the capacity of the Ministry of Economy, Entrepreneurship and Crafts (MINGO), the Directorate for EU Programmes and Projects in close coordination with the Ministry of Economy and Housing of the German State of Baden-Württemberg. The PA Coordinator (hereinafter referred to as the PAC) coordinates the implementation of activities defined in the corresponding Action Plan, through the organisation of regular meetings at the level of the Steering Groups for specific priority areas. Thematic working groups for a particular priority area are dealt with by expert representatives of the relevant sectors of all countries covered by the EUSDR. In order to continuously improve the management and implementation process, the Priority Area Coordinators, in cooperation with the Working Groups, set up a Task Force.

### Pillars and Priority Areas



Figure 2: EUSDR Pillars and Priority Areas. Source: <https://danube-region.eu>

The purpose of the PA 8 is to support the competitiveness of companies and to strengthen the capacity of Small and medium-sized enterprises (SMEs) for cooperation and trade by encouraging cooperation and knowledge sharing between SMEs, the academic community and the public sector in areas of competence in the Danube Region. Five thematic working groups have been established under PA 8. They build the cornerstones for the implementation of PA 8 project results and bring

together representatives of cluster organisations, non-profit companies, the science sector, public authority institutions and other stakeholder groups involved in the implementation of PA 8.

The “White Paper on Strengthening Capacities of Clusters in the Danube Region” represents one of the planned activities of the PA 8 INTERREG project, where it is listed as one of the main outputs.

### 1.2 The White Paper on Strengthening Capacities of Clusters in the Danube Region

Throughout the last two decades, the cluster concept, as initially defined by Michael Porter in 1990,<sup>13</sup> had a significant impact on regional development and competitiveness policy all over Europe and beyond. As of today, the European Cluster Cooperation Platform (ECCP), the European Commission’s online hub for cluster support, counts 1079 cluster initiatives and current estimates indicate that there are over 2500 clusters all over Europe<sup>14</sup>. Major objectives of the various cluster support programmes in the different EU countries and regions are to increase the competitiveness of Small and Medium-sized Enterprises (SMEs) and to foster (regional) innovation capacities, especially the innovation activities of SMEs to sustain or increase competitiveness.<sup>15</sup> The implementation and support of a professional cluster management is an essential pre-condition to achieve these ambitious goals. Strengthening the management capacities of cluster initiatives has been a major priority of most cluster policies in Europe.

Chapter 4 sheds some light on the corresponding concept of “Cluster Management Excellence”, which aims at the establishment of a well-managed cluster organisation with a long-term strategy, good financial perspectives, a professional cluster management team and an active involvement of the cluster members, especially the SMEs, in the cluster activities. Such a professional cluster management can offer specialised and customised business support services, which have a strong impact on the positive development of the companies inside the cluster initiative.

However, cluster initiatives cannot only provide services for their members, they can also play an important role in regional economic development. They have a very deep knowledge of what companies need and are well connected to research institutions in the regions. They often work together with them for many years, creating a very trustful relationship. This region-specific knowledge is enormously important for responding adequately to the current global change processes (e.g. digitalisation) with individual and specific regional support measures. Unfortunately, this knowledge is currently rarely used (Fig. 2). This is mainly due to the fact that cluster initiatives are rarely actively involved in the development and implementation of regional innovation strategies (RIS3) or macro-regional strategies (MRS).

Therefore, the strengthening the capacities of clusters in the Danube Regions (DR) requires a twofold approach: In a first step, it is important to analyse the individual cluster initiatives and facilitate their further development. Relevant questions that must be asked are: How are cluster initiatives structured and organised? Is there a professional cluster management in place? Did the cluster managements elaborate and implement strategies addressing their regional challenges?, etc. In a second step, it will be demonstrated to what extent well-performing and professional cluster organisations can be used as an important instrument of regional development. Particularly concerning region-specific transformation processes such as digital transformation, climate change or new industry sectors such as bio-economy or automated production.

---

<sup>13</sup> Porter, M. (1990), *The Competitive Advantage of Nations*. Free Press: New York.

<sup>14</sup> Assessment of the European Cluster Observatory (2016), unpublished.

<sup>15</sup> See <https://www.eucluster2019.eu/files/events/4538/files/eocic-cluster-programme-report-2905.pdf>

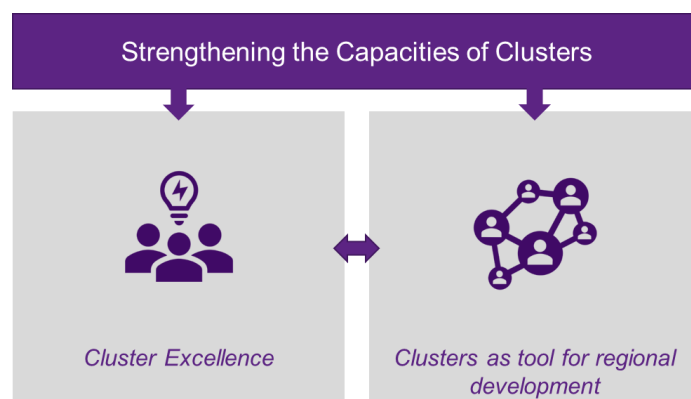


Figure 3: Where strengthening of cluster capacities can be applied

But why is a new expanded approach on the role of cluster initiatives so important? Most cluster initiatives, even the successful and professionally managed ones, are still very strongly focused on a specific industry or sectors within a region. They are rarely used as tool for regional economic development. With the exception of some outstanding examples, interregional and cross-sectoral cooperation remains a significant challenge for cluster initiatives, even if they are highly professionalised. The reasons for engaging in such forms of cooperation are manifold: Developments in recent years have shown that the transformation processes of the global economy increasingly happen on a cross-sectoral and interregional level. Areas like automated production, artificial intelligence or bio-economy will transform not only companies in one industry; they will have an impact overall regional economy.

However, the effects and impact of global megatrends can vary greatly from region to region. This should be illuminated with the example „fully automated production“. For regions whose companies have focused on mechanical engineering, it is important to gain access to the new technologies and develop them to market maturity (*further development of the global megatrend*). Regions, on the other hand, whose companies are active in the manufacturing sector, such as the textile industry, are more likely to have to deal with the question of how the new technologies can be integrated into their current production processes and what impact they have on their business model (*adaption of a global mega trend*).

It is important to understand these different transformation processes, only then individual and specific support measures are possible. Moreover, this knowledge is also enormously important for the cooperation of both regions from the example. If both are only specialized in the general topic "fully automated production", the impression arises from the outside as if they were perhaps in competition with each other. It is not clear, that their competences complement each other and a cooperation of both could be very fruitful.

But, not all cases are as obvious as the mentioned example, on the contrary in reality the circumstances are often much more complex. The actual impact of global megatrends on the development of regional economies is therefore very difficult to assess. However, cluster initiatives have a deep knowledge about the regional capacities. They are working together with the companies and research institutes, in some cases for many years. Thus, they have deep insights about their challenges and problems. Therefore, regions which make use of this kind of knowledge from the cluster initiatives can have a huge benefit in identifying the relevant transformation processes and can implement individual and effective support measures.

Unfortunately, this is still happening far too little. This is also demonstrated by the development and implementation of the "Regional Research and Innovation Strategies for Smart Specialisation (RIS3)" in the context of Horizon 2020. Every region in Europe developed an own RIS3 based on the concept of Smart Specialisation. One of the main ideas behind this concept is that regions do not focus on specific sectors or technologies anymore, but identify transformative activities (see Glossary) and

support them with targeted measures and activities. Transformative activities reflect exactly the idea of linking global megatrends with regional capacities. Based on this, a group actors should be identified who are in a position to implement these transformative activities and to initiate the relevant transformation process in the region. Furthermore, if the identified transformative activities should really initiate processes of change, a critical mass of actors is needed. It is not always possible to gain this critical mass from one's own region because the required competencies are not available. Therefore, extra-regional cooperation should be included in the RIS3. Thus, regions with complement competencies can benefit from each other.

However, many of the RIS3 developed during the current Structural Funds Period have, unfortunately, not identified real transformative activities that relate to the specific characteristics of the region. The main topics and objectives of the strategies remain rather general. Many regions continue to focus only on the "classical" trend fields like "digitalisation" or "green energy" without adjusting them to the specific strengths and weaknesses of the regional economy. Furthermore, very seldom the aspect of integrating knowledge and competencies from other regions is integrated into the RIS3.

Cluster initiatives with their deep knowledge about the regional actors could be an ideal instrument to improve the RIS3. Unfortunately, they are rarely included in the development and implementation process<sup>16</sup>. On contrary, in many regions clusters initiatives act with their own strategies detached from the RIS3. It may even happen that the objectives of cluster initiatives vary greatly from the aims of the local RIS3. Thus, a lot of potential to initiate transformative activities is not used.

The same applies to the four macro-regional strategies (MRS) of the European Union (Alpine Space, Danube, Central Europe, and Baltic Sea). Their thematic focuses are also very broadly defined. In addition, the actors in the regions hardly notice the macro regions. A common identity has not emerged over the years. But, also the macro-regions could play an even more important role in regional development. As already mentioned, extra-regional cooperation should also be an essential component of RIS3. For this it would be important to compare the different RIS3 with each other in order to uncover cooperation potentials. However, this synchronisation process between the individual regions does not take place. The macro regions could achieve such a synchronisation, if thematic areas are defined more precisely and specified to the unique characteristics of the individual regions.

Ideally, the goals and strategies of the cluster initiatives should be consistent with the local RIS3 and macro-regional strategies. In the context of RIS3, the cluster initiatives, together with other actors in the region, can identify the relevant transformative activities. At the macro-strategy level, they could then find appropriate partners from other regions to complement their own competencies (*bottom-up*). Conversely, a close integration of RIS3, MRS and cluster initiative to set new inputs at the macro-regional level, which can be implemented more effective at the regional level (*top-down*). Thus, cluster initiatives should play a more important role in regional development.

Of course, the alignment of MRS, RIS3 and cluster initiatives is a lengthy and continuous process. But the first steps towards a harmonization of the different strategies can already be taken today. This will be demonstrated in this white paper by using the example of the EU Strategy for the Danube Region (EUDSR). In this way, the very broad strategic focal points could be supplemented by topics close to practice. The aim is to identify need-based fields of cooperation. Need-based means very concrete topics that have a direct influence on the local innovation actors. It will be shown how the right cluster initiatives can be identified and which kind of can be used to identify need based field of cooperation (Chapter 6.1 and 6.2).

Once the subject area has been defined in more detail, joint activities must also be initiated. Although these can be actively promoted by cluster initiatives, they also need financial support. How such cross-regional funding program can be realized is shown in chapter 6.3.

---

<sup>16</sup> Meier zu Köcker, G., Dermastia, M. (2017), StressTesting Regional Approaches Conducive to Implement S3 through Cluster – Synthesis Report for the Alpine Space Region, published by S3-4AlpProject, doi:10.23776/001

## Strengthening the Capacities of Clusters in the Danube Region

In sum, the overall purpose of this White Paper is to support the work of PA 8 in two ways:

- i)* by contributing towards the professionalisation of specialised and customised business support services provided by cluster management organisations in the Danube Region; and
- ii)* by showing ways how policy makers in the Danube Region can utilise cluster initiatives as instruments for regional development in the context of the EUDSR.

In order to do so, the White Paper provides a snapshot of the current cluster landscape within the Danube region, followed by a discussion of key success factors to improve Cluster Management Excellence in the Danube region (Chapter 3) and introduces a new approach towards cluster initiatives as vehicles for macro-economic developments (Chapter 4).

## 2 The Danube Region

### 2.1 The Cluster Landscape in the Danube Region

The database of benchmarked cluster organisations of the European Secretariat for Cluster Analysis (ESCA) and the listing of cluster organisations on the European Cluster Collaboration Platform (ECCP) are useful starting points for an analysis of cluster organisations in the Danube Region.<sup>17</sup>

EUSDR Country	ECEI Labelled Cluster Organisations	ECCP Cluster listed	Clusters (Estimate)*	total
AUT	10	22	78	
BGR	10	18	20	
BIH	0	2	5	
CZE	22	4	55	
GER	180	67	500	
HRV	16	11	26	
HUN	29	16	50	
MOL	0	2	20	
MNE	1	4	7	
ROU	59	46	70	
SRB	8	24	30	
SVK	16	4	25	
SVN	9	12	15	
UKR	1	19	30	
			* Desk Research, Expert interviews	

Table 1: Clusters and related quality labels in the Danube Region

Moreover, a 2014 survey by the PA 8 Working Group “Clusters of Excellence” of the EUSDR among cluster policy makers in the Danube Region shows that while the cluster landscape in the macro-region is highly diverse, clusters in the automotive sector, ICT and wood processing exist in almost all Danube countries, as well as food and textiles.<sup>18</sup> In general, however, the distribution of technology sectors in which cluster organisations are active is rather uneven across the region with cluster organisations active in more advanced technologies, such as production technology, being located in

<sup>17</sup> See <https://www.cluster-analysis.org/benchmarked-clusters> and <https://www.clustercollaboration.eu/cluster-mapping>

<sup>18</sup> See [http://www.clustrat.eu/clustrat.eu/DanuClus-Flyer4475.pdf?eID=tx\\_nawsecured&u=0&file=fileadmin/redaktion/documents/library/DanuClus-Flyer.pdf&t=1435408476&hash=d4563136bf53f649e7cce4df75b0ef8ae60b8f0c](http://www.clustrat.eu/clustrat.eu/DanuClus-Flyer4475.pdf?eID=tx_nawsecured&u=0&file=fileadmin/redaktion/documents/library/DanuClus-Flyer.pdf&t=1435408476&hash=d4563136bf53f649e7cce4df75b0ef8ae60b8f0c)

economically more advanced countries, and other sectors, such as processed food, concentrated in less advanced countries or countries dominated by agriculture.

Looking at the Danube countries' individual cluster support programmes yields a fragmented picture. While clusters are in most cases supported through dedicated cluster programmes or through the integration of cluster support in other programmes for economic support, a country-to-country comparison reveals large discrepancies among the various Danube countries with allocated budgets ranging between 300.000 and 10 Mio. € per year.<sup>19</sup>

In **Austria**, an "early mover" in cluster policy development, a number of funding programmes exists on a federal and state level. Direct funding of cluster organisation is mainly provided on regional level. Many of them belong directly to regional development agencies. There is no cluster funding on national level. However, the Cluster Platform Austria of the Federal Ministry of Science, Research, and Economy enables an overview on the existing cluster environment with a focus on research and innovation, Key Enabling Technologies (KETs), internationalisation and EU Cluster policy. In the two German regions **Baden-Württemberg** and **Bavaria**, the support of cluster organisations is realised in very different ways. Whereas the Bavarian Cluster-Offensive provides direct funding for 19 selected cluster organisations over many years, Baden-Württemberg supports cluster organisations mainly through coaching and advice, which is offered by Cluster Agency Baden-Württemberg. Only small funding is offered for cluster organisations from Baden-Württemberg in dedicated fields, like internationalisation or Gold-Label certification. Cluster policy in **Bosnia and Herzegovina** was first initiated in 2005 with the help of the German Association for Technological Collaboration (GTZ – since 2011 called GIZ). However, the country is still lacking an overarching funding programme of cluster initiatives or a central contact point for cluster requests. Although there are currently no ongoing funding programs to support cluster initiatives in **Croatia**, the country has been very active in this field over the last twenty years. Since 2001, Cluster Development Policies in Croatia are conducted. In 2007 the Croatian Chamber of Commerce Cluster Community as an Association of Operational (Business) Clusters was formed, aiming to provide broader systematic support to the development of clusters in the Republic of Croatia. Furthermore, the Strategy for Development of Clusters was as a main strategic focus of the Ministry of Economy, Entrepreneurship and Crafts of the Republic of Croatia adopted in 2011. While there is currently also no cluster programme in place in **Bulgaria**, there are plans for setting up a support programme in the near future. Cluster initiatives in the **Czech Republic** have been benefiting from cluster-specific funding programmes since 2004. These ministerial programmes are operatively executed by "Czech Invest" and financed by European Union funds. The Czech "Cooperation Clusters" programme allocates 10 Mio. € per annum for supporting clusters in emerging and mature industries and World Class Clusters. In **Hungary**, the Ministry for International Affairs and Trade is responsible for the national cluster policy. Grants for clusters are available in the Economic Development and Innovation Operational Programme. Under the Hungarian Cluster Development Programme, Cluster Management Organisations that show excellence in innovation or export are granted 3 Mio. € per annum in horizontal support for clusters. Under the **Romanian** "Competitiveness Operational Programme" (COP), which was launched in 2015, the Romanian Agency for Research and Innovation and the Romanian Ministry of Education provide funding to clusters for activities such as fostering cooperation, business services, and exchange of information. Around 12 Mio. € are channelled to cluster organisations per year in the three cluster programmes Innovative Clusters, POC 2014-2020, and POC/PI2.2/OS2.2. The **Serbian** "Cluster House" is an organisation that supports cluster-oriented economic development in the Balkans and the Black Sea region. It was founded in 2011 upon initiative of seven cluster management organisations

---

<sup>19</sup> Information on the various national cluster programmes is mainly derived from the ECCP website, the Clusterplattform of the German Federal Ministry for Economic Affairs and Energy (BMWi) (see <https://www.clusterplattform.de/CLUSTER/Navigation/EN/Europe/europe.html>) and a recent report on EU cluster programmes by the European Observatory for Clusters and Industrial Change. See <https://www.eucluster2019.eu/files/events/4538/files/eocic-cluster-programme-report-2905.pdf>

from South-East-Serbia with technical support received from the “Danish Programme for Local Economic Development in the Balkans (LEDIB)”. In **Slovakia**, there are plans to develop a cluster programme in the near future. So far, clusters are supported through a small grant scheme worth 300.000 € per year. **Slovenia** has been a frontrunner in cluster development for many years and the Automotive Cluster of Slovenia was one of the first and one of the most successful clusters of the EU13-countries. Under the SRIP-Strategic Research Innovation Partnerships programme, cluster development is funded with up to 1.5 Mio. € per annum.

In addition, various Danube countries have promoted the formation of **national cluster associations**, which can be found in the Bulgaria, Croatia, Czech Republic, Romania, Slovakia and Serbia. They act as counterparts to the national governments, representing the interest of clusters but also work a lot inside the clusters to support their development towards excellence. In Austria and Germany, where cluster policies have been long in place, this task is covered by national and regional government agencies.

## 3 Status Quo Cluster Management Excellence in the Danube Region

### 3.1 Cluster Management Excellence – General remarks

In general, excellent management is considered to be a general prerequisite for successful operation in industry and the private sector in general, in public sectors, like education, health, environment, etc., and in public administration and governmental organisations. Therefore, it is obvious that excellent management should also be considered to be a main prerequisite for a cluster initiative to achieve the highest impacts of the cluster within a given technological, industrial, regional, and legislative framework for the cluster participants, for the industrial sector in general, and for the development of regions.

Furthermore, common standards for excellent cluster management also enable better mutual understanding necessary for transnational co-operation between cluster and network organisations and by this are important to promote successful international cluster co-operation for the benefit of the participating SMEs.

Over the last decade, Europe has become a global leader in the use of cluster-based economic development tools. Numerous cluster initiatives have been created with support of a wide range of government programmes (see Chapter 2). The European Cluster Excellence Initiative (ECEI), supported by the European Commission, DG GROWTH, introduced an indicator-based assessment-methodology to strengthen the performance levels of cluster initiatives.<sup>20</sup> The underlying quality indicators focus on the structure, management and governance, the financing conditions, the underlying strategy, and the activities and services of the cluster organisation.

ECEI was the enabler to turn a theoretical model into a mutually accepted approach for Cluster Management Excellence. The Initiative has also developed a training concept and training measures to support cluster management organisations in their striving for excellence. The European Secretariat for Cluster Analysis (ESCA) took the outcomes of ECEI further and operationalised the cluster management excellence idea and related labelling activities. Over the years, significant progress has been made in this regard. Since 2010, more than 1.100 different cluster initiatives within and outside Europe have been benchmarked by independent cluster experts and more than 100 were awarded a GOLD Label.<sup>21</sup>

Until today, these labels are setting the standards for excellent cluster management. As the three Quality Labels continue to be an important orientation for implementing successful cluster activities, the status quo of the cluster initiatives in the DR region will be analysed in the framework of the European Cluster Excellence Labels, to get insights about their status of professionalization.

The analysis is based on up-to-date cluster benchmarking data of the European Secretariat for Cluster Analysis (ESCA),<sup>22</sup> expert interviews with cluster managers and policy makers from the 14 Danube River Basin States which were conducted during a meeting of the PA8 Steering and Working Group on September 19, 2019 in Zagreb, Croatia, and previous work of the PA 8 and the Working Group on Cluster Excellence in the EUSDR.

---

<sup>20</sup> See [https://ec.europa.eu/growth/industry/policy/cluster/excellence\\_en](https://ec.europa.eu/growth/industry/policy/cluster/excellence_en)

<sup>21</sup> See <https://www.cluster-analysis.org/benchmarked-clusters>

<sup>22</sup> The European Secretariat for Cluster Analysis (ESCA) is the one-stop shop for promoting Cluster Management Excellence through benchmarking and quality labelling of cluster management organisations worldwide. The Berlin-based organisation coordinates a network of around 200 cluster experts from more than 30 countries, which offer benchmarking and labelling services on behalf of ESCA. See [www.cluster-analysis.org](http://www.cluster-analysis.org).

## 3.1.1 Indicators for Measuring Cluster Management Excellence

The indicators to measure Cluster Management Excellence according to the ECEI approach 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 31 indicators used in this analysis are based on the one developed in the framework of the European Cluster Excellence Initiative.

<b>STRUCTURE OF THE CLUSTER</b>
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
<b>CLUSTER MANAGEMENT AND GOVERNANCE / STRATEGY OF THE CLUSTER ORGANISATION</b>
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
<b>FINANCING OF THE CLUSTER MANAGEMENT</b>
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
<b>SERVICES PROVIDED BY THE CLUSTER ORGANISATION (SPECTRUM AND INTENSITY)</b>
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
<b>ACHIEVEMENTS AND RECOGNITION OF THE CLUSTER ORGANISATION</b>
Number of external cooperation requests received by the cluster organisation
Institutional origin of external cooperation requests
Geographical origin of external cooperation requests
Characteristics of cooperation with other international clusters
Visibility in the press
Impact of the work of the cluster organisation on R&D activities of the cluster participants
Impact of the work of the cluster organisation on business activities of the cluster participants
Impact of the business-oriented services of the cluster organisation on SME participants
Degree of internationalisation of cluster participants

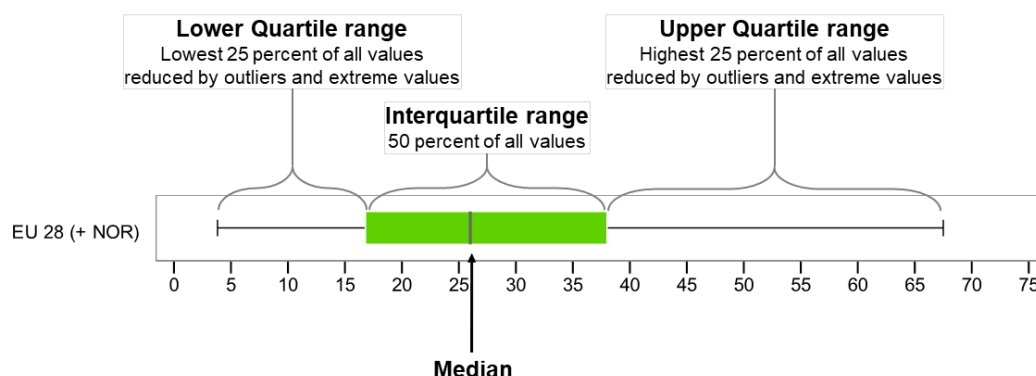
Table 2: Benchmarking indicators according to European Cluster Excellence Initiative ECEI

## 3.1.2 Explanation of figures used in this report

In the following, a short explanation is given related to the different modes of visualisation of the findings.

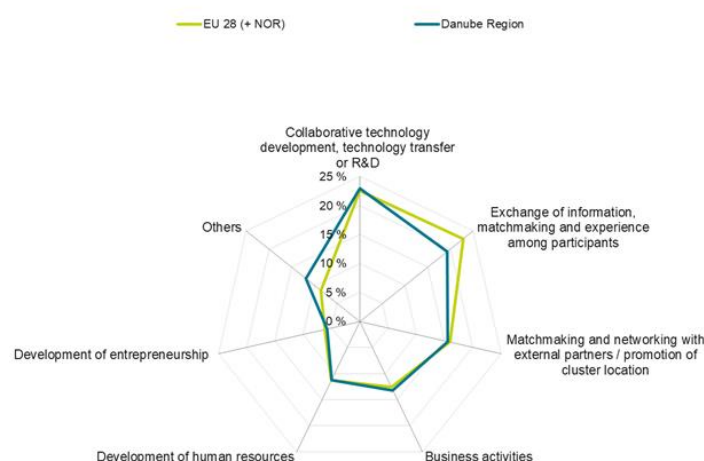
### Boxplot

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.



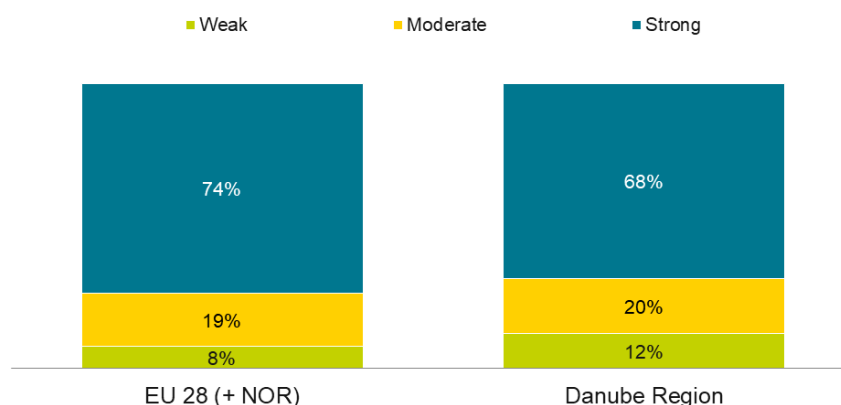
### Radar Charts

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



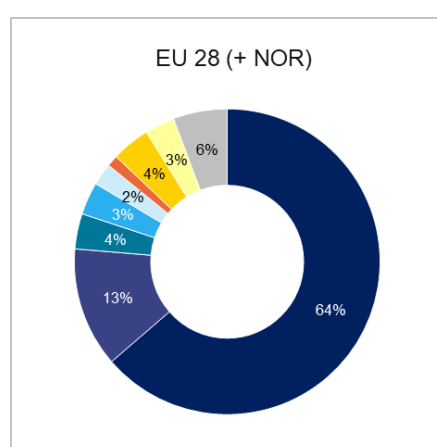
### Stacked Bar Chart

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.



## 3.2 Results of the Danube Region

The following analysis highlights the current status quo of cluster management excellence. As reference point 290 cluster initiatives from EU28 (incl. Norway) were selected for this comparison. The analysis draws on findings of a 2018 study by the European Secretariat for Cluster Analysis (ESCA) on cluster management excellence in the Danube region, but uses an updated data set from 2019. For the purpose of this White Paper, a total of 78 cluster organisations from the Danube Region are being compared to 212 benchmarked cluster organisations from the EU's 28 Member States (plus Norway).



Figure 4: Benchmarked cluster organisations in the Danube region (2017-2019)

The analysis is based on the methodology developed in the framework of the European Cluster Excellence Initiative (ECEI), which focuses on the structure, management and governance, the financing conditions, the underlying strategy, and the activities and services of the individual cluster organisations. The data was collected between 2018 - 2019 by way of individual benchmarking interviews with cluster managers conducted by impartial ESCA benchmarking experts. All of the 290 cluster initiatives belong to different sectors or technological domains, representing the whole industrial spectrum of Danube / EU28.

In the following the most relevant findings with regards to cluster management excellence are presented.

### 3.2.1 Total Number of Cluster Participants

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.<sup>23</sup>

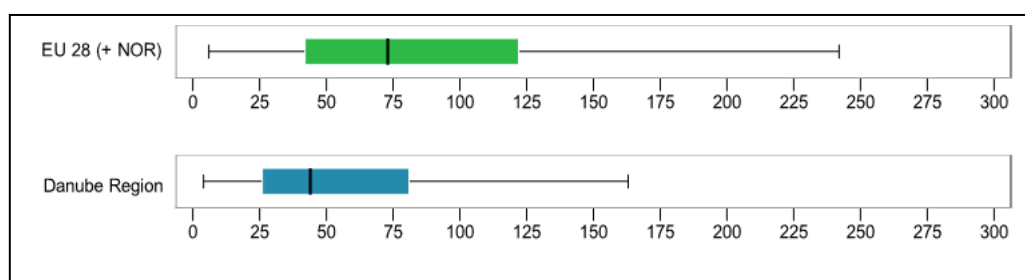


Figure 5: Total number of committed cluster participants

<sup>23</sup> The ECEI benchmarking methodology concentrates 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.

As far as cluster initiatives from EU28 are concerned, around 50 % of them gather between 40 and 120 members with a median value of 74. Compared to a previous benchmarking study conducted in 2012, the number of cluster participants has risen. Cluster initiatives from the Danube Region are, compared to their European peers, relatively small in size with an average number (as per Median) of committed participants of 42. The rationale for this is manifold and is likely to range from a partly lower industrial density in some Danube Regions to lower attraction of cluster initiatives due to limited resource with regards to the cluster organisation. Practice has shown that the more services are offered by a cluster organisation, the more members are interested to join the cluster initiative.

### 3.2.2 Composition of Cluster Participants

The composition of cluster participants is very important for a successful cooperation within the cluster initiatives. 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.

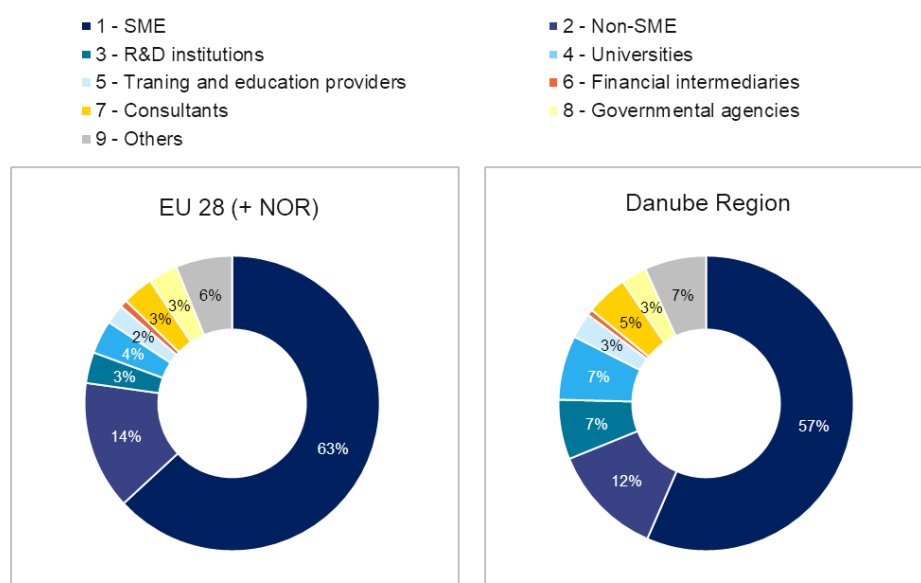


Figure 6: Composition of committed cluster participants

While Danube cluster initiatives may differ in size from their European peers, the composition of their cluster participants is more or less congruent. 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%. Thus, in this regard, cluster initiatives from the Danube Region can be considered to be peers to those from EU 28.

### 3.2.3 Governance of the Cluster Organisations

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.

## Strengthening the Capacities of Clusters in the Danube Region

- A governing body such as a steering committee or advisory board exists and is responsible for making decisions and support 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 of all cluster actors has 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.

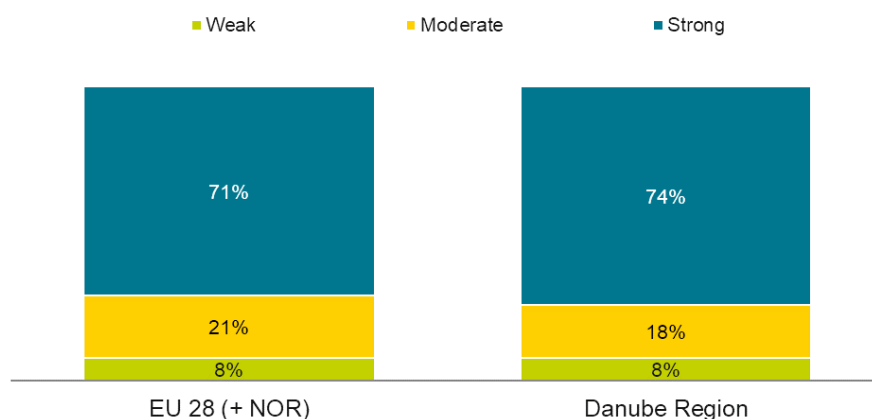


Figure 7: Governance of the cluster organisations per region

The majority of all cluster initiatives in both comparative portfolios succeeded in building comparatively strong governance structures. There are no macro-regional patterns at all, even when having a closer look at both comparative portfolios. Timeline considerations have revealed that the governance of cluster organisations increased in both macro regions over time.

### 3.2.4 Maturity of the Cluster Organisations

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.

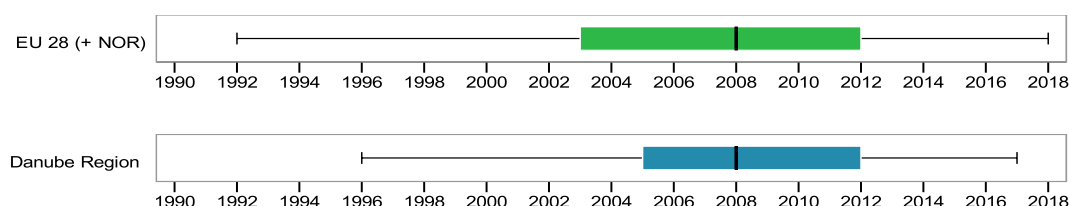


Figure 8: Year of establishment of the cluster initiatives

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. In addition, it is interesting to see that the establishment of “new” cluster initiatives significantly slowed down after 2011 / 2012, since in both cases 75% of all cluster initiatives have been established before that time.

### 3.2.5 Capacities in Cluster Organisations

The number of active employees within the cluster management team was measured in full-time equivalents (FTE) during the benchmarking exercises. 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.

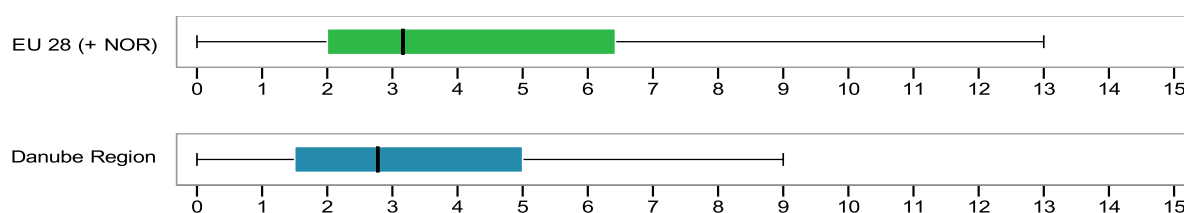


Figure 9: Number of employees in the cluster management team (FTE)

Cluster managements in the EU28 tend to have a slightly higher capacity than their Danube peers. This finding is likely to be connected to a much better public support scheme in the EU28. Cluster policies in these countries provides much higher funding over many years, whereas the support scheme for many Danube countries was interrupted over time (e.g. Hungary or Romania) or not really existing (e.g. BiH or Serbia). Higher public funding allows cluster organisations to finance more staff for day-to-day management.

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.

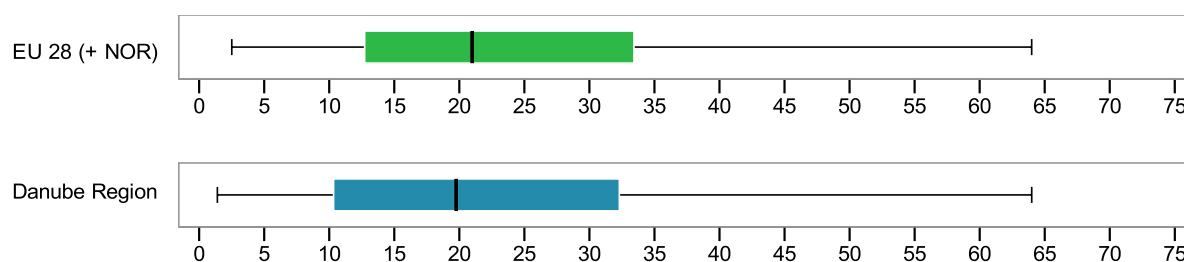


Figure 10: Cluster participants per FTE of the cluster management team

However, Danube cluster initiatives, being smaller in size in general (see 3.1), also show a slightly lower number of cluster participants per FTE. This means that, with one FTE per 20 cluster participants, cluster management organisations in the Danube Region can take better care of their individual cluster participants.

### 3.2.6 Financing Conditions

The total budget of a 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 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.

Experience shows that a broad mix of various sources of income has proven 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.

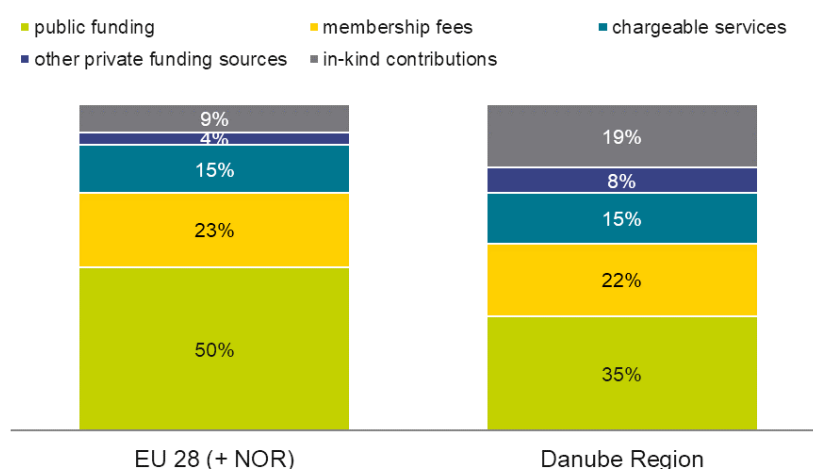


Figure 11: Shares of funding sources of cluster organisations

The comparison of both portfolios reveals, again, the different conditions cluster initiatives operate in. EU28 cluster initiatives, on average, receive 50% public funding, compared to 35% in the Danube Region. The share of membership fees and chargeable services is similar, whereas cluster managements in the Danube Region succeeded to attract more additional private funding sources and in-kind contributions than their EU28 peers. These findings point out that cluster initiatives in the EU28 are significantly more dependent on public funding than in the Danube Region - or to put it differently, cluster initiatives in the EU28 enjoy greater public support than their peers in the Danube Region.

### 3.2.7 Driving Forces of the Cluster Initiatives

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.

## Strengthening the Capacities of Clusters in the Danube Region

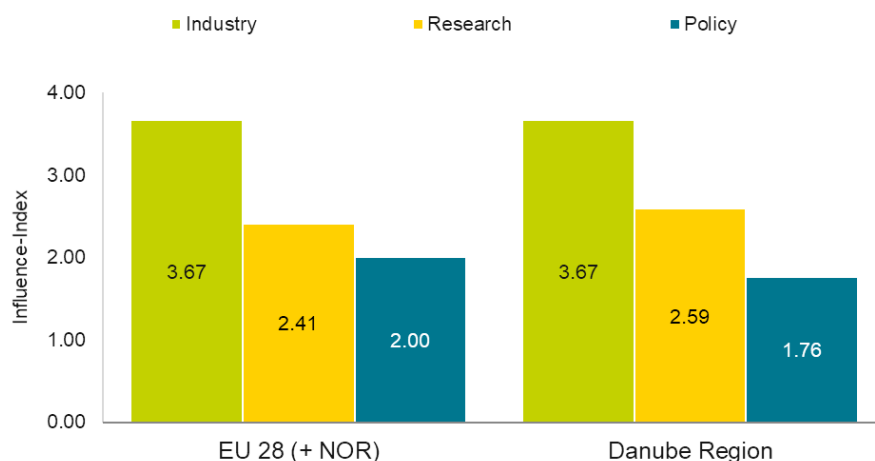


Figure 12: Influence of research, industry and policy stakeholders on strategic priorities

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 that 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 it regards regional development.

### 3.2.8 Thematic Priorities of the Cluster Strategies

In the below figure, the thematic priorities of cluster initiatives 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 the European clusters follow a similar tendency, irrespective of their nationality, with "Collaborative cooperation in R&D and innovation" and "Exchange of information, matchmaking and experience among participants" being their predominant strategy priorities.

## Strengthening the Capacities of Clusters in the Danube Region

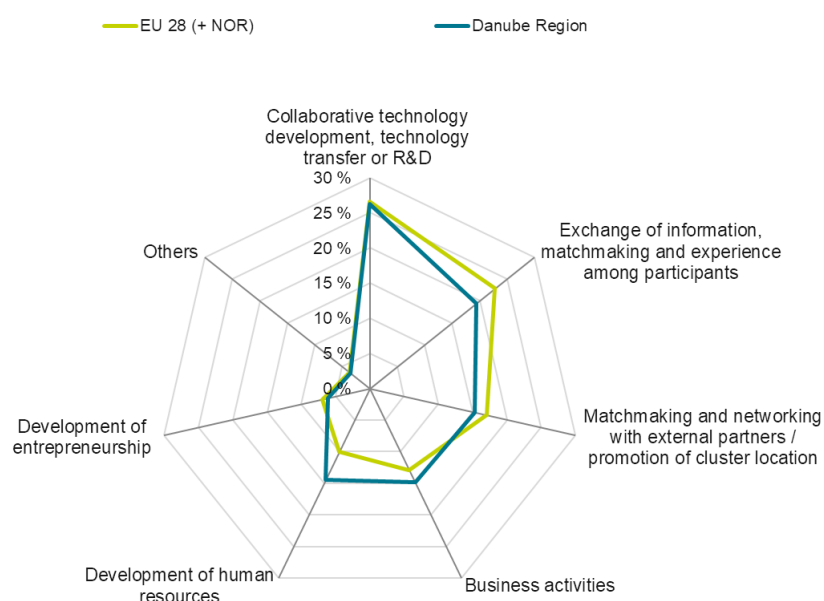


Figure 13: Thematic priorities of cluster strategy

### 3.2.9 Service Portfolios

One of the main aims of cluster organisations is to provide need-based services for their cluster participants and to initiate cooperation between members. 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).

## Strengthening the Capacities of Clusters in the Danube Region

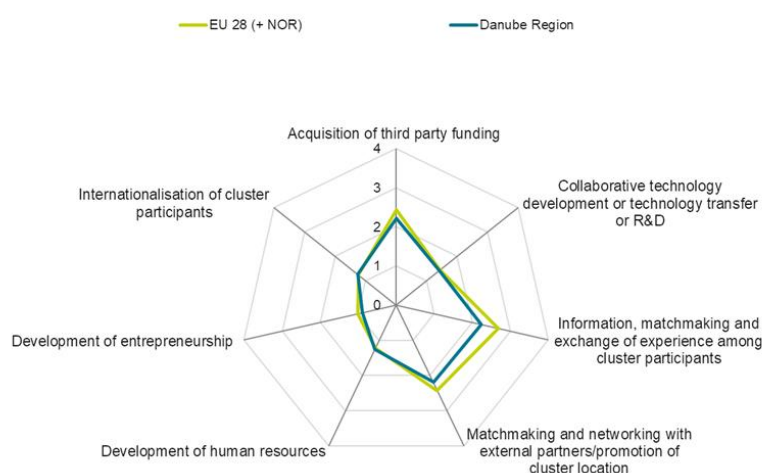


Figure 14: Intensity and diversity for each service category

The figure above 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 case 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. A slightly higher intensity of services related to the “Acquisition of third party funding” for cluster initiatives from the EU28 can likely be explained by a higher regional or national availability of public funding.

### 3.2.10 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
- Resources and competences of the cluster organisation
- Strategy and already implemented services regarding internationalisation

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

## Strengthening the Capacities of Clusters in the Danube Region

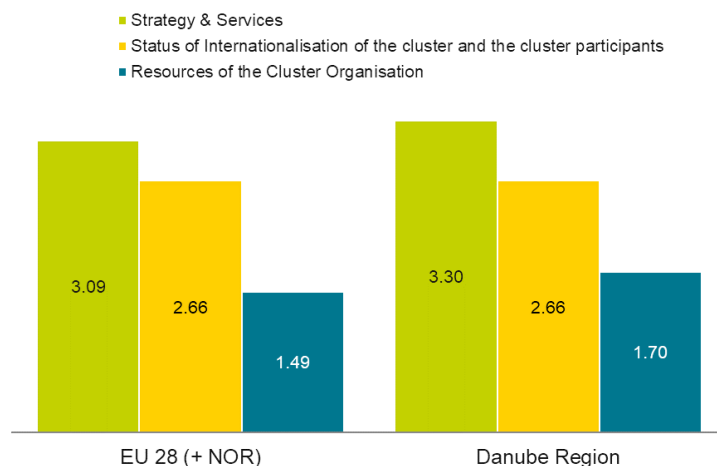


Figure 15: Readiness for Internationalisation of the clusters

Although the respective values of both comparative portfolios are more or less similar, cluster initiatives from the Danube Region show slightly higher values on average. Smaller domestic markets and a stronger involvement in international 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.

### 3.2.11 Media Presence

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. For 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 cluster initiatives 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).

The below findings illustrate that cluster initiatives from the Danube Region are less present in the media. Basically, there is no obvious reason for this finding rather than a potential reluctance to promote the cluster initiative and related success stories.

## Strengthening the Capacities of Clusters in the Danube Region

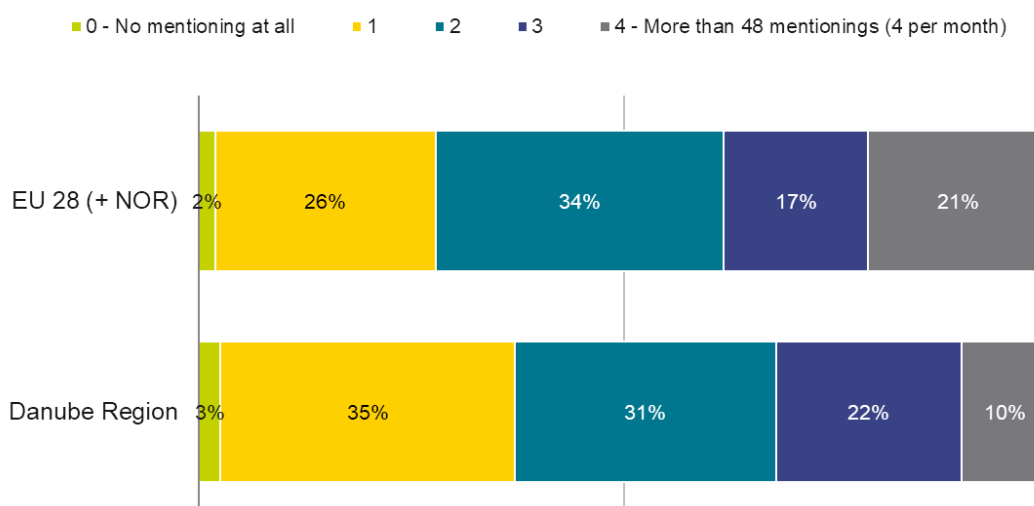


Figure 16: Frequency of mentioning the cluster in publications, press and media

### 3.2.12 Summary of Main Findings

The pan-European cluster benchmarking exercise shows that significant progress in the development of cluster initiatives in the Danube Region has been made over the recent past. When comparing the results with findings gained in 2012, it becomes obvious that the philosophy of Cluster Management Excellence became embedded in many cluster initiatives and related programmes all over Europe.<sup>24</sup> In many benchmarking categories, cluster initiatives from the Danube Region are at eye level with their European peers. However, there are still some differences, which are worth paying more attention. For this purposes and the ECEI three-level benchmarking and assessment system was used in this analysis. The 31 indicators can be compared with pre-defined thresholds (minimum quality criteria) applied for Silver and Gold Label assessments in the framework of the European Cluster Excellence Initiative approach (Figure 16)<sup>25</sup>.

- 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.

A comparison of the corresponding quality indicators between both portfolios illustrates, on the one hand, the quality level of the cluster initiatives as a whole and, on the other, the differences.

<sup>24</sup> Lämmer-Gamp, Th.; Meier zu Köcker, G. ; Christensen, T. A.; Müller, L. (2013), Cluster are Individuals, ISBN 978-78-92776.21-2, The Danish Agency for Science, Technology and Innovation, Copenhagen

<sup>25</sup> [www.cluster-analysis.org](http://www.cluster-analysis.org)

## Strengthening the Capacities of Clusters in the Danube Region

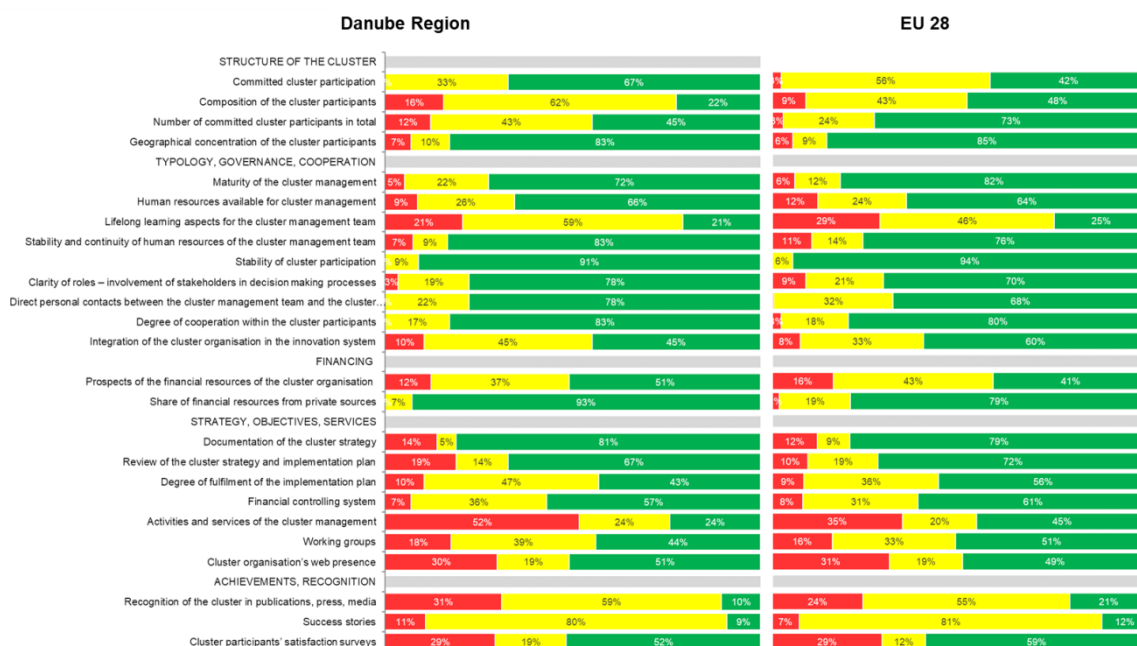


Figure 17: European Cluster Management Excellence Scorecard for Danube Region (left) and EU 28 (right), based on ECEI indicators

Figure 17 illustrates the main difference of the fulfilment of selected ECEI indicators between both comparative portfolios. Positive values mean that cluster initiatives from the Danube Region reveal better amount of fulfilments of certain ECEI indicators compared to the EU 28 cluster portfolio. It illustrates that cluster initiatives might be smaller in terms of number of members, but they are more committed (value +25). The same is with financial sustainability. Cluster initiatives in the Danube Region are get used to receive less public funding than European peers. Thus, they found out how to survive and become less dependent on public funding (value +10).

On the opposite side, cluster organisations from the Danube Region deliver much less services than European peers (value -28). This is a striking finding and mainly caused because cluster managements in the Danube Region are less matured (value -10) – maturity is needed to develop and implement new services -, have lower implementation rate of the strategic action plans (value -13) as well as a low stability of cluster participants (value -5). It is also interesting to see that cluster initiatives from the Danube Region are less integrated in the regional innovation system. This is mainly due to the fact that policy makers and regional development agencies neither got used to work with cluster initiatives nor use them as tool for regional development. Most Smart Specialisation Strategies in the Danube Region have been made within significantly involving cluster initiatives<sup>26</sup>.

<sup>26</sup> Meier zu Köcker, G. (2018), StressTesting Regional Approaches Conducive to Implement S3 Through Clusters, [https://www.researchgate.net/publication/330986898\\_StressTesting\\_Regional\\_Approaches\\_Conducive\\_to\\_Implement\\_S3\\_through\\_Clusters\\_in\\_Danube\\_Region](https://www.researchgate.net/publication/330986898_StressTesting_Regional_Approaches_Conducive_to_Implement_S3_through_Clusters_in_Danube_Region)

## Strengthening the Capacities of Clusters in the Danube Region

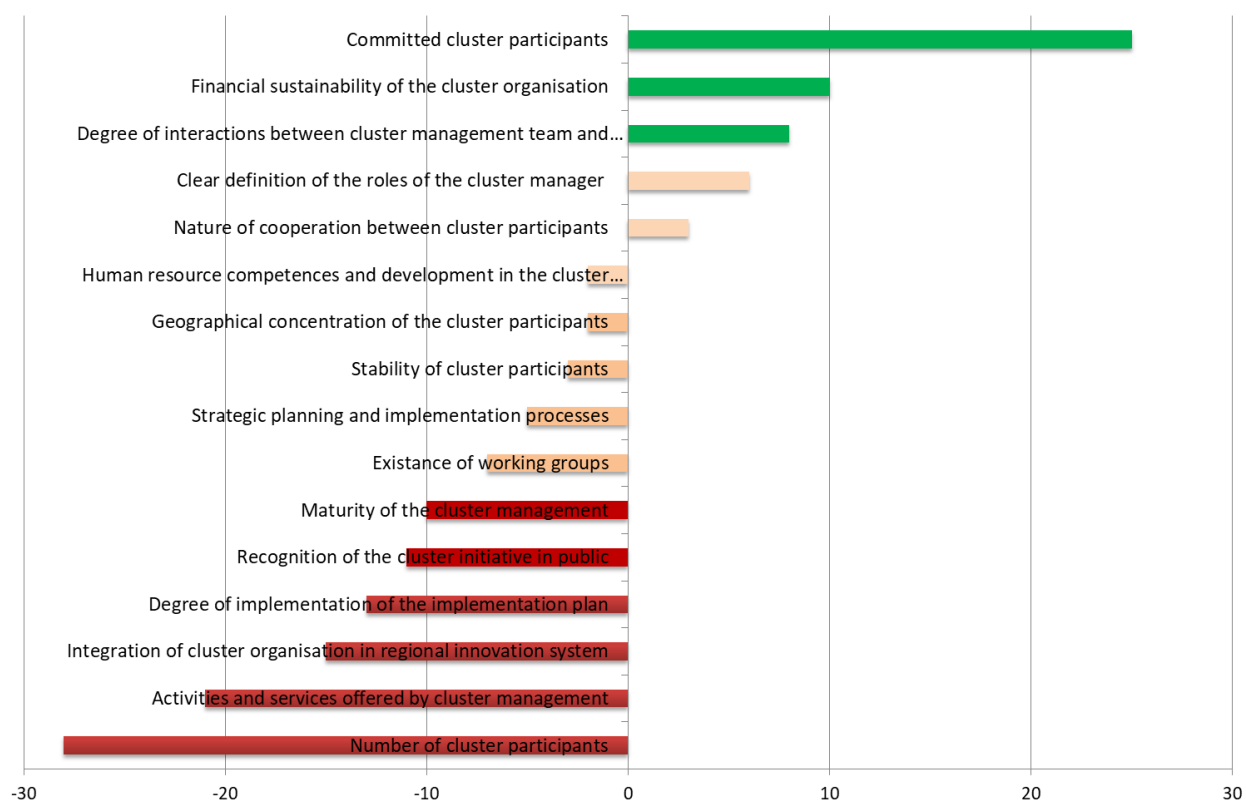


Figure 18: Differences of fulfilment of selected ECEI indicators between cluster initiatives from the Danube Region and EU28

### 3.3 Key Actions to Improve Cluster Management Excellence in the Danube Region

When looking at current development regarding cluster and regional development in many European regions, a qualitative shift from “simply” supporting the development of clusters to *using* cluster initiatives as tool for regional development and coping with industrial transformation such as digitalisation or climate change, overcoming sectoral and regional silos or focusing on new (strategic) value chains can be observed.<sup>27</sup>

While the above analysis of cluster development in the Danube Region shows that the benchmarked cluster initiatives from the Danube Region are, by and large, at eye level with their European peers, anecdotal evidence from expert interviews shows that many cluster organisations in the Danube Region suffer from a lack of trust by (regional) decision makers, which partly stems from their low level of professional management and their inefficient activities.<sup>28</sup> As far as the S3 implementation approach through cluster initiatives is concerned the Danube Region, in this regard, clearly lacks behind other macro-regions. Figure 19 compares the funding situation of cluster initiatives as well as the role of them given in S3 between different macro regions. The commitment, incl. funding, that cluster initiatives are an important tool for regional development, including S3 development and implementation is much higher in the Baltic as well as in the Alpine Region compared to the Danube region.

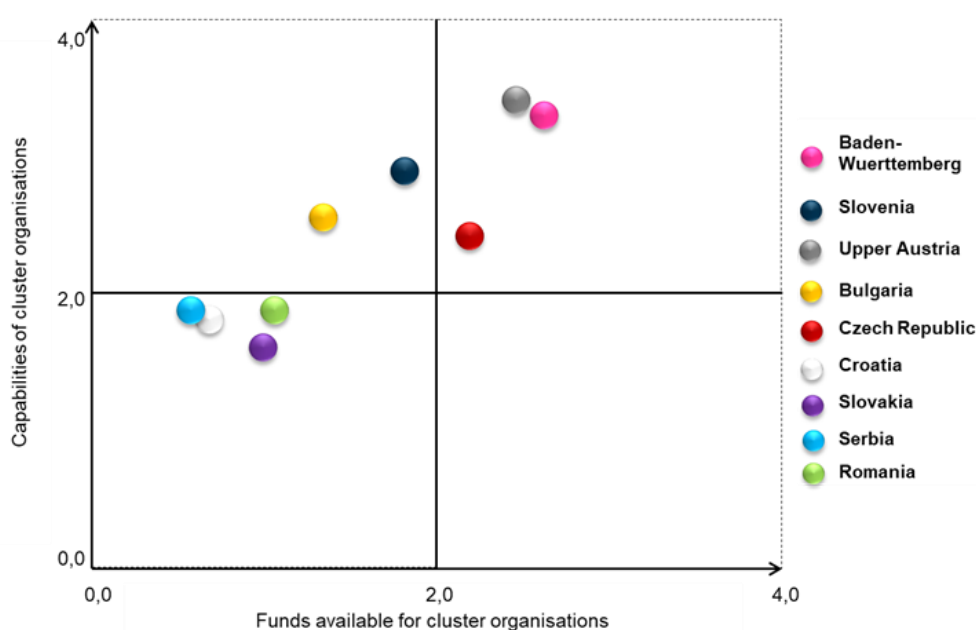


Figure 19: Clarity of tasks of cluster initiatives given in S3 vs. the amount of funding available for cluster initiatives

<sup>27</sup> The “Strategic Forum for Important Projects of Common European Interest” (IPCEI), which was set up by the European Commission in 2018, recently agreed on 6 Strategic Value Chains for which it will develop recommendations for action: 1. Connected, automated and electric vehicles, 2. Smart Health: Medical devices and personalized medicine & analytics, 3. Low-carbon industries, 4. Hydrogen technologies and systems, 5. Industrial IoT, 6. Cybersecurity – in addition to the key strategic value chains Batteries, Microelectronics and High Performance Computing, for which transnational work is already ongoing. See <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=28145> See also the recent report of the High Level Industrial Roundtable on a “Vision for the European Industry by 2030” <https://ec.europa.eu/docsroom/documents/36468?locale=de>

<sup>28</sup> Meier zu Köcker, G. (2018), StressTesting Regional Approaches Conducive to Implement S3 Through Clusters, [https://www.researchgate.net/publication/330986898\\_StressTesting\\_Regional\\_Approaches\\_Conducive\\_to\\_Implement\\_S3\\_through\\_Clusters\\_in\\_Danube\\_Region](https://www.researchgate.net/publication/330986898_StressTesting_Regional_Approaches_Conducive_to_Implement_S3_through_Clusters_in_Danube_Region)

In order to be able to make more effective “use” of cluster initiatives in the macro-region and cope with existing bottlenecks, there is a dedicated need for continuing ongoing efforts to strengthen Cluster Management Excellence in the region. **Romania**, for example, has been promoting Cluster Management Excellence throughout the last years, which resulted in the existence of three Romanian cluster organisations carrying a valid Gold Label of the European Cluster Excellence Initiative (ECEI).<sup>29</sup> One of them, the Transylvanian IT Cluster, is home to the “EU Cluster Manager of the Year 2019”.<sup>30</sup> In addition to Romania, (valid) Gold-labelled cluster organisations in the Danube Region exist in **Austria** (5), **Bavaria** and **Baden-Württemberg** (6), **Czech Republic** (1), **Hungary** (1) and **Slovakia** (1). In the following, we highlight relevant aspects for policy makers and cluster managers to consider improving the management capabilities of cluster organisations (Cluster Management Excellence).<sup>31</sup>

In the following, activities to improve cluster management excellence are proposed on both levels, policy (chapter 4.3.1) and cluster management level (chapter 4.3.2 – 4.3.5) are proposed.

The final Chapter 5 will discuss policy measures to utilise the existing cluster landscape in the Danube Region and have them contribute to future policy priorities and objectives of the EUSDR.

### 3.3.1 Considering Cluster-based Regional Development as a Serious Approach (policy level)

Since over 30 years, there is a common understanding that clusters are tool for regional development. They are a phenomenon, but also a concept<sup>32</sup>. Within the Danube Region, this concept is turned into practice in a very different way. There is, on one side, a commitment that clusters are important and beneficiary for regional economy. On the other side, the policy engagement and commitment is very different. This results in a cluster landscape within the Danube Region (Chapter 2.2) that reveals significant discrepancies between the various cluster support schemes, with allocated budgets ranging between 300.000 € and 10 Mio. € p. a..

Since means, for the future, that cluster and regional economic development policy has to become more serious with regards to cluster support. There is good evidence that cluster initiatives cannot only be beneficiary for industry and science, but also for the development and implementation of S3 or other regional economic approaches. If regions (or nations) are interested to make use of these tools (clusters), it has to be more serious and consistent than in the past.

Cluster Management Excellence matters and can provide good impact. But to reach Cluster Management Excellence, a serious contribution from policy side is needed, meaning a consistent and meaningful investment. In return, cluster initiative can help policy and regional developers support in regional development. This clearly justifies long-term public co-investment in clusters and Cluster Management Excellence. Stronger regions also contribute to the strategic objectives of EUSDR.

Basically, Policy makers and regional developers in the Danube Region have to decide whether or not they intend to follow the cluster-based regional development approach or not. If so, the cluster approach has to be considered as a serious one. This also means sufficient funding, but also serious use as tool for regional development.

---

<sup>29</sup> See <https://www.cluster-analysis.org/gold-label-new/?country=8611e53f75604657bb9b5c230a101a21>

<sup>30</sup> See <https://www.clustercollaboration.eu/achievements/bianca-muntean-elected-eu-cluster-manager-year-2019>

<sup>31</sup> [www.cluster-analysis.org](http://www.cluster-analysis.org)

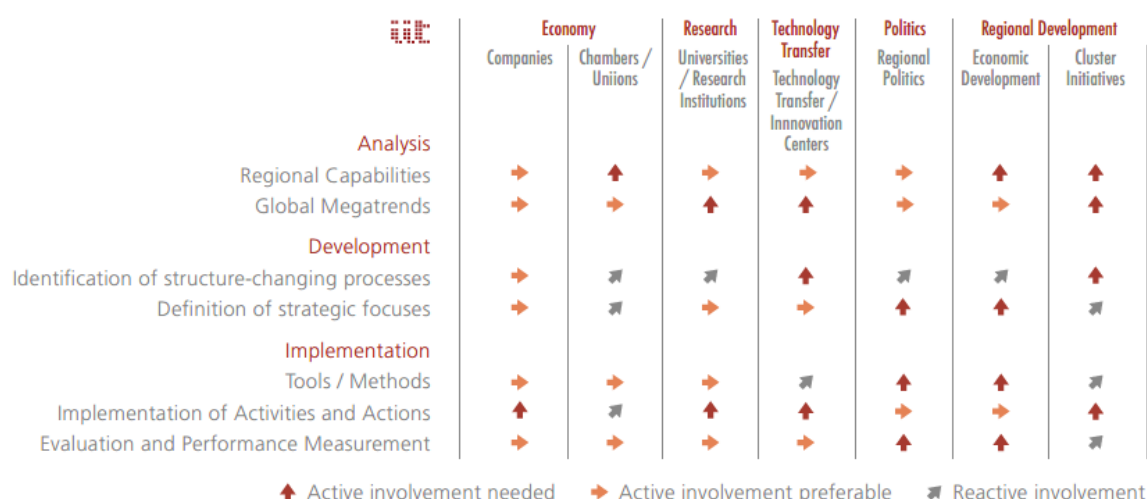
<sup>32</sup> Izsak, F.; Ketels, Chr.; Lämmer-Gamp, Th.; Meier zu Köcker, G.: (2016), *Smart Guide to Cluster Policy*, European Cluster Observatory, Brussels, [http://ec.europa.eu/enterprise/initiatives/cluster/observatory/cluster-mapping-services/services/index\\_en.htm](http://ec.europa.eu/enterprise/initiatives/cluster/observatory/cluster-mapping-services/services/index_en.htm)

## 3.3.2 New partnership between clusters and regional developers (policy level)

Over years, clusters and cluster initiatives have been understood to support industry to become more innovative, better connected and, in the end, more competitive. This is, for sure, still valid. But in times of industrial transformation and continuous change, regions are more and more exposed to improve framework and business conditions that support their industry to cope with the challenges ahead. Digitalisation, transformation, sustainability or circularity are only some of many buzz-word currently under discussion.

For all this, regions have to find a position or even a solution, where to position and how to position themselves. Traditional regional development is not a promising way anymore. This, for sure, is a reason why the S3-approach became that popular over the recent years, since policy makers and regional developers were hoping to be able to cope with all these challenge by just applying the S3 approach. But turning the theory of S3 into practice was not a an easy task. Especially, because appropriate tools were missing. S3 is a theoretical approach, not a tool how to do it.

In this context, cluster initiatives are coming into play. As demonstrated in the figure below, cluster initiatives can provide significant advantages compared to other regional actors with regards to the development and implementation of S3. And there are good examples, even in the Danube Region, that is works that way (e.g .Styria or Baden-Württemberg).



	Economy		Research	Technology	Politics	Regional Development	
	Companies	Chambers / Unions	Universities / Research Institutions	Transfer Technology Transfer / Innovation Centers	Regional Politics	Economic Development	Cluster Initiatives
<b>Analysis</b>							
Regional Capabilities	➔	⬆	➔	➔	➔	⬆	⬆
Global Megatrends	➔	➔	⬆	⬆	➔	➔	⬆
<b>Development</b>							
Identification of structure-changing processes	➔	⚡	⚡	⬆	⚡	⚡	⬆
Definition of strategic focuses	➔	⚡	➔	➔	⬆	⬆	⚡
<b>Implementation</b>							
Tools / Methods	➔	➔	➔	⚡	⬆	⬆	⚡
Implementation of Activities and Actions	⬆	⚡	⬆	⬆	➔	➔	⬆
Evaluation and Performance Measurement	➔	➔	➔	➔	⬆	⬆	⚡

⬆ Active involvement needed    ➔ Active involvement preferable    ⚡ Reactive involvement

Figure 20: Involvement of the different actors in the different phases of the development of a regional innovation strategy<sup>33</sup>

Thus, a new kind of partnership is needed between cluster initiatives and regional developers. Regional developers shall make more serious use (and investments if needed) of cluster initiatives in drafting strategies and implementing related actions. However, in return, cluster managements have to understand regional developers as a partner (or client) and adopt their services to the needs of regional developers, too.

## 3.3.3 Elaborating and Implementation of a Sound Cluster Strategy (cluster level)

An elaborated and well-implemented cluster strategy is key for successful cluster development. The strategy is ideally developed in close collaboration with the cluster participants but as well integrating

<sup>33</sup> Sedlmayr, B.; Meier zu Köcker, G.; Bugl, C. (2019), Trend Report: Development Dynamics of Cluster Initiatives in Germany over time, iit-berlin, DOI: [10.13140/RG.2.2.23939.25120](https://doi.org/10.13140/RG.2.2.23939.25120)

trends and ongoing activities in science and technology, and social and economic developments. Stimulating and conduction of a process for strategy-building is thus a major activity for the Cluster Management Organisation. Such a (clear) process for developing and regularly updating the strategy should be well defined and conducted, including the following activities:

- Identification of the industry and market challenges, e.g. by conducting an industry analysis on the attractiveness of the strategic segments in which the cluster participants (companies) compete or could compete, based on own studies and/or existing studies. Identifying the attractiveness of the current strategic segment and/or analysing new, more attractive strategic segments. Where appropriate, including opportunities around great societal challenges. In most cases the scope must not only be national, but global.
- Understanding the different business models by analysing the value chain and value systems regarding the existing industrial/technological sector and needed value systems for the transformation of the cluster strategy into a new, more attractive strategic segment. The possibilities of accessing and exploiting necessary knowledge need to be determined and described from outside the cluster as well, and need to be used in this strategic process.
- A proactive attitude coming from the cluster manager is required, in monitoring not only technological but also business trends in the sector, and in identifying and proposing new and more attractive business models/strategic segments. When proposing new models, the cluster manager should identify which activities in the current value chain need to improve and use international references. Benchmarking with other clusters or benchmarking of certain selected activities in comparison to these from other clusters is necessary in order to launch actions/projects to improve innovation. The cluster manager should not only act as a facilitator of projects or as a cluster's secretary, but should show leadership by anticipating trends, questioning weak business models and helping to change it if necessary.
- The links to other strategies need to be understood and articulated so it can clearly be seen that the cluster strategy is in line with other strategies at European, member state, regional, sectoral and of course also societal levels. This will include an explanation of how the cluster strategy will help to deliver the other strategies and vice versa.
- Typical strategy-building tools should be used wherever appropriate: Workshops for small groups, internally and/or externally moderated, strategic planning tools such as SWOT analyses or similar instruments should be considered, feedback-loops with stakeholders, etc.
- As the involvement of the cluster participants should be considered, the cluster participants' feedback (in surveys, specific feedback workshops, etc.) can be obtained. Such results can then be taken into account. The involvement of cluster participants and companies is essential.

And, in the ideal case, any strategy on cluster initiative level shall be well aligned with a potentially existing regional strategy, e.g. S3. Otherwise there is a tendency that the respective cluster initiative acts disconnected from regional priorities and, thus, cannot operate a tool for regional economic development.

### **3.3.4 Offering Customised and Need-based Cluster Services (cluster level)**

Services are a Cluster Management Organisation's key instrument for facilitating collaboration among cluster participants, triggering innovation, addressing new tech, business or mega trends or facilitating regional development. The benchmarking data clearly highlights a strong correlation between the quality and intensity (i.e. development, content and delivery) of a Cluster Management Organisation's service portfolio and SME's R&D and business activities as well as the general degree of cooperation within the cluster initiative. The findings also revealed that cluster initiatives in the Danube Region offer less services than their European peers.

## Strengthening the Capacities of Clusters in the Danube Region

Developing a customised service-portfolio requires a solid knowledge of the organisation and an understanding of the specific expectations, needs and demands of its relevant stakeholders. Tools for cluster mapping are, for example, actor or network analyses, value chain analyses, visual road mapping, SWOT, etc. As certain services, such as self-funded R&D projects or collaborative B2B projects require a higher level of trust and active participation of cluster participants, cluster managers should particularly focus their analysis on the level of commitment of their participants and the organisation's overall level of maturity.

Developing a service portfolio is not about an "either/or" of services, but about the integrated offer of demand-driven services, such as facilitating the digital transformation or business modelling of cluster participants, commercialising R&D results and thus triggering innovation-based economic growth or supporting regional economic development. Cluster Management Organisations that feature such an integration of services are typically steered by a sound cluster strategy that addresses the cluster participants' specific support needs (see above).

The below service portfolio highlights a variety of services that Cluster Management Organisations typically offer. The selected services are assigned to six specific objectives (visibility, workforce development, business development, internationalisation, innovation creation, and regional development) and arranged by their levels of complexity and sustainability. The benchmarking data shows that there are some key impact-relevant services that are offered by most Cluster Management Organisation in support of cluster participants' activities, namely bringing participants together, organising workshops or thematic events to further discuss ideas that evolved from the matchmaking and applying for funding of projects resulting from these workshops or thematic events.

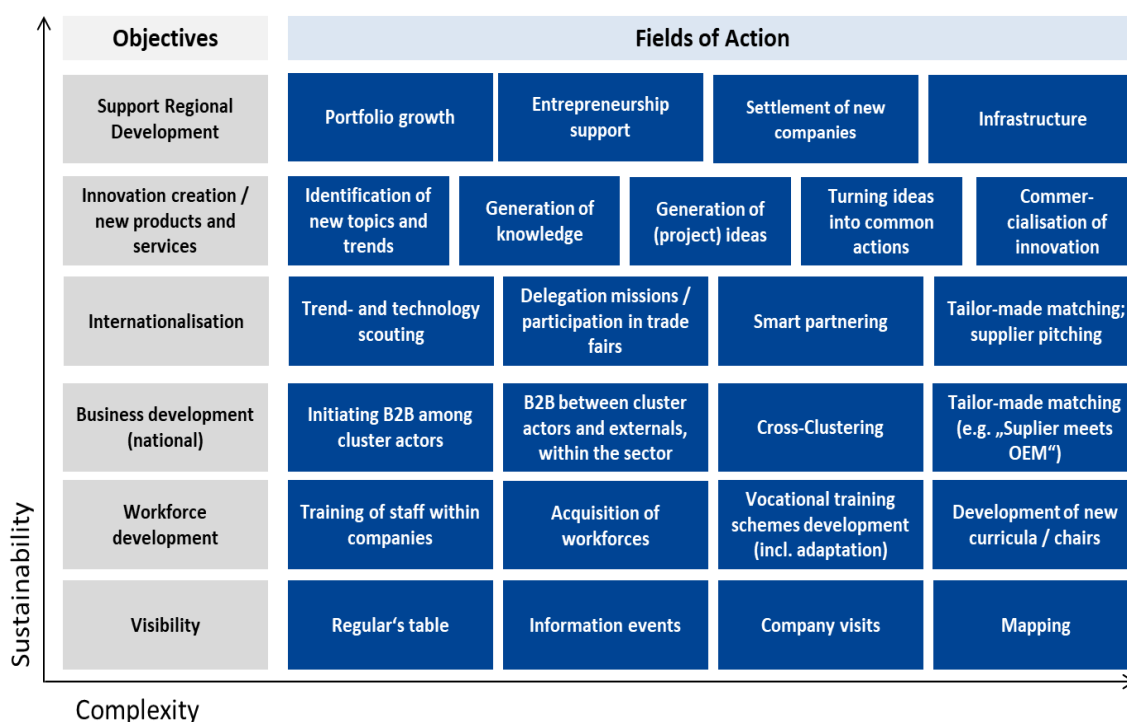


Figure 21: Service Portfolio of a Cluster Organisation (own illustration)

Ultimately, it is the combination and interaction of different services that yield an effect of the cluster management's activities on, for example, the R&D and business activities of SMEs. This, again, largely depends on the cluster management's quality (or better, excellence) as it regards a

professional development and implementation of services that address the needs of cluster participants.

### 3.3.5 Ensuring a Sustainable Financing Model

The total budget of a 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 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.

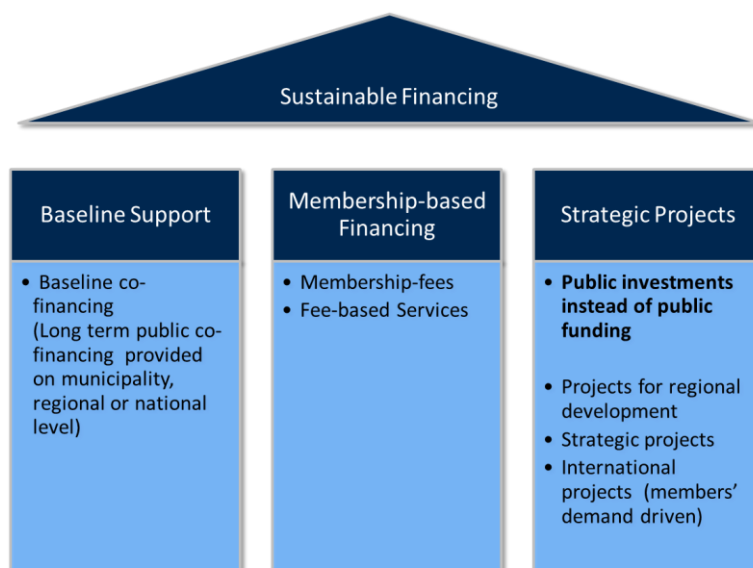


Figure 22: Sustainable cluster financing mix (own illustration)

Many cluster organisations were established with significant public support. As public support is mostly limited in time (e.g. due to rules on state aid), 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 be the 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 as indicated in Figure 21.

### 3.3.6 Promoting (International) Visibility

The best strategy, complemented by the best services, and the generation of many positive effects and impacts should be used for promotion: *internally* within the cluster to demonstrate the appropriateness of the ongoing actions to all participants, but also *externally* to promote the cluster initiative as such towards relevant stakeholders in policy, science, industry and to support the cluster participants' individual communication activities.

A well-structured web-appearance both in the local language and (at least) in English and the use of relevant social media (LinkedIn, in particular) are fundamental. Priority should be given to the availability of cluster-relevant information and contact persons. Any communication and appearance in media should be monitored, nationally and internationally (particularly, if internationalisation is of

importance in the strategy). How visible is the cluster in the technological/business community, does the recognition match the expectations according to targets being set as part of the strategy?

External communication should certainly be complemented by internal communication which is for cluster participants only. The number of Cluster Management Organisations using a Customer Relation Management (CRM) tool is increasing. With such a tool, an information filtering process can be supported to provide information to cluster participants in a very individual manner. CRM systems also function as institutional memory for the cluster management team.

Experience shows that well-managed clusters generally reach high quality levels in these overall aspects of communication and (self) marketing.

## 4 Future Role of Cluster Initiatives in the Context of Macro-Regional Economic Development

Since its endorsement in 2010, the partners of the EUSDR successfully managed to set important policy priorities and impulses to advance the Danube Region and a large number of projects were successfully implemented. At the same time, however, the regions and countries of the DR failed to develop sustainable and steady cooperation linkages across regions, particularly among companies and research institutions. This failed attempt becomes particularly obvious in the lack of a “common identity” all across the macro-region, as most of our interlocutors confirmed.

Resorting to professional and well-managed cluster initiatives in the DR can be a promising way to tackle these shortcomings: On the one hand, they can contribute to the identification of need-based fields of cooperation. Due to their character as regional networks of companies, research facilities and political institutions, their individual (professional) cluster managements have deep insights as regards the relevant actors in the region, their competencies and their specific future challenges. On the other hand, cluster initiatives are useful intermediaries to implement policy priorities - in an efficient and more customised way for the region. For example, they can use their active cluster community to promote specific funding programmes and to animate important regional innovation actors to participate in relevant cross-sectoral and interregional activities.

Therefore, cluster initiatives should be considered as important vehicles to take the EUSDR to a next level. In order to use cluster initiatives more effectively as a tool to foster regional development the following steps would be necessary:

1. **Identifying the appropriate actors for interregional and cross-sectoral cooperation:** It is important to identify the right cluster initiatives and actors, which have the competencies and skills to advance and implement innovative projects.
2. **Defining need-based fields of cooperation:** Defining the right cooperation areas and topics is not an easy task. The thematic focus should be neither too general, nor too specific. This aspect is often underestimated, but attention-raising and well-defined fields of cooperation are an important first step for cross-sectoral and interregional cooperation.
3. **Implementing cross-sectoral and interregional activities:** A well-defined area of cooperation is necessary but not sufficient for implementing cross-sectoral or interregional cooperation activities. Specific support instruments and funding programmes are needed, which help foster the cooperation activities in an individual and flexible way.

All three aspects are described in more detail in the following chapters.

### 4.1 Identifying the Actors for Cross-Sectoral and Interregional Cooperation

There are many possibilities to identify appropriate players for cross-sectoral and interregional cooperation. Conducting desk research is a first step to collect relevant information about the strength/weaknesses of a region, its specific sectors and branches and their future economic potential. The analysis of existing data and empirical studies, however, yields primarily *quantitative* insights, which are necessary but not sufficient to fully grasp the (economic) potential of a region. Aspects that are often omitted in such studies are questions surrounding the relevant actors and intermediaries, which will subsequently implement the identified topics and measures. Too often, they are not integrated at this early stage of analysis.

Cluster initiatives can fill this gap. Interviewing cluster managers can reveal valuable insights into the specifics of the region and its most relevant innovation actors, including their current challenges concerning innovation and competitiveness. Thus, this *qualitative* knowledge can be used to analyse

## Strengthening the Capacities of Clusters in the Danube Region

the status of the region, if cluster initiatives are integrated at such an early stage of exploration. Furthermore, the trustful relationship of the cluster managements to their cluster members is very useful to get in contact with those actors, which are relevant for the implementation of new cross-sectoral and interregional topics.

The potential for the integration of cluster initiatives into the different priority areas of the EUSDR is highly significant. Figure 21 shows the connection of the technology fields of the 78 cluster initiatives in the DR, which were analysed in Chapter 3, with the EUSDR Priority Area “*Improve mobility and transport connection*” of the Pillar “Connecting the region”. Three cluster initiatives directly deal with “transport and mobility” issues. Furthermore, there is a significant number of cluster initiatives in technological sectors, which could be closely connected to the PA, these are “Aviation and Space”, “Construction/building sector”, “Information and Communication” and “Productions and engineering”. Overall, 33 cluster initiatives can be identified, which could deliver interesting insights to redefine the ideas and measures in the one particular PA.

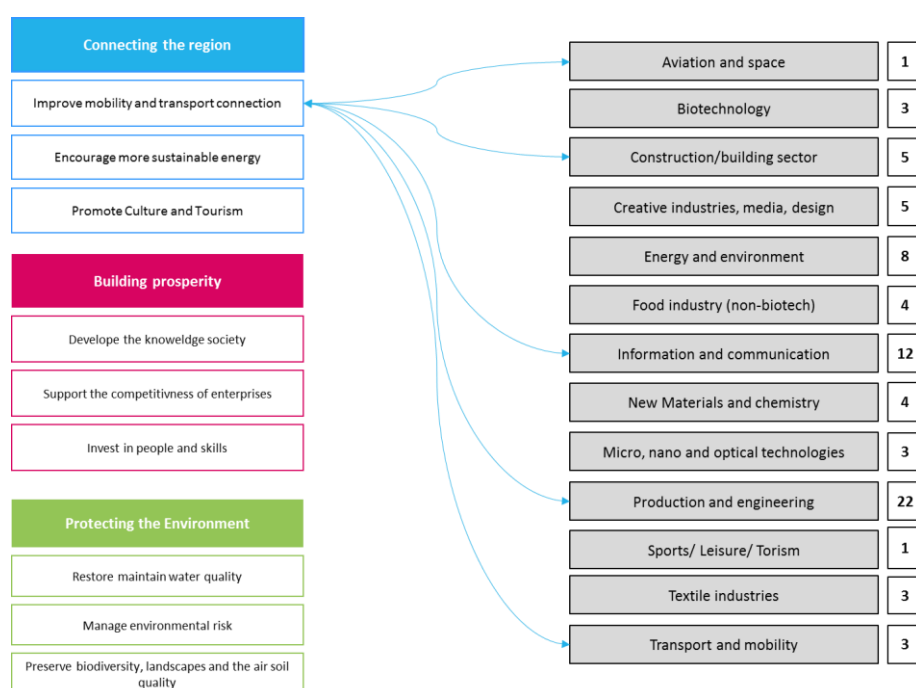


Figure 23: Priority Areas of EUSDR and how they are covered by selected cluster initiatives from the Danube Region (explained using the example of “Improvement of mobility and transportation connection”)

The above visualisation highlights how cluster initiatives can be integrated into the analysis of the regions. It also provides an idea of the potential of using cluster initiatives to identify the actors needed to foster cross-sectoral and interregional cooperation. Figure 24 shows that this approach can be extended to all relevant Priority Areas (with the exception of “Strengthening the regions” which is focused on the public sector).

## Strengthening the Capacities of Clusters in the Danube Region

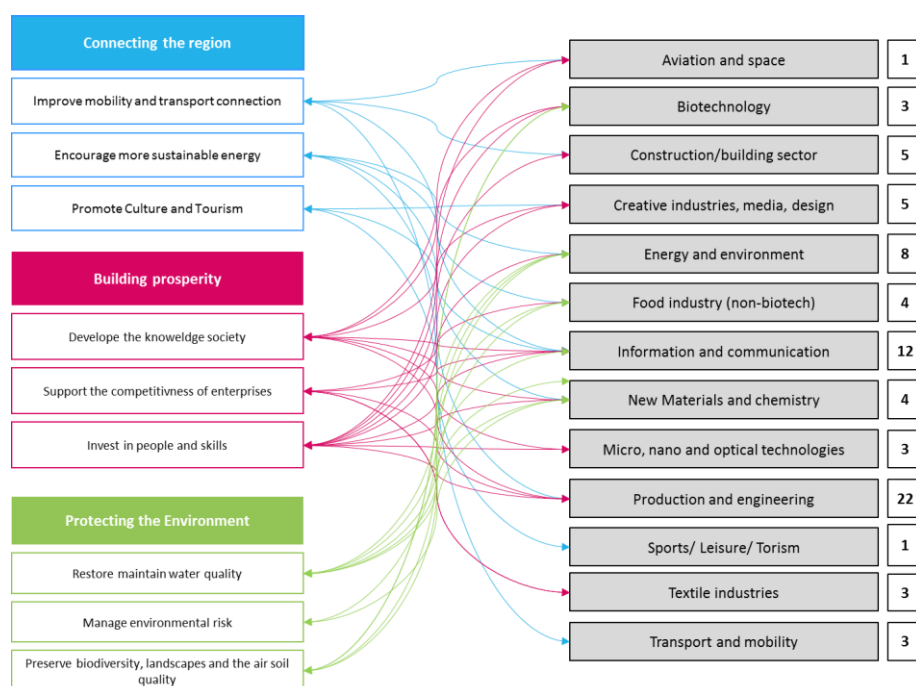


Figure 24: Priority Areas of EUSDR and how they are covered by selected cluster initiatives from the Danube Region

## 4.2 Defining New Areas for Macro-Regional Cooperation

Once the relevant actors for cross-sectoral and interregional activities in a particular priority area have been identified, it is necessary to define areas for interregional cooperation. In general, this is not a trivial task. All too often, the thematic focus for cooperation is defined at a very abstract level, especially in strategies dealing with macro-regions. As a consequence, the specific benefits for the individual actors in the region are not obvious and are only described in very theoretical and future-orientated terms. On the other hand, regional governments or intermediaries sometimes try to define these topics too closely. This, however, yields the danger that the thematic fields are so specific that they will no longer appeal to enough actors.

While there is no model solution guiding to the correct definition of interregional and cross-sectoral issues, practical experience shows that areas of cooperation, which would attract regional actors to participate, have to be *need-based*. Need-based in this context means that the relevant actors in the region, which are interviewed for this purpose, disclose their current needs and main challenges in a very specific way. Since they normally work together with their members on very concrete problems and challenges, cluster initiatives and their members are a great source for such need-based fields of cooperation.

### *The S3 Synergy Diamond*

One method to identify such need-based solutions together with cluster managers is the S3-Synergy-Diamond.<sup>34</sup> This framework was developed to facilitate discussion on transformative actions and areas of specialisation in the regional and interregional context. It helps regions to analyse their areas of

<sup>34</sup> Meier zu Köcker, G., Keller, M., Dermastia, M. and Bersier, J. (2018): Considerations on a Cluster Action Plan: Transformative Activities for Regional Development, <https://bit.ly/2EFqwMP>.

specialisation in the context of transformative actions and to better target interregional collaboration that can create synergies.

The S3 Synergy Diamond approach is based on the assumption that transformative actions mainly emerge between priority areas as a result of increasing industrial convergence. The S3 Synergy Diamond groups the priority area at the corners and supports the identification of transformative activities between them (see Fig. 25).

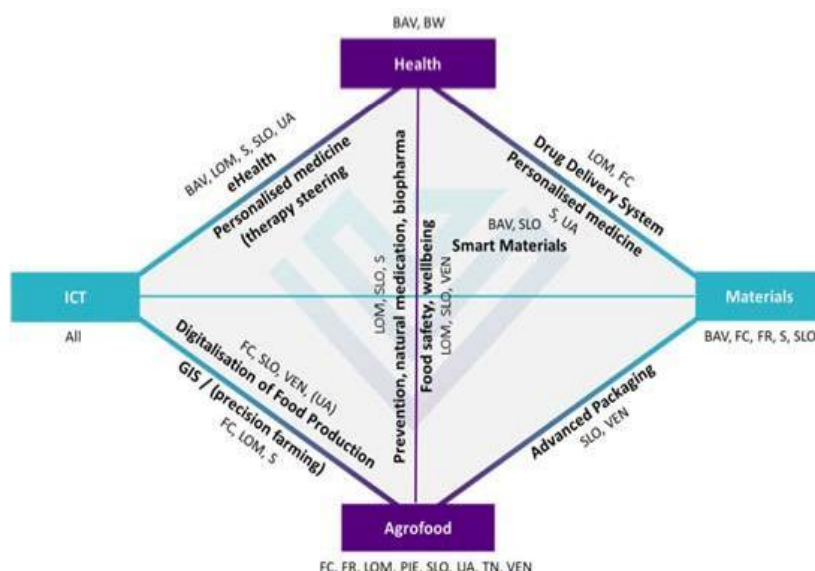


Figure 25: S3-Synergy Diamond for selected fields of strengths and related transformative activities<sup>35</sup>

In the end, the entire S3 Synergy Diamond illustrates where relevant transformative activities emerge from in a given (macro-) region. The S3 Synergy Diamonds provide a setting for evidence-based inputs and common discussions. They also present a tool for redirecting attention to the actions that are led and motivated by entrepreneurs.

In the given case, the S3 Synergy Diamond illustrates where need-based, interregional exchanges among regions might be beneficiary. This is especially true in those cases where regions have identified the same transformative activities, but are too small to succeed alone.

Once the transformative actions are identified by means of the S3 Synergy Diamond approach, they can be grouped and prioritised according to regional strengths and period of relevance (short, medium or long term). This is based on how strong the region is related to a given transformative activity compared to the national and global level. Such a prioritisation is beneficial for regions during the identification process to determine which transformative activity to place the focus on first. Furthermore, the comparison of regional strengths assists regions to better pinpoint how and why to cooperate inter-regionally. Interregional cooperation is important:

- In those cases where a given transformative activity has been determined to be of high relevance, but the region is not well positioned yet. Here interregional cooperation with partner regions that are strong with regards to this transformative activity is needed. Business-oriented cooperation supports the “weaker region” to catch up in a fast way without extensive investment in knowledge or technologies;
- In those cases where a given transformative activity has been identified to be of high relevance, and the region is well positioned already. Here interregional cooperation with peer

<sup>35</sup> Meier zu Köcker, G., Dermastia, M. and Keller, M. (2017). Strategic Alpine Space Areas for Cross-regional Cooperation. Interreg Alpine Space, <https://bit.ly/20IBgi2>

partner regions makes sense, focusing on common R&D and innovation to jointly enhance the leading position in the long run

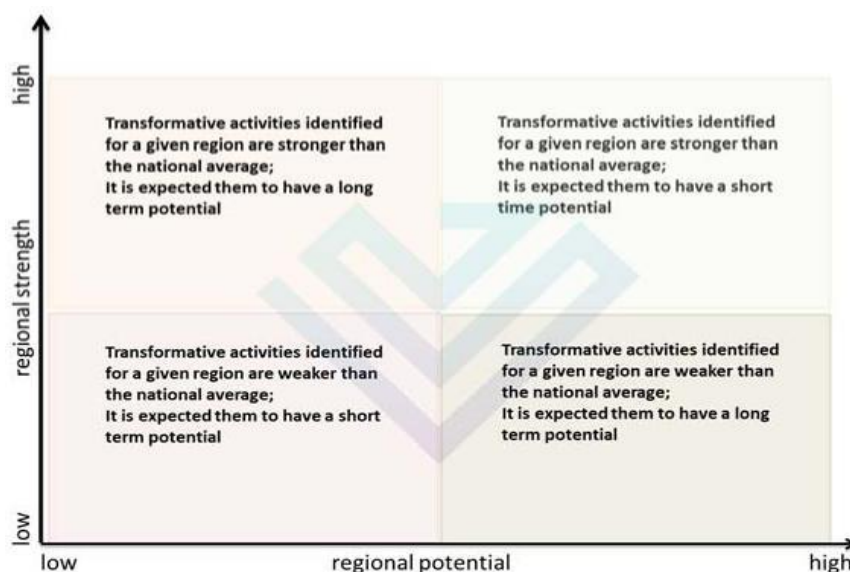


Figure 26: Portfolio to prioritise transformative activities

The S3 Synergy Diamond methodology can be used in Entrepreneurial Discovery Workshops to identify need-based topics for cross-sectoral and interregional cooperation.

### 4.3 Implementing Support Schemes for Cross-Sectoral and Trans-Regional Activities

Experience shows that a major challenge, after having identified need-based cross-sectoral and interregional fields of cooperation, is to advance the idea and initiate the next steps. While the integration of cluster initiatives helps to establish direct contact to the regions' essential actors, they still need financial support for the implementation of new ideas and the initiation of new projects.

There are several programmes supporting interregional cooperation in Europe, e.g. Horizon 2020, COSME, INTERREG, Eurostars, ERA-Net, etc. However, participating in these programmes is not an easy task and the programmes often do not match the specific needs of the regions and their stakeholders. They also require huge consortia with partners from all over Europe, so that the application process as such is very costly and time-consuming. This high effort and the long process until the actual start of the project is a major problem for many potential project partners. Furthermore, these funding programs are established for many years, so they are standardised instruments, which means, that innovative and flexible methodologies are difficult to realize.

Therefore, if need-based interregional and cross-sectoral topics are to directly address current challenges, the corresponding funding opportunities should be dynamic and flexible. Different analyses and experience in the recent past have revealed a funding gap for facilitating interregional cooperation in multi-regional governance structures.

There is currently no funding scheme in place by which EUSDR, where Danube Regions can define scope, modalities and kind of cooperation by their own. Especially, there is no funding scheme to follow up transformative activities identified. On the contrary, on national level different schemes in place for funding cross-border research, development and innovation activities do exist since many years. Countries / regions, like Bavaria, Austria and Slovenia are using such schemes since years. The prevailing funding schemes are the so called Joint Call, mainly implemented through the Common

Pot approach and the Synchronised Call approach, mainly implemented by means of the Virtual Pot approach. In both cases, cooperation between partners (regions or countries) is based on regional / national programmes that already exist. The following tables explain similarities and differences of both modes.

### ***The Joint Call Scheme***

A Joint Call Scheme uses the idea of a Common Pot approach, which means that the regions or countries agree on a common budget to support interregional cooperation. However, they are implementing a common funding programme with aligned funding rules. Such a process needs a high commitment of the participating regions. Furthermore, a neutral jury or committee is needed, which decides about the projects that will be funded.

However, implementing a Joint Call is not an easy process. High trust between the participating regions is needed. In addition, regional governments have to open to the aspect that their money could be spent in other countries or regions. This aspect in particular is not trivial for decision makers in the regions. At the end, the final funding decision has to be accepted by all partners, even if the own region is not as closely involved as expected.

<b>Main features</b>	A common budget, irrespective of the national/ regional affiliation of applicants, is established. The decision on which proposals should be retained for funding will be based on the evaluation by the international experts committee and the designated decision-making body.
<b>Advantage and Benefit</b>	<ul style="list-style-type: none"> <li>- High commitment from all participating regions / countries,</li> <li>- High trust among the participating regions/countries and related programme agencies,</li> <li>- Same chance for all applying consortia regardless of the individual contributions of the regions / nations,</li> <li>- Positioned to jointly fund the best quality proposals.</li> </ul>
<b>Challenges</b>	National/ regional programme management agencies do not retain control of funding decisions and funding, and might, depending on the funding decisions, fund non-national and non-resident researchers according to the committed budget. <u>National / regional legal provisions may restrict or disallow funding of non-residents.</u>
<b>Administrative efforts and benefits</b>	Administrative coordination with other national / regional programme management agencies is necessary to establish joint call procedures, and administrative effort is needed in order to ensure efficient operation of joint call decisions and joint funding, in accordance with joint standard rules and procedures.
<b>Summary</b>	Most sustainable and reliable approach, but also most challenging due to high alignment of national / regional funding rules.

Table 3: Real common pot funding scheme (Joint Call)<sup>36</sup>

### ***Synchronised Call***

The term “Synchronised Call” is mainly used in the context of the Virtual Pot approach. This implies “synchronisation” of existing programmes by opening and closing related Calls at the same time in various regions. A good example for such an approach is the Innovation Express Call implemented in the Baltic Sea Region over the last several years.<sup>37</sup> Based on the Virtual Pot approach, the Innovation Express represents a common approach for supporting the internationalisation of SMEs through cluster initiatives. The funding instrument is designed to facilitate internationalisation and cross-border

<sup>36</sup> Dermastia, M. (2018): Study to Prepare a Synchronised Funding Scheme for Bioeconomy Development in the Alpine Region, prepared under the AlpGov Project; <https://www.alpine-region.eu/results/study-prepare-synchronized-funding-scheme-bioeconomy-development-alpine-region>

<sup>37</sup> <https://www.bsr-stars.eu/innovation-express/>

learning by developing transnational linkages among SME networks, clusters and other specialised research and innovation nodes. The Call is funded by national and regional funding agencies to initiate, develop or enhance transnational cooperation activities. This serves to encourage cluster organisations (or similar) to develop proposals for their SME members.<sup>37</sup>

The main advantage of a “synchronised scheme”, in comparison to a joint call, is its relatively easy implementation, as it only needs a certain kind of commitment from the partner regions. The funding rules do not have to be aligned and every region still has the full control of its own budget. At the same time, this is also one of the main weaknesses of such a funding scheme. If a region is not really convinced about its role in a cross-sectoral project, they can easily deny the funding.

<b>Main features</b>	<ul style="list-style-type: none"> <li>- Each participating programme management agency funds its own successful applicants.</li> <li>- No cross-border funding is involved (no money is crossing any border).</li> <li>- Evaluation of proposals is undertaken by dedicated committee (mostly consisting of representatives from participating countries / regions), whereas funding decisions and funding is undertaken by individual national or regional programme management agencies, in accordance with their own standard rules and procedures.</li> </ul>
<b>Advantage and Benefit</b>	<ul style="list-style-type: none"> <li>- Transnational / interregional cooperation enabled</li> <li>- Comparable easy to implement</li> <li>- Certain kind of commitments from participating countries / regions</li> <li>- No funding rules have to be aligned.</li> </ul>
<b>Challenges</b>	<ul style="list-style-type: none"> <li>- Alignment of national / regional funding rules to set up synchronised calls</li> <li>- Common agreement in certain call scope</li> <li>- Countries / regions providing smaller budgets cannot fund as many partners as partners providing bigger budgets.</li> </ul>
<b>Administrative efforts and benefits</b>	Administrative coordination with other programme management agencies is necessary to establish synchronised call procedure. Administrative effort is needed in order to ensure efficient operation of the synchronised call decisions, in accordance with own standard rules and procedures.
<b>Summary</b>	Most easy approach to establish transnational or interregional funding schemes.

Table 4: Virtual common pot funding scheme (Synchronised Call) highlights <sup>38</sup>

Practice has shown that partner regions, which wish to cooperate inter-regionally but do not have significant experiences or are not prepared for a strong, long-term commitment, initiate first actions via a Synchronised Call, because it is easier to implement.

<sup>38</sup> Dermastia, M. (2018): Study to Prepare a Synchronised Funding Scheme for Bioeconomy Development in the Alpine Region, prepared under the AlpGov Project; <https://www.alpine-region.eu/results/study-prepare-synchronized-funding-scheme-bioeconomy-development-alpine-region>

## 5 Conclusions

The findings presented here are, on one side, very encouraging, but on the other side, a bit worrying. Encouraging, since the findings confirmed that cluster initiatives in the Danube Region made good progress over the recent past in terms of Cluster Management Excellence. Since the idea of Cluster Management Excellence is more and more implemented all over Europe, the disparities are more and more shrinking. Many cluster initiatives from the Danube Region gained international visibility, way beyond the Danube Region itself. This conclusion is even more striking since the framework conditions for cluster development and support of cluster initiatives have been fragile over the recent years. Limited capability of public investments in innovation and competitiveness, high bureaucracy and unpredictable cluster policy are characteristic for many partners of the Danube Region.

On the opposite side, it is worrying that cluster initiatives in the Danube Region appear to be disconnected from regional development and from EUSDR. The majority of the cluster initiatives considered in this White Paper, benefited neither from the RIS3 nor from the macro-regional approach. They are operating more or less isolated. However, it would be very important for the future development of the Danube region that the objectives of the cluster initiatives, the RIS and the EUSDR are interlinked.

Thus, after many years of awareness raising and training cluster managers towards Cluster Management Excellence, it might be time to shift attention to the professional usage of cluster initiatives as instrument for regional development. In particular, the question of how policy makers and regional developers can use cluster initiatives to accompany transformation processes. Then they would be an important support instrument for a sustainable and successful development of the regional economy. Furthermore, they can help to improve the RIS3 strategies in the region, to enhance their effect in transformation processes. Future challenges urge to new approaches for a more systematic approach for regional development.

It is also worrying that the macro-regional approach did not really lead to facilitation of cross-border collaboration between cluster actors. Appropriate cross-regional support schemes are missing, the INTERREG funding scheme for the Danube Region is not an option to match and bundle cluster actors to jointly collaborate and innovate. The work of PAC 8 is a first and important step, but needs more political and financial backing. The overall objective should be an integrative approach, in which the strategies of cluster initiatives are fully synchronised with the RIS3 and MRS.

Despite these worries, the current post2020 debate and ongoing consideration how to design the new Structural Fund period and the new design of EUSALP provides hope for improvements. First documents related to the scope of PAC 8 are encouraging, especially the Croatian Initiative to really embed clusters into the macro-regional approach.

In a nutshell: many cluster initiatives as tool for regional economic development are matured and meet international standards for Cluster Management Excellence. It is now up to cluster policy and regional developer to make proper use of them.