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BENCHMARKING REPORT

Council of Slovak Exporters - Exporteri

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ESCA is the European Secretariat for Cluster Analysis. Based in Berlin and hosted by VDI/VDE Innovation + Technik GmbH, ESCA advises cluster managers and policy makers on cluster development while relying on an international network of nearly 200 specifically trained cluster experts. By being linked to and involved in the European Clusters Excellence Initiative (ECEI) Phase I (2009 to 2012) and Phase II (2017-2019), ESCA experts have contributed to the development of various tools that support cluster managers on their way to excellence.

Cluster benchmarking is acknowledged by both cluster managers and policy makers throughout Europe. Since 2008, more than 1,200 cluster management organisations have been benchmarked according to this methodology.

The data collected for this benchmarking report is treated with absolute confidentiality and in individual manner will not be made available to any other third party, unless the Cluster Management Organisation has agreed beforehand in written manner. In aggregated form, the data feeds into the data portfolios used for benchmarking purposes. It is the sole decision of the Cluster Management Organisation to publish this report or parts of it.

For further information regarding the methodology and this benchmarking report, please contact ESCA directly.

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1. Executive Summary

The following report presents the results of the cluster benchmarking analysis of Council of Slovak Exporters. It is based on an interview with Lukáš Parízek which was conducted on September 2nd, 2021 by Katarina Ruzickova from Slovak Innovation and Energy Agency (SIEA).

A detailed analysis of the retrieved data along the six dimensions 1) structure; 2) governance; 3) strategy; 4) financing; 5) activities and services; and 6) contacts and interaction with relevant stakeholders is provided in Chapter 3.

The analysis is preceded by a short introduction of the benchmarking methodology, its underlying indicators and the composition of the relevant comparative portfolios (Chapter 2).

A discussion of insights and lessons learnt during ESCA's ten years of doing cluster assessments including cluster-related policy advice is provided in ANNEX I.

The report also features an evaluation of the cluster organisation's readiness for applying for a "Cluster Management Excellence Label GOLD – Proven for Cluster Excellence" (ANNEX II)

The following table captures the results of the assessment at a glance. It is complemented by customised recommendations for improving the performance of the cluster management.

1.1 Results

Table 1 summarises the assessment findings and provides an overview of strategic areas where the cluster management already fulfils relevant quality standards and where actions for improvement are recommended.[1]

The findings that are provided in the table are colour-coded along the following categorisation:

- GREEN: Excellent performance level. Only minor improvements are - if at all – possible;
- YELLOW: Reasonable performance level. Potential for improvement;
- RED: Certain criteria for good practice in cluster management are not met. ESCA recommends considering this issue for improvement.

The three categories have been defined on the basis of ESCA's ten years' experience on cluster management, as well as on the basis of the quality indicators defined within the European Cluster Excellence Initiative (see Annex II).

The table is complemented by customised recommendations for improving the performance of the cluster management (Chapter 1.2).

[1] Benchmarking is a self-assessment and cannot be compared to an evaluation. Results are based on information provided by the cluster manager to an external benchmarking expert. They have not been fully verified.

Table 1: Benchmarking results

	GREEN	YELLOW	RED
STRUCTURE			
Age of the Cluster Management Organisation (3.1.1)	More than 4 years old	Between 2 and 4 years old	**Less than 2 years old**
Legal form of the Cluster Management Organisation (3.1.2)	**Foundation / Registered association / Limited liability company**	Any other legal form	No legal form
Composition of the Cluster Membership (Committed Participants) (3.1.4)	**More than 70 % coming from industry (enterprises of different sizes)** **AND** **At least one research and one educational organisations** **AND** **At least one of the category "others"**	More than 50 % coming from industry AND At least one type of research and / or educational organisation	Less or equal 50 % coming from industry OR No research or educational organisation
Clear Focus in terms of: Sector or Technology or Application/Market	**Thematic focus**	Unclear focus	No focus on specific sector, technology, or application/market
Geographical Concentration of the Cluster Participants (Committed Participants) (3.1.5)	More than 70 % within a distance of 150 km from the headquarters or any regional office	**50-70 % within a distance of 150 km of the headquarters or any regional office**	Less than 50 % within a distance of 150 km of the headquarters or any regional office
Utilisation of Regional Growth Potential (3.1.6)	The cluster has a satisfying regional coverage in terms of membership or maximal potential is already reached. (Sector III of the graph)	**The cluster has an at least good regional coverage of its participants and/or has experienced significant growth in the last 24 months. It is assumed that growth dynamic of the past will continue in the near future. (Sector II of the graph)**	The cluster has potential for further growth in terms of participants. There is still a high amount of partners in the region who are not committed to the cluster work. The cluster would certainly benefit from an increased participation of regional actors. (Sector I of the graph)
MANAGEMENT, GOVERNANCE, STRATEGY, FINANCING			
Level of Governance: Cluster Manager in place / Clear Definition of the Roles of the Cluster Management Team / Implementation of a Governing Body / Degree of Involvement of the Cluster Participants in the Strategic Decision Making (3.2.2)	Strong	**Moderate**	Weak
Number of **Committed** Cluster Participants per employee (FTE) of the Cluster Management Organisation Team (3.2.3)	**Appropriate (see Table[5])**	Moderate (see Table[5])	Insufficient (see Table[5])
Number of **Committed and Non-Committed** Cluster Participants per Employee (FTE) of the Cluster Management Organisation Team (3.2.3)	**Appropriate (see Table[5])**	Moderate (see Table[5])	Insufficient (see Table[5])

[5]Number of Cluster Participants per Employee (FTE) of the Cluster Management Organisation

FTE	Green	Yellow	Red
1	Max. 20 cluster participants in total	21-50	>50 cluster participants in total
2	Max. 50	51-110	>110
3	Max. 90	91-180	>180
4	Max. 140	141-260	>260
5	Max. 200	201-350	>350
6	Max. 270	271-450	>450
7	Max. 350	351-560	>560
8	Max. 440	441-680	>680

	GREEN	YELLOW	RED
Human Resource Competences and Development in the Cluster Management Organisation (3.2.6)	Higher than the average value of clusters in the same technology area OR higher than the average value of clusters of the excellence portfolio	Any other answer in between	**Below the average value of clusters in the same technology area AND below the average value of clusters of the excellence portfolio**
Number of Personal Contacts between Cluster Management Team and Participants (3.2.7)	Appropriate	**Moderate**	Insufficient
Number of Personal Contacts between Cluster Participants (3.2.8)	**Appropriate**	Moderate	Insufficient
Strategic and Operational Planning (3.4.1)	Fully documented cluster strategic and operational planning, including regular updating processes based on a systematic monitoring approach	**Any other answer**	No documented strategy or no strategy at all
Financial Sustainability of the Cluster Management Organisation (3.3.2)	Secured in the long term	Secured in the short and medium term	**Critical / very critical**
Readiness for Internationalisation (3.4.4)	**Higher than the average value of clusters in the same technology area OR higher than the average value of clusters of the excellence portfolio**	Any other answer in between	Below the average value of clusters in the same technology area AND below the average value of clusters of the excellence portfolio
SERVICES AND ACTIVITIES			
Community Building (3.5.1)	**3 out of 4 service intensities above average of clusters in the same technology area**	Value in between	3 out of 4 service intensities below average of clusters in the same technology area
Location Branding (3.5.2)	**3 out of 4 service intensities above average of clusters in the same technology area**	Value in between	3 out of 4 service intensities below average of clusters in the same technology area
Research, Development & Innovation (3.5.3)	4 out of 6 service intensities above average of clusters in the same technology area	Value in between	**4 out of 6 service intensities below average of clusters in the same technology area**
Business Development (3.5.4)	**4 out of 6 service intensities above average of clusters in the same technology area**	Value in between	4 out of 6 service intensities below average of clusters in the same technology area
Development of Human Resources (3.5.5)	3 out of 4 service intensities above average of clusters in the same technology area	**Value in between**	3 out of 4 service intensities below average of clusters in the same technology area
Development of Entrepreneurship (3.5.6)	2 out of 3 service intensities above average of clusters in the same technology area	Value in between	**2 out of 3 service intensities below average of clusters in the same technology area**
Supporting Policy Development (3.5.7)	**3 out of 4 service intensities above average of clusters in the same technology area**	Value in between	3 out of 4 service intensities below average of clusters in the same technology area
Internationalisation activities (3.5.8)	4 out of 6 service intensities above average of clusters in the same technology area	**Value in between**	4 out of 6 service intensities below average of clusters in the same technology area

ACHIEVEMENTS AND RECOGNITION			
Number of General External Requests for Cooperation received by the Cluster Management Organisation (3.6.2)	**Large number of external cooperation requests**	Moderate number of external cooperation requests	No external cooperation request
Media Visibility (3.6.4)	High visibility	**Any answer in between**	No visibility
Effects on R&D Activities of specific Cluster Participants (3.6.5)	For at least 2 "participants classes" effects are higher than for the average of clusters in the same technology area OR clusters in the excellence portfolio	Value in between	**For all "participants classes" 3 of 4 values are below the average values of the clusters in the same technology portfolio**
Effects on Business and/or Commercial Activities of specific Cluster Participants (3.6.7)	**For at least 2 "participants classes" effects are higher than for the aver-age of clusters in the same technology area OR clusters in the excellence portfolio**	Value in between	For all "participants classes" 3 of 4 values are below the average values of the clusters in the same technology portfolio
Effects on the International Activities of the cluster participants (3.6.9)	**3 out of 5 "participants classes" are effected in a higher degree than the average of clusters in the same technology area OR clusters in the excellence portfolio**	Value in between	For all "participants classes" 4 of 5 values are below the average values of the clusters in the same technology portfolio

1.2 Recommendations

Based on the above findings, ESCA recommends implementing the following customised actions to improve the Cluster Management Organisation's performance towards excellence. The recommendations, however, should be adapted to the individual context of the Cluster Management Organisation as certain results might be due to specific circumstances, strategic considerations or political constraints.

STRUCTURE OF THE CLUSTER

Age of the Cluster Management Organisation (3.1.1):

The Cluster Management Organisation is still quite young. This is not a weakness itself, but in general a maturity of at least four years is necessary in order to avoid typical "freshman mistakes" and to gain sustainable stability and recognition. Thus, it is recommended to establish contacts with mature Cluster Management Organisations to learn from their experiences. The cluster could be active in the same technology area, but as well insights into approaches to cluster management from other technology areas might be useful.

MANAGEMENT, GOVERNANCE, STRATEGY, FINANCING

Human Resource Competences and Development in the Cluster Management Organisation (3.2.6)

The cluster management and other staff of the Cluster Management Organisation are continuously exposed to new challenges. The requirements of how to successfully manage a cluster have changed over time. An internal human development concept and continuous learning and training of the cluster management team are important elements of a successful cluster management. This might help provide the staff with relevant up-to-date knowledge and experience. An analysis of the staff's training needs supports the development of such a concept. Measures for training of the cluster management team should be implemented on a regular basis supported by a sufficient budget. International work experience and language skills are also relevant criteria. Investing in the knowledge and management competences of the staff will pay off soon through better services and tailor-made support of the cluster participants.

Financial Sustainability of the Cluster Management Organisation (3.3.2)

The cluster management needs to run on a sustainable financial basis in order to be able concentrate on its mandate. Without such a sustainable financial basis the cluster management has to spend a lot of resources on fundraising. These resources are not available for the development and provision of services for the cluster participants. Stakeholders and key actors from industry, academia and of public authorities should be well aware of the financial situation of the cluster management and should be involved in securing funding. The development of fee-based services might be a solution. The identification of new financial sources should be combined with an internal strategy process. Many Cluster Management Organisations were established with significant public support. As public support is mostly limited in time it is crucial for a cluster management to tap other sources of financing. The substitution of public funding by private means over time can indicate good cluster management practises as products and services are sold to cluster participants or other parties.

SERVICES AND ACTIVITIES

Research, Development and Innovation (3.5.3)

Collaborative technology development, technology transfer or R&D activities with or without third party funding are some of the objectives of the Cluster Management Organisation's work. As the range of services in this service category and/or the intensity of them are lower than the average of the comparative portfolios, it is recommended to implement a broader range of tailor-made services or to run existing services with a higher intensity. This might also include the acquisition of third party funding. Such actions should be based on an analysis of the participants' needs in close cooperation with the potential beneficiaries.

Development of Entrepreneurship (3.5.6)

The development of entrepreneurship is one of the objectives of the Cluster Management Organisation's work. As the range of services in this service category and/or the intensity of them are lower than the average of the comparative portfolios, it is recommended to implement a broader range of tailor-made services or to run existing services with a higher intensity. Such actions should be based on an analysis of the participants' needs in close cooperation with the potential beneficiaries.

ACHIEVEMENTS AND RECOGNITION

Effects on R&D Activities (3.6.5)

Regarding the design of the services provided and the activities taking place within the cluster initiative, more emphasis should be paid on generating (positive) effects on the level of the single committed cluster participants. Using the individual discussion and/or surveys with/among the committed cluster participants, possible effects the R&D Activities could be determined. Based on this services can be designed and conducted. In due time it should be analysed whether the expected effects can be observed..

2. Cluster Excellence Benchmarking

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

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

Many countries have developed cluster policies and programmes to enhance the impact of research and innovation. Clusters provide governments with a strategic opportunity to address social and economic challenges through business development and innovation support programmes.

Cluster management excellence is considered as one of the most promising approaches to increase the contribution of clusters to sustainable economic development and successfully address megatrends such as digitalisation, energy efficiency or social innovation.

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

ESCA thereby draws on data of more than 1,100 benchmarked Cluster Management Organisations from various technology areas and countries, as highlighted in Table 2.

Table 2: Total number of benchmarked Cluster Management Organisations since October 2010, including their related technology areas and countries of origin.

	Aviation and space	Biotechnology	Construction/building sector	Creative industries and business, media, design; financial services	Energy and environment	Food industry (non-biotech) and AgroTech	Health and medical technology	Information and communication; Hard-/Software	Logistics: Packaging, Delivery, Logistical Systems and Services	Maritime technologies, water resources, water transport	Micro, nano and optical technologies	Mobility: Vehicles, rail, traffic systems	New Materials and chemistry	Production and engineering	Textile industries	Tourism, Leisure, Sports	TOTAL
AUS	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
AUT	0	1	1	0	2	1	1	2	0	0	0	1	1	2	0	0	12
BEL	1	0	3	2	1	2	2	3	1	0	1	0	2	1	0	0	19
BGD	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
BGR	0	0	0	0	1	0	0	4	0	1	1	2	0	5	1	0	15
BIH	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
CAN	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
CHE	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	3
COL	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	3
CYP	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
CZE	1	0	3	0	4	0	2	3	0	0	0	1	2	6	1	1	24
DNK	3	1	4	11	15	7	8	5	1	3	0	2	2	7	0	3	72
ESP	4	6	9	10	16	19	9	13	7	5	1	8	5	16	6	8	142
EST	1	0	3	0	1	0	3	3	0	0	0	0	0	3	0	0	14
FIN	0	0	0	3	6	2	1	1	0	1	1	0	2	1	0	1	19
FRA	4	1	3	7	11	10	9	8	2	5	5	4	7	5	3	8	92
GBR	0	0	0	3	1	0	0	1	0	0	1	1	0	1	1	0	9
GEO	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	3
GER	9	8	5	10	24	8	17	20	10	1	25	17	11	23	2	3	193
GRC	1	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	5
GRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
HRV	0	0	0	1	2	3	0	2	0	0	0	0	0	7	0	1	16
HUN	0	2	3	1	6	1	2	8	1	0	0	1	0	6	0	2	33
IND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
IRL	0	0	0	1	2	1	0	2	0	1	0	0	0	0	0	2	9
ISL	0	0	0	1	2	1	0	1	0	1	0	0	0	1	0	3	10
ITA	3	1	5	2	8	7	9	4	1	1	0	2	3	6	2	3	57
KAZ	0	0	1	0	0	2	1	0	0	0	0	0	0	1	0	1	6
LBN	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	3
LTU	0	0	0	1	1	2	2	0	0	0	1	0	0	3	0	0	10
LVA	0	0	1	1	1	2	1	2	1	0	1	0	1	3	0	0	14
MAR	0	1	1	0	1	2	0	1	0	1	1	0	0	1	2	0	11
MEX	3	1	1	5	2	6	5	20	1	0	0	6	1	6	0	1	58
MLT	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	4
MNE	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
NLD	0	0	0	0	3	2	2	0	0	1	0	1	0	1	0	3	13
NOR	0	3	4	5	5	8	4	5	0	10	2	2	2	12	1	6	69
POL	2	3	6	5	8	4	5	8	1	0	1	3	2	5	1	1	55
PRT	2	0	3	1	2	5	1	3	0	2	0	2	0	3	1	2	27
ROU	0	2	4	4	4	6	6	10	1	1	3	3	1	8	4	6	63
RUS	3	1	0	0	0	0	2	0	0	0	1	0	0	2	0	0	9
SRB	0	1	1	0	2	0	0	2	0	0	0	0	0	2	0	0	8
SVK	0	3	0	2	9	2	0	6	0	0	0	3	1	4	0	5	35
SVN	0	1	1	0	2	0	0	2	0	0	0	1	2	2	0	0	11
SWE	1	1	1	3	3	3	2	11	2	1	0	1	1	8	1	3	42
TUN	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
TUR	3	0	0	0	3	5	2	0	1	1	0	2	3	12	5	0	37
UKR	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
USA	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL	42	38	65	82	153	114	99	153	31	36	47	64	49	169	34	67	1243

2.1 The Benchmarking Approach

Clusters are subject to permanent development. Cluster Management Organisations therefore need insights into their performance levels and competitiveness as an input for strategic decision making. Benchmarking can support this process as it offers the opportunity for active learning through a comparison with other clusters. By relying on qualitative and quantitative indicators and by comparing cluster-specific results among peers (e. g. Cluster Management Organisations from the same country and/or the same technology area / industrial sector), benchmarking can be used to document success and to identify opportunities for improvement. The findings are of interest to the cluster participants as well as to the Cluster Management Organisations.

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

In order to discuss the results of the benchmarking exercise and to improve the quality of the cluster management organisations work, ESCA collaborates with nearly 200 well experienced and specifically trained benchmarking experts from more than 30 countries to consult Cluster Management Organisations in their specific countries. A list of current benchmarking experts is provided on www.cluster-analysis.org/esca-experts.

2.1.1 Underlying Indicators

The benchmarking focusses on the Cluster Management 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 or only a minor part of this analysis. The dimensions and indicators of the cluster benchmarking, which are analysed for this report, are presented in Figure 1.

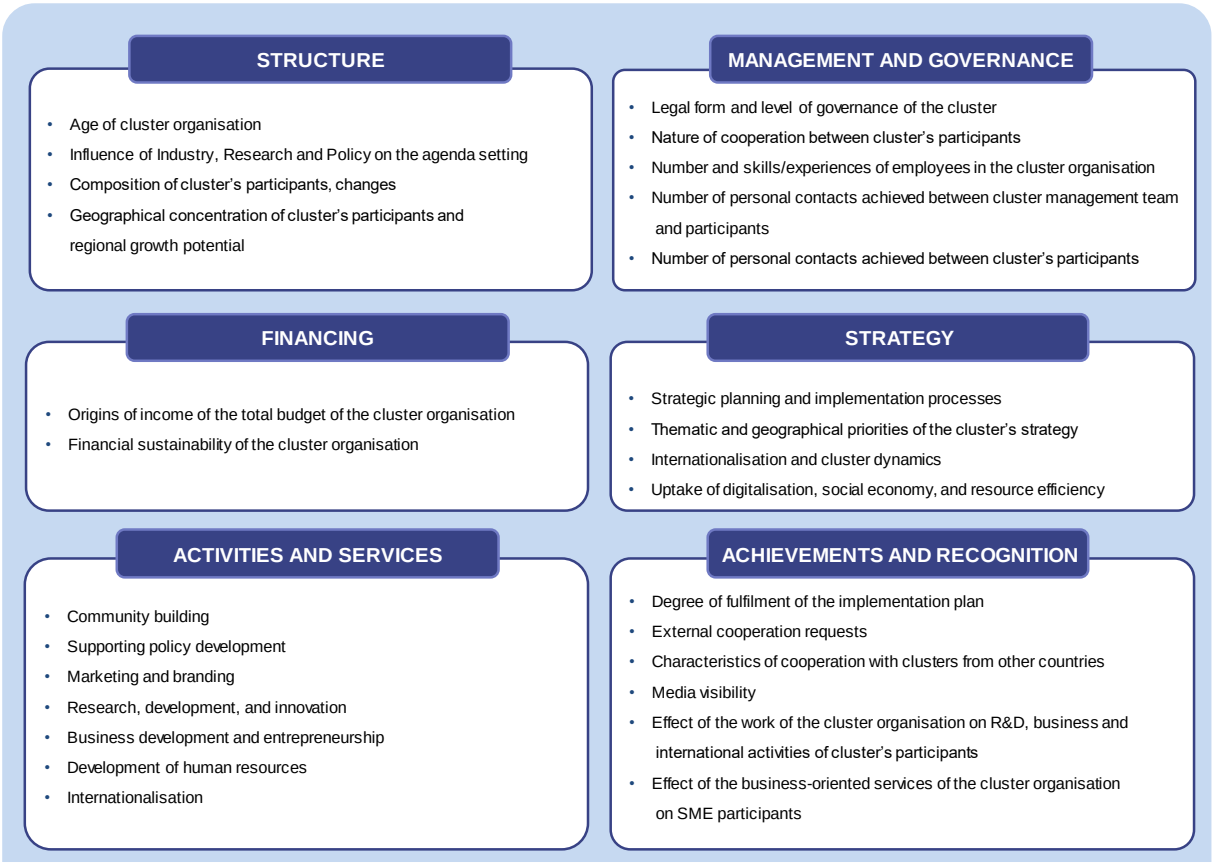


Figure 1: Dimensions and indicators used for Cluster Management Benchmarking

2.1.2 Comparative Portfolios

The illustrated findings of the benchmarking interview allow comparing the performance of the assessed Cluster Management Organisation vis-à-vis their peers from the same technological area, the same country or from an ESCA excellence portfolio consisting of 58 top performing Cluster Management Organisations.

ESCA uses the following three distinct comparative portfolios for the benchmarking exercise:

- A national portfolio: the results of the interviewed cluster compared to results from clusters of the same country. This is only possible if data of at least ten clusters from the country of origin of the interviewed Cluster Management Organisation is available (Table 3).
- A technological portfolio: the results of the interviewed cluster are compared to results from clusters that are active in the technology area selected by the Cluster Management Organisation (Table 44)[1].
- An excellence portfolio: the results of the interviewed cluster are compared to results from clusters of the excellence portfolio. This portfolio is technologically unspecified and gathers all the technology areas (Table 55).

[1] Cluster Management Organisations which have classified themselves as being active in "Other technology area" were assigned to the best fitting technology area by ESCA during the data analysis.

The three comparative portfolios are permanently developing over time. After about two years, the ESCA benchmarking results are considered outdated and removed from the comparative portfolios. Therefore, the comparative portfolios used in this report result from data collected in the past two years.

As the idea of benchmarking intends to compare with the “state of the art”, only the Cluster Management Organisations reaching a minimum score of management excellence and mature Cluster Management Organisations are included within the technological portfolio (technology area).

The national portfolio, if existing, includes all interviewed Cluster Management Organisations within the country of origin, independent of their score of management excellence. This shall enable cluster stakeholders to gain a thorough overview of the own level of management excellence in the respective national, economic and political contexts.

Table 3: Total number of Cluster Management Organisations used for compiling the national portfolios (oldest data from November 2019). Tech portfolio and country of origin of the interviewed organisation are highlighted.

	Aviation and space	Biotechnology	Construction/building sector	Creative industries and business, media, design; financial services	Energy and environment	Food industry (non-biotech) and AgroTech	Health and medical technology	Information and communication; Hard-/Software	Logistics: Packaging, Delivery, Logistical Systems and Services	Maritime technologies, water resources, water transport	Micro, nano and optical technologies	Mobility: Vehicles, rail, traffic systems	New Materials and chemistry	Production and engineering	Textile industries	Tourism, Leisure, Sports	TOTAL
AUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUT	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
BEL	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
BGD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BGR	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
BIH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COL	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
CYP	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
CZE	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	4
DNK	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	4
ESP	0	1	4	2	4	5	0	3	0	0	0	5	1	3	2	3	33
EST	1	0	1	0	0	0	1	2	0	0	0	0	0	1	0	0	6
FIN	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
FRA	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
GBR	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2
GEO	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
GER	0	0	2	0	7	4	7	5	1	0	8	6	3	9	0	0	52
GRC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HRV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HUN	0	1	1	0	1	0	1	2	0	0	0	0	0	2	0	2	10
IND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRL	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
ISL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ITA	0	0	3	1	2	0	3	1	0	1	0	1	0	2	1	0	15
KAZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LBN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LTU	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
LVA	0	0	0	0	1	1	0	0	0	0	1	0	1	1	0	0	5
MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEX	1	0	1	1	1	0	2	11	1	0	0	0	1	0	0	0	19
MLT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MNE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLD	0	0	0	0	1	0	2	0	0	0	0	1	0	0	0	2	6
NOR	0	1	1	0	3	0	3	2	0	0	0	1	0	3	0	0	14
POL	1	0	1	0	1	0	1	0	0	0	0	2	0	0	0	0	6
PRT	1	0	1	0	0	0	0	0	0	0	0	1	0	1	1	0	5
ROU	0	0	2	0	1	0	1	0	0	0	0	0	0	0	1	0	5
RUS	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
SRB	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SVK	0	2	0	2	8	2	0	5	0	0	0	2	1	2	0	1	25
SVN	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SWE	1	0	0	1	1	2	0	4	1	1	0	0	0	2	1	1	15
TUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUR	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	4
UKR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	7	20	9	32	17	26	40	4	3	10	20	7	29	7	9	248

Table 4: Total number of clusters being used to compile the tech portfolios (oldest data from November 2019). Tech portfolio and country of origin of the interviewed organisation are highlighted.

	Aviation and space	Biotechnology	Construction/building sector	Creative industries and business, media, design; financial services	Energy and environment	Food industry (non-biotech) and AgroTech	Health and medical technology	Information and communication; Hard-/Software	Logistics: Packaging, Delivery, Logistical Systems and Services	Maritime technologies, water resources, water transport	Micro, nano and optical technologies	Mobility: Vehicles, rail, traffic systems	New Materials and chemistry	Production and engineering	Textile industries	Tourism, Leisure, Sports	TOTAL
AUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUT	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
BEL	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
BGD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BGR	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
BIH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COL	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
CYP	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
CZE	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	4
DNK	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	4
ESP	0	1	4	2	4	5	0	3	0	0	0	5	1	3	2	3	33
EST	0	0	1	0	0	0	1	2	0	0	0	0	0	1	0	0	5
FIN	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
FRA	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
GBR	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2
GEO	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
GER	0	0	2	0	6	4	7	4	1	0	8	6	3	8	0	0	49
GRC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HRV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HUN	0	1	1	0	1	0	1	2	0	0	0	0	0	2	0	2	10
IND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRL	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
ISL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ITA	0	0	2	1	2	0	3	1	0	1	0	1	0	1	1	0	13
KAZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LBN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LTU	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
LVA	0	0	0	0	1	1	0	0	0	0	1	0	1	1	0	0	5
MAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEX	1	0	1	1	1	0	1	7	1	0	0	0	1	0	0	0	14
MLT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MNE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLD	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	2	5
NOR	0	1	1	0	3	0	3	2	0	0	0	1	0	3	0	0	14
POL	1	0	1	0	1	0	1	0	0	0	0	2	0	0	0	0	6
PRT	1	0	1	0	0	0	0	0	0	0	0	1	0	1	1	0	5
ROU	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	4
RUS	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
SRB	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SVK	0	0	0	2	2	2	0	2	0	0	0	2	1	1	0	1	13
SVN	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SWE	1	0	0	1	1	2	0	4	1	1	0	0	0	2	1	1	15
TUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUR	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3
UKR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	5	18	9	25	17	23	32	4	3	10	20	7	26	7	9	222

The excellence portfolio applies the same "Excellence Score" as described above. Only Cluster Management Organisations reaching very high performance levels are included in the excellence portfolio.

Table 5: Total number of Cluster Management Organisations belonging to the excellence portfolio and repartition per specific technology area (Oldest data from November 2019). Tech portfolio of the interviewed organisation is highlighted.

	Aviation and space	Biotechnology	Construction/building sector	Creative industries and business, media, design; financial services	Energy and environment	Food industry (non-biotech) and AgroTech	Health and medical technology	Information and communication; Hard-/Software	Logistics: Packaging, Delivery, Logistical Systems and Services	Maritime technologies, water resources, water transport	Micro, nano and optical technologies	Mobility: Vehicles, rail, traffic systems	New Materials and chemistry	Production and engineering	Textile industries	Tourism, Leisure, Sports	TOTAL
TOTAL	2	2	4	4	7	3	8	6	0	0	1	10	0	8	2	1	58
PER CENT	25%	29%	20%	44%	22%	18%	31%	15%	0%	0%	10%	50%	0%	28%	29%	11%	23%

2.1.3 Visualisation of Benchmarking Results

For a better understanding of the data analysis, the following chapter introduces a series of diagrams and graphs, which are used for visualising the benchmarking data.

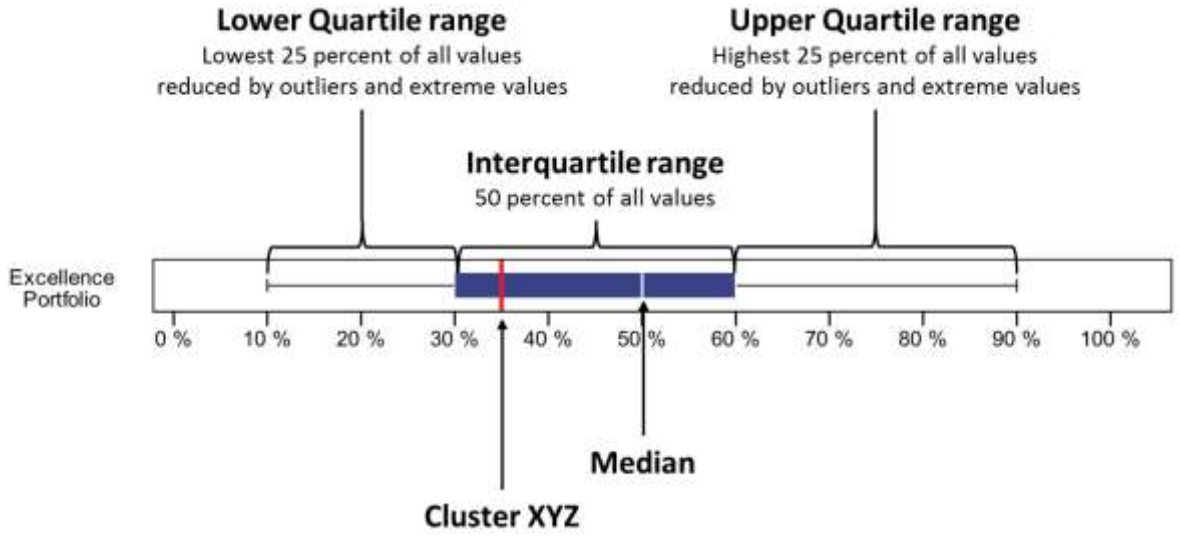
Boxplot

Boxplots display distributions of statistical data without making any assumptions about characteristics of this distribution. This means that the spacing between the different parts of the box helps to indicate the degree of spread and skewness in the 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, only a reduced set is included in the lower and the higher quartile and not the full 25 % of the data. The ends of the whiskers are determined by the following model: the length of the whiskers is determined by the lowest and the highest value of the presented data AND shall not be larger than 1.5x the size of the interquartile range. This way, the whiskers include up to 25 % of the entire data, reduced by significant statistical outliers.

When applying the described methodology for drafting the box-plot chart, in general at least around 80-90 % of the cluster-related data can be considered to be inside the box or inside the range of the whiskers. Very special individual values are not considered.

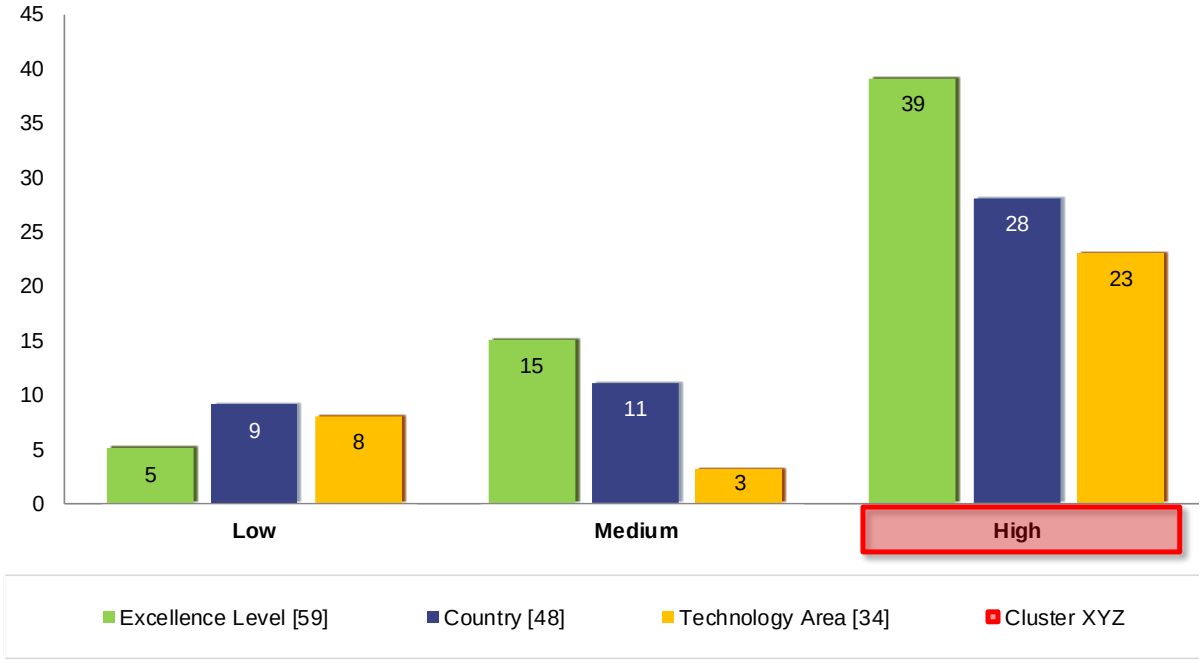
The red line represents the data of the individual benchmarked cluster. The figure does not feature a red line in case no data was assessed for the cluster.



Bar Chart

A bar graph is uses to show comparisons among categories.

The answer of the benchmarked cluster is high-lighted by a red frame (Answer) in the horizontal axis. The figure does not feature a red frame if no data was assessed for the cluster. The results of the national portfolio (if existing) are indicated by a blue bar, the technical portfolio by a yellow bar and the excellence portfolio by a green bar.



Radar Chart

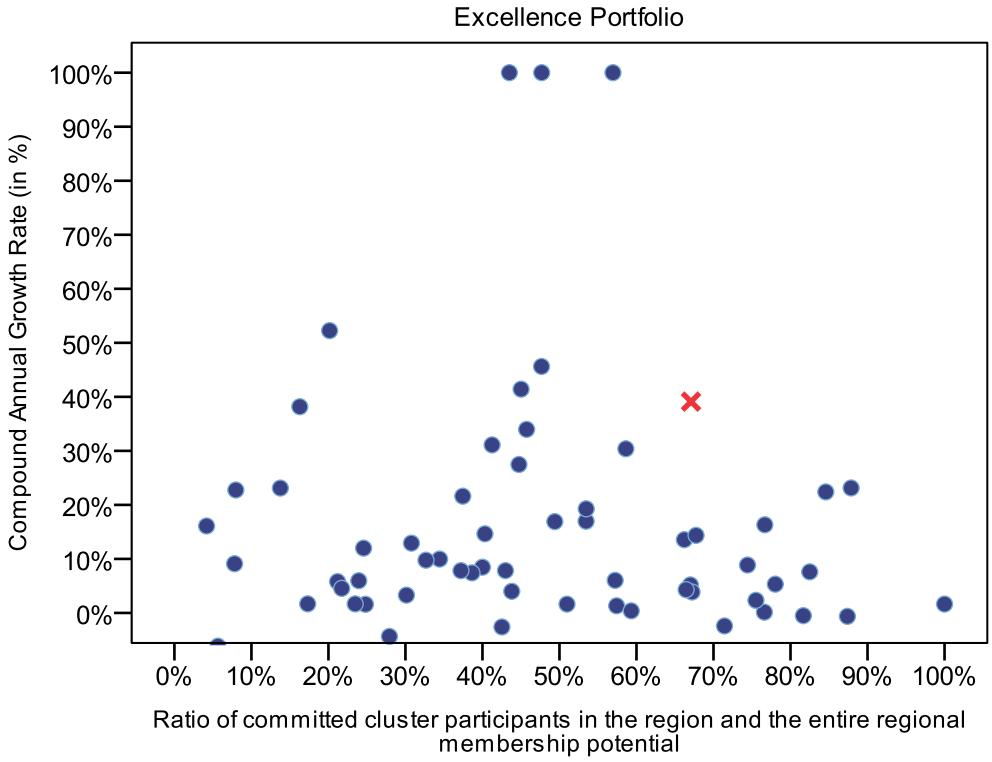
The radar chart is a graphical method of displaying multivariate data in the form of a two-dimensional chart of quantitative variables represented on axes starting from the same point.

The data of the benchmarked cluster is indicated by a red line. The figure does not feature a red line if no data was assessed for the cluster. The results of the national portfolio (if existing) are indicated by a blue line, the technical portfolio by a yellow line and the excellence portfolio by a green line.

Scatter Plot

A scatter plot is a visual representation of bivariate data in a two dimensional coordinate system. The plotted points show the relationship between two variables and allow further statements about the correlation and estimated trend for the pair of values.

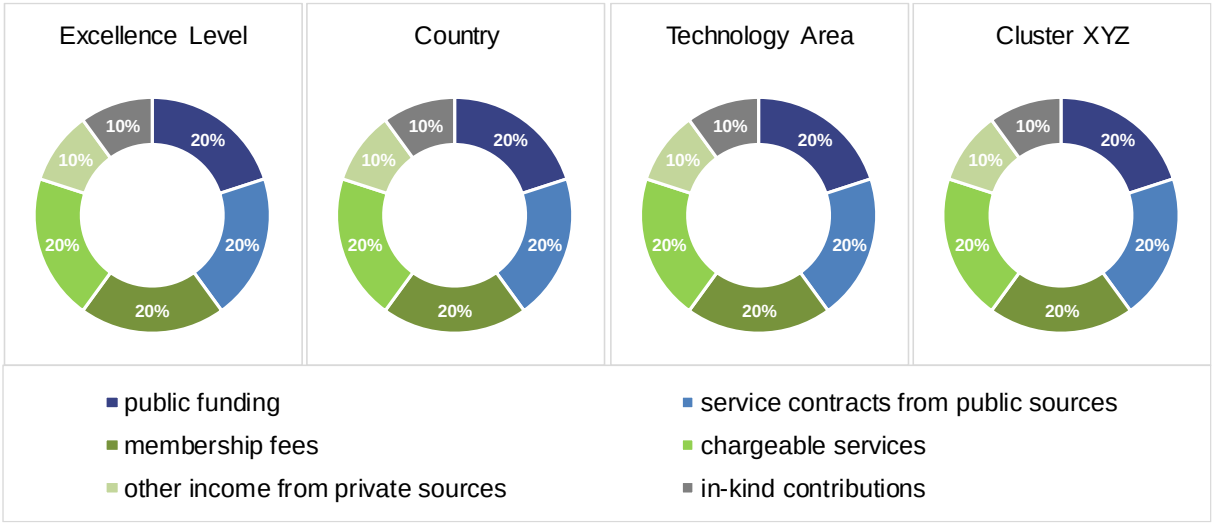
The position of the benchmarked cluster in the matrix is indicated by a red cross (x). In some cases, sufficient data could not be assessed during the interview. In these cases only the distribution of the comparative portfolios included in the data assessment is presented.



Ring Chart

The ring diagram is a kind of diagram which separates a total distribution of values into differently coloured segments. The values are given in percent. The sum of the individual segments thus always corresponds to 100 percent.

The data of the benchmarked cluster is indicated by a separate ring chart. The figure is not included if no data was assessed for the cluster. The results of the national portfolio (if existing), the technical portfolio and the excellence portfolio are indicated as a separate chart.



3. Benchmarking Results

3.1 Structure

3.1.1 Age of the Cluster Management Organisation

The maturity of a Cluster Management Organisation is often related to its age. As it takes time to successfully develop and implement activities for a cluster, it is supposed that a Cluster Management Organisation needs at least four years to yield satisfying results.

Here, the year in which the cluster management activities were initiated is more important than the foundation date of the recent (or first ever) legal entity of the cluster initiative and/or the cluster management organisation. Therefore, the initial start of any cluster management activities 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 - while the opposite can be observed as well: A cluster which is well formalised with a legal form, but a cluster management body is not (yet) existing and being implemented at a later stage.

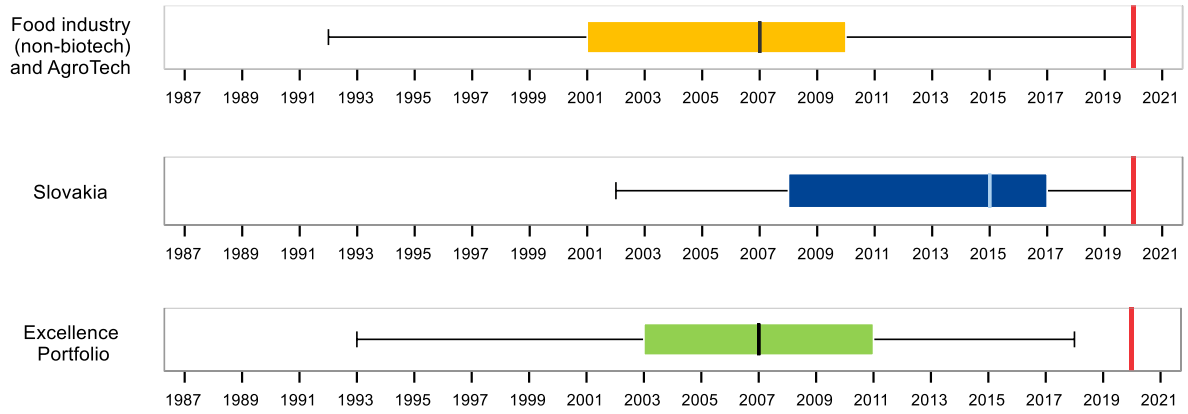


Figure 2: Year of establishment of Cluster Management Organisations

3.1.2 Legal Form of the Cluster Management Organisation

The main reasons for a Cluster Management Organisation to adopt a legal form are to reach:

- a higher commitment of its participants,
- shared risks,
- a higher exclusiveness of added value for the cluster participants
- easier access and/or eligibility to apply for public funds.

The most prevailing legal form for Cluster Management Organisations are registered associations.

As well a "foundation" is a quite common form, as well as a "limited liability company".

A cluster organisation being embedded into another formal organisation is another formalised set-up which can be observed. This form on one hand allows to take advantage of the (larger) mother organisation, which might simplify solving financial issues (cash-flow), which might offer well-organised support services (financial management, legal advice, human resources services, …), on the other hand as well could have drawbacks regarding internal priorities, visibility, corporate identity, etc., all related to the relationship of the cluster organisation to the mother organisation.

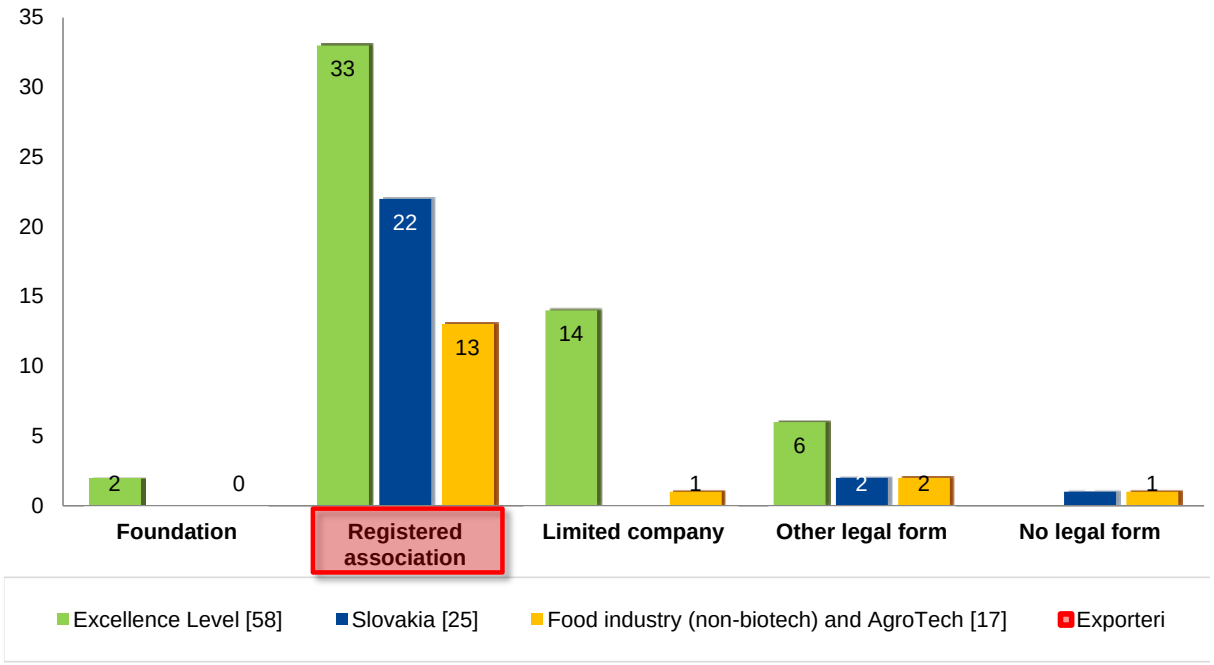


Figure 3: Legal form of Cluster Management Organisations within the comparative portfolios

3.1.3 Influence of Industry, Research and Policy on the Agenda Setting

In many cases, the cluster participants influence the agenda setting of the cluster as well as strategic priorities. The cluster manager was 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.

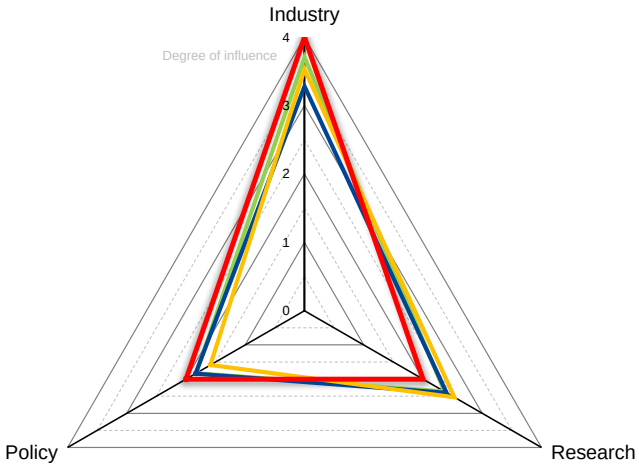


Figure 4: Influence of Industry, Research and Policy on the agenda setting of Cluster Management Organisations

3.1.4 Composition of the Cluster Participants

The benchmarking analysis mainly considers cluster participants in the sense of committed participants.

A cluster participant is committed if it actively contributes to the activities of the cluster, by 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),
- signing of a declaration of accession (letter of intent, partnership agreement, or a similar form of written commitment) or
- regularly participating in cluster projects or working groups.

Commitment is not reflected by a registration for a newsletter or by a single participation in an event organised by the Cluster Management Organisation.

A non-committed cluster participant is a passive participant showing specific interest in the cluster's activities which go beyond the mere registration for a newsletter or similar (e.g. through [more or less] regular participation in events), but not contributing actively to any of the cluster's activities or not providing any financial (or in-kind) support in any way.

The composition of the committed cluster participants is very important for successful work of and within a cluster. Bundling of different competences is one determinant 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.

The repartition of the committed participants is represented according to the following participants' categories:

- Figure 5: Total number of committed participants;
- Figure 6: Number of committed industrial participants;
- Figure 7: Number of committed SME[2] participants;
- Figure 8: Number of committed participants dedicated to R&D (universities[3] and R&D organisations);
- Figure 9: Number of committed participants dedicated to education and training (universities[3], schools and training providers);
- Figure 10: Number of committed participants that are intermediaries and political/administration stakeholders, other clusters or miscellaneous participants.

[2] Based on the SME definition of the European Commission (Recommendation 2003/361/EC regarding the SME definition) a company is considered as SME if it has no more than 250 employees.

[3] Universities are counted twice, both in the category "R&D participants" and in the category "participants dedicated to education and training".

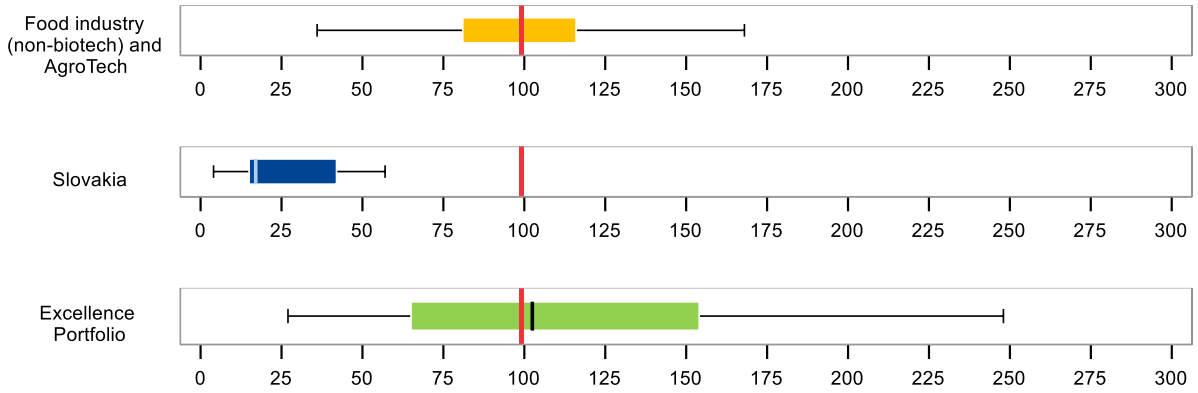


Figure 5: Total number of committed participants

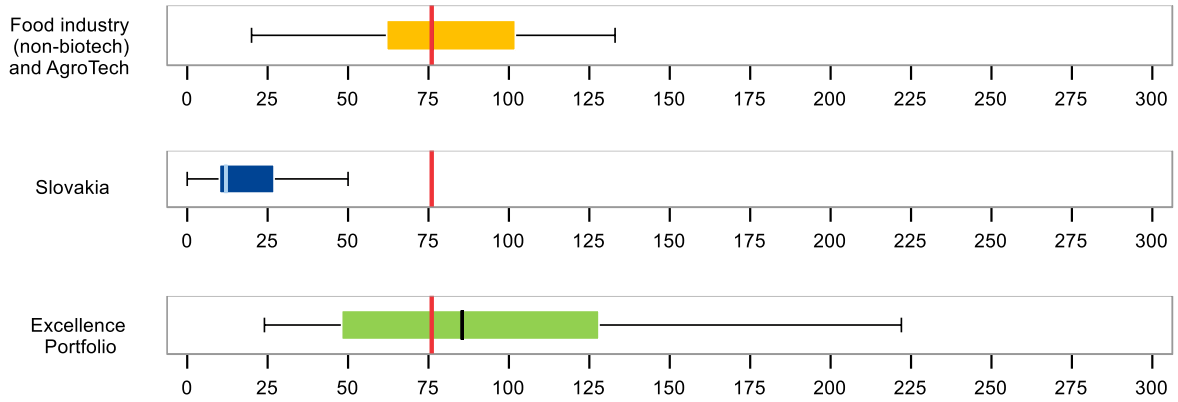


Figure 6: Number of committed industrial participants

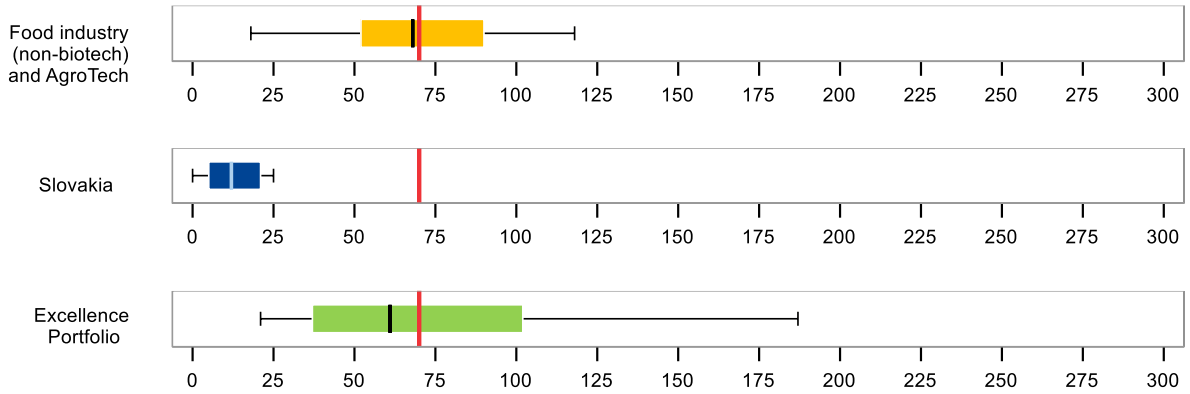


Figure 7: Number of committed SME participants

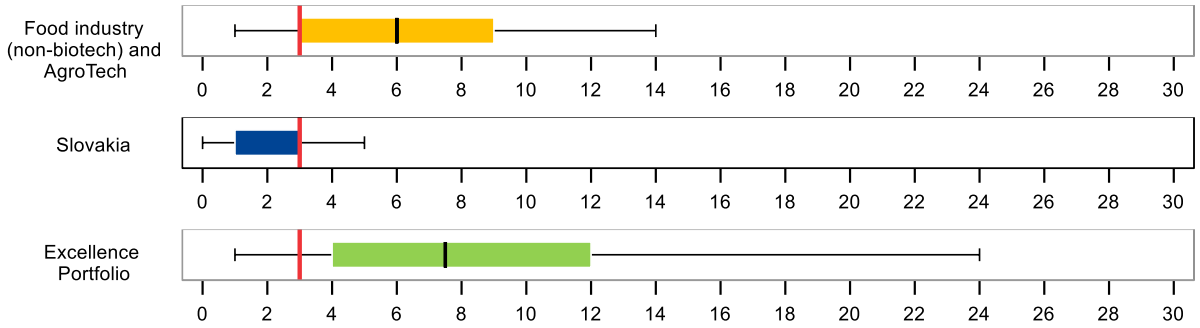


Figure 8 : Number of committed participants dedicated to R&D

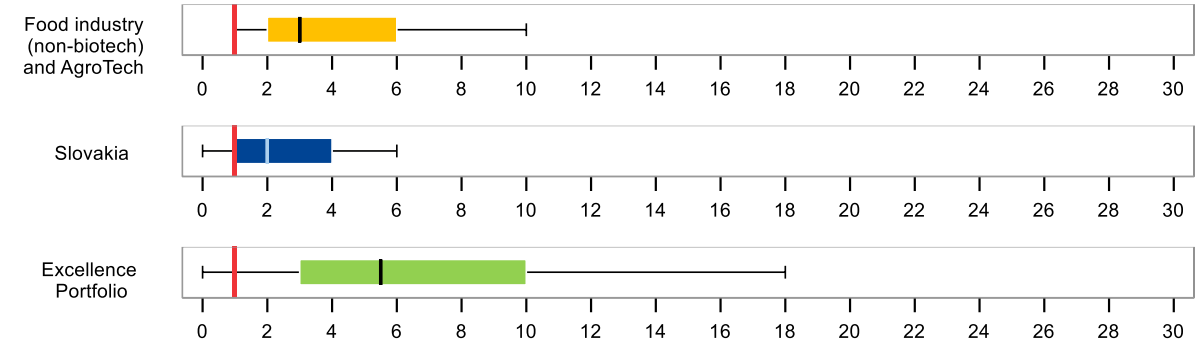


Figure 9: Number of committed participants dedicated to education or training

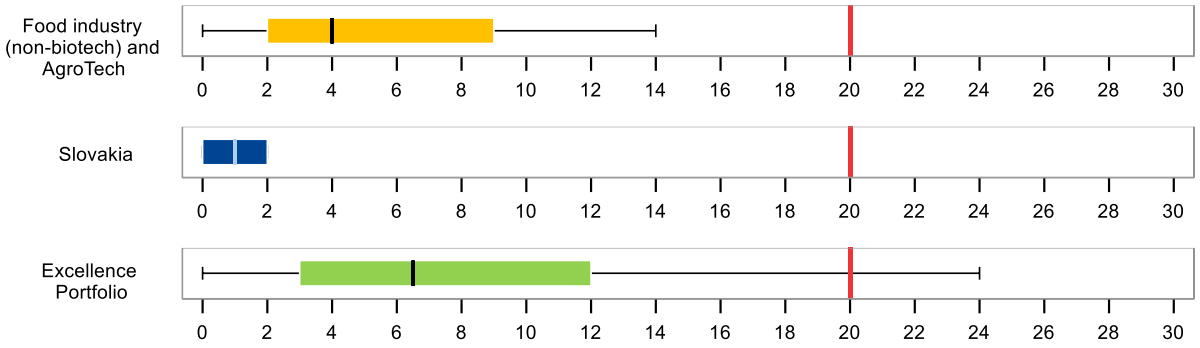


Figure 10: Number of committed participants that are intermediaries and political/administration stakeholders, other clusters or miscellaneous participants.

3.1.5 Geographical Concentration of the Cluster Participants

According to Michael E. Porter[4] "clusters are geographic concentrations of interconnected companies and institutions in a particular field". The issue of geographic concentration is considered here.

The following figure displays the percentage of the committed cluster participants located within a radius of 150 km from the premises of the Cluster Management Organisation and/or any regional offices (if existing).

The idea of geographical concentration is to encourage face-to-face meetings between the cluster management team and the committed participants, as well as between the cluster participants with limited effort of around two hours travel time (by car, train, etc.).

[4] Michael E. Porter, 1998: Clusters and the New Economics of Competition, in: Harvard Business Review, November 1998, p. 78

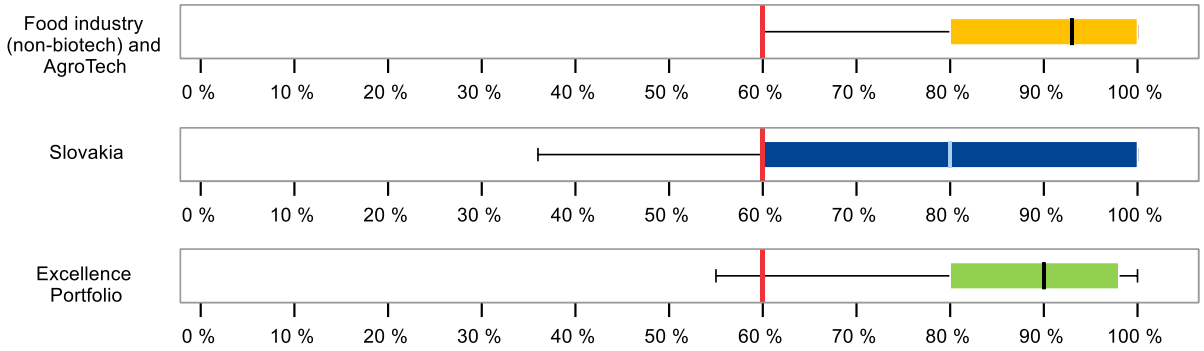


Figure 11: Percentage of committed cluster's participants that are located in a distance of < 150 km to the premises of Cluster Management Organisations and/or any regional offices

3.1.6 Regional Growth Potential of the Cluster

It is important that clusters achieve a critical mass with a high regional coverage in terms of committed membership. The focus on regional participants should yield benefits from regional proximity of appropriate partners.

Regional actors which could be targeted to become a committed participant and which would bring added value to the cluster when committing them as participants, as well as the committed and non-committed participants of the cluster, are all together defined as potential participants. The ratio of the number of committed cluster participants in the region (see chapter 0) and the number of potential participants in the region (%-value on the x-axis) is put in relation to the achieved annual growth of the regional membership of the cluster (growth in % on the y-axis).

Clusters that are located in **sector I** of the figure are characterised by a high potential for further growth with regard to the number of participants. For achieving a critical mass in the region - in terms of having a majority of potential cluster participants' active within the cluster - further growth, with a higher rate than achieved in the past, is necessary. Reaching such a regional critical mass could be considered as a strategic task for the cluster management.

Clusters that are located in **sector II** of the figure are characterised by a reasonable regional coverage of their participants and/or by a significant growth in the last 24 months. An increased growth of the committed cluster membership should not necessarily be considered as a strategic priority for the cluster management. For clusters that are younger than three years, this figure might not give a correct impression as the entire membership was built up recently with an extremely high growth rate, which of course cannot be expected to remain at the same level in the future.

Clusters that are located in **sector III** of the figure are characterised by a high regional coverage in terms of committed membership. Further growth in the region should not be considered as a strategic priority for the cluster management as "critical mass" has already been reached.

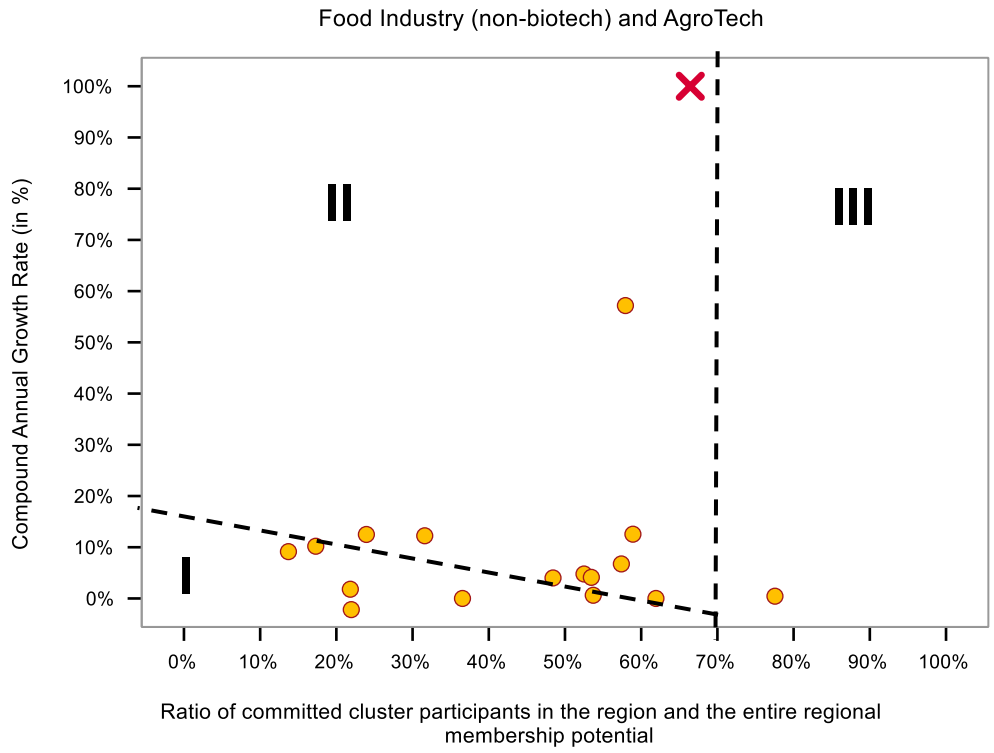


Figure 12: Regional growth potential of clusters within the technological portfolio

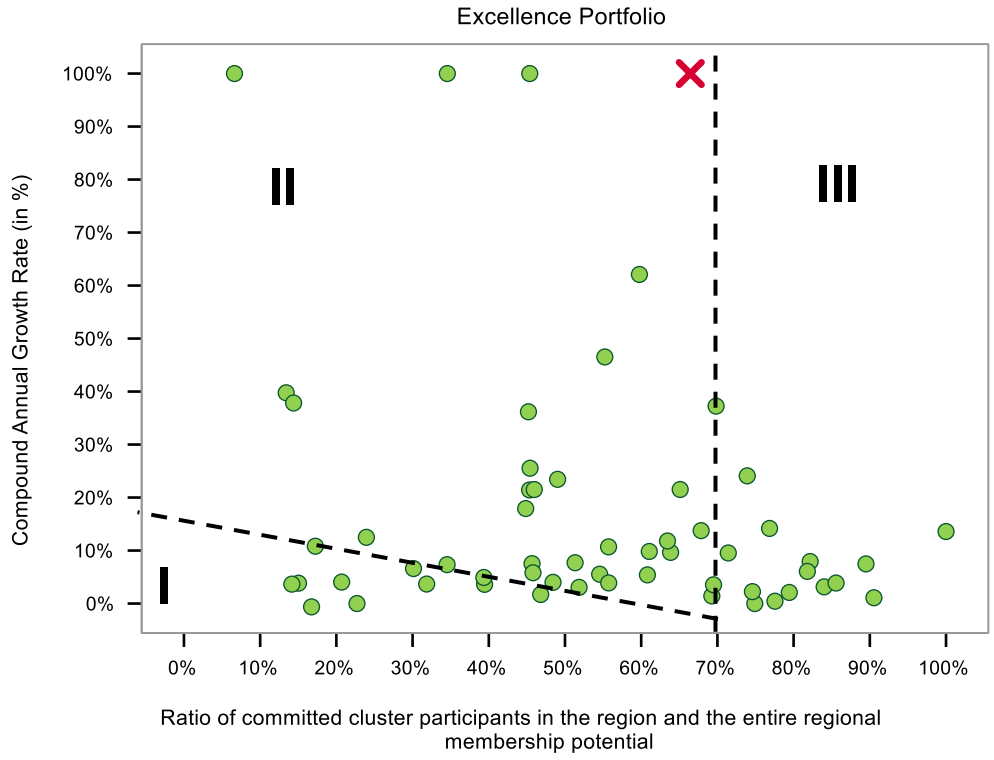


Figure 13: Regional growth potential of clusters within the excellence portfolio

3.2 Management and Governance

3.2.1 Nature of Cooperation between the Cluster Participants

The nature of cooperation between the committed cluster participants and the role of the cluster management can have different characteristics, which are described as follows:

- **Cluster management as external facilitator:** The cluster management acts rather as an external facilitator and is rather detached from networking activities between cluster participants. The core function of the cluster management within the network can be described as administration.
- **Decentralised cooperation:** Cooperation among the cluster participants can be characterised as decentralised. Cluster management has a significant influence, but it is not the main initiator of activities.
- **Centralised cooperation:** The cluster management is the hub of the cluster (considered as a star-shaped cooperative structure) and sets the agenda of the cluster activities. Cooperation between participants is primarily initiated by the cluster management.

The following figure indicates how the cluster managers understand their role.

Depending on the nature of cooperation the demand for efforts spent by the cluster organisation might differ. With sufficient personnel resources a centralised cooperation can be realised without any drawbacks. If personnel resources however are very limited, decentralised approaches, or even a reduction to facilitating activities only might be an option, which of course needs more involvement of specific committed participants taking over certain management tasks. Operation will then become more bottom-up.

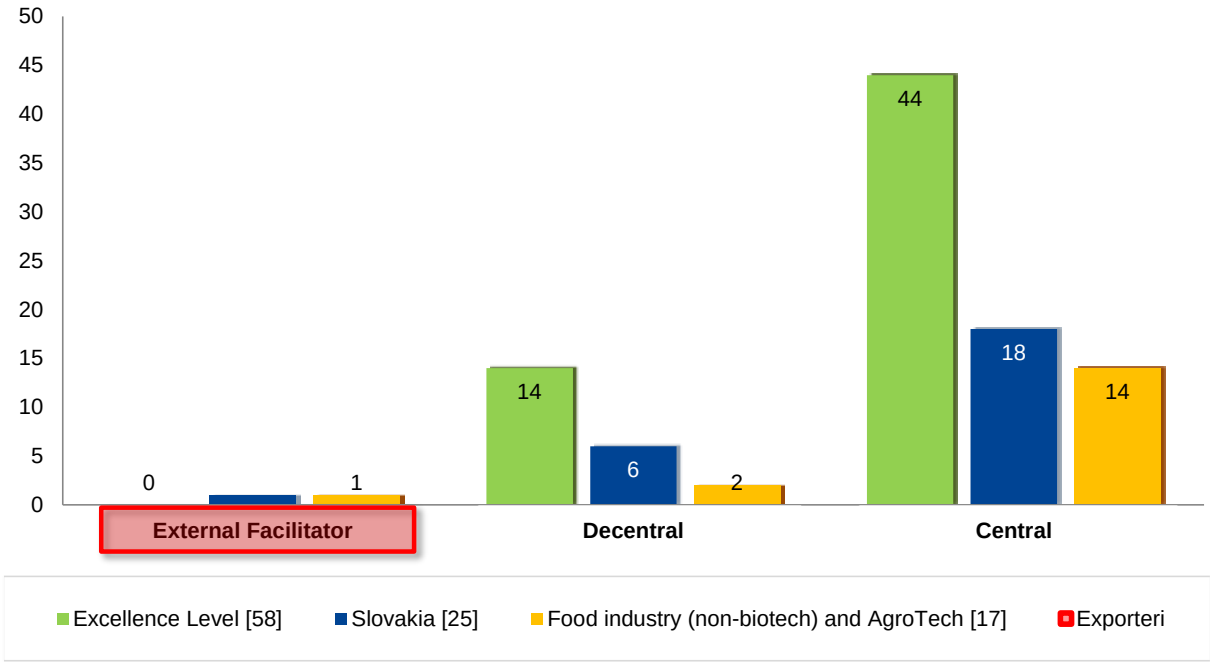


Figure 14: Nature of cooperation between cluster's participants within the comparative portfolios

3.2.2 Level of Governance of the Cluster

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

- Clear definition of the tasks and responsibilities of the cluster manager and the overall team; assignments to all team members are clear, job descriptions and internal rules are available for organising the work.
- The cluster manager in person is in place and is provided with the freedom and capacity (technically and financially) to fulfil this job.
- A governing body such as a steering committee or advisory board exists and is responsible for making decisions and supporting the cluster management in implementing the action plan, survey and review of the progress of the cluster work as well as the work of the cluster management. Its responsibilities are understood by all participants and meetings take place on a regular basis.
- Participants of the cluster are involved in the decision making and strategic orientation of the Cluster Management Organisation, for example through general meetings or other forms of consultation.

For a successful networking all cluster actors have to understand and respect their tasks and responsibilities. In collaboration with relevant cluster participants, the cluster management must define dedicated governance structures and turn them into practice. The elements described above were reflected in a composite indicator. Furthermore the quantity of available cluster management personnel as well has an influence here, in particular in case of personnel shortages.

Three levels were defined in order to identify whether there is a strong, moderate or weak system of cluster governance in place.

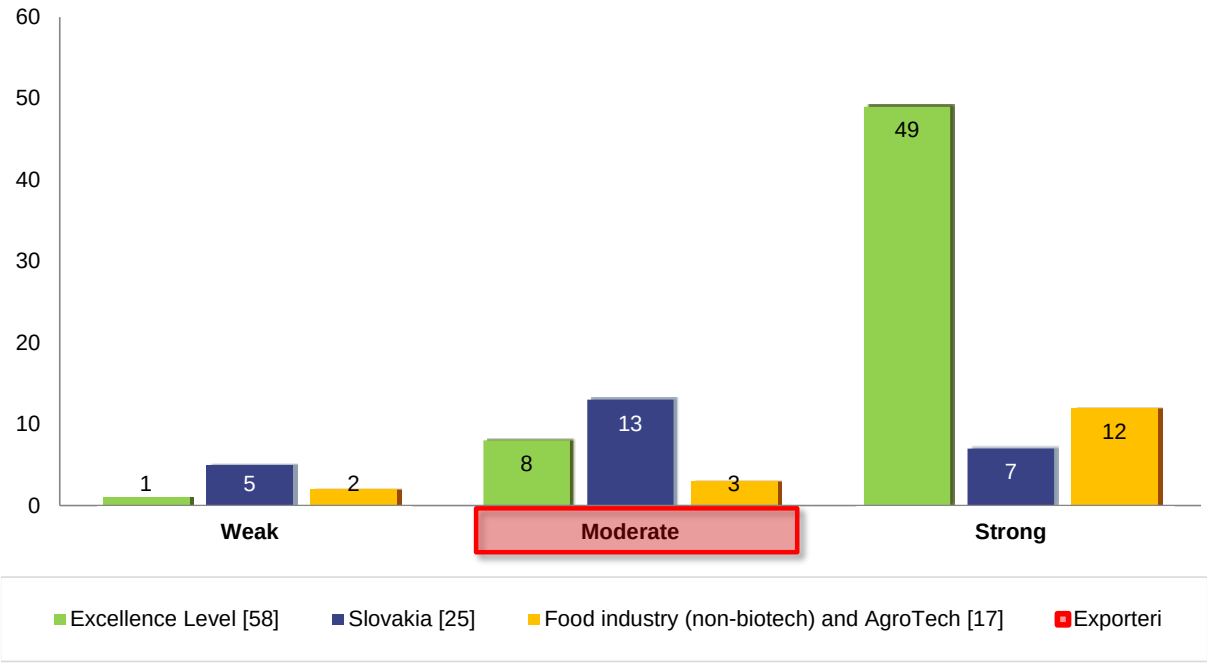


Figure 15: Level of governance of clusters within the comparative portfolios

3.2.3 Number of Employees in the Cluster Management Organisation (Full-time Equivalents)

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

It has to be emphasized here, that only personnel is counted which directly is involved in “cluster management related tasks” For example operating service contracts with clear own priorities, these are not included (example: facility management of a technology park; project management for collaborative projects with no significant participation of committed cluster participants in such projects).

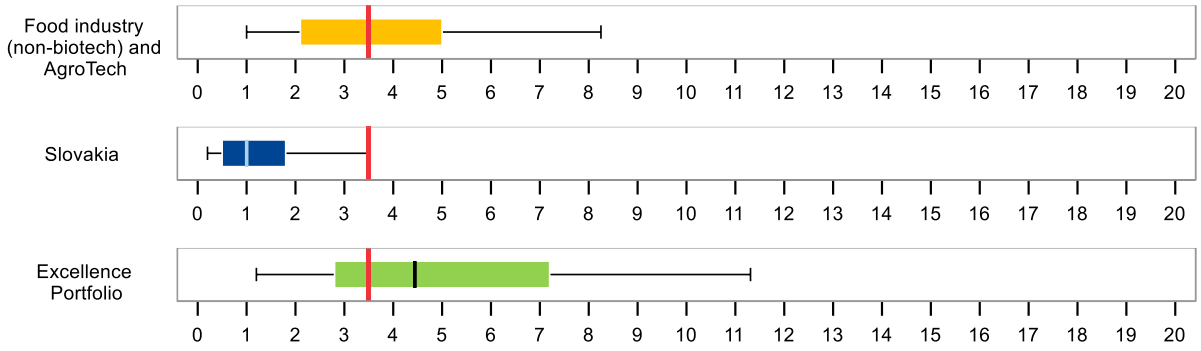


Figure 16: Number of employees (full-time equivalents) in the cluster management team

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 staff resources of the Cluster Management 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. At the same time, though, cluster management teams should try to avoid inefficiencies and excessive overhead costs by making the size of their staff depending on the overall number of cluster participants.

Here two analyses are presented: On one hand side considering only the committed cluster participants, on the other side considering committed and non-committed cluster participants to have an idea on how working as well for non-committed cluster participants can reduce resources for support.

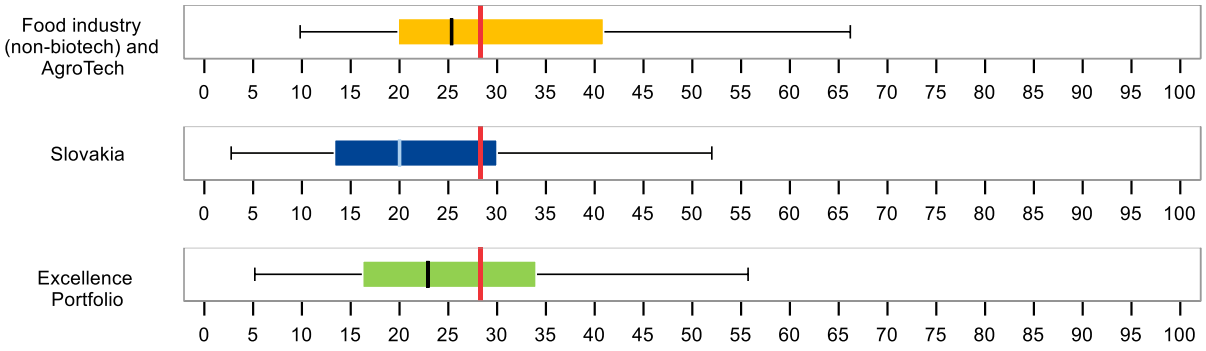


Figure 17a: Number of committed cluster participants per employee (Full-time Equivalents) of the cluster management team

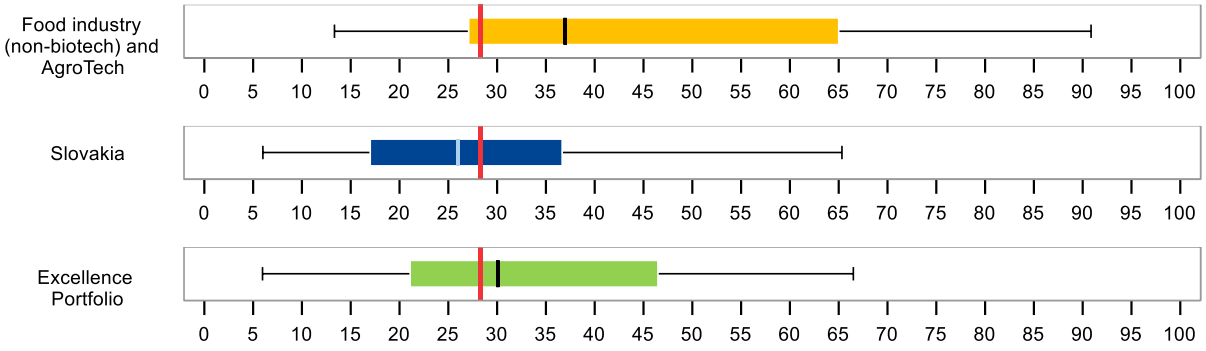


Figure 17b: Number of all cluster participants (committed and non-committed) per employee (Full-time Equivalents) of the cluster management team

3.2.4 Stability of the Cluster Management Organisation Team

In order to assess the stability of the Cluster Management Organisation's staff, the benchmarking analysed the described continuity and changes within the cluster management staff. The elements were reflected in a composite indicator. Three levels have been defined whether there is a low, medium or high stability level in place:

- Low – A critical mass of the cluster management operational team has left the cluster management team within the last 24 months;
- Medium – Some staff members have left the team within the last 24 months, but without negative impacts on daily business.
- High – No staff member has left the team. Even if there was a fluctuation, the team members were directly replaced. Job descriptions are available.

As an additional aspect the size of the team as well is considered when classifying the stability of the team. The larger the team (in terms of committed cluster participants per FTE of the team) the easier replacements of team members can be managed, leading to a higher judgement of the stability of the team. Teams with very limited personnel capacities suffer more of changes, for those the stability of the team is judged downgraded.

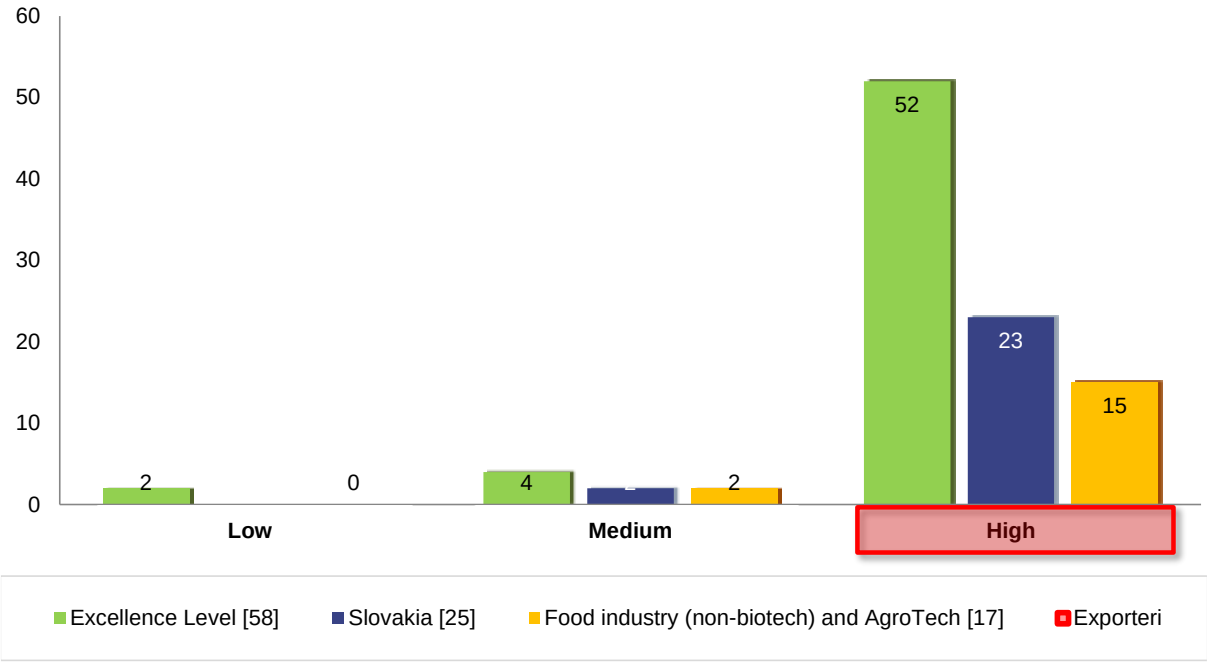


Figure 18: Level of stability of Cluster Management Organisation Team within the comparative portfolios

3.2.5 Qualification of the Cluster Management Organisation Team

In order to assess the qualification of the Cluster Management Team, the benchmarking analysed the indicated degree of skills and experiences in average for the entire cluster management team. The elements were reflected in a composite indicator. Three overall skills/experiences levels have been defined whether there is a low, medium or high qualification level in place. The following aspects are assessed as an average for the entire team judged on a scale from (0 = not existing/available) to (4 = highly existing/available):

- Tertiary level education
- Work experience in the private sector, excluding experience in the current cluster organisation
- Leadership and higher management skills
- Project management skills
- Language, skills in English
- Language, valuable skills in at least one foreign language (excluding English)
- Relevant sector and/or technical knowledge of > 3 years, due to education and/or work experience
- Cluster and policy related training

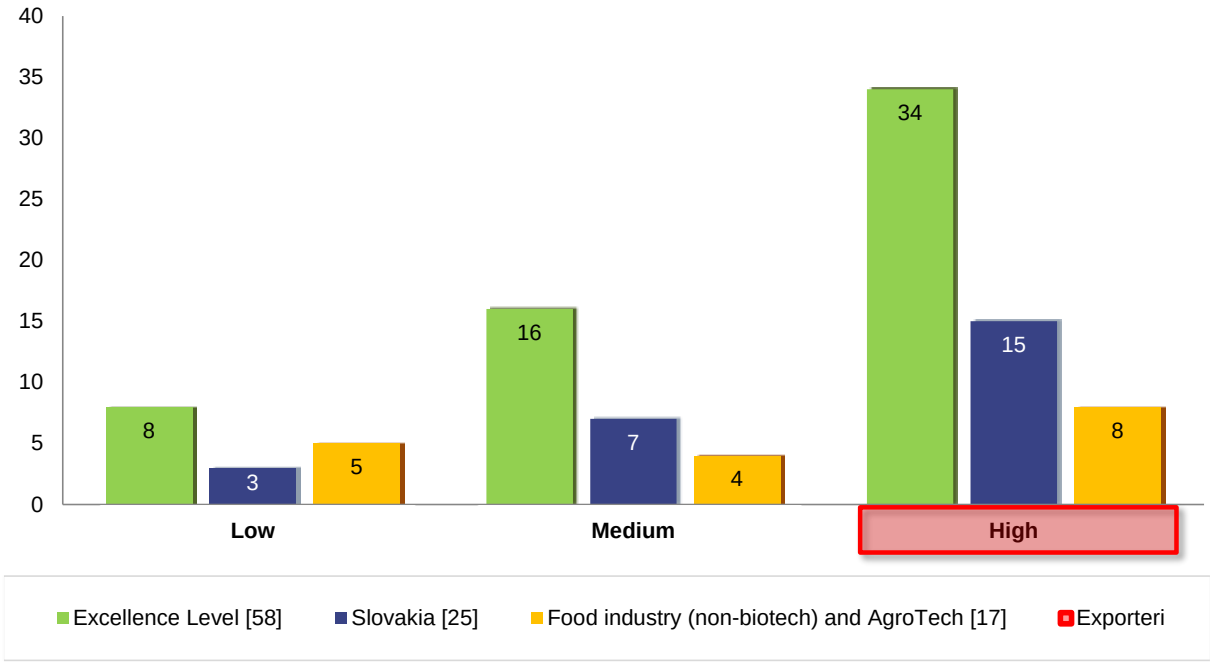


Figure 19: Qualification of Cluster Management Organisation Team within the comparative portfolios

3.2.6 Human Resource Development Index

In order to assess the status of human resource development of the Cluster Management Organisation's staff, the benchmarking analysed the following topics:

- Lifelong training programmes and a sufficient budget for the human resource development of the Cluster Management Organisation staff are in place;
- Training measures for the Cluster Management Organisation staff are carried out on a regular basis;
- Overall skills/experiences portfolio of the entire cluster management team;
- Continuity/fluctuation of the cluster manager and/or the Cluster Management Organisation staff.

The above described elements were reflected in a composite indicator.

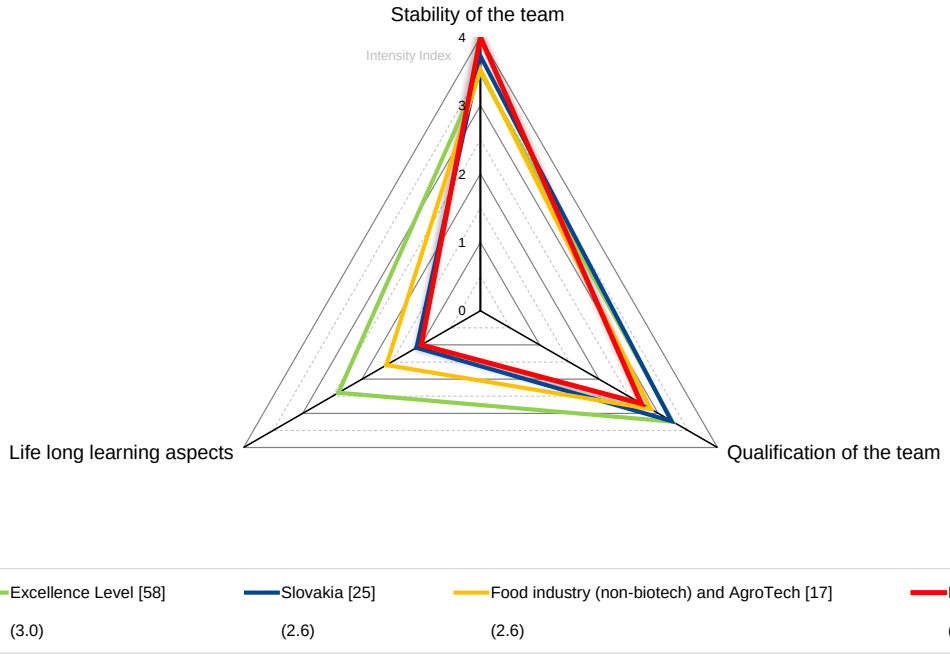


Figure 20: Status of human resource development of Cluster Management Organisations within the comparative portfolios

3.2.7 Number of Personal Contacts between the Cluster Management Team and the Cluster Participants

Regularly and well-maintained personal contacts between the cluster management team and the cluster participants are key elements for management excellence. It is a way for the Cluster Management Organisation to adapt its work better to the specific needs of its participants and offer tailor-made services. Eligible personal contacts are, for example,

- contacts during a visit at the cluster participant's premises or a visit of the participant at the Cluster Management Organisation's premises;
- an extensive bilateral exchange of information, for instance via telephone or mail;
- joint work of the Cluster Management Organisation management staff and the representatives of the cluster participants in specific projects, working groups, or other joint activities.

The share of committed cluster participants maintaining such contacts with the Cluster Management Organisation within the last twelve months is determined and compared in the following figure.

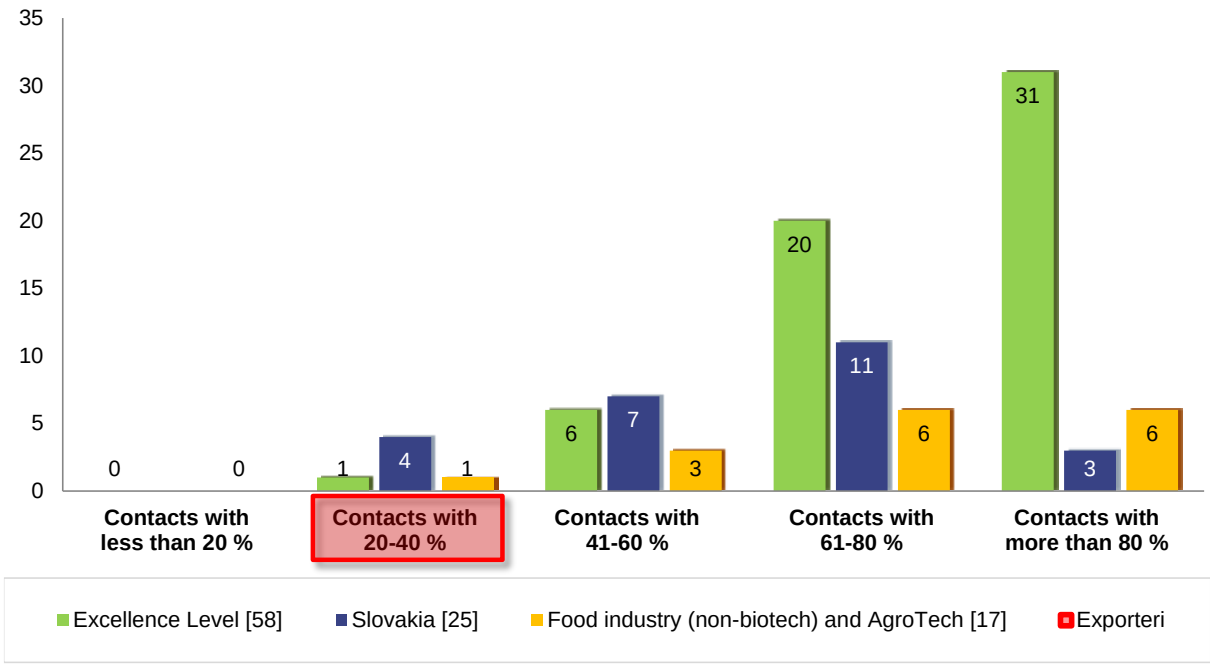


Figure 21: Number of personal contacts achieved between cluster management organisation and cluster participants within the comparative portfolios

3.2.8 Number of Personal Contacts between the Cluster Participants

The cluster structure and the various activities should enable and facilitate networking between the committed cluster participants. Cluster participants should be actively involved in collaborative multimember activities or collaborative projects in a significant manner. Participation in working groups, projects, delegation/trade visits, joint trade fair activities, active lecturing activities, etc. with a minimum involvement of two days per cluster participant are considered as eligible sufficient collaborative multimember activities. A simple passive attendance to one or even several events (seminar, workshop or get-together) is not considered as an involvement in a collaborative activity.

The share of committed cluster participants being involved in such collaborative activities within the last twelve months is determined and compared in the following figure.

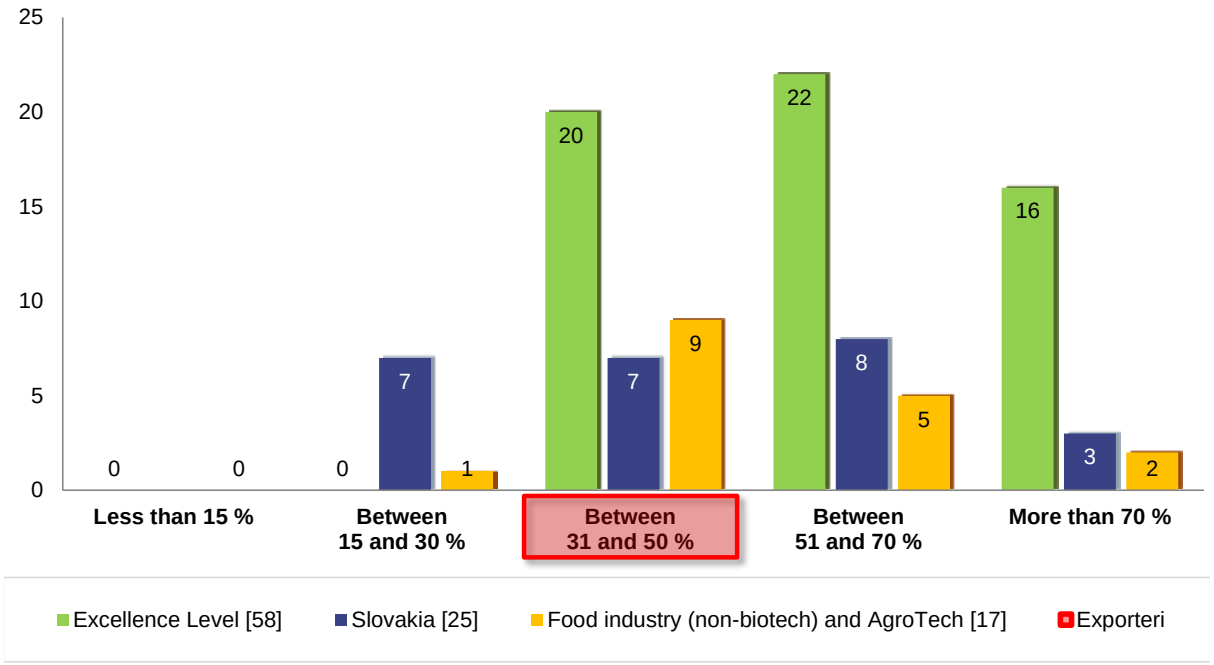


Figure 22: Number of personal contacts achieved between cluster participants within the comparative portfolios

3.2.9 Integration into the Innovation Systems and Relations with Intermediaries

The cluster organisation itself is understood as an intermediary actor within the innovation system. Establishing contacts and cooperation with other intermediate players is seen as a general task for cluster organisations. Furthermore, cooperation with regional/national policy makers in many cases is a mandatory aspect. Policy makers should be aware of the effects clusters can generate and should be encouraged to cooperate with clusters implementing their policy. In contrary as well cluster organisations are invited to provide practical oriented inputs to policy-making. Including intermediaries and public authorities into cluster initiatives as committed cluster participant contributes to a better mutual understanding.

Being well integrated into the local/regional/national innovation system and having various good relationships to policy stakeholders is considered as one of the various pillars of cluster management excellence.

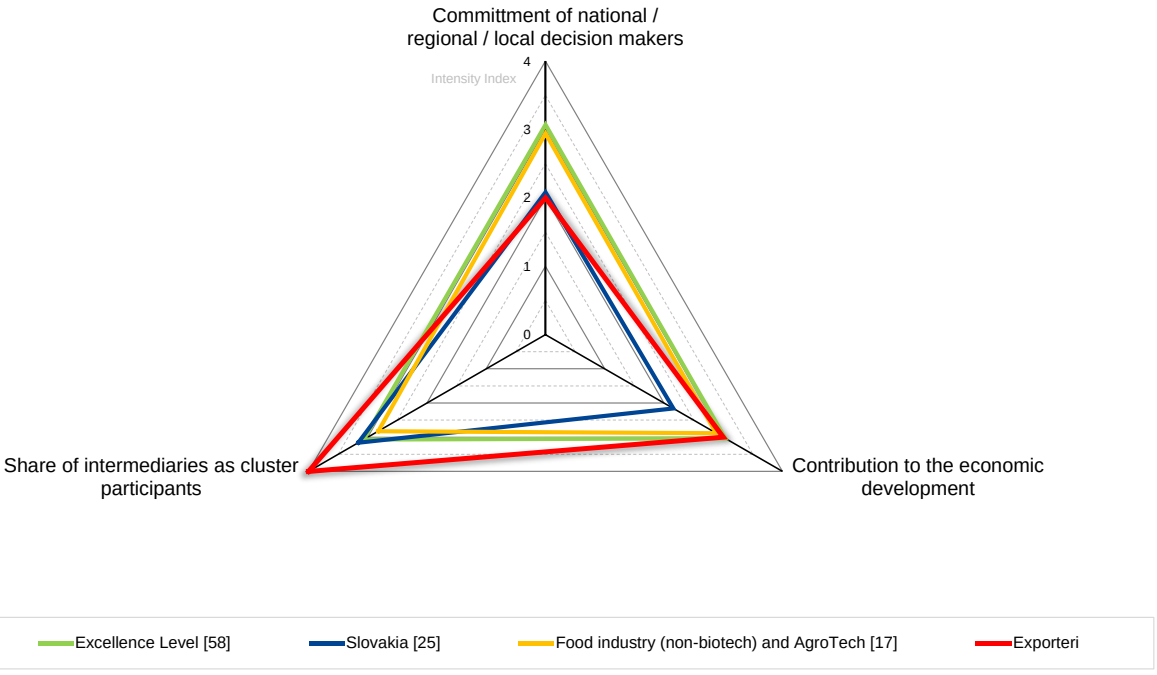


Figure 23: Integration into the Innovation Systems and Relations with Intermediaries within the comparative portfolios

3.3 Financing

3.3.1 Origins of Income of the Total Budget of the Cluster Management Organisation

The total budget of the Cluster Management Organisation includes the budget dedicated to management tasks or to activities performed by the cluster management organisation for cluster participants (staff and non-personnel expenses).

It excludes the specific budget for R&D projects or any other projects conducted by the cluster participants alone, or conducted by the Cluster Management Organisation as a task not related to the actual cluster management.

The overall size of the budget is not used for comparisons (even though being part of the benchmarking interview). Country-specific and other differences are significant. However, the origin of the total budget of the cluster is analysed, looking to 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 despite their origin.

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

The figure below indicates the distribution of financial incomes into different public sources (blue part of the chart), private sources (green part of the chart) and in-kind contributions (grey part of the chart), for Exporteri in comparison with the different comparative portfolios.

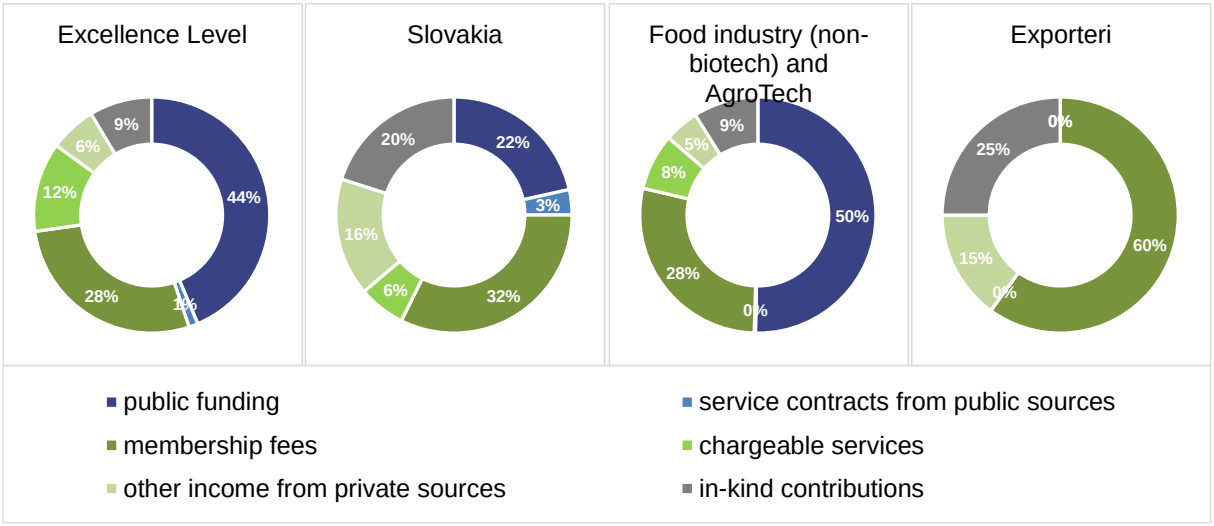


Figure 24: Origins of Income of the Total Budget of the Cluster Management Organisation

3.3.2 Financial Sustainability of the Cluster Management Organisation

The financial sustainability of the Cluster Management Organisation is an important aspect for the future perspectives and the existence of the Cluster Management Organisation. The cluster management needs to be based on a solid financial basis in order to concentrate on its mandate. Without a sustainable financial basis the cluster management has to spend significant resources on fundraising. Thus, these resources are not available for the development and provision of services for the cluster participants.

Cluster managers are asked to assess their financial situation according to the following categories:

- Secured in the long term (for more than 2 years);
- Secured in the short and medium term (for at least 1 year);
- Critical, but up to now no negative impacts on daily activities of Cluster Management Organisation;
- Very critical, with already negative impacts on daily activities of Cluster Management Organisation.

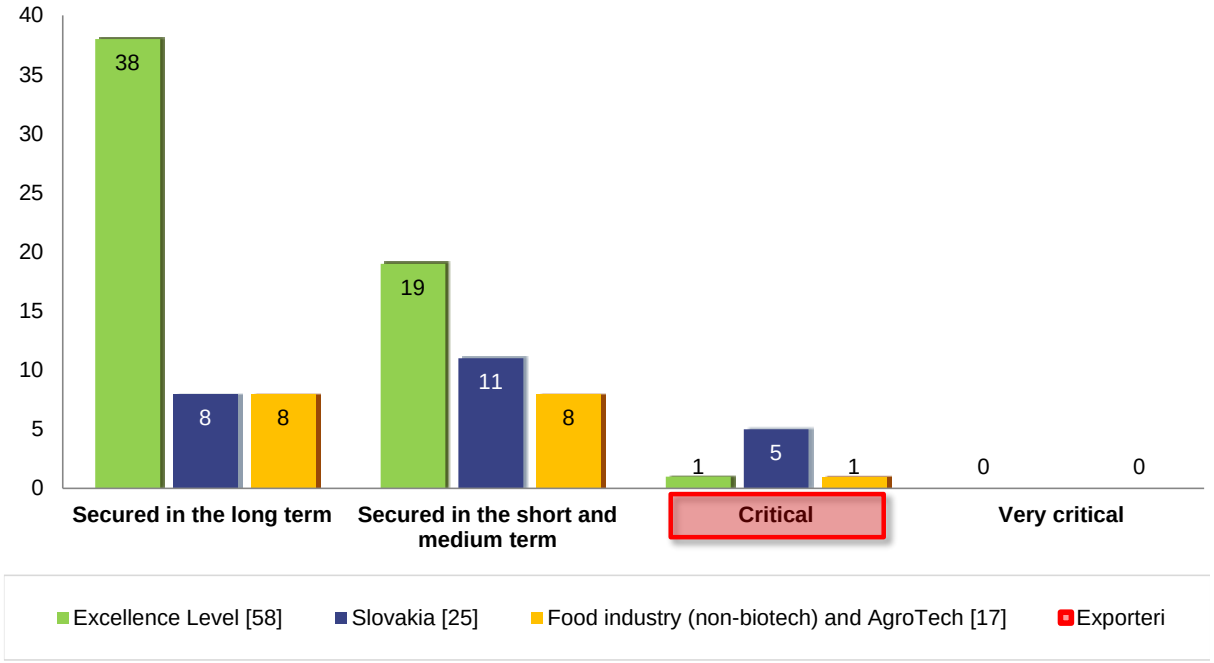


Figure 25: Financial sustainability of Cluster Management Organisations within the comparative portfolios

3.4 Cluster Strategy

3.4.1 Strategic and Operational Planning

Strategic and corresponding operational planning are key preconditions of successful work.

It is recommended to develop and implement a cluster strategy in order to operate in a sustainable and successful way. The strategy should be documented and cover all relevant strategic issues, topics, timeframes, etc., complemented by graphs and illustrations and describing the long, medium, and short term prospects. The strategy has to be an outcome of an internal process, in which the needs and expectations of the cluster stakeholders are discussed and translated into strategic measures. After implementing the main elements of the cluster's strategy, a continuous monitoring approach should document the progress and impact of the implementation. Review measures and corrective actions should be documented.

The longer-term strategic planning should be complemented with a shorter-term operational planning, defining the various planned actions (what/when/who), expected results and outcomes, and as well the necessary (financial) resources. The operational planning should additionally allow to react in an agile manner on specific incidents. A continuous monitoring and reviewing process therefore is required. An eye should be kept whether after certain changes in the operational planning, this plan still corresponds to the cluster strategy, or whether the strategy as well needs to be re-shaped in certain aspects.

It is seen as an excellent approach when as part of the strategy and operational planning, monitoring and review processes are already foreseen and integrated, a longer review cycle for the strategy, a shorter-term cycle for the operational planning.

A starting point for every review process is to analyse the results achieved. Measurable targets as part of the operational planning provide the opportunity to assess necessary data, self-assessment of the cluster management regarding degree of approaching and reaching strategic aims could be another method. In general, a distinction can be made between "action-related performance indicators" (it is in the hand of the cluster management if and how many / how much activity is conducted) and "results/output/outcomes-related performance indicators (it depends on the quality/efficiency/effectiveness of any activities whether the foreseen targets are reached). A good mix of indicators of both indicator categories and a regular related assessment process is considered as necessary for cluster management excellence.

The following figure indicates the level of strategic and operational planning of the analysed cluster in comparison with the various peers:

The following categories are defined:

- **Inadequate strategy:**
  The Cluster Management Organisation states that they do not have a written strategy or that the criteria for a solid cluster strategy and operational planning are insufficiently met. (Left bars in the chart);
- **Sufficient strategy:**
  A cluster strategy is available as a written document. An implementation plan with measurable milestones and budgets and/or a strategy review is in place. The strategy is sufficient to run the basic business of the cluster management organisation. (Second bars from the left);
- **Well elaborated strategy:**
  A cluster strategy is available as a written document and includes an implementation plan with measurable milestones and budgets. A system to monitor the implementation plan of the strategy is in place, however the monitoring is not being done regularly (Third bars from the left);

- **Very good and complemented strategy:** A cluster strategy is available as a written document and includes an implementation plan with measurable milestones and budgets. A system to monitor the implementation plan of the strategy is in place. There is a regular strategy updating process and the implementation plan is monitored/reviewed on a regular basis, at least quarterly (Right hand bars in the chart).

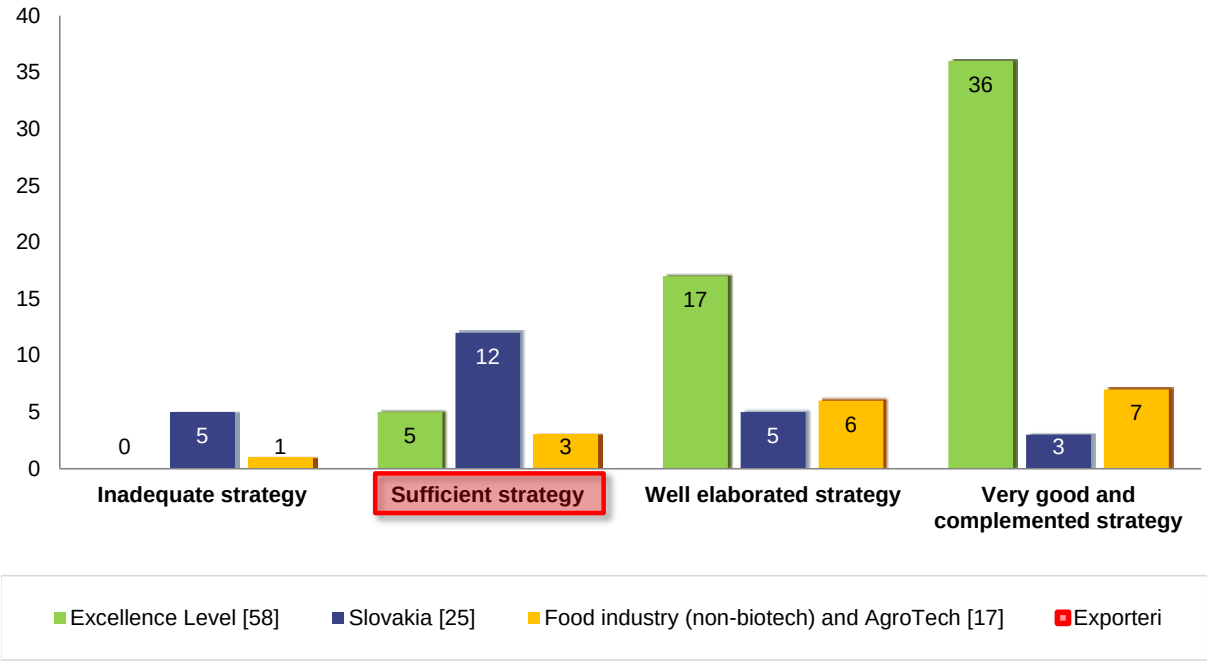


Figure 26a: Strategic and operational planning of clusters within the comparative portfolios

As the work of a cluster management organisation depends to a large extent on the cluster strategy, it is of great importance to bring the cluster strategy into a coherent triad of coordinated guideline, operational planning and sustainable further development. Moreover the cluster strategy should focus on competitiveness and changes of the relevant markets (industrial change, new business models, new value chains) and should takes into consideration relevant regionally cross-border aspects and regional/national innovation strategies.

The following figure considers the main aspects of a well-coordinated and coherent cluster strategy:

- **Consistency of the cluster strategy:** The cluster strategy should available as a written document including an implementation plan with measurable milestones and budgets. Also a regular strategy monitoring and updating process (on at least yearly basis) should be implemented. It is recommended to conduct a "fundamental strategy review" at least every four years
- **Consistency of the Operational Planning:** An annual action and finance plan should exist as well as a system to regularly monitor the implementation of the strategy and the related action plan. Both the action plan and the finance plan should be monitored on regularly basis.
- **Quality of the Cluster Strategy:** The strategy should integrate the different objectives and activities in a well-coordinated and coherent framework and should be align with a national/regional/local innovation strategy. A focus on industrial change, new value chains,

new business models and the consideration of relevant regionally cross-border aspects lead to a future-oriented and sustainable strategic orientation.

Building an average of the scores in all three axes leads to a total score regarding the readiness for internationalisation between (0) and (4). The average score is presented in the legend of the following graph in brackets.

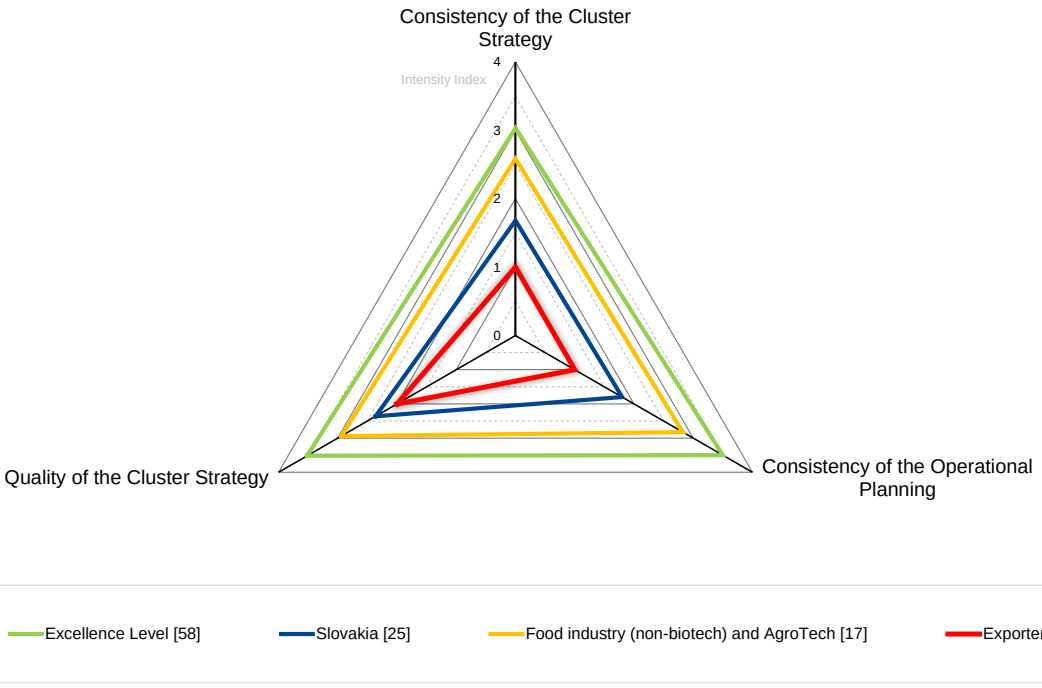


Figure 26b: Strategy and Planning Index of clusters within the comparative portfolios

3.4.2 Thematic and Geographical Priorities of the Cluster's Strategy

The following two radar charts show the general priorities of the strategy of the Cluster Management Organisation. These priorities are considered to be the baseline of the cluster management's activities.

The first figure presents the thematic priorities of the Cluster Management Organisation. The second figure reflects the geographical scope of the Cluster Management Organisation and its activities (international, national, or local/regional).

The corresponding percentages indicate the relevance of different strategic priorities in the overall strategy (e. g. 40 % of activities are related to R&D&I) or the relevance of the geographic scope.

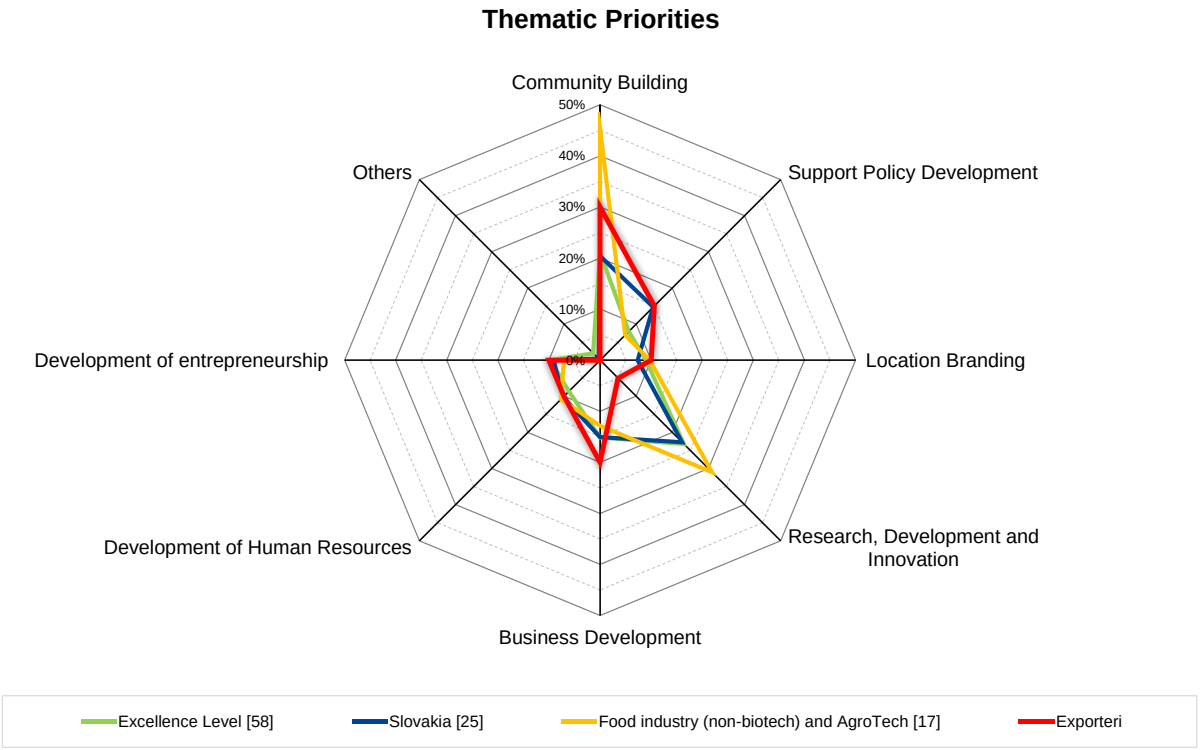


Figure 27: Thematic priorities of cluster's strategy within the comparative portfolios

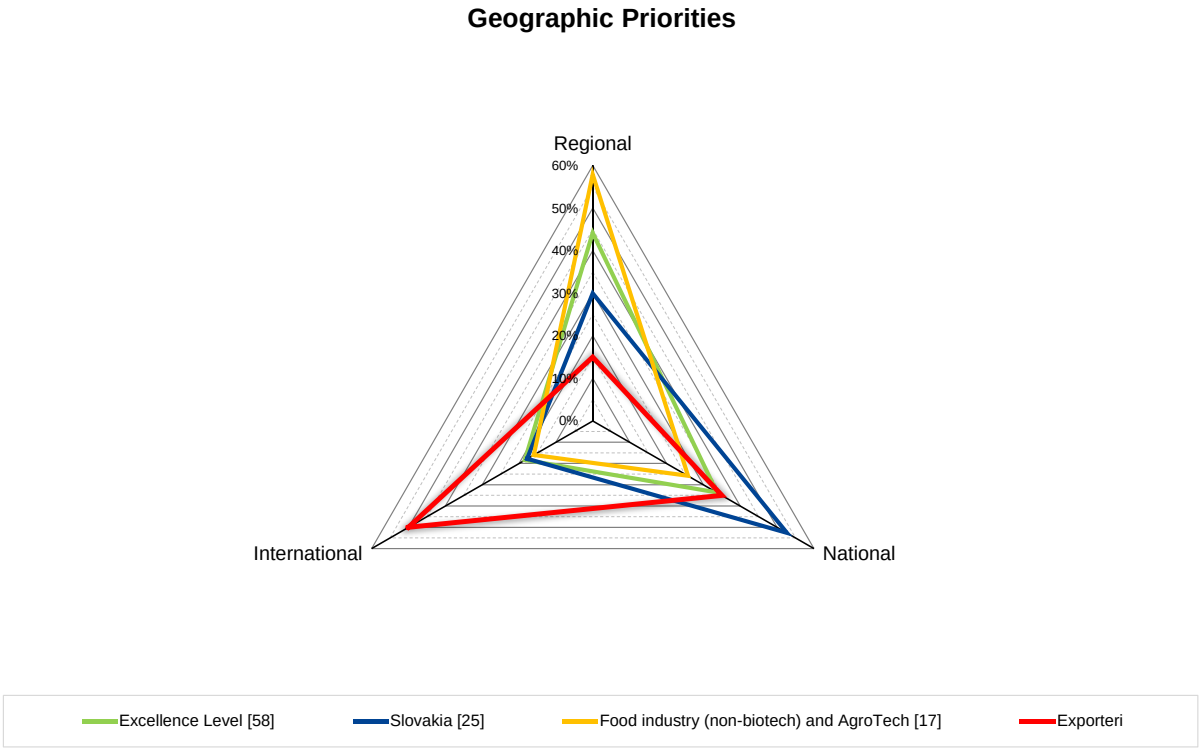


Figure 28: Geographical priorities of cluster's strategy within the comparative portfolios

3.4.3 Cluster Dynamics and Change Management

The figure demonstrates a degree of dynamics within the cluster initiative in relation to the achieved status regarding the documentation of the strategic and operational planning and the related monitoring and reviewing cycles.

It is considered necessary that even within a turbulent environment, the documentation of the strategic and operative planning should be available and should serve as fundamental document of the entire operation of the cluster initiative.

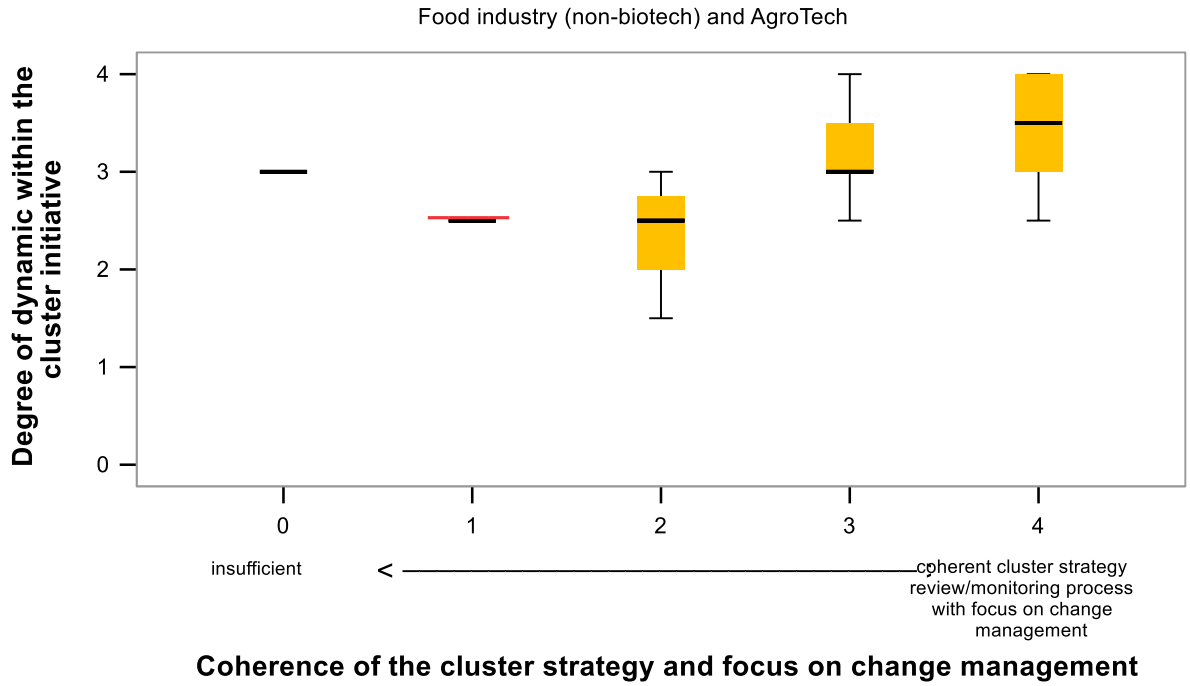


Figure 29: cluster dynamics and coherence of the cluster's strategy within the comparative portfolios

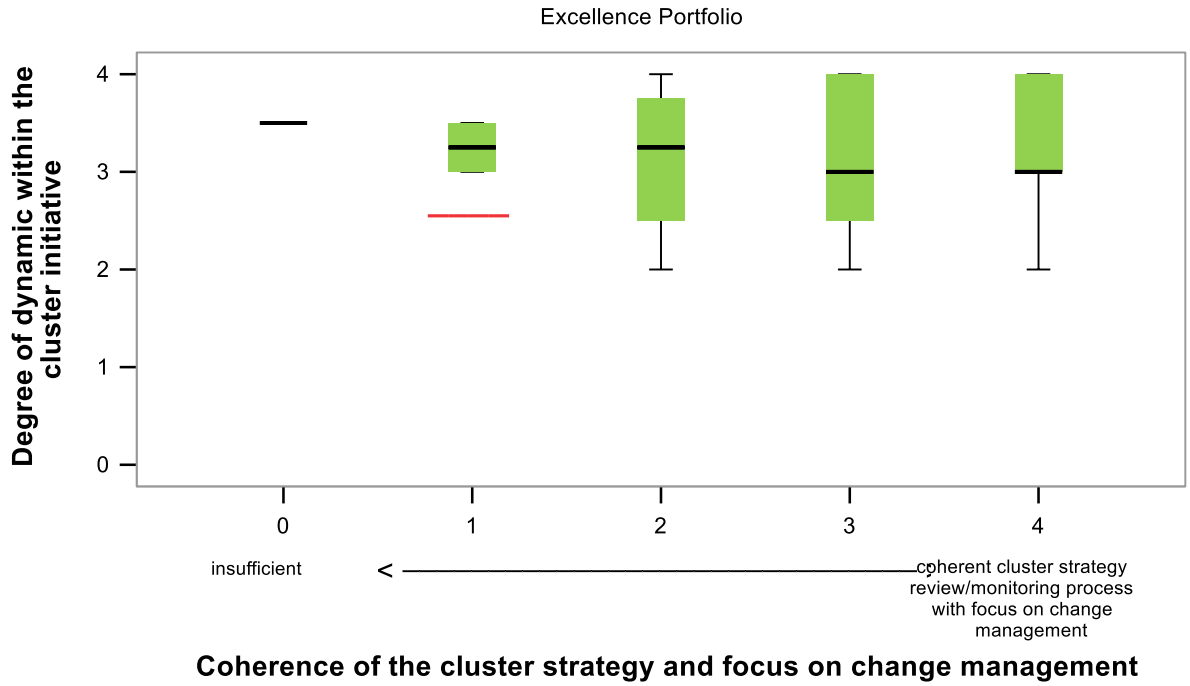


Figure 30: cluster dynamics and coherence of the cluster's strategy within the excellence portfolio

3.4.4 Readiness for Internationalisation

With the indicator "Readiness for Internationalisation" the entire data of the cluster benchmarking exercise is used to determine a level of readiness of the Cluster Management 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 axes of a radar-chart, 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):

- **International Focus of the Cluster Strategy:** Depending on the different interests and experiences for the various cluster participants, the elaboration of a specific internationalisation strategy for the cluster is required which should not copy, but complement the individual internationalisation strategies of the cluster participants. The internationalisation strategy of the cluster should focus on aspects which cluster participants cannot address alone and where the cooperation within the cluster is a valuable asset (topics to be elaborated which generate added value to a group of cluster participants).
- **Status of already implemented services and effects on the international activities of the various groups of cluster participants:** As every strategy only can lead to effects when complemented with related activities and services, any existing experiences regarding international activities are valuable. As efforts for such activities normally are rather high, they should be carefully evaluated in order to learn from the experiences and to use the experiences to sharpen the focus of future internationalisation activities. The Cluster Management Organisation can benefit if at least major groups of the cluster participants are acting in an international context and gathering experiences regarding internationalisation. Therefore with regard to the internationalisation of the entire cluster it is considered as very helpful to focus on effects of the international activities for the cluster participants, so they have a clear view on their specific additional demands for activities within the cluster and so that a certain status/brand of the cluster is visible on an international level.
- **Resources and competences of the Cluster Management Organisation:** Internationalisation requires longer-term significant efforts from the cluster management. Thus, financial resources should be sufficiently available to the cluster management on at least medium-term and personnel resources. Besides these quantitative aspects, skills and experiences regarding internationalisation, including language skills, are obviously required among the cluster management team in order to be well prepared for successfully acting in the international environment.

Building an average of the scores in all three axes leads to a total score regarding the readiness for internationalisation between (0) and (4). The average score is presented in the legend of the following graph in brackets.

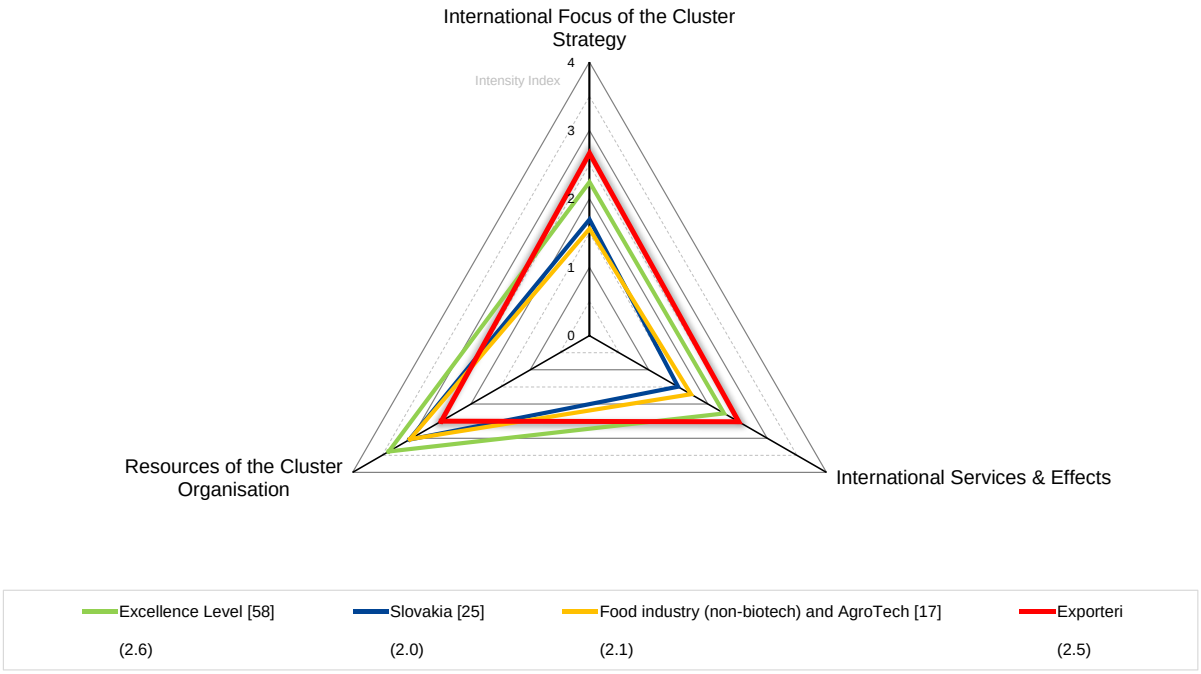


Figure 31: Readiness for Internationalisation of the cluster within the comparative portfolios

3.5 Activities and Services

One of the main aims of Cluster Management Organisations is to provide demand-oriented structures of cooperation and to improve the efficiency of cooperation among participants. The success of cluster organisations therefore also depends on the extent to which the cluster management succeeds in supporting the cluster participants with tailor-made and demand-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."

In the follow-up, general service categories that could serve as a model for offers developing and implementing one's own services are described:

- Community Building and internal networking;
- Location Branding;
- Research, Development & Innovation;
- Business Development;
- Development of human resources;
- Development of entrepreneurship;
- Supporting Policy Development ;
- Internationalisation of cluster participants.

The diversity and the frequency of services provided by the Cluster Management Organisation during a past 12 month's period are analysed. Based on this data, composite service indicators are calculated and grouped according to the following scale:

- (4) Very large spectrum of services and/or very high frequency of services;
- (3) Large spectrum of services and/or high frequency of services;
- (2) Average spectrum of services and/or medium frequency of services;
- (1) Limited spectrum of services and/or less sufficient frequency of services;
- (0) No services offered.

3.5.1 Community Building

Community building is at the very heart of cluster management services and activities. It is defined as a field of practices directed toward the creation or enhancement of community among entities (i.e. individuals, companies, research institutes, etc.) within a regional area or with a common interest. A wide variety of practices can be utilised for community building among cluster participants, ranging from simple events like sharing information, get-togethers and matchmaking events to larger–scale efforts such as regional fairs and initiating joint R&D or business projects that involve cluster participants.

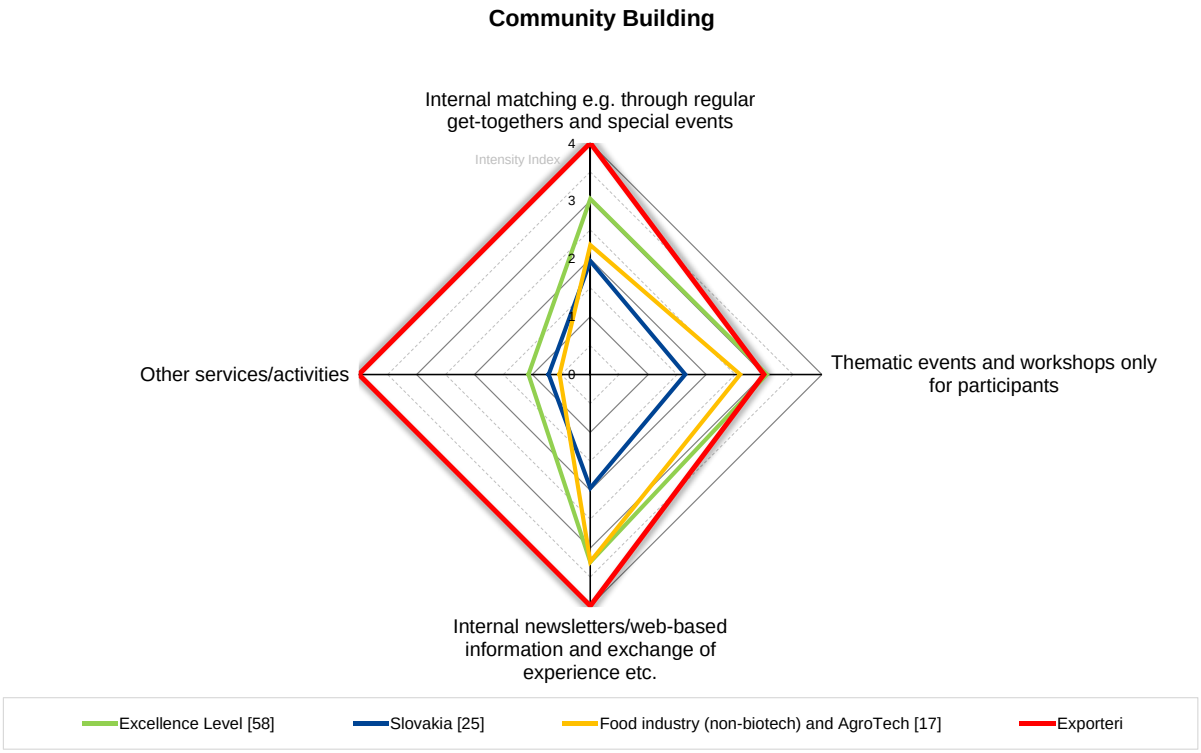


Figure 32: Services provided by Cluster Management Organisations in the service category „ Community Building" within the comparative portfolios

3.5.2 Location Branding

Cluster Management Organisations can support their local authorities by helping develop the area's reputation, either by advancing and promoting the technology, which is developed by cluster stakeholders or by "branding" the geographic location. Ultimately, cluster organisations can thereby facilitate the attracting of new investments, firms or talents. Relevant activities in this field are public relations (PR) work, the hosting of incoming delegations or being involved in or organising actions for representing the location/region.

With regard to public relations work, it should be the aim of any externally oriented communication to build up a reputation for the cluster (and/or the geographic location) in order to attract further participants. For external players, targeted PR work must highlight the cluster organisation's specific and unique added value. This means that the clearer the message of the network is, the more effective its (national and international) positioning is.

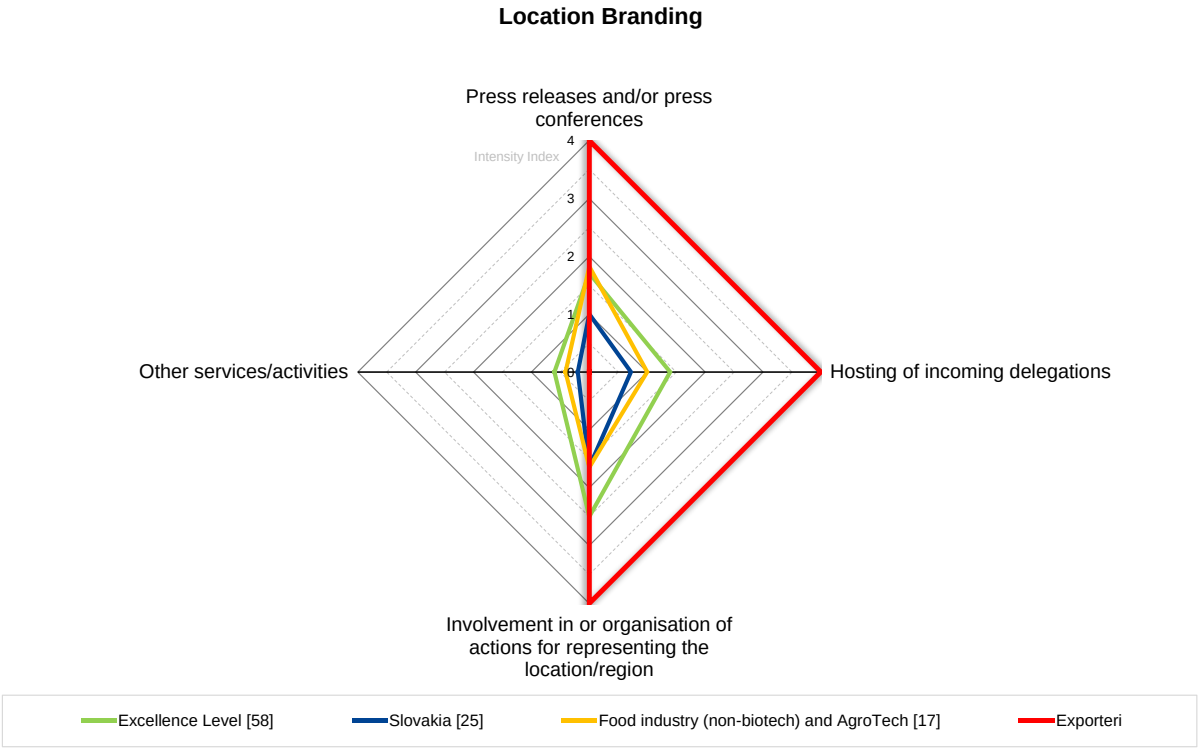


Figure 33: Services provided by Cluster Management Organisations in the service category "Location Branding" within the comparative portfolios

3.5.3 Research, Development & Innovation

The stimulation and facilitation of collaborative technology development and innovation-related cooperation among the participants of a cluster is another key area for activities of the cluster management. Facilitating both specific interest groups, as well as initiating joint R&D activities among the participants and activities relating to joint products, services, and IP-rights are further typical activity areas. In addition, the acquisition of third party funding (from public sources), most of the time for R&D projects, is can be subsumed under this activity area. In order to do so, cluster managements should have an overview over funding opportunities and should spread this knowledge amongst their cluster participants.

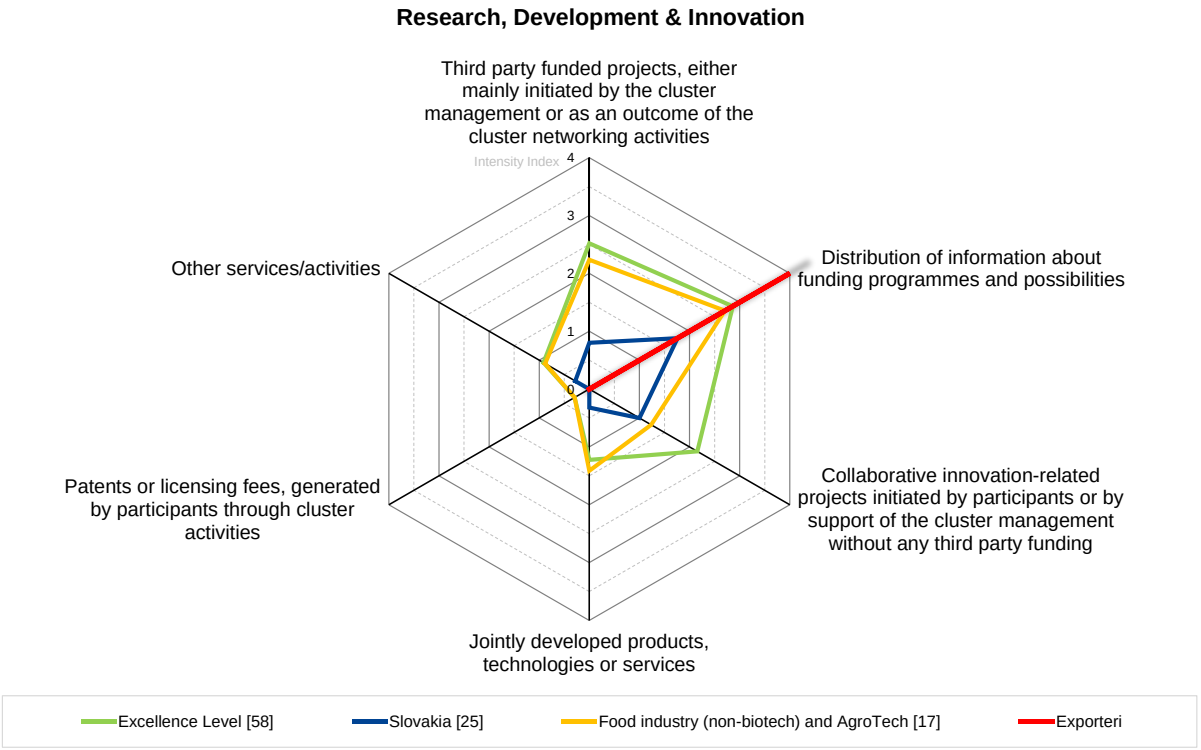


Figure 34: Services provided by Cluster Management Organisations in the service category "Research, Development & Innovation" within the comparative portfolios

3.5.4 Business Development

Ultimately, a cluster management should serve the economic interests of its participants and help improve their economic performance, help attract new clients and contracts, facilitate new business related cooperation or help create new business with monetary added values. There are various activities and services that active cluster managements can offer to reach these goals, such as making relevant information material on the cluster organisation available to interested parties, presenting the cluster organisation and its participants at trade fairs/congresses or organising specific matchmaking/networking events with external partners or other cluster organisations.

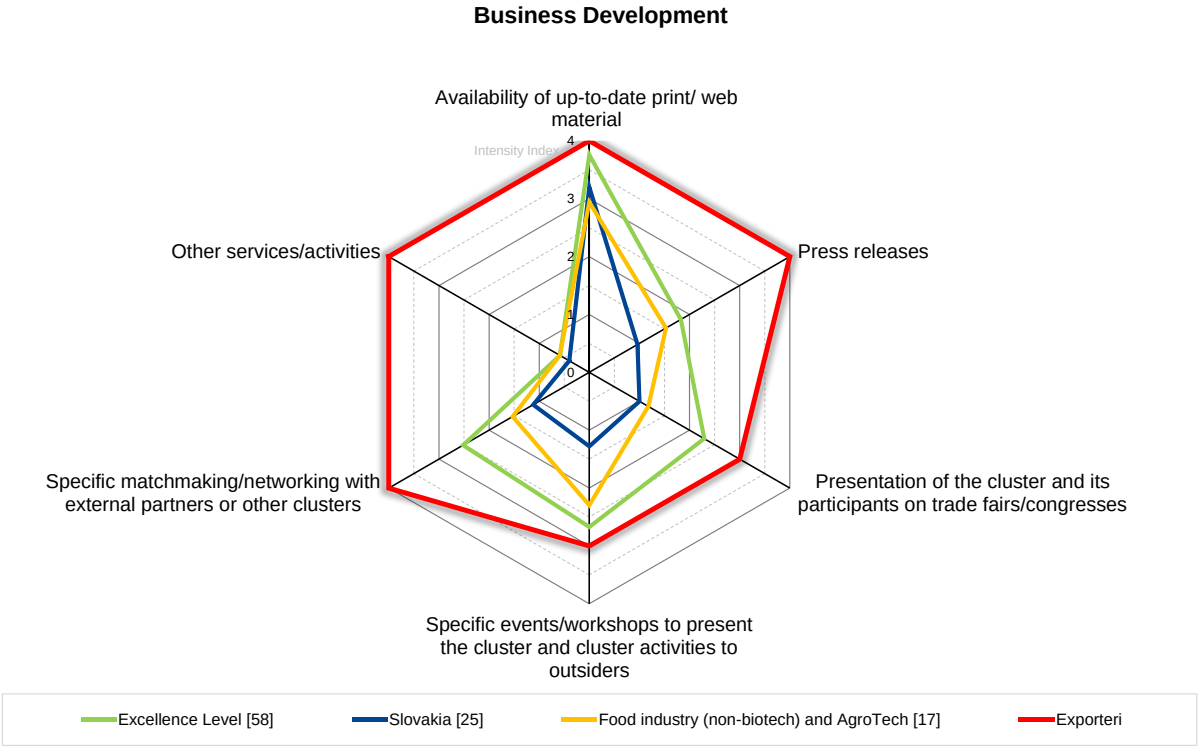


Figure 35: Services provided by Cluster Management Organisations in the service category "Business Development" within the comparative portfolios

3.5.5 Development of Human Resources

The development of cluster participants' human resources is particularly relevant for the success of innovation processes. Adequately and, most of all, well-trained skilled personnel should be available on all levels of the value creation chain. Despite these factors, it is all the more important to find suitable personnel to meet significant needs. Many instruments of personnel recruitment can be used to reach this goal.

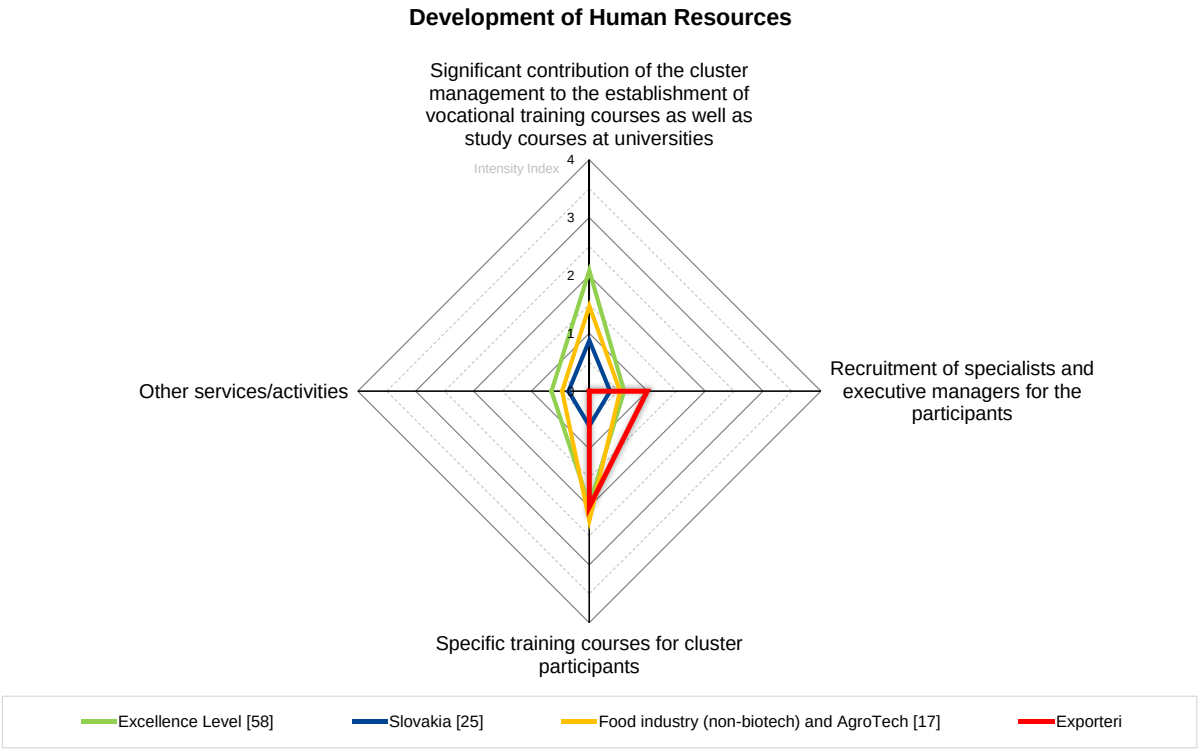


Figure 36: Services provided by Cluster Management Organisations in the service category "Development of Human Resources" within the comparative portfolios

3.5.6 Development of Entrepreneurship

As a rule, young business starters in the phase of setting up and establishing business need to be supported by competent and experienced experts. During this phase, the focus must be put on the development and implementation of innovative ideas in the first place and on a good business plan. Business starters should receive the right advice in order to deal with questions such as:

- "What is the process of starting business like?"
- "How can a business plan be developed?"
- "Where can I obtain the necessary capital?"
- "Are there alternative financing options?"
- "What is the right legal form?"
- "How can a sales network be built up?"

It is the role of the cluster management to provide some support or to organise a process to gain such support based on knowledge within the entire partnership in the cluster. Of course, this can be done as well by involving external expertise.

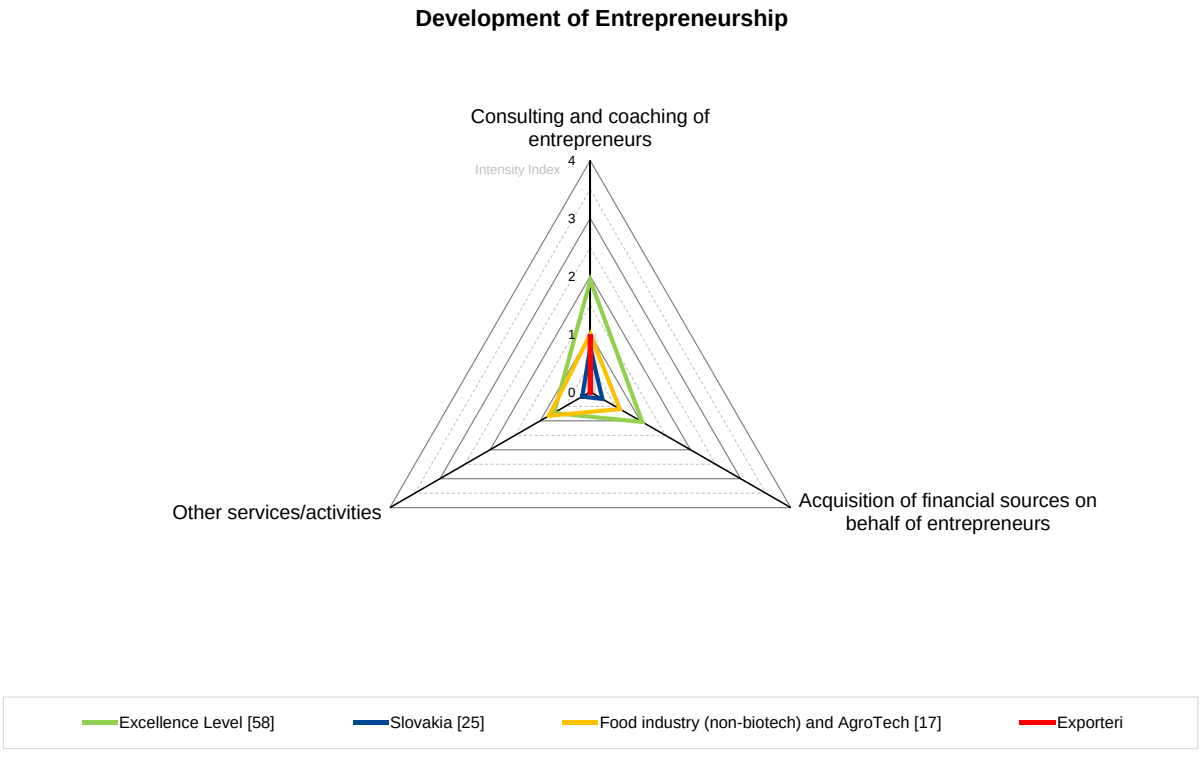


Figure 37: Services provided by Cluster Management Organisations in the service category "Development of Entrepreneurship" within the comparative portfolios

3.5.7 Supporting Policy Development

Cluster initiatives can be powerful allies for economic development agencies and other policy actors in the context of policy development. Cluster managers are closely connected to their region's most relevant players and organisations, they have a deep understanding of significant industry sectors and central technologies, and, most importantly, they are constantly tracing new economic, industry and/or technology trends. There are various ways how cluster stakeholders can be involved in policy development, e.g. by contributing to (regional) innovation strategies, participating in strategy workshops, representing the region in (inter-)national/European working groups, etc.

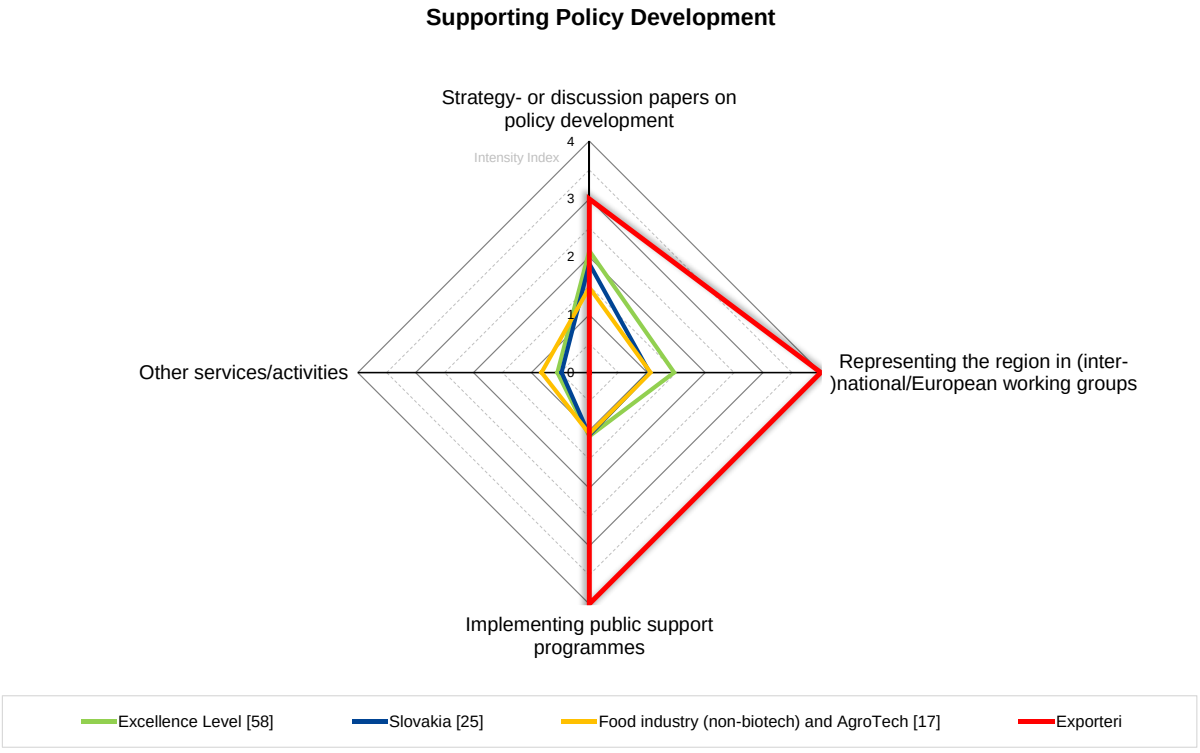


Figure 38: Services provided by Cluster Management Organisations in the service category "Supporting Policy Development" within the comparative portfolios

3.5.8 Internationalisation of the Cluster Participants

For many cluster participants the main reason for going international is to keep their lead in technological development and to strengthen their own position on markets worldwide. Furthermore, the expectation of improving the access to identified target markets in order to take advantage of the cooperation more easily and efficiently is a common motive. In case a cluster internally lacks some important competences, the primary objective of taking part in international cooperation is to obtain missing know-how on usability or technology. This becomes especially important if cluster organisations are active in areas with broad technological character.

The cluster participants, mainly small entities, often lack time, resources or budgets to successfully realise internationalisation processes. This is the rationale for Cluster Management Organisations to provide customised supporting measures and tools to the cluster participants on their paths to internationalisation, as they usually have more resources at their disposal and are more experienced in internationalisation matters.

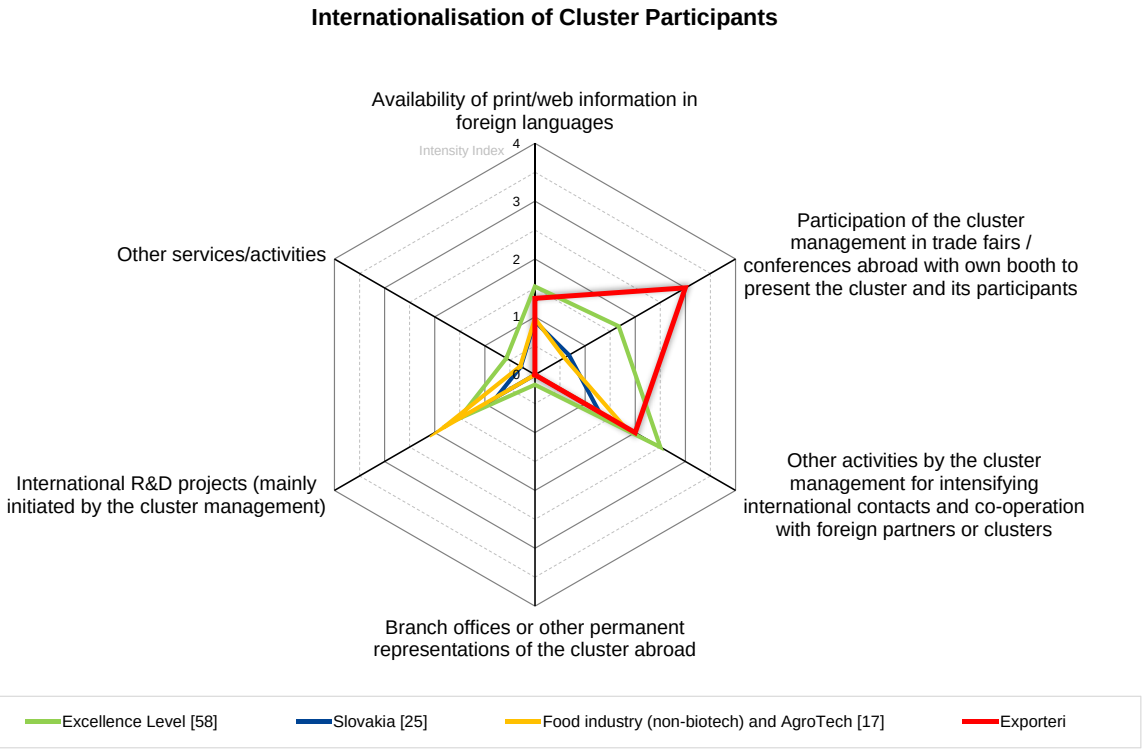


Figure 39: Services provided by Cluster Management Organisations in the service category "Internationalisation of cluster's participants" within the comparative portfolios

3.6 Contacts, Achievements and Recognition

3.6.1 Degree of Fulfilment of the Implementation Plan

The implementation plan of the cluster's strategic planning should exist in a written form. It should contain measurable targets and dedicated budgets and suit the strategic challenges. The degree of fulfilment of the implementation plan during the previous year of activity enables the self-assessment of the Cluster Management Organisation's labour efficiency and of the strategic challenges' objectivity.

The monitoring of the degree of fulfilment of the implementation plan's specific items could also be used as an input for strategy reviews or discussions with various stakeholders of the cluster (including funding organisations). Learning effects should allow for more realistic planning in the future with necessary efforts to achieve certain effects being planned more precisely.

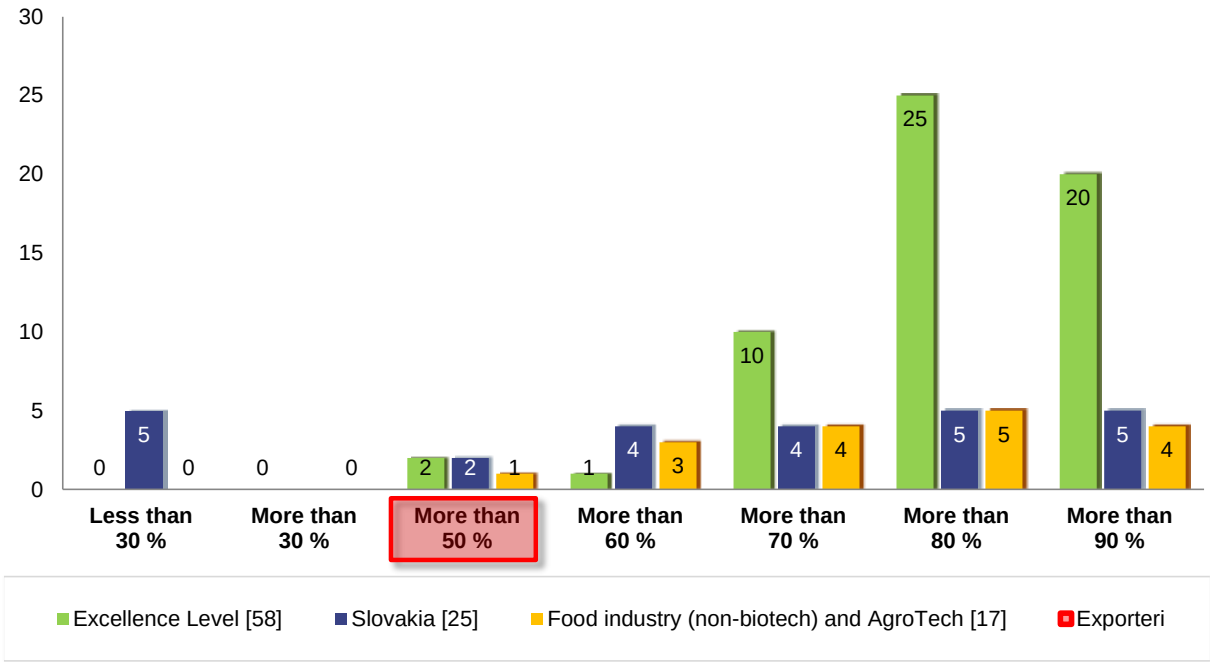


Figure 40: Degree of fulfilment of the implementation plan in the previous year of activity within the comparative portfolios

3.6.2 External Cooperation Requests Received by the Cluster

The recognition and visibility of a cluster is often reflected in a high number of external cooperation requests coming from relevant actors and received by the Cluster Management Organisation.

The amount of external cooperation requests within the last 2 years is represented on a scale ranging:

- from (0) no cooperation requests;
- to (4) large number of cooperation requests.

This scale is relative and cannot be quantified, as a definite number of external cooperation requests can be considered as low for some clusters and as large for others. This consideration is highly influenced for example by the cluster's age, maturity and size.

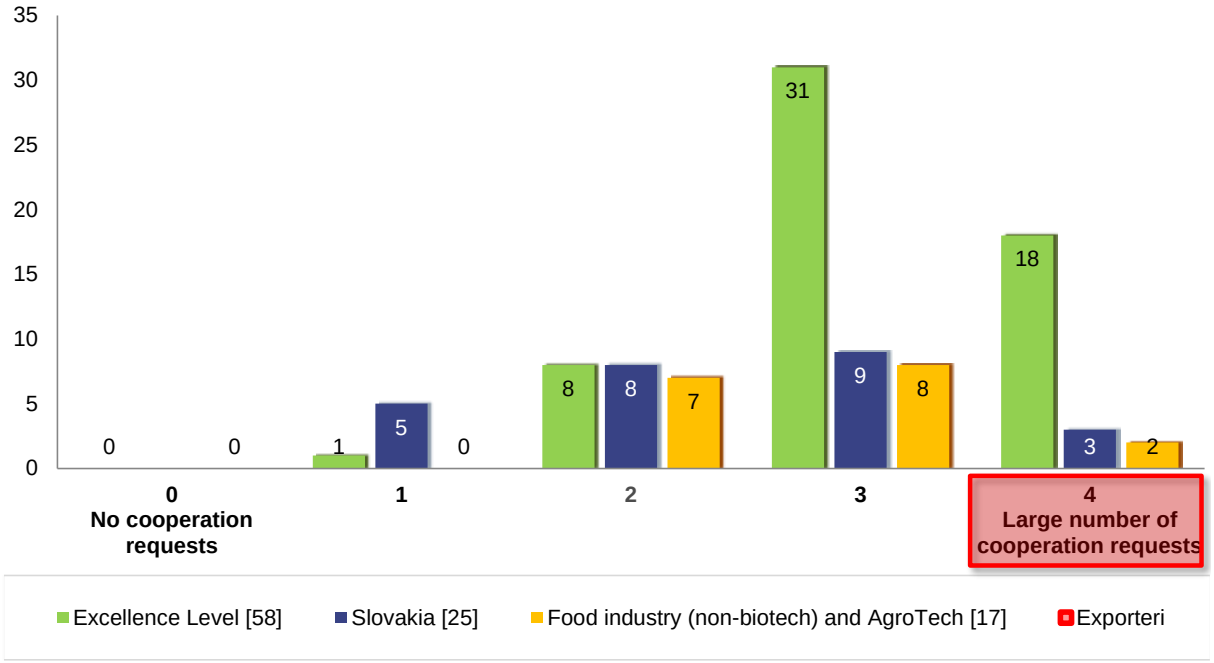


Figure 41: Number of external cooperation requests received by Cluster Management Organisations within the comparative portfolios

3.6.3 Characteristics of Cooperation with Clusters from other Countries

The characteristics of cooperation with clusters from other countries are analysed. This particularly has to be seen in relation to the geographic priorities of the cluster strategy. If internationalisation has a certain share, then it should be assumed that cooperation with clusters (Cluster Management Organisations as well as actors from the clusters) has reached a certain level already, meaning that collaborative projects or joint actions are already ongoing. The lower the international priority within the strategy is judged, the less probable it is that any type of international cooperation will be implemented or prepared.

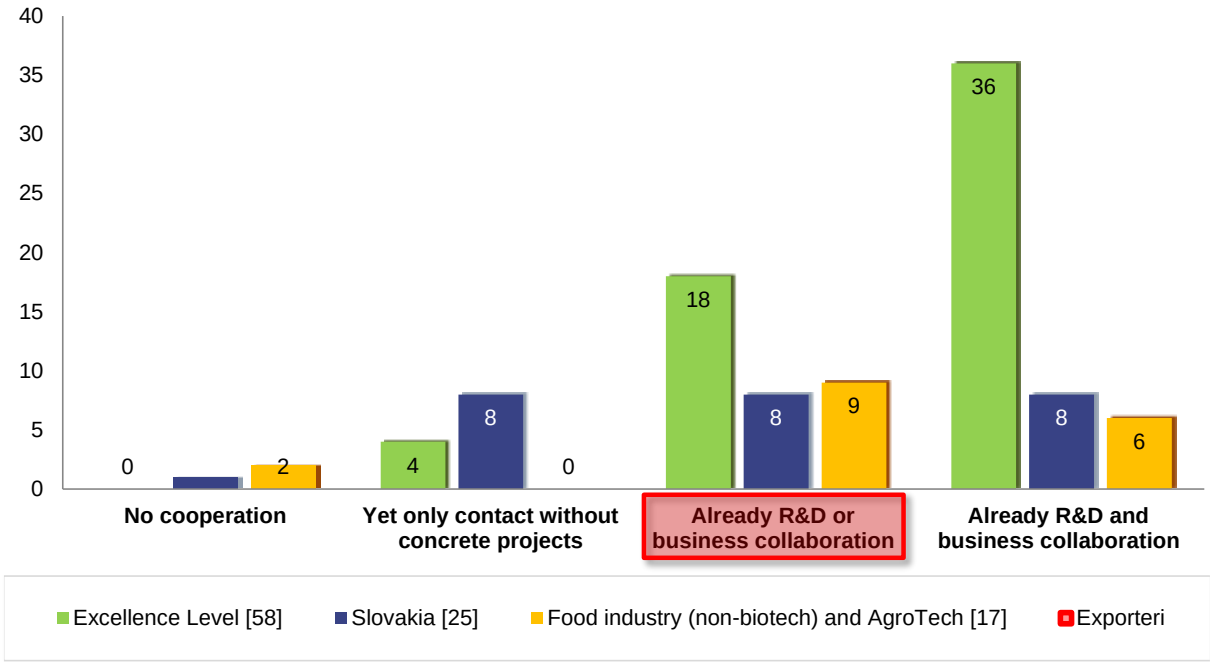


Figure 42: Characteristics of cooperation with clusters from other countries within the comparative portfolios

3.6.4 Media Visibility

Media visibility on regional, national and international level is important for clusters to attract partners, clients etc. Thus, the visibility of the cluster is assessed in terms of the frequency of media appearances.

The visibility of the cluster was analysed on a scale ranging from 0 (None) to 4 (High), which is more than 48 media appearances in the past twelve months (equals four media appearances per month).

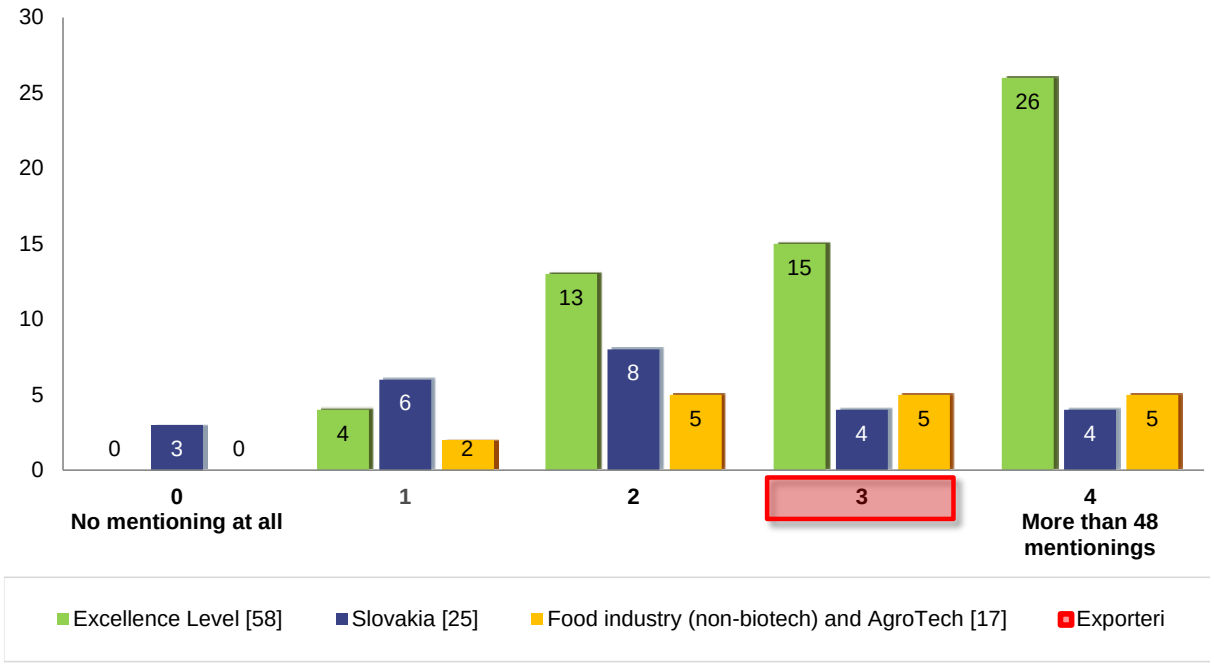


Figure 43: Media appearance of clusters within the comparative portfolios

3.6.5 Effect of the Work of the Cluster Management Organisation on R&D Activities of the Cluster Participants

The effect of the Cluster Management Organisation's work on the cluster participants' R&D activities is indicated by the following figure. The spectrum and frequency of services provided by the cluster management with respect to R&D is expected to have an impact on the R&D activities of the cluster's participants. The cluster managers self-assessed the impact of their work according to the following scale:

- (4) Significant and sustainable effects on a significant number of the cluster's participants in the field of R&D;
- (3) Significant and sustainable effects on a reasonable number of the cluster's participants in the field of R&D;
- (2) Measurable effects on a certain number of the cluster's participants in the field of R&D, but not yet really significant and/or sustainable;
- (1) Limited effects on a small number of the cluster's participants in the field of R&D;
- (0) No effect yet.

The self-assessment covers different categories of the cluster's participants (SME, Non-SME, R&D organisations and universities).

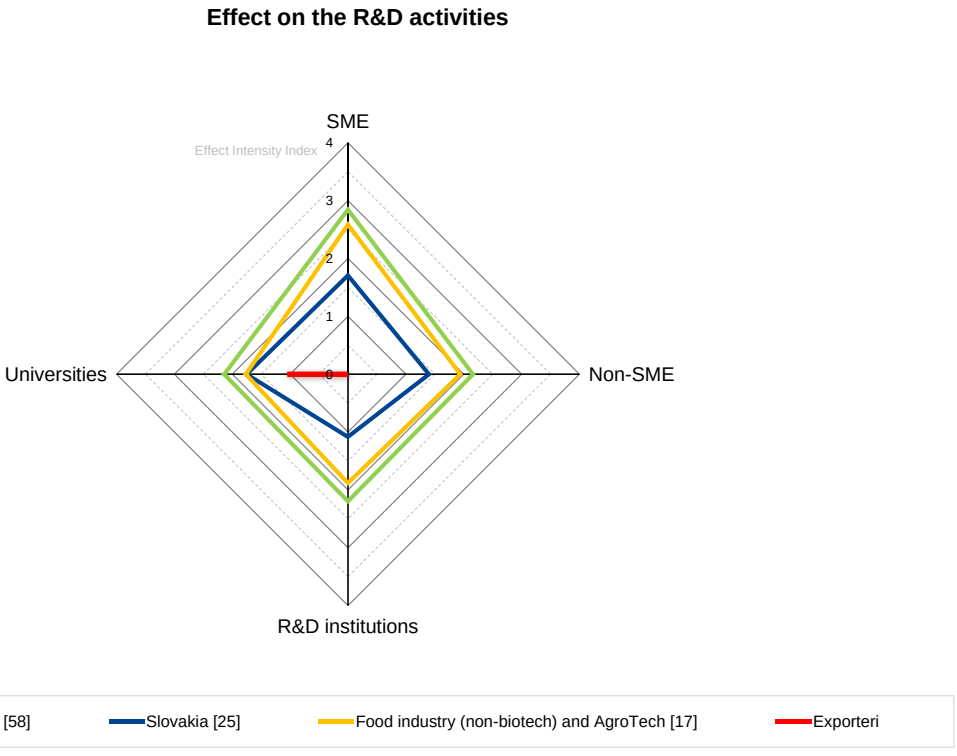


Figure 44: Effect of the work of Cluster Management Organisations on R&D activities of the cluster's participants

3.6.6 Effect of the Cluster Management Organisation's Specific R&D-oriented Services on SME Participants

The following figure displays a correlation between the spectrum and intensity (in terms of frequency) of specific R&D&I-oriented services and the impact of the cluster management organisation's work on SME R&D activities. The more services are provided (see e.g. the median value), the higher the impact on SME R&D activities is expected.

The spectrum and intensity of the R&D&I-oriented services are summarised in a composite indicator. The indicator is determined by incorporating all services analysed in chapter 3.5 which have direct influence on R&D activities rather than business and/or commercial activities. Every single service furthermore is weighted specifically within the composite indicator.

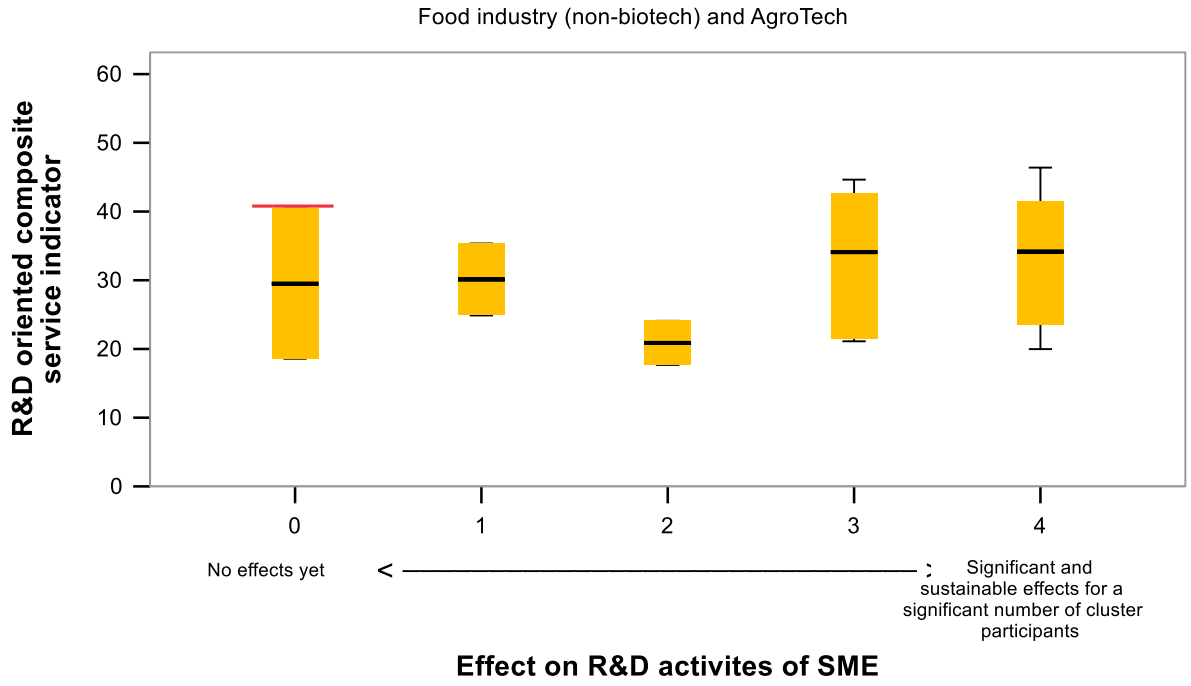


Figure 45: Effect of R&D oriented service spectrum and intensity on SME R&D activities within the technological portfolio

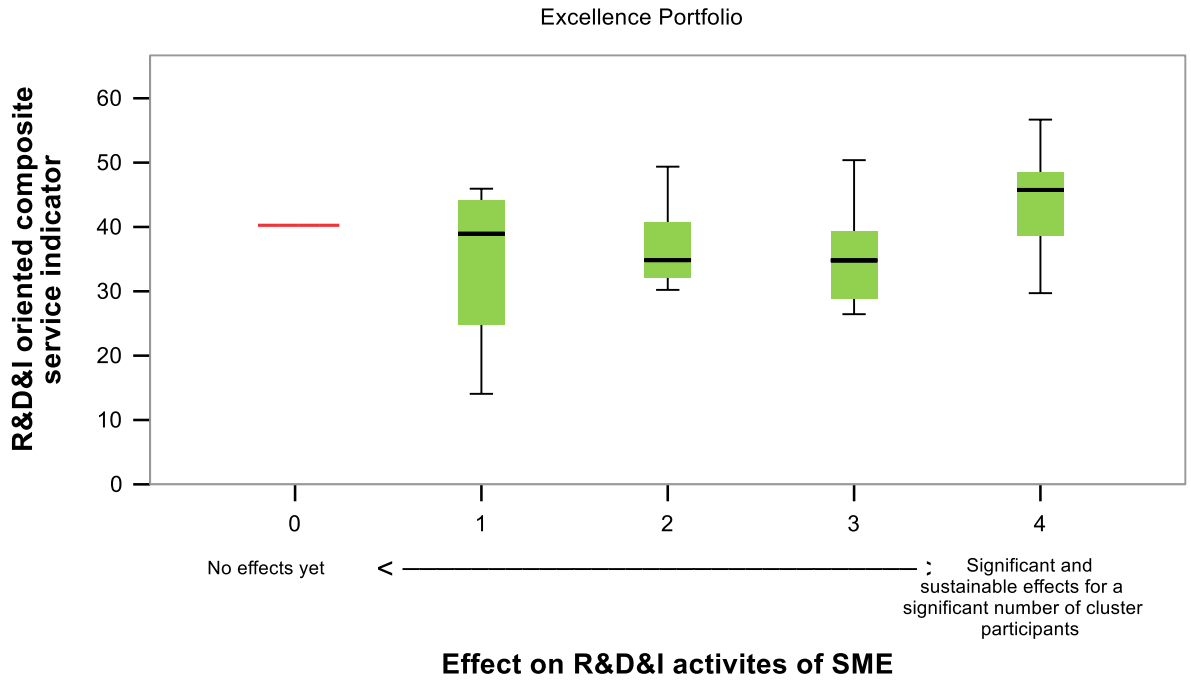


Figure 46: Effect of R&D oriented service spectrum and intensity on SME R&D activities within the excellence portfolio

3.6.7 Effect of the Cluster Management Organisation's Work on the Cluster Participants' Business Activities

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

- (4) Significant and sustainable effects on a significant number of the cluster's participants in the field of business development;
- (3) Significant and sustainable effects on a reasonable number of the cluster's participants in the field of business development;
- (2) Measurable effects on a certain number of the cluster's participants in the field of business development, but not yet really significant and/or sustainable;
- (1) Limited effects on a small number of the cluster's participants in the field of business development;
- (0) No effect yet.

The self-assessment covers different categories of the cluster's participants (SME, Non-SME, universities, R&D organisations, and training and education providers).

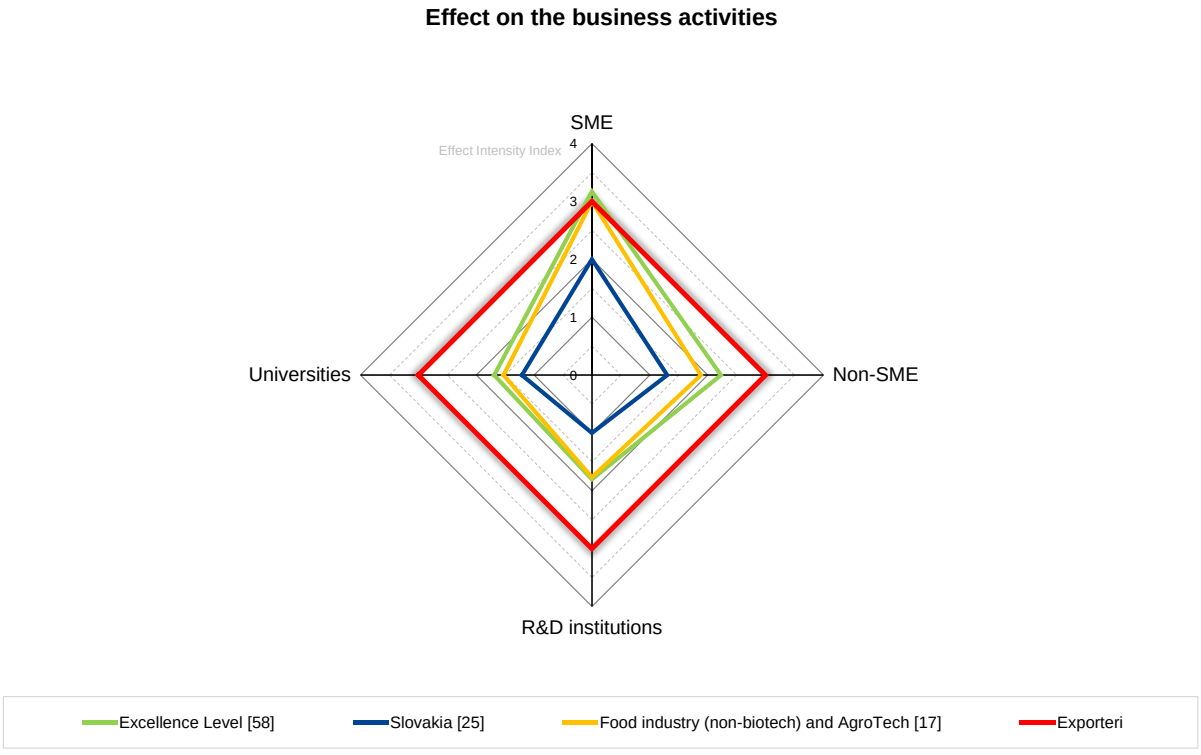


Figure 47: Effect of the work of Cluster Management Organisations on business activities of cluster participants

3.6.8 Effect of the Cluster Management Organisation's Specific Business-oriented Services on SME Participants

The following figure displays a correlation between the spectrum and intensity (in terms of frequency) of specific business-oriented services and the effect of the cluster management organisation's work on SME business activities. The more services are provided (see e.g. the median value), the higher the effect on SME business activities is expected.

The spectrum and intensity of the business-oriented services are summarised in a composite indicator. The indicator is determined by incorporating all services analysed in chapter 3.5 which have direct influence on business activities rather than R&D activities. Every single service furthermore is weighted specifically within the composite indicator.

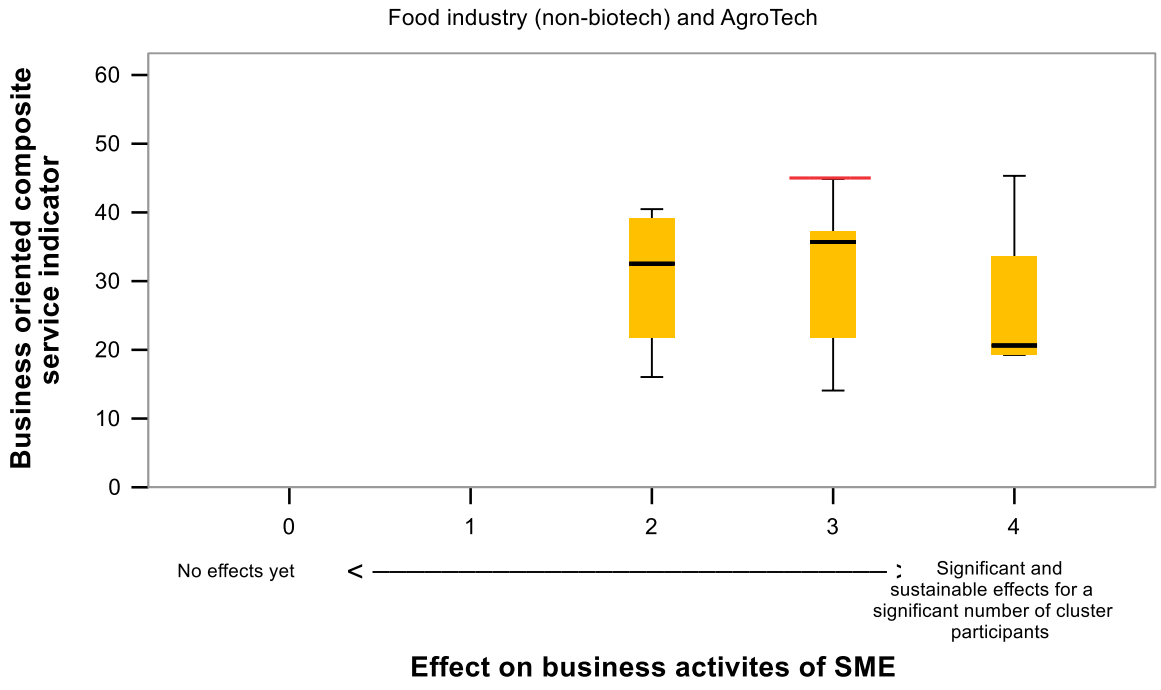


Figure 48: Effect of service spectrum and intensity on SME business activities within the technological portfolio

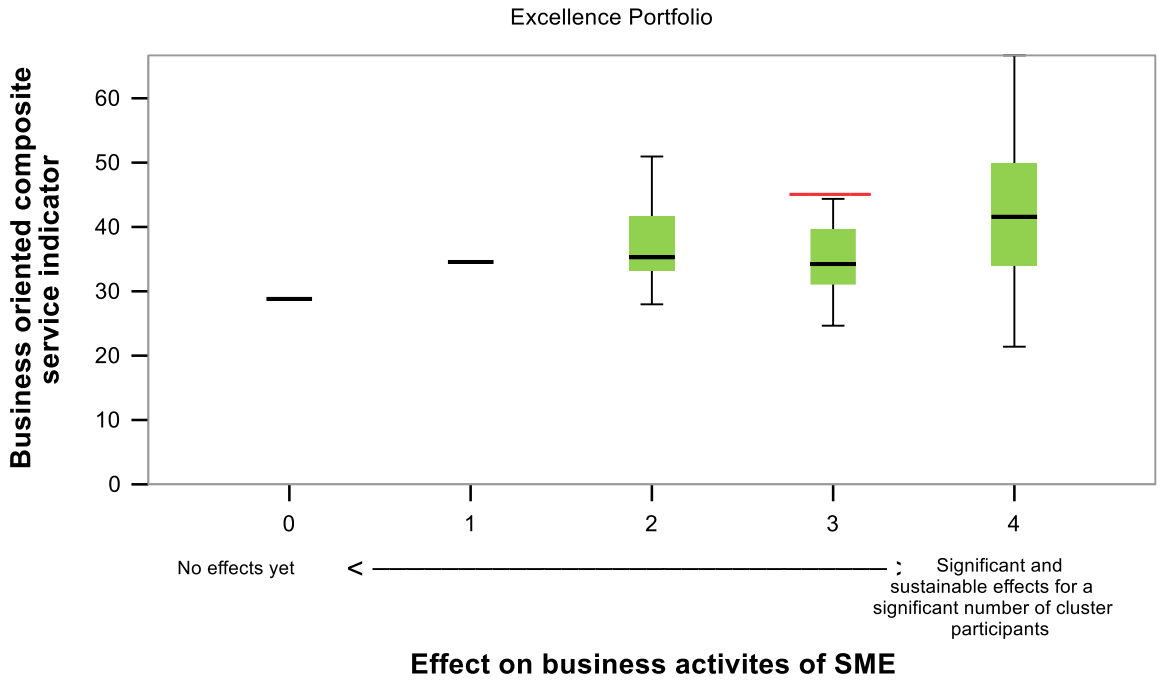


Figure 49: Effect of service spectrum and intensity on SME business activities within the excellence portfolio

3.6.9 Effect of the Cluster Management Organisation's Work on the Cluster Participants' International Activities

The effect of the Cluster Management Organisation's efforts on the cluster participants' international activities is indicated by the following figure. The spectrum and the frequency of services provided by the cluster management with respect to international activities are expected to affect the cluster's participants. The cluster managers self-assessed the effect of their work according to the following scale:

- (4) Significant and sustainable effects on a significant number of the cluster's participants in the field of international activities;
- (3) Significant and sustainable effects on a reasonable number of the cluster's participants in the field of international activities;
- (2) Measurable effects on a certain number of the cluster's participants in the field of international activities, but not yet really significant and/or sustainable;
- (1) Limited effects on a small number of the cluster's participants in the field of international activities;
- (0) No effect yet.

The self-assessment covers different categories of the cluster's participants (SME, Non-SME, universities, R&D organisations, and training and education providers).

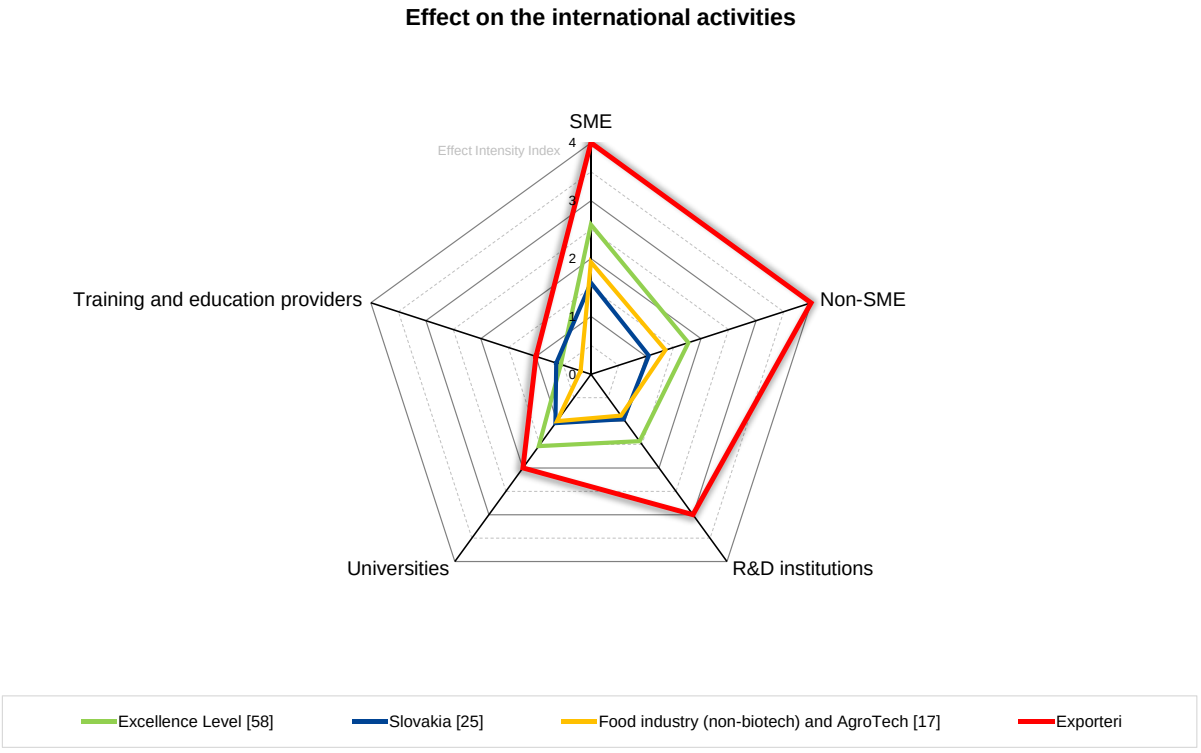


Figure 50: Impact of the Cluster Management Organisations' work on international activities of cluster's participants

ANNEX I: Lessons Learnt

Ten years after introducing the benchmarking scheme in 2010 with more than 1,100 benchmarked Cluster Management Organisations worldwide, ESCA has drawn various conclusions as regards successful cluster development which might inspire other Cluster Management Organisations to revise their strategy and service portfolios, such as characteristics of a good/excellent cluster management, general weaknesses and failures, new megatrends or examples of good practice.

The Need for a sound Cluster Strategy

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 trends and ongoing activities in science and technology, and social and economic developments. Stimulating and conduction 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.

Adopting new Megatrends: Digitalisation, Climate Change and Social Economy

While elaborating a sound cluster strategy significantly depends on the continuous monitoring of technology and business trends in the respective industry sectors, Cluster Management Organisations are increasingly confronted with global megatrends, which they often need to adopt in order to remain competitive, in particular, digitalisation, climate change/circular economy and social economy/social innovation. In addition, as taking part in public programmes, including EU projects, often requires having a digital, green or social profile, adopting these megatrends can help Cluster Management Organisations signal to stakeholders that they are in line with national and international policy priorities.

Digital Transformation

Given today's significant discrepancies between sectors and countries with regards to the status of digitalisation, in particular, the Internet of Things (IoT) and Artificial Intelligence (AI), managing digital transformation is one of the major challenges for cluster participants, particularly SMEs. Due to their heterogeneity in internal capacity, resources and size, cluster participants need tailor-made support measures based on their individual needs. Cluster Management Organisations can create the right eco-systems to facilitate digital transformation by providing the appropriate physical and digital infrastructure, by providing access to talent with adequate digital skills, by raising awareness and by providing guidance on available instruments and solutions (i.e. capacity building) and financial support, at the regional, national and European levels or as venture capital.

Green Transition

With climate change topping the international agenda and local and national governments increasingly committing themselves to ambitious efforts in tackling climate change and adapting to its effects, cluster participants are increasingly urged to becoming more resource efficient, e.g. by reducing greenhouse gas emissions or by saving on energy, material and water costs. Throughout Europe, environment-oriented clusters have taken up the topic of *circular economy* and *resource efficiency*. Various benchmarked Cluster Management Organisations have adopted the circular economy as a specific focus area and initiate projects in which cluster participants can learn about implementing tools for resource efficiency. Moreover, Cluster Management Organisations can help foster resource efficient business models among participants and create a space for collaboration in which new innovative technologies and products can thrive and prosper. Moreover, they can enable the development of circular value chains by facilitating (international) cross-sectorial collaboration.

Social Economy and Social Innovation

The social economy is defined as the proportion of the economy that aims at making profits for people other than investors and owners, including cooperatives, non-profit associations, mutual societies, foundations or even in some countries commercial enterprises with societal concerns. Together, they can co-create value for both partners and become a real source of jobs and social impact in Europe. By helping to promote start-ups and accelerators, Cluster Management Organisations can act as catalyst for bringing traditional

enterprises and social economy enterprises together and link both sectors. The European Commission, in particular, has placed a strong focus on these initiatives as potential solutions for many social problems in Europe, empowering a social economy through different platforms and projects.

Customised Services are Key

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.

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 B2Bprojects 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 described general service portfolio (Figure 50) 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.

Ultimately, it is the combination and interaction of different services that yields 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 regards a professional development and implementation of services that address the needs of cluster participants.

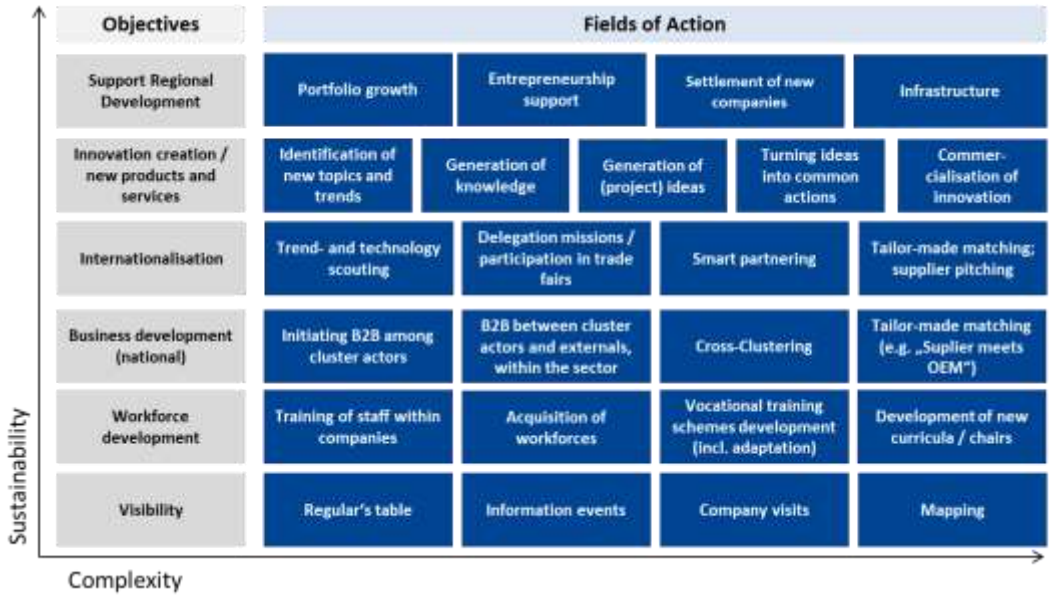


Figure 51: Integrated service portfolio of a Cluster Management Organisation

As **cross-sectoral collaboration** has become increasingly important for cluster initiatives, it is particularly interesting to see how Cluster Management Organisations can stimulate and promote this in an appropriate manner. Most of the excellent-rated Cluster Management Organisations have addressed cross-sectoral collaboration as a key strategic priority. They have realised that the development of new value chains is crucial for the development of their industry. In order to translate their strategic objectives into tangible results, they combine different services from their respective service portfolios to facilitate cross-sectoral collaboration, including matchmaking events, working groups or R&D projects. The question thus is not whether a Cluster Management Organisation needs specific cross-sectoral collaboration instruments, but how already existing instruments are coordinated in a service portfolio that strategically addresses cross-sectoral collaboration.

Every new value chain or emerging industry starts with the observation that there is an opportunity for the development of a new market ("market intelligence services"), then partners are needed to develop ideas on how one can take advantage of these opportunities ("matchmaking services"). Once ideas are born, they need to be translated into projects ("project development services"), new knowledge might be worth sharing with others ("technology transfer services") and funding is required ("innovation vouchers"). Last but not least, it is of outmost importance to reach out to other sectors on a constant basis ("strategic cross-cluster collaboration").

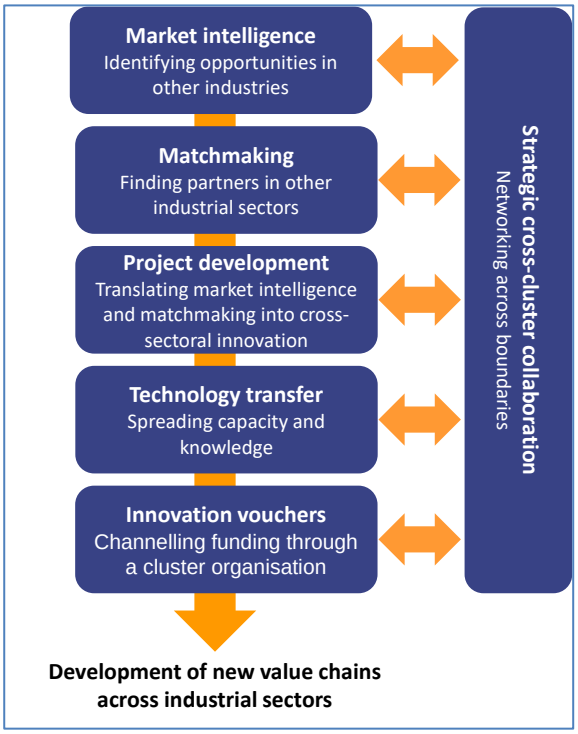


Figure 52: Strategic cross-sectoral collaboration

Communication and (Self) Marketing

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 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.

Main Management Shortcomings (based on data assessed 2016-2019)

Slightly more than half of the Cluster Management Organisations in Europe show a critical relationship between **committed and non-committed cluster participants**, meaning a higher percentage of cluster participants (> 20 %) to be considered as non-committed.

Committed participation of companies and research actors is a key requirement for the successful development and implementation of cluster projects. If companies and research actors commit themselves by contributing financial means (e. g. membership fees) and/or by actively participating in cluster activities such as projects or matchmaking events on a regular basis, the Cluster Management Organisation can better reach its strategic objectives. Non-committed cluster participants are often mere followers of cluster activities looking for access to advantages without costs or without the provision of own contributions to the entire cluster.

Clusters should have the right balance as regards **the composition of the cluster participants**. Slightly two-thirds of the Cluster Management Organisations face challenges in this regard, either because the share of companies in the cluster is too small in comparison to the number of research actors and intermediaries or because they lack research and education actors and/or any other intermediaries at all.

About three-quarters of the Cluster Management Organisations do not pay enough attention to further education and training of their staff (**life-long learning**). As industries are constantly developing, it is of outmost importance

that the cluster management keeps itself updated by participating in technical and management training on a regular basis and in a planned manner while having resources earmarked accordingly. In fact, a reason for the neglect of further education and training is often a lack of financing.

56 % of the Cluster Management Organisations do not have a stable **financial outlook** that goes beyond the next two years. The reason for this can be found in the fact that many Cluster Management Organisations receive financial support from public programmes. These programmes are generally limited in time, with funding periods of 2-3 years. Another explanation is that they have not yet developed a convincing "business case" that encourages cluster participants to finance the cluster management on a more long-term basis.

Cluster Management Organisations were asked to present success stories to provide evidence of their influence on industry development. Although most of the Cluster Management Organisations are able to present good projects and initiatives that indeed demonstrate good work, only a few Cluster Management Organisations can present success stories that qualify as "excellent success stories" meaning that projects are somehow unique and demonstrate some **level of impact**, e.g. by entering new territories of cluster development or changing existing structures in a profound way, such as joint development of study courses with universities that contribute to the development of skills in emerging industries.

Nearly 40 % of the Cluster Management Organisations do not conduct **satisfaction surveys** among their cluster participants, although such surveys help to collect information about the support needs of cluster participants and provide feedback on how successful the Cluster Management Organisation's work is. Such feedback is essential for the further development of a strategy and a service portfolio that facilitates the development of the cluster. It may also help to develop services for which cluster participants are ready to pay.

Further weaknesses could be determined in particular when analysing Cluster Management Organisations from the Central, Southern and Eastern European Member States. Reasons however, could not be extracted from the data available:

- Several clusters feature a sub-critical number of **committed cluster participants**. Two thirds of the clusters have less than 40 participants. As an outcome of ECEI it was stated that a minimum of 40 participants appears to be necessary to have a well-prepared and not only sufficient nurturing ground for the development of ideas and projects within a cluster.

- Clusters are less integrated in the national and regional **innovation system**. While universities and research institutions participate in the clusters, clusters interact only to a limited extent with relevant intermediaries, as innovation service providers, business incubators, technology transfer agencies, financial institutions, etc.

- 55 % of the Cluster Management Organisations offer only a limited number of services to the cluster participants or focus only on few areas. In order to support innovation, the **service portfolio** of Cluster Management Organisations should include at least the following service areas: information/market intelligence, matchmaking, initiation of R&D and innovation projects, promotion of the cluster and internationalisation. Human development initiatives or support of entrepreneurship are also important areas.

ANNEX II: The European Cluster Excellence Initiative (ECEI)

In an effort to create more world-class clusters across Europe, the European Commission (DG GROW) launched in 2009 the European Cluster Excellence Initiative (ECEI) to raise the innovation capacity and competitiveness of cluster organisations by focusing on cluster management. After termination of the financial support from the European Commission in 2012, ECEI project partners, holding the respective intellectual property rights of the cluster excellence labelling methodology and training activities, agreed to further develop and promote a European wide benchmarking and labelling scheme for cluster organisations. The European Secretariat for Cluster Analysis (ESCA) was established and hosted by VDI/VDE–IT in Berlin. The labelling approach was implemented as a service for cluster organisation striving for cluster management excellence.

ECEI has become a clear success story with the labelling scheme being extensively used in numerous countries. The ECEI labels (Bronze, Silver, and Gold) are widely recognised as a credible “international standard for cluster management”.

A review of the labelling system within the framework of the ECEI – Phase II (2017-2019), which was again supported by the European Commission, resulted in a further development of the governance and management system of the labelling scheme. Main features of the new labelling system are increased transparency, efficiency and the strengthening of the European dimension of the cluster labelling.

Purpose of the Labelling Scheme

Excellent management is considered to be a main prerequisite for cluster organisations to achieve the highest impacts within a given technological, industrial, regional, and legislative framework for the cluster participants, the industrial sector in general, or the development of regions. Furthermore, common standards for excellent cluster management facilitate mutual understanding necessary for cross-sectoral cooperation between cluster organisations, their participants and policy makers.

The ECEI labelling and benchmarking process is based on a set of quality indicators and includes on-site interviews and assessments by ECEI experts and intense discussions and (oral and written) advice given by these experts to cluster managers. The system is designed to deliver on a range of goals, such as helping cluster managers improve their management skills, capacities and knowledge; enhancing the quality of services provided to cluster participants; increasing the legitimacy of cluster organisations to be active in new support areas; improving national and international visibility and facilitating communication; or improving marketing and cooperation opportunities. In addition, the benchmarking exercise can help clarify and communicate the cluster strategy to cluster participants and offer novel insights on marketing, market positioning, competition, products and future perspectives. Finally, the system is set up to help cluster policy makers and regional developers identify high performing cluster organisations within their respective region.

The ECEI quality labelling system consists of three levels – Bronze, Silver and Gold.

The "Cluster Management Excellence Label GOLD – Proven for Cluster Excellence" depicts the highest standard of cluster management practice. It certifies excellent cluster management according to the approach developed in ECEI. The GOLD label is awarded to Cluster Management Organisations, which have reached a cluster management excellence score of ≥ 80 % during an external expert assessment, according to the 31 quality indicators elaborated within ECEI. The procedures of expert assessment and award of the label are monitored by a "Cluster Excellence Expert Group", consisting of all cluster managers holding a valid GOLD label. By this an international recognition of the GOLD label is guaranteed.

The validity of the GOLD label is limited to two years. It can be extended in validity during the validity period or latest one year after expiry for another three years in various manners:

- Improvement projects have successfully been implemented and validated according to „EFQM Committed to Excellence" (see www.efqm.org).
- Certification of the operation of the cluster organisation with ISO 9001, or at least the presentation of a recent "ISO 9001 Pre-audit Report" indicating a positive assessment for advancing in a ISO 9001 certification process
- Successful management improvement projects being conducted during the two years of GOLD Label validity which have been certified by any well-recognised authority for management certification (upon application and pre-approval of procedure by ESCA)
- Re-assessment of ECEI quality indicators with positive result, conducted by listed ECEI experts.

Cluster management organisations that do not meet these high standards yet, but are interested in demonstrating both to their cluster participants and potential partners that they are on the path towards cluster management excellence, can in a first step subject themselves to a an assessment for the "Cluster Management Excellence Label BRONZE – Striving for Cluster Excellence". consisting of

- a cluster benchmarking process by an impartial benchmarking expert
- Fulfilling certain eligibility criteria for being awarded the BRONZE Label

The BRONZE label confirms the organisation's status as a Cluster Management Organisation with a serious interest in striving for excellence.

The validity of the BRONZE label is limited to two years from the date of the award after the benchmarking interview. It can be extended in validity during the validity period or latest one year after expiry for another three years by going through the same process again.

The “Cluster Management Excellence Label SILVER – Dedicated to Cluster Excellence” certifies a longer-term ongoing successful pro-cess of improving cluster management in the Cluster Management Organisation. The eligibility criteria for applying for this label are:

- having achieved a BRONZE Label more than 1.5 years ago and being able to present full proof of evidence in at least three areas where significant improvements could be achieved since the last benchmarking interview AND
- all minimum criteria of the indicators in regard to the GOLD Label are met.

The SILVER label is awarded upon positive validation of these improvements by an ECEI expert. It indicates that a Cluster Management Organisation is successfully working on improving cluster management in the long term. The SILVER label, valid for two years, therefore

The validity of the SILVER label is limited to two years from the date of the award after the assessment report is approved by ESCA. It can be extended in validity during the validity period or latest one year after expiry for another three years by going through the same process again.

Benchmarking versus Labelling

The methodology used for the benchmarking of Cluster Management Organisations was originally introduced by VDI/VDE Innovation + Technik GmbH (VDI/VDE-IT) in 2008 and, since then, has been further developed in the context of several national and European projects. Since the end of 2011, VDI/VDE-IT has merged all its activities related to benchmarking, analysing and advising Cluster Management Organisations and cluster policy stakeholders, including the activities conducted in ECEI, under the brand “ESCA – European Secretariat for Cluster Analysis”. Since then, ESCA, with its internal experts and a broad international network of specifically trained experts throughout and even beyond Europe, provides Cluster Management Organisations, policy makers and program agencies with cluster related analysis and advice and the services around the ECEI labelling scheme in particular as a one-stop shop.

The benchmarking methodology aims at identifying weak spots and encouraging cluster managers to take part in an improvement process and to become better by comparing themselves to peers and learning from the best. The ECEI labelling scheme additionally aims providing cluster organisations a mean for demonstrating a high or excellent level of cluster management achieved.

Today, the activities of ESCA and the three ECEI labels of are well recognised by Cluster Management Organisations and cluster policy stakeholders worldwide. In many cluster support programmes, related activities for improving cluster management and aiming to be awarded with the respective label are implemented, including those of the European Commission (DG GROWTH).

Many of the indicators used within the benchmarking exercise are similar or even the same as in the approach for the GOLD Label. Further development of the labelling scheme, for example during the ECEI – Phase II project (2017-2019) addressed increasing the compatibility of indicators used in the different labelling processes. The main difference is that the benchmarking exercise approach is a self-assessment and no further full proof for the data is required. In contrast, the ECEI approach for assessing the GOLD Label is based on an external assessment which states whether a cluster management fulfils certain quality criteria or not, based on proof of evidence being provided. Consequently, the ECEI indicators reflect excellence thresholds, which is not the case in the benchmarking exercise.

A set of 31 quality indicators, measurement procedures and excellence thresholds have been elaborated in ECEI for the GOLD Label. A list of these quality indicators is published under www.cluster-analysis.org.

The following table lists selected Cluster Management Organisation management excellence indicators of the GOLD Label where relevant data was collected within the benchmarking exercise (the full set of ECEI indicators is not covered here). In the three columns on the right it is indicated how the Cluster Management Organisation performs according to the quality level defined by ECEI.

The colours indicate the level of performance as follows:

- GREEN: Excellent level of performance. Only minor improvements are – if at all – possible;
- YELLOW: Reasonable level of performance. Potential for improvements which are necessary for reaching a GOLD Label;
- RED: Certain criteria for good practise in cluster management are not reached and/or it is recommended to take these weak spots into consideration for the further development of the Cluster Management Organisation management.

Thus, a quick overview is provided in areas of improvement for reaching a level of cluster management excellence which could lead to the GOLD Label. However, it has to be clearly noted that the data for this overview was assessed in a different manner during the benchmarking as it would have been assessed within a GOLD label assessment procedure and that some of the projections do not represent the full scope of the details of the ECEI indicators.

Table 6: ECEI set of quality indicators

	GREEN Quality Level	YELLOW Quality Level	RED Quality Level
STRUCTURE OF THE CLUSTER			
Committed cluster participation	x		
Composition of the cluster participants	x		
Number of committed cluster participants in total	x		
Geographical concentration of the cluster participants		x	
TYPOLOGY, GOVERNANCE, COOPERATION			
Maturity of the cluster management			x
Human resources available for cluster management	x		
Skills and Competences of the cluster management team	x		
Lifelong learning aspects for the cluster management team			x
Stability and continuity of human resources of the cluster management team	x		
Stability of cluster participation	x		
Clarity of roles – involvement of stakeholders in decision making processes		x	
Direct personal contacts between the cluster management team and the cluster participants		x	
Degree of cooperation within the cluster participants	x		
Integration of the Cluster Management Organisation in the innovation system	x		
FINANCING			
Prospects of the financial resources of the Cluster Management Organisation			x
Share of financial resources from private sources	x		
STRATEGY, OBJECTIVES, SERVICES			
Documentation and review of the cluster strategy		x	
Implementation Plan, documentation and review cycles		x	
Degree of fulfilment of the implementation plan		x	
Activities and services of the cluster management	x		
Working groups		x	
Cluster Management Organisation's web presence	x		
ACHIEVEMENTS, RECOGNITION			
Recognition of the cluster in publications, press, media		x	
Success stories		x	
Cluster participants' satisfaction surveys	x		

Requirements to Excellence According to Relevant ECEI Indicators

The following requirements are supposed to be fulfilled by the Cluster Management Organisation in order to reach the level of excellence "GREEN" according to the ECEI indicators.

STRUCTURE OF THE CLUSTER

Geographical concentration of the cluster participants

More than 70 % of the committed cluster participants should have their premises within a distance of around 150 km or 1.5h travel time from the headquarters or any regional office (if existing) of the Cluster Management Organisation in order to make personal contacts among the participants more feasible.

TYPOLOGY, GOVERNANCE, COOPERATION

Maturity of the cluster management

As it takes time to successfully develop and implement activities for a cluster, a Cluster Management Organisation should normally need at least four years to reach a sufficient maturity.

Lifelong learning aspects for the cluster management team

Measures for lifelong training for the cluster management team should be planned and based on a sufficient budget. They should be implemented on a regular basis with more than two training days per year for every staff member.

Clarity of roles - involvement of stakeholders in decision making

At least five of the six following bullet points are considered necessary for Excellence:

- Contracts, statutes, and/or bylaws exist that define benefits and responsibilities associated with committed membership;
- Legal form of the Cluster Management Organisation;
- General manager of the Cluster Management Organisation is nominated and actively in place, managing his team, the day-to-day business, as well as the strategic activities of the cluster;
- Regular General Assembly held at least every year, allowing cluster participants to express wishes and to provide input to the strategy of the Cluster Management Organisation;
- A management board, mainly composed of representatives of industrial cluster participants, elected or nominated by the cluster participants in a transparent manner and having the decision power regarding strategic orientations, new membership requests, recruitment of Cluster Management Organisation management personnel, budget control, etc. Instead of a management board, specific high-level working groups could fulfil this role as well;
- [Advisory board / scientific board(s) exist] OR [thematic committees composed of participants exist]; both to conduct decision making and to support the cluster management team in implementing the action plan.

Direct personal contacts between the cluster management team and the cluster participants

The management team should have direct personal contacts with more than 40 % of the cluster participants in the last year of activity. For excellence an even higher share of 60 % of the cluster participants reached is required. Eligible personal contacts are, for example, contacts during a visit at the cluster participant's premises or a visit of the participant in the premises of the Cluster Management Organisation; an extensive bilateral exchange of information, for instance, via telephone or mail; joint work of the Cluster Management Organisation management staff and representatives of the cluster participants in specific projects, working groups, or other joint activities.

FINANCING

Prospects of financial resources

The financial situation of a Cluster Management Organisation can be considered as excellent if the budget is secured for the next two years of activity and if there is a positive outlook beyond.

STRATEGY, OBJECTIVES, SERVICES

Documentation and review of the cluster strategy

The strategy of the cluster should be documented properly. It should cover all relevant strategic issues, topics, timeframes, etc., complemented by graphs/illustrations etc., clearly describing the long, medium and short term prospects. It is also important to implement processes for strategic planning, incl. a monitoring approach that documents the progress and impact of the implementation plan. Review measures and corrective actions should be documented as well in order to demonstrate continuous improvements.

Implementation Plan, documentation and review cycles

The implementation plan with measurable targets and dedicated budgets should exist in a written form and fit to the strategic challenges. The degree of fulfilment of the implementation plan during the last year of activity should be above 80 %.

Working groups

Working groups covering specific issues within the cluster should be set up to provide cluster participants with a platform for joint projects. It is consensus that the cluster management team shall rather facilitate cooperation between the cluster participants than being the driver and involved directly in all activities. Initiating and implementing a structure of working groups can be considered as good practice for Cluster Management Organisation management.

ACHIEVEMENTS, RECOGNITION

Recognition of the cluster in publications, press, media

Public relation activities could be increased, there seems to be a limited awareness of the cluster on the local/regional level, on national/international level and/or within the industrial sector.

Success stories

Success stories of the cluster or its participants – if significantly supported by the activities of the Cluster Management Organisation – should be communicated by the Cluster Management Organisation. The success stories should highlight the following points:

- The complexity of the objectives and activities;
- The positive impact on the majority of the cluster participants and industry in general;
- The relevance and degree of contribution to the achievement of the cluster's strategic objectives;
- The contribution to the sustainability of the Cluster Management Organisation development.