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ACCELERATE GDT will reinvent national and regional cluster policies to support the twin green and digital transitions and SMEs competitiveness.



An interregional cooperation project  
improving **SME competitiveness** policies

## CLUSTER ECOSYSTEM ANALYSIS

A CASE STUDY ANALYSIS OF THE CLUSTERING ECOSYSTEM IN CZECHIA

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## INTRODUCTION

ACCELERATE GDT brings together 7 European partners to accelerate the twin green and digital transitions by aligning supports into regional and national cluster policies, which will in turn raise SME competitiveness, build regional resilience, increase shared value, and boost recovery across Europe. The project runs from 1<sup>st</sup> March 2023 to the 31<sup>st</sup> of May 2027.

Clusters are a central feature in the European Commissions' competitiveness and Smart Specialisation strategies (DG Research, 2019). The European Expert Group on clusters found that clusters have a pivotal role in accelerating the twin green and digital transition (GDT), building resilience, and boosting recovery. During the Covid-19 pandemic, clusters demonstrated the capacity to drive change and make European value chains more resilient. Clusters can reach European firms quickly, especially SMEs and improve their innovation potential, technological uptake, skills and internationalisation.

The EU Green Deal's aim is a clean, circular, and climate neutral economy for European industry and society. Clusters can accelerate this transition towards a green economy, by identifying and supporting their members' access to green technologies, innovation, business solutions, dedicated funding and markets, and thus facilitate the green transition.

Digital solutions and the data-based economy are transforming industry and society, and the COVID-19 crisis has further accelerated this need. The EC (2021, p.14) suggests that the "digital transition requires the uptake of solutions by virtually all businesses. The transformation generates new competitive fields as it brings in new opportunities and new ways to create value." Laggards who do not develop digital components in their business model are certain to fall behind in competitiveness and growth.

## ACCELERATE GDT PROJECT PARTNERS



## CZECH REPUBLIC

**Capital:** Prague

**Size:** 78 870 km<sup>2</sup> (2023, CZSO<sup>1</sup>)

**Population:** 10 827 529 (31. 12. 2022, CZSO)

**National GDP:** € 271 434 mil. (2022, CZSO)

**GDP per capita:** € 25 396 (2022, CZSO)

**% of Unemployment:** 3,5 % (10/2023, MLSA<sup>2</sup>)

**Average gross wage:** € 1690 (30. 6. 2023, CZSO)



The Czech Republic was established on 1 January 1993, when it became independent and is a parliamentary democracy. The country is composed of 14 regions. The country is one of the most developed economies in the world thanks to its market economy. It is a member of the European Union, the OECD, the World Bank, NATO, the IMF and other major groups.

Every year, the Czech Republic shows higher values for exports than for imports, so it is an export-oriented country. Its key export partners are mainly its neighbours - Germany (30.2%), Slovakia (10.2%), Poland (7.0%) and France (4.9%). The machinery and transport equipment sector (51.5%), marketable products classified mainly by material (17.7%) and industrial consumer goods (10.4%) play a significant role each year. The Czech Republic is a traditional industrial country with a dominant position of the automotive industry. According to the breakdown of exported goods, these are road vehicles (including hovercraft) (21.7%), electrical equipment, appliances and appliances, n.e.c., and electrical parts thereof (including non-electrical related appliances, n.e.c.), household appliances) (9.4%) and machinery and equipment for general industrial use, n.e.c. (6.9%). Imports are again dominated by Germany (21.9%), followed by China (12.6%) and Poland (8.9%). In import goods, machinery and transport equipment (39.6%) is again the dominant product, followed by marketable products classified mainly by material (17.4%) and chemicals and related products, n.e.c. (12.3%) (CZSO, 2023).

The Czech labour market remains in a state of high uncertainty. Demographic changes are making their way into statistical indicators. Unemployment remains low, one of the lowest in the European Union. The average wage increased by 7.1% year-on-year in nominal terms, but decreased by 0.8% in real terms. There is a gradual wage catch-up with the increased price level, but it is highly differentiated in terms of sectors (CZSO, 2023).

1) CZSO Czech statistical office <https://www.czso.cz/csu/czso/home>

2) MLSA Ministry of labour and social affairs <https://www.mpsv.cz/>

Currently, the Czech Republic is not in an entirely favourable situation. The economy is on the verge of recession. Gross domestic product is likely to fall by 0.5% in 2023, but is forecast to grow by 1.9% in 2024, mainly thanks to renewed growth in household consumption. Private investment and growth in export markets will also support economic activity. However, it will be slightly dampened by the impact of the consolidation package, which will also help to reduce inflationary pressures. Inflation will be significantly lower in 2024 than in 2023, but will remain above 3% for most of the year. The impact of weak economic dynamics on the labour market should not be significant given the persistent imbalances. The risks to the forecast are skewed to the downside (MFCR<sup>3</sup>, 2023).

## LANDSCAPE AND BACKGROUND OF CLUSTERS IN CZECH REPUBLIC

According to the current Innovation Strategy of the Czech Republic (2019-2030)<sup>4</sup>, clusters are considered one of the tools to support innovation and research centres to reach their full potential. Another objective is to integrate Czech companies into sectoral clusters with the active participation of research institutions.

Although clusters do not have an independent strategy in the economic policy of the Czech Republic, their development has always been supported through budget allocations in operational programmes or their inclusion in the country's strategies such as smart specialisation, Industry 4.0 or various digitisation strategies.

In the larger European context, clusters and sectoral organisations will continue to increase their economic, social and environmental importance. Global challenges such as climate change, digital transformation and threats to supply chains due to geopolitical instability require a concerted effort by SMEs. The rapid evolution of technology poses a challenge to education systems, which is coupled with a shortage of specialised labour across Europe.

It is crucial for the Czech Republic to integrate soft support for clusters, and sectoral organisations as part of a strong ecosystem. This means the existence of a cluster/network department in the state administration with clear objectives and competences, ideally along the lines of best practice, of which there is more than enough in Europe. It is also necessary to decide what role clusters have in the ecosystem, what role associations, technology platforms, etc. have. On the basis of these decisions, clear KPIs for cooperation at a minimum triple helix level need to be identified. Seeing the ecosystem associations as an opportunity to effectively collaborate with different market actors one coordinating tool is essential in this context to successfully tackle the current challenges.

<sup>3</sup>)MFCR Ministry of finance of the Czech Republic <https://www.mfcr.cz/en/>

<sup>4</sup>) [Strategic Framework Czech Republic 2030](#)

In this document we rely on the cluster mapping <sup>5</sup> conducted by the CzechInvest agency<sup>6</sup> and completed in October 2022. The questionnaire survey was conducted with 21 cluster organisations that participated in the questionnaire survey out of 53 organisations contacted, so the survey is not exhaustive.

## ANALYSIS OF CZECH CLUSTER ORGANISATIONS

The created benchmark <sup>7</sup> should provide a comparison of the current state of Czech clusters, the level of cluster management, cooperation between companies within the cluster, response to current trends and the cluster life cycle, etc. The aim of the survey is to map the cluster environment in the Czech Republic and to adjust the cooperation with the state administration accordingly, in order to help Czech clusters to develop in relation to their current identified state.

As the survey was voluntary and the motivation for providing information was only to obtain feedback and recommendations for further cluster development, it was possible to obtain details on the functioning of less than half of the functional clusters, i.e. 21 cluster organisations. This survey could be considered a precedent that only makes sense if it is repeated regularly to generate time series information.

### Structure of the 2022 Cluster Benchmark:

- Cluster strategy
- Cluster policy
- Membership base
- Employees of the cluster organisation
- Funding
- Geographical location of the cluster organisation
- Field of focus of the cluster organisation

### Cluster strategy

The vast majority (65%) of cluster initiatives have a strategy in the form of a formulated strategic document, but only 45% of all organisations have an action plan as part of their strategy. However, in most cases the action plan does not include a breakdown into sub-activities, namely specifically for 75% of all interviewed cluster organisations, where only 10% have written the individual steps to achieve the objectives in the form of KPIs and in the competence model. In 40% of the cases, the strategy has a clear vision, but without set benchmarks and their target values.

5) Methodology for co-operation with clusters 2022 [https://www.mpo.cz/assets/cz/podnikani/ris3-strategie/projekty-na-podporu-ris3/operacni-program-vyzkum-vyvoj-a-vzdelavani/2023/2/Methodika-spoluprace-s\\_klasy\\_web.pdf](https://www.mpo.cz/assets/cz/podnikani/ris3-strategie/projekty-na-podporu-ris3/operacni-program-vyzkum-vyvoj-a-vzdelavani/2023/2/Methodika-spoluprace-s_klasy_web.pdf)

6) CzechInvest: <https://www.czechinvest.org/>

7) Cluster Benchmarking 2022, CzechInvest - <https://www.ris3.cz/sites/default/files/2022-12/Benchmarking%20klastr%C5%AF%202022.pdf>

The survey shows that the strategies of Czech cluster organisations are mainly influenced by representatives of science and research, followed by representatives of the private business sector. This result shows the low interconnectedness of the whole triple helix, hence the pentagon, and the very low influence of government and innovative business entities on the functioning of cluster organisations. There is very little staff allocated for cooperation with clusters in the Czech state administration, specifically we could not find a single employee who has a full-time job only for cooperation with clusters. Thus, these are compound or supplementary full-time positions in the order of lower units of individuals.

### **Cluster policy**

The average satisfaction with cooperation with government representatives at the regional level was 34%. At national level, the average was slightly higher at 43%. 95% of cluster organisations would like to see a cluster policy and programme similar to the Basque one, for example.

Only one cluster expressed that the current cluster policy in the form of support from structural funds is sufficient. 80% of respondents were positive about the question whether the state should have a team of experts dealing with cooperation with clusters and sectoral organisations. On the other hand, respondents indicated that they would like to have close cooperation with a representative of the state administration at a level similar to the Basque cluster programme (close links, member of management or control bodies, influence on strategy), a positive answer only 20% of the time. In 40% of cases, respondents would rather see the role of the government representative in the cluster as a lobbying role only. A further 40% of respondents said they preferred to operate organically and would use intermediaries to deal with the state administration where appropriate. It is clear from foreign experience that for the proper functioning of the cluster environment, cluster organisations and the whole triple helix, equal cooperation of all members of the triple helix (state, private sector, scientific research sector) is essential.

It is necessary for government representatives to be able to project national or regional strategic themes into the cluster tool. Therefore, they must have an influence on the functioning of the clusters and cannot be used only as a lobby tool. This tripartite relationship is ideally balanced and pushes for quality and involvement of all stakeholders. When asked who should be the executor of this cluster policy or cluster programme, almost 60% of the survey participants answered that it should be the Ministry of Industry and Trade<sup>8</sup>.

### **Membership base**

It is absolutely essential that the cluster initiative consists mainly of paying cluster members.

<sup>8</sup>Ministry of Industry and Trade <https://www.mpo.cz/>

21 cluster organisations with 852 members passed the cluster benchmark. Of this number, 680 are paying members and 172 are non-paying members. On average, Czech clusters that passed the benchmark have 40.5 members in total, of which 32.4 are paying members. But it is necessary to mention that only 4 benchmarked clusters have more than 50 paying members. Another 7 clusters have between 25 and 36 members. The rest of the benchmarked clusters have less than 25 members.

### **Cluster staff**

The largest number of employees in the clusters is allocated to positions related to project management - 21.2 employees in total, converted to full-time equivalents (FTE). This is followed by 18.2 FTE cluster managers, with 4 managers having an allocation greater than 1 FTE. Other cluster management activities (marketing, HR and finance) are minimally represented.

### **Funding**

Currently, cluster policy in the Czech Republic is still under the responsibility of the Ministry of Industry and Trade and is supported by a single instrument, which is funding from EU structural funds. Other sources of funding are membership fees, services, donations and other income.

The composition of the budget of the studied sample shows that 31.3% of the budgets of cluster organisations come from public budgets - from project financing. However, almost 7 clusters have 47-75% of their budget from public funding. The rest of the sample is relatively well below this level and tries to finance their activities through membership fees or service charges.

## **INDUSTRIAL STRUCTURE**

The Czech economy is primarily composed of services (63.8%), industry (33.9%) and last but not least agriculture (2.3%). The largest share of GDP is accounted for by manufacturing, followed by wholesale and retail trade; repair and maintenance of motor vehicles and real estate activities (CZSO, 2023). Manufacturing employs 1.3 million people, with more than half working in the motor vehicle manufacturing, fabricated metal products, machinery, electrical equipment and food products sectors (CZSO, 2021).

The focus of the clusters that participated in the CzechInvest survey is discussed in the chapter Technological profile.

## **DEMOGRAPHIC STRUCTURE**



While mapping clusters we came across 81 cluster initiatives, their functionality was verified 53 cluster initiatives. The main criterion was a functional website, the second criterion was the up-to-dateness of the website. This criterion served more as a supporting criterion and showed that cluster initiatives with an outdated website still exist, but are in a state of decline or inactivity.

The smallest concentration of cluster organisations is in western Bohemia. Specifically, there is no cluster in the Karlovy Vary Region, which correlates with the overall low sophistication of the Karlovy Vary ecosystem, with the fact that it is the smallest of the Czech regions. Karlovy Vary Region is followed by the Ústí nad Labem Region, where only the waste management cluster exists.

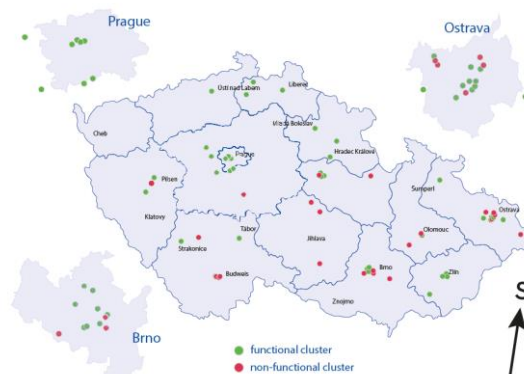
The largest concentration of cluster organisations is in the Moravian-Silesian and South Moravian regions. In the South Moravian Region, three very interesting clusters have emerged in the last 2 years, dealing with new industries - battery industry, gaming industry and space industry. This shows the region's great research and innovation maturity.

In the Moravian-Silesian Region, all indications are that the local cluster tradition has had a positive impact on "clustering" in the region. The National Cluster Association<sup>9</sup> has been based here since 2008 and is now a respected association bringing together 32 cluster organisations and 5 other members from R&D&I or consultancy companies. On the contrary, in Prague we register only 2 cluster organisations, whereas in the Central Bohemian Region there are 5 cluster organisations.

The reason for the absence of cluster organisations on the territory of the capital city of Prague is probably the fact that Prague is exempted from the possibility of drawing subsidies from EU structural funds.

On the map you can see the national distribution according to the location of all registered functional and non-functional clusters in the Czech Republic.

*Map of clusters in the Czech Republic*



Source: own research and NCA, <https://www.czechinvest.org/cz/O-CzechInvestu/O-nas/Interni-projekty/Systemova-podpora-implementace-a-rizeni-Narodni-RIS3>

9) National Cluster Association <https://nca.cz/>

Here is a list of clusters that have passed the benchmark:

[Czech pellet](#) - Dobručovice, Central Bohemian region

[Moravian-Silesian Automotive Cluster \(Autoklastr\)](#) - Ostrava, Moravian-Silesian Region

[Czech aerospace cluster](#) - Kunovice - Zlín region

[Plastics cluster](#) - Zlín - Zlín region

[Cluster of Czech furniture manufactures](#) - Brno, South Moravian Region

[CGMC - General Engineering Cluster](#) - Planá nad Lužnicí - South Bohemian region

[CLUTEX - technical textiles cluster](#) - Liberec - Liberec Region

[CREA Hydro&Energy](#) - Brno, South Moravian Region

[The Czech Membrane Platform](#) - Česká Lípa - Liberec Region

[Security technology cluster](#) - Ostrava, Moravian-Silesian Region

[CZECHIMPLANT](#) - Kladno, Central Bohemian region

[Cluster Smart Pilsen Region](#) - Plzeň - Plzeň Region

[Cluster MECHATRONIKA](#) - Dobruška, Plzeň Region

[Regional food cluster](#) - České Budějovice, South Bohemian region

[National energy cluster](#) - Ostrava, Moravian-Silesian Region

[Czech optical cluster](#) - Olomouc, Olomouc Region

[HI-TECH Innovation cluster](#) - Pardubice, Pardubice Region

[CzechHemp cluster](#) - Svor, Liberec Region

EKOGEN - website is currently unavailable - Strakonice, South Bohemian Region

[Game cluster](#) - Brno, South Moravian Region

[Czech Battery Cluster](#) - Brno, South Moravian Region



Map of regions of Czechia

## TECHNOLOGICAL PROFILE

The Czech economy needs to find new sources of growth after the exhaustion of the growth model based on FDI inflows. The key is to support the innovativeness of small and medium-sized enterprises, which have the greatest potential for growth, and large companies, which make up the largest part of the economy. However, the economy must grow without at the same time increasing the consumption of resources and energy at the same rate. The aim is therefore to decouple economic growth from growth in material and energy consumption by 2030. The gradual decarbonisation of the economy is also a technological opportunity and a contribution to international efforts to mitigate climate change. Economic development is dependent on adapting and maintaining infrastructure, which is also a security element that brings the desired resilience.

Within these processes, in accordance with the Strategic Framework of the Czech Republic, clusters and industry networks can also play a key role by supporting the implementation of eco-innovations and technologies, which corresponds not only to economic goals but also to global efforts to protect the environment. Overall, therefore, clusters can be seen as an important tool in the search for new sources of growth, innovation and double transition of the Czech economy.

In the benchmark, we investigated two types of sectoral distribution of clusters. In one case we based on the ESCA<sup>10</sup> assessment, in the other on the RIS3 CR application domains<sup>11</sup>. In both cases, cluster organisations were asked to divide 100% between the options offered. In the tables below we present the sum of all responses for each application domain. Distribution of cluster focus in the ESCA application domains.

10) ESCA <https://www.cluster-analysis.org>

11) National RIS3 Strategy 2021-2027 [https://www.mpo.cz/assets/cz/podnikani/ris3-strategie/dokumenty/2021/1/B\\_Priloha-1-Karty-tematickych-oblasti.pdf](https://www.mpo.cz/assets/cz/podnikani/ris3-strategie/dokumenty/2021/1/B_Priloha-1-Karty-tematickych-oblasti.pdf)

### *Division of cluster focus into ESCA application domains*

|     | <b>Application domains (according to ESCA)</b>                     | <b>% focus of clusters</b> |
|-----|--|----------------------------|
| 1.  | Aviation and Space   | 5.70%                      |
| 2.  | Biotechnology  | 1.70%                      |
| 3.  | Construction/building sector                                       | 6.60%                      |
| 4.  | Creative and cultural industries, design, media                    | 9%                         |
| 5.  | Energy and environment   | 19.25%                     |
| 6.  | Food industry  | 7.50%                      |
| 7.  | Healthcare and medical science                                     | 5.15%                      |
| 8.  | Information and communication technologies, HW and SW technologies | 10.50%                     |
| 9.  | Logistics, logistics systems and services, packaging industry      | 1.20%                      |
| 10. | Marine technology and water resources, water transport             | 0%                         |
| 11. | Micro, Nano and Optical Technologies                               | 8.10%                      |
| 12. | New materials and chemistry  | 8.15%                      |
| 13. | Manufacturing and Engineering                                      | 7%                         |
| 14. | Textile industry   | 2.25%                      |
| 15. | Tourism, leisure, sport  | 0.40%                      |
| 16. | Transport and mobility, train transport and transport systems      | 7.50%                      |

According to ESCA's application domains, the clusters that passed the benchmark are most focused on energy and environment, followed by information technology, creative industries and design.

## RIS3 Application Domains

|    | RIS3 Application Domain   | % cluster focus |
|----|---|-----------------|
| 1  | Mechanical Engineering, Mechatronics (Advanced Machines and Technologies)                       | 8.50%           |
| 2  | Industrial Chemistry (Advanced Machines and Technologies)                                       | 4%              |
| 3  | Metallurgy (Advanced Machinery and Technology)  | 0.50%           |
| 4  | Power Engineering (Advanced Machines and Technologies)  | 13.25%          |
|    | <b>Total advanced machinery and technology</b>  | <b>26.25%</b>   |
| 5  | Electronics and Electrical Engineering (Digital Technology and Electrical Engineering)          | 4.50%           |
| 6  | Digital Economy and Digital Content (Digital Technology and Electrical Engineering)             | 5.15%           |
|    | <b>Total digital technology</b>   | <b>9.65%</b>    |
| 7  | Automotive (21st century transport)   | 9.75%           |
| 8  | Railway and rail transport (21st century transport)   | 1.45%           |
| 9  | Aerospace (21st century transport)  | 5.15%           |
|    | <b>Total transport in the 21st century</b>  | <b>16.35%</b>   |
| 10 | Pharmaceuticals, Biotechnology, Medical Devices and Life Science (Health Care)                  | 4%              |
|    | <b>Total health care</b>  | <b>4%</b>       |
| 11 | New and traditional cultural and creative industries (Cultural and creative industries)         | 12.75%          |
|    | <b>Total cultural and creative industries</b>   | <b>12.75%</b>   |
| 12 | Sustainable management of natural resources (Sustainable agriculture and environmental sectors) | 6%              |
| 13 | Sustainable agriculture and forestry (Sustainable agriculture and environmental sector)         | 1.50%           |

The benchmark we conducted showed that the most focused clusters go hand in hand with global trends. The largest share of clusters by sectoral focus according to the RIS3 Application Domain deals with advanced technologies (26.25%), 21st Century transport (16.35%), sustainable agriculture and environmental industries (14%) cultural and creative industries which do not form a large share in the national economy represent a share not too far from the 21st Century transport which dominates the Czech economy, with 12.75%.

## STATE / REGIONAL SUPPORTS FOR CLUSTERING

Cluster organisations and technology platforms have been supported in the Czech Republic by EU structural funds since 2004, which are under the responsibility of the Ministry of Industry and Trade and are supported by a single instrument. For the last period, with the exception of 2021 and 2022, when the subsidy title Cooperation - Clusters was not announced. At the beginning of 2023, the title was again opened to receive applications, cluster policy is currently being supported again after a two-year hiatus and has now been announced for the next period.

The aid is granted under the general rules for the use of public funds under Articles 25 and 27 of Commission Regulation (EU) No 651/2014, the General Block Exemption Regulation.<sup>12</sup>

A certain disadvantage of project-based financing is the significant administrative burden that cluster managers have to undergo if they want to apply for support from structural funds. There is also the risk of delays in issuing new calls, as we have just seen in the past two years. This makes cluster organisations vulnerable if they have not built up a strong enough membership base and a wide range of paid services.

## COOPERATION PROGRAM - CLUSTERS (OP-TAK)

The programme is set up as a comprehensive support for cluster policy, supporting the creation of new clusters, their development, but also their research activities in three separate activities. Each subject can submit only 1 application in a given call, and then reapply in subsequent rounds for a different activity supported by the programme. Applicants can be based all over the Czech Republic, the maximum period for project implementation is 3 years.

**Objectives:** is the development of innovation clusters as a tool for increasing the intensity of joint research, development and innovation activities between business entities and the research sphere. The intention is also to contribute to the creation of links between businesses, research organisations, technology centres, digital innovation hubs and other supporting organisations, to create innovation and investment opportunities and to accelerate industrial change. The main objective is to increase the innovation capacity of SMEs to introduce new innovative solutions and advanced technologies. Strengthening the interlinkages at regional, supra-regional and international level will lead to the development of an economy based on advanced technologies. Strengthening interlinkages at regional, supra-regional and international level will lead to the development of a knowledge and

<sup>12</sup> EUR-Lex - 32014R0651 - EN - EUR-Lex (europa.eu)

innovation based economy and the implementation of the smart specialisation concept. The activities of the Call have a direct link to the strategic objective of the National RIS3 Strategy<sup>13</sup>.

**Applicant:** SME or research institution

**Amount of support:** 40.000 - 1.600.000,- EUR, percentage range 35 - 70%

**Supported activities:**

**A. Collective research** - research and development activities that meet the innovation needs of SMEs in a given industry or specific technological area within a cluster. The results of the project are always usable by several enterprises, which can develop their own specific solutions for new products, processes and services on the basis of the results. For each project proposal, the applicant must provide evidence of at least 3 potential users of the project results (SMEs), who will form a 'user committee' that will oversee the progress of the project and may adjust the direction of the research in the light of the applicability of the results. The projects must be carried out with research and development institutes in the form of contract research contracts.

**Eligible expenditure for this activity:** staff costs, services, overheads

**B. Shared Infrastructure** - Establishment/development and equipping of an open access cluster centre for industrial research, development and innovation purposes with the aim of increasing the research and innovation capacity of SMEs to introduce new innovative solutions and advanced technologies.

**Eligible expenditure for the activity:** tangible and intangible assets, buildings and their technical improvement, plant and equipment, HW and SW, intellectual property rights, rent

**C. Innovation cluster development** - activities aimed at increasing the capacity and knowledge of the cluster organisation, which will lead to the improvement and expansion of specialised support services for SMEs. These are mainly activities aimed at:

**i.** improving the quality of cluster management and service provision, increasing competence in cluster management including transfer of experience from abroad, creating and updating the cluster strategy, creating a portfolio of new services according to the needs of cluster members, activities leading to cluster expansion, building strategic partners, intersectoral cooperation, etc.

**ii.** creation of joint opportunities related to the introduction of advanced technologies in enterprises, mapping and definition of common challenges and new solutions, matchmaking activities bringing together innovative and traditional enterprises to verify and validate new

<sup>13</sup>) National RIS3 Strategy 2021-2027 <https://www.mpo.cz/cz/podnikani/ris3-strategie/>

technologies, preparation of joint demonstration activities and pilot projects, etc.

**Eligible expenditure for the activity:** staff costs, services, overheads, marketing and promotion, seminars, conference, rent, obtaining the ESCA mark of excellence.

**Division of clusters:** clusters are divided according to size and maturity, according to this division the level of support can be requested.

Immature cluster: at least 10 SMEs + at least 1 research organisation

Developed cluster: minimum 15 SMEs + minimum 2 research organisations

Excellent cluster: at least 20 SMEs + at least 2 research organisations

**Centralised Supports:** programmes from EU funds under the auspices of the Ministry of Industry and Trade are administered by the Agency for Enterprise and Innovation<sup>14</sup>.

**Further information:** <https://www.agentura-api.org/cs/podporovane-aktivity-optak/spoluprace-optak/spoluprace-klastry-vyzva-i/>

## CONCLUSIONS – GOALS FOR POLICY LEARNING

It is therefore obvious that in the Czech conditions there is a relatively dense, although uneven network of smaller cluster initiatives, if clusters would like to use their potential, as we can observe abroad, they would also have to follow recommendations and inspiration as in the case of, for example, Danish, Austrian or Spanish colleagues. Further recommendations for individual actors are given in the chapters below.

It also shows that the trust of cluster organisations in the state administration is at a relatively low level. Therefore, it is necessary to start building good relations with cluster and sectoral organisations, preferably through mutual cooperation. The ideal way seems to be closer systematic cooperation at the level of the Ministry of Industry and Trade, the Agency for Enterprise and Investment Promotion CzechInvest.

The Ministry of Industry and Trade together with the Business Support Agency would continue to be the funding bodies that administer project funding. However, the CzechInvest Agency, with its agenda, could perfectly fulfil the role of an intermediary within the whole ecosystem and thus become the carrier of the cluster and network programme.

### 1) STRONGER AND SMART CLUSTERS

The basic paradigm of the cluster has been decades of triple helix cooperation; cooperation that included businesses, universities and government institutions/public administration. In

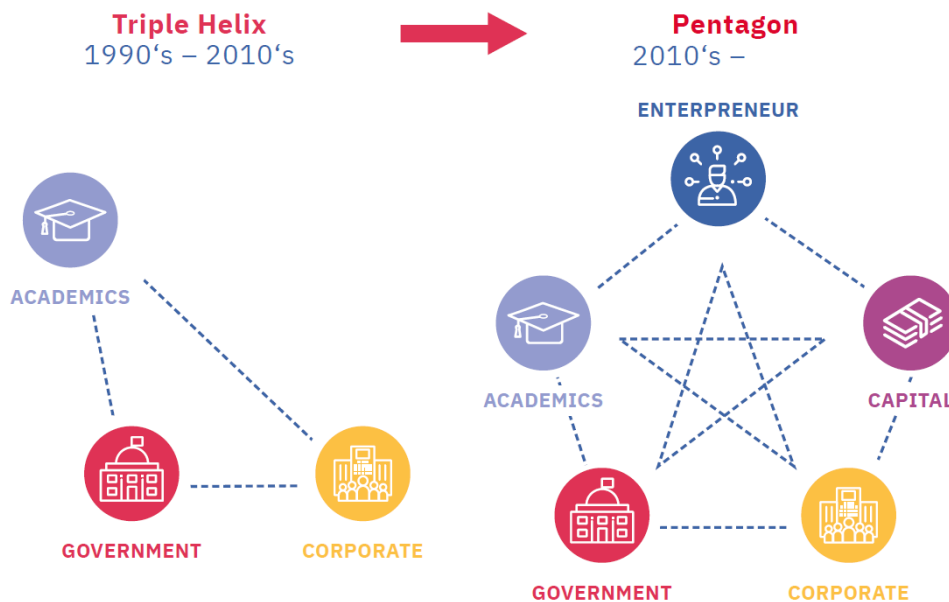
<sup>14</sup>) Agency for Enterprise and Innovation <https://www.agentura-api.org/en/>



the Czech context, even this has not been fundamentally achieved. At least not on an institutionalised level. There are only a small number of cluster initiatives that have representatives of the state or public administration in their membership base. We are not aware of a single one where the state and public administration are part of the management or control bodies.

Cluster initiatives are therefore active in terms of national or regional working groups, which we consider a positive step. However, the direct involvement of representatives of state and public administration is still very low.

In the Norwegian National Innovation Agency (Innovation Norway), the cluster programme works with a broader concept of cluster initiative, which they call "supercluster". This kind of sectoral organisation no longer operates only on a triple helix basis, but also involves 'entrepreneurship' and 'capital' in its structures. Under these terms we can imagine the ability of a cluster to produce new innovative enterprises and to provide them with all the facilities, including sources of finance in the form of intermediated funding from financial institutions, venture capital funds or business angels. In essence, this ecosystem can be described as a pre-incubator, incubator and accelerator. It always depends on the nature of the program and the members themselves from the order of these two new parts of the cluster.



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In order to obtain this new function of cluster initiatives, a relatively large amount of new knowledge is needed, which the cluster team will have to acquire and be able to explain to the membership base. Which can be difficult, especially if the cluster team and the cluster

base are conservative. Naturally, there are many more obstacles, but with the right choice of tools and support from the government and other stakeholders, it is possible to play a critical role in this transformation.

It must be said, however, that at this point the distinctions between a cluster initiative, a technology platform and, in some cases, an association are beginning to blur.

From the interviews with SPRI representatives, the threshold of 30 members is indeed minimal and if we want to talk about truly competitive cluster initiatives here, this threshold should be increased.

And as we were told by the ESCA representative (VDI-VDE), the ESCA benchmark experience shows that the threshold for truly strong clusters starts at 50 paying members. In general, the basic conditions for cluster organisations are described when registering a cluster on the European Cluster Platform (ECCP)<sup>15</sup>

- A dedicated cluster management team with at least 0.5 FTE (full-time equivalent).
- Link to website - English version (automatic translation is also an option); the validation team will look for consistency between the information provided in the profile and on the website (evidence of an active organisation). Evidence can be activities, services provided to members, joint projects, recent news events, etc.
- Number of members - at least 15 paying members of the cluster (industry, business, research, government, others, with the majority being from industry/business, including SMEs).
- Triple helix - membership should include industry, research/universities and public authorities. It is not compulsory that the members of the cluster organisation are public bodies, but it should be evident that there is an interactive, i.e. collaborative, approach between these bodies (e.g. that the cluster organisation is supported by public bodies or funded through a programme, or that it has a mandate to carry out activities of overarching interest to the industry cluster, etc.). However, it is mandatory that the members are diverse and of at least two types (either civil society actors and SMEs or industry and research, etc.).
- Thematic focus - clear focus (technical or sectoral).
- Services - at least 2 different activities specific to the cluster, which are also reflected on the website/service offer of the cluster organisation.

<sup>15</sup>For more information on the minimum requirements for registration at the ECCP <https://clustercollaboration.eu/>

## 2) POLICY DEVELOPMENT, IMPLEMENTATION & FUNDING

### **Recommend and strengthen the role of the state in these individual activities:**

- Analytical and information activities - strategic role, knowledge of the environment, trends, attitudes and policies of the European Commission, strong knowledge of the regions.
- Direct transfer of information between the state, the private sector and the scientific research sector - direct involvement of the state in individual activities.
- Facilitation of inter-ministerial relations, involvement of national and regional stakeholders.
- Initiation of international cooperation, instruments of economic and scientific diplomacy, cooperation with foreign agencies responsible for supporting cluster policy.
- Monitoring of performance, strengths or weaknesses, facilitation (at least partial) of individual activities to improve the current situation.
- Marketing and promotion of the entire market, support attracting talent from abroad, working with local talent.
- Promotion of the Czech Republic as a final destination for foreign investments with higher added value - use of clusters as hotspots and evidence of market sophistication.
- Scouting for innovative entrepreneurship, support for start-ups and spin-offs. Facilitating the link between innovative and traditional entrepreneurship, exploiting synergies and finding positive externalities (spillovers).
- Application of European and national policies, strategies and trends (Fit for 55, digitalisation of industry, etc.).
- Cooperation with clusters on the level of overall quality improvement and involvement of the membership base, including cluster management.

These and other activities could be carried out by the state as a facilitator and partner in the whole ecosystem. International good practice shows us that the whole ecosystem would benefit greatly from this role. As the agenda above is inter-agency in nature, it would be appropriate for there to be a national guarantor of this inter-agency cooperation. It would need to be funded from the national budget for staffing, including powers and agenda, and with a long-term and stable mandate. By its nature and scope of activities, the CzechInvest Agency has a natural disposition for this role of guarantor. This would allow CzechInvest to build on the historical links with cluster and sectoral organisations that were broken following the establishment of the Agency for Enterprise and Innovation, when in 2016, following the

separation of the Structural Funds Division of CzechInvest and the establishment of the Agency for Enterprise and Innovation, the administration of EU Structural Funds under the Ministry of Industry and Trade was transferred to the Agency for Enterprise and Innovation.

### 3) CAREER PROGRESSION AND DEVELOPMENT OF CLUSTER PROFESSIONALS

In the Czech Republic, systematic training for cluster managers, representatives of the state and public administration, basically does not exist. To some extent, this issue is dealt with by the National Cluster Association, which provides training to cluster organisations. This activity cannot but be highlighted. However, there is currently no suitable training programme in the domestic context that could inform both the participants in clusters and the representatives of the administration about best practice in the field of clusters and industry clusters.

It is therefore necessary to go abroad for information, where there are several prestigious and established educational institutions, which, however, cost considerable money and are relatively time-consuming. Given the fact that the cluster organisation handles the resources of its members, it is necessary to obtain their approval; if there are no clearly earmarked resources for management training in the organisation, the cluster organisation must look for resources in project funding.

In the case of state administration, the problem is again on the finance side. In most cases, funding for education is very limited or a market survey has to be organised, which increases the administrative complexity of the whole process.

The cluster benchmark showed that only 10% of the entities provided their staff with an international training course on cluster development, ecosystems or facilitation. We do not have information on how many civil servants have undergone such a course, but from past experience we only know of a few, and not all of those trained in this way are still professionally active in the civil service. It is therefore imperative to work on training with a focus on the development and management of cluster organisations, working with ecosystems, or facilitation, so that a much larger number of employees of cluster organisations, as well as of the state administration, undergo it.

### FINAL THOUGHTS

Clusters and sectoral organisations in the EU will continue to increase their economic, social and environmental importance. The challenges we face as a world, whether it is global warming, digital transformation or threatened supply chains due to global geopolitical instability, will be better addressed by SMEs together than alone. The speed and dynamism of technology development is at such a level that the education system is unable to respond

flexibly, which is closely linked to the shortage of a specialised workforce across Europe. It is important that the Czech Republic manages to incorporate soft support for cluster and sectoral organisations in particular among its strengths and sees ecosystem associations as an opportunity to work with a large number of market players through one instrument.

## FOR FURTHER INFORMATION

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