



EUROPEAN CLUSTER  
COLLABORATION PLATFORM

# Clusters meet Regions' event in Prague: "Czech clusters as leaders of global digital & green ecosystems"

Input paper

An initiative of the European Union



**Authors:**

Dr. Jan-Philipp Kramer (Prognos)

Lennart Galdiga (Prognos)

Fabian Schmidt (Prognos)

Felix Ginzinger (Prognos)

Tommaso Luisari (Prognos)

Vincent Vogelsang (Prognos)

Brussels, October 2023

**Contents**

**Executive Summary ..... 5**

**1. Context: Economic profile of Czechia ..... 8**

**2. Clusters in Czechia and their importance for regional economic development.....15**

**3. Cross-border cooperation and the involvement of Czech clusters in European networks and support initiatives .....21**

**4. Smart Specialisation in Czechia .....26**

**Bibliography .....30**

**Annex.....31**

## Figures

Figure 1: Real GDP growth rate in Czechia from 2011 to 2022 (in %)	9
Figure 2: Top 10 sectors by employment in Czechia (in 2020)	10
Figure 3: Innovation performance of Czechia in the European Innovation Scoreboard (2023)	12
Figure 4: Overview of the regional and sectoral distribution of ECCP-registered cluster organisations in Czechia	15
Figure 5: Overview of organization, structure, and thematic orientation of ECCP-registered cluster organisations in Czechia	16
Figure 6: Distribution of region-relevant sector specialization nodes and cluster organisations in EU-27	17
Figure 7: Overview of Czech cluster participation in EU support initiatives in the funding period 2014-2020 and 2021-2027	21
Figure 8: Overview of the ESCP-4i projects in Czechia	22
Figure 9: Overview of Czech cluster's participation in Eurocluster projects	24
Figure 10: Priority areas of the Czech national S3 2021-2027	26
Figure 11: Survey results - Priority areas of the joint S3 2021-2027 of Czechia	28
Figure 12: Survey results – Cross-cutting support areas and strategic challenges	28
Figure 13: Survey results – Level of involvement in regional initiatives of Czech cluster organisations in the 2014-2020 funding period	29
Figure 14: Employment across the industrial ecosystems for the region of Prague, Czechia and the EU27	31
Figure 15: Indicators of cluster strength: cluster portfolio strength (share of payroll accounted for by strong clusters) (left) and cluster mix (right)	34
Figure 16: EU industrial ecosystems based on the European industrial strategy	35

## Tables

Table 1: Key socio-economic and sectoral indicators of the region of Prague, Czechia, and the EU	32
Table 2: Number of regionally relevant sectoral nodes and Top 5 nodes by region (NACE)	32
Table 3: Regionally relevant ecosystem nodes	33
Table 4: Overview of cluster organisations in Czechia and their addressed EU industrial ecosystems	33

# Executive Summary

The following paper presents observations on the Czech clusters landscape and outlines some key considerations for the future development of the region. These considerations may pose some open strategic questions, which can be addressed in the workshops of the “Clusters meets Regions” event. The following key takeaways are summarised below:

## Context: Economic profile of Czechia

- The Czech economy is the 18<sup>th</sup> largest in the EU and has, over the last 20 years, enjoyed **positive economic growth**. Despite severe economic challenges during the 2020 Covid-19 pandemic, the country rebounded with increased GDP and managed unemployment effectively through government intervention.
- The **sectoral & ecosystem composition** as well as specialisation in Czechia’s economy present a diverse range of opportunities across different economic realms, with potential for leveraging these strengths to enhance regional growth through support for economic and cluster structures.
- The 2023 European Innovation Scoreboard categorises Czechia as a “**Moderate Innovator**”, showcasing a significant increase in its innovation performance over the past years. According to the 2022 Regional Competitiveness Index, Czechia’s overall score falls just below the EU average, revealing significant regional performance disparities. Notably, Prague, the capital region, excels in innovation, underscoring its technological advancement within the country.

## Clusters in Czechia and their importance for regional economic development

- **35 ECCP-registered clusters** are located in Czechia, covering 12 out of 14 EU Industrial Ecosystems. Particular strengths are found in the ecosystems around **Industry 4.0** topics including Digital, Mobility-Transport-Automotive, and Electronics, but also around the link between Renewable Energy and Energy Intensive Industries.
- Empirical insights from the European Cluster Panorama 2021 and Ketels & Protsiv (2021) prove how clusters can have a striking impact on economic growth and innovative business activity within regions. The study also highlights the role of cluster organisations in Czechia.

## Cross-border cooperation and the involvement of Czech clusters in European networks and support initiatives

- In the **2014-2020** funding period, seven Czech cluster organisations participated in 18 projects under the banner of the European Strategic Cluster Partnership. The bulk of the projects concerned the ESCP for Going International (ESCP-4i), which accounted for nine of the aforementioned sixteen projects. In addition, two cluster organisations participated in the Innosup-1 “Cluster facilitated projects for new value chains” initiative.
- In the **2021-2027** period, five Czech cluster organisations are involved in five Euroclusters which include 22 cluster partners from 11 different Member States.

## Smart Specialisation in Czechia

- The S3 of the Czech Republic 2021–2027 identifies **six priority areas**. These priority areas are “Advanced machinery/technologies for globally competitive industry”, “Digital technologies and electrical engineering”, “Transport for the 21st century”, “Healthcare, advanced medicine”, “Cultural and creative industries” as well as “Sustainable agriculture & environmental sectors”.

- Cluster organisations in Czechia contribute to all priority areas of the 2021-2027 S3. Notably, they demonstrate **significant contribution** in areas such as "Advanced machinery/technologies for global industry competitiveness," "Healthcare and advanced medicine," and "Sustainable agriculture and environmental sectors," with the majority anticipating these priority areas to gain **further importance in the future**.



01

## Context: Economic profile of Czechia



EUROPEAN CLUSTER  
COLLABORATION PLATFORM

Strengthening the European economy through collaboration

# 1. Context: Economic profile of Czechia

The country of Czechia, or formally known as the Czech Republic, lies at the crossroads between Western and Eastern Europe. It is the ninth most populous country in the EU, with a population of 10.827.529<sup>1</sup>. The country is divided into eight NUTS-2 regions: Prague (CZ01), Central Bohemia (Střední Čechy, CZ02), Southwest (Jihozápad, CZ03), Northwest (Severozápad, CZ04), Northeast (Severovýchod, CZ05), Southeast (Jihovýchod, CZ06), Central Moravia (Střední Morava, CZ07) and Moravia-Silesia (Moravskoslezsko, CZ08). The total Czech population is homogeneously split between the eight regions. The Prague region has 1,275,406 inhabitants. This section will provide a concise socio-economic overview of Czechia, encompassing key aspects such as its macroeconomic profile and sectoral specialisation, as well as its innovation and regional competitiveness performances.

## Macroeconomic profile of Czechia

In 2022, the Czech economy boasted a real per-capita **GDP** of €18.460<sup>2</sup>, which placed the country below the EU average of €28.840 and ranked it 18<sup>th</sup> in the EU. The 2022 figure marked an increase of 2.38% on the 2021 figure (€18.040), which, in turn, grew by 7.6% with respect to 2020, when the economy contracted by 4%. The impact of the Covid-19 pandemic in Czechia was severe, so much so that, in autumn of 2020, the country was amongst the worst hit globally. Understandably, the economic repercussions of the pandemic were proportional to its impact, with economic contraction reaching double figures during the second quarter of 2020 compared to Q2 2019<sup>3</sup>. Unemployment in the same period increased only by 1 percentage point, owing largely to the measures implemented by the government to prevent layoffs. Indeed, the ample room for manoeuvre that the national economic policymakers enjoyed, from both a fiscal (debt to GDP ratio) and monetary perspective, allowed the authorities to intervene extensively to contain the socio-economic impact of the containment measures<sup>4</sup>. Prior to 2020, the Czech economy was set on a steady growth path that continued unperturbed since 2014 (see Figure 1), and unemployment was amongst the lowest in the EU. Taking a broader view of the growth rate, Figure 1 shows that, after enjoying steady growth in the mid-1990s and early 2000s, the Czech economy suffered significantly from the 2008 financial crisis, so much so that the GDP per capita only recovered to pre-2008 levels in 2014.

Several factors lie behind the positive trend in GDP per capita over the last 20 years. Like many fellow Eastern European countries, the collapse of the Iron Curtain and the advent of a market economy stimulated an uptick in domestic demand, while robust investment opportunities created the conditions for an important flow of inward foreign direct investments, abetted by government policies designed to attract it. The result is that the role of exports in the Czech economy over the last 20 years is significant, so much so that the country has

<sup>1</sup> Eurostat (2023): Population of 1st of January. Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population\\_and\\_population\\_change\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population_and_population_change_statistics)

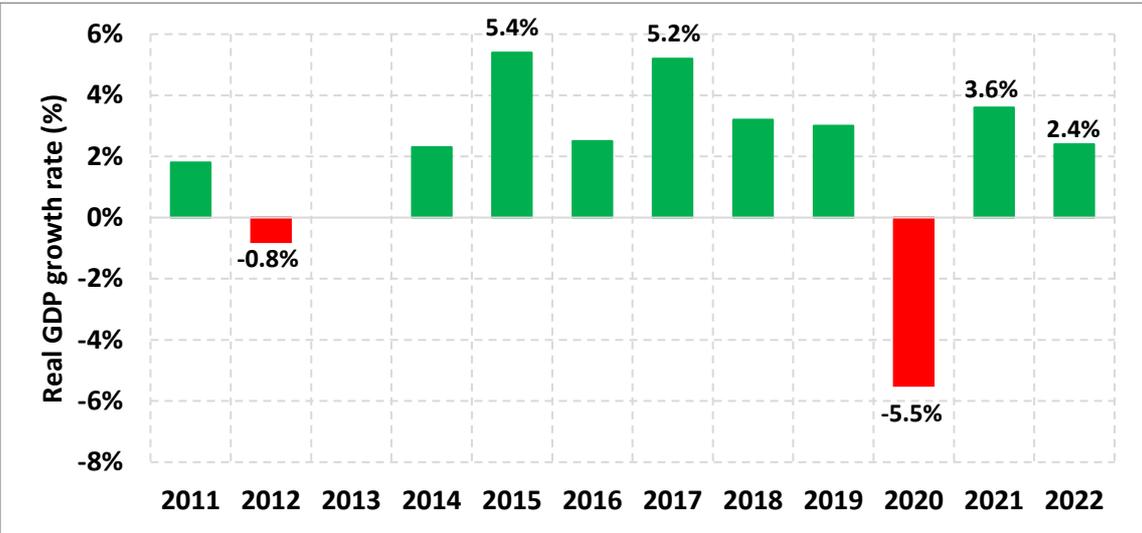
<sup>2</sup> Eurostat (2023): Real GDP per capita. Available at: [https://ec.europa.eu/eurostat/databrowser/view/sdg\\_08\\_10/default/table](https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table)

<sup>3</sup> Mora, Marek & Galuščák, Kamil (2022): "Monetary and fiscal policy interactions in the wake of the pandemic: the case of the Czech Republic", Bank for International Settlements: BIS Papers n. 122.f

<sup>4</sup> Ibid.

maintained a positive trade balance every year since 2004.<sup>5</sup> According to the United Nations Comtrade database<sup>6</sup>, the country exported products for an overall value of €207 billion in 2022, resulting in a 6.2% increase on 2021 levels. The breakdown by type sector shows that electronic equipment (20%), machinery (18%) and vehicles (18%) accounted for more than half (56%) of all exports in 2022, with the remaining 44% being split among a host of other commodities. Most of Czech exports (87%) are destined for fellow EU members, with Germany alone accounting for 33% of total exports. As regards to imports, which amounted to €206.5 billion in 2022, the picture is more balanced: products from the EU account for 64% of the total value (Germany accounts for 20%), while imports from Asia play a much more significant role (ca. 30% of the total value). China alone accounts for 19% of the overall value. The sectoral breakdown highlights that the same sectors that account for most of Czech exports account for many of its imports; this is particularly true for electronic equipment (22%) and machinery (15%). Vehicles (8.4%) and raw materials for energy (9.4%) stand out as the exception here. All in all, this picture reflects the role played by the Czech economy in the global economy: the country acts as an import hub for intermediate products, which are refined before being exported as finished products in the main European economies.

Figure 1: Real GDP growth rate in Czechia from 2011 to 2022 (in %)



Source: ECCP (2023) based on Eurostat Data

### Czech sector specialisations and employment levels

According to the statistics on the distribution of employment across various industries in Czechia (See Table 1 in the Annex), the service sector accounts for 53.7% of overall employment in the region, below the EU27 level of 63.7%. On the other hand, manufacturing takes up a relatively significant share, with more than half of employment pertaining to this industry, compared to 16.4% in the EU27 Member States.<sup>7</sup> Notably, these

<sup>5</sup> The data for the trade balance is extracted from the World Bank database, available <https://data.worldbank.org/indicator/BN.GSR.MRCH.CD>. All data, originally provided in USD, was converted to EUR using the average exchange rate over the year. While the trade balance remained significantly positive from 2004 to 2021, the initial figures for 2022 appear to indicate a near parity between the value of imports and exports, but whether this outcome is contingent or the inauguration of a new trend remains to be seen.

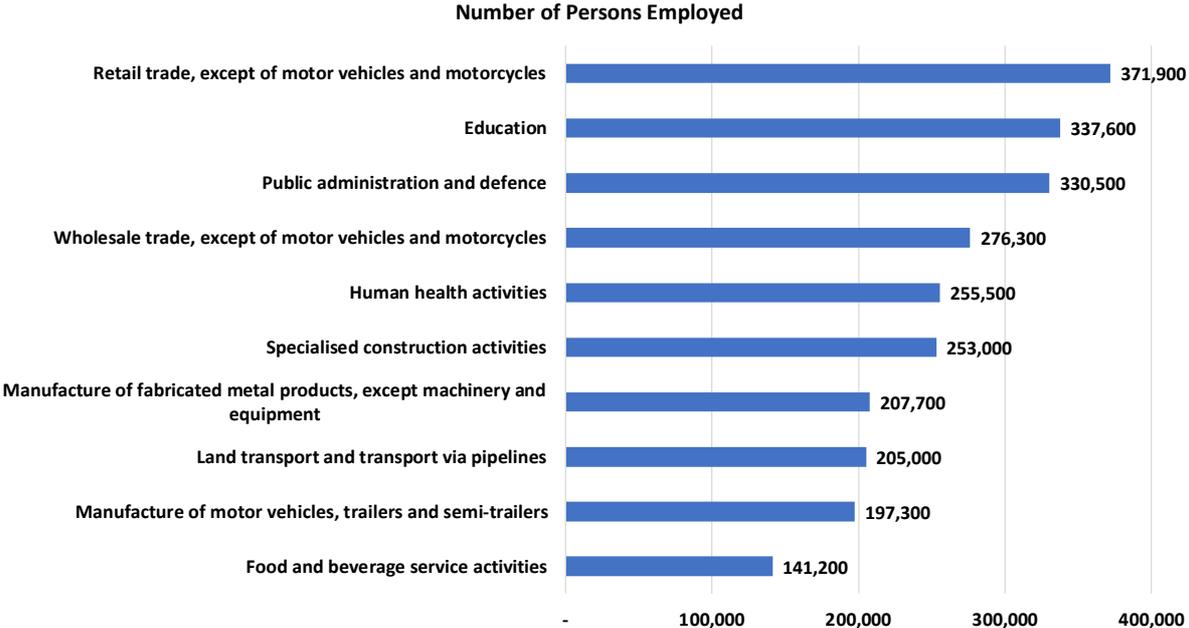
<sup>6</sup> All data for this paragraph from this point onward is extracted from the UN Comtrade database. All data, originally provided in USD, was converted to EUR using the average exchange rate over the year.

<sup>7</sup> See European Commission (2023): Regional Innovation Scoreboard 2023 Regional profiles Czechia.

industries are more prominent in the less densely populated regions, such as the regions of Northeast (CZ04), Central Moravia (CZ07) and Southwest (CZ02). On the other hand, the capital region of Prague (CZ01) is a more service-driven economy with services making up around three-fourths of total employment, thus exceeding the Czech and European levels.<sup>8</sup>

Figure 2 presents a comprehensive breakdown of Czechia's **key economic sectors concerning employment**, shedding light on the dominance of the services sector as well as the manufacturing sector in the country. Notably, the sector of “Retail trade, except of motor vehicles and motorcycles” emerges as the largest sector by employment in the country, employing approximately 372,000 individuals, thus accounting for 7% of total employment. Sectors to public administration are also featured prominently, with “Education” comprising 6.3%, while public administration and defence accounts for 6.2% of total employment. Manufacturing also holds a significant presence, with sectors like the “Manufacture of fabricated metal products” and the “Manufacture of motor vehicles, trailers and semi-trailers” employing 207,700 (3.9%) and 197,300 (3.7%) individuals, respectively, solidifying their role within the top 10 sectors by employment. These findings provide valuable insights into the sectoral composition of Czechia's employment, emphasizing the substantial contribution of key industries to the country's economic landscape.

*Figure 2: Top 10 sectors by employment in Czechia (in 2020)*



Source: ECCP (2023), own elaboration based on Eurostat.

As part of its Industrial Strategy (March 2020), the European Commission has selected **14 industrial ecosystems** that are particularly relevant in Europe and encompass all players operating in a value chain.<sup>9</sup> The classification of the 14 industrial ecosystems has been calculated by aggregating NACE 2-digit activities, following the

<sup>8</sup> *ibid.*

<sup>9</sup> See here for more information <https://clustercollaboration.eu/in-focus/industrial-ecosystems> (last access 24.07.2023).

methodology established by the European Commission.<sup>10</sup> In Czechia, Retail comprises the largest employment share across all ecosystems, with a share of 15.1%, slightly lower than the EU27 average (16.2%). This is followed by Construction at 14.5% (compared to 14.5% at the EU27 level). The significance of the manufacturing industry for the Czech economy can also be reflected in the employment across the industrial ecosystems, with the Mobility-Transport-Automotive making up 12.2% and Energy Intensive Industries making up 7.6% of all employment across the ecosystems, both exceeding the EU27 average. Other ecosystems that demonstrate a higher concentration of employment compared to the EU27 average include Cultural and Creative Industries, Digital, Aerospace & Defence, Electronics, Energy – Renewables as well as Textile. Furthermore, it is noteworthy to mention that in some ecosystems, the large number of employed persons within these ecosystems can be traced back to the high level in the capital region of Prague. Ecosystems in which the capital region has a higher concentration than the Czech and EU27 level include Retail, Tourism, Cultural and Creative Industries and Digital. A more detailed depiction of employment across the different ecosystems is provided in Figure 14 of the Annex.

To analyse employment specialisation in Czechia, this paper examines the country's regionally relevant sectoral and ecosystem nodes.<sup>11</sup> Across all regions, there are a total of **84 regionally relevant sectoral nodes**, encompassing 31 sectors, while there is a total of **32 regionally relevant ecosystem nodes observed**, distributed across 7 industrial ecosystems.<sup>12</sup> The capital region of Prague (CZ01) focuses on the specialization of service-related services, with “real estate activities”, “publishing activities” (J58) and “advertising and market research” being part of the most relevant sectoral (NACE 2) nodes. These sectoral nodes are also reflected in the region's regionally relevant ecosystem nodes “Digital” as well as “Cultural and Creative Industries”. The other, less urban, regions of Czechia specialise mostly in the manufacturing sector, as shown by the most relevant sectoral nodes for these regions. In regions such as Central Bohemia (CZ02), South-West (CZ03) or North-East (CZ05), the “manufacture of motor vehicles & trailers” and the “manufacture of computer, electronic and optical products” or the “manufacture of electrical equipment” are among the most relevant sectoral nodes, which is reflected in each of the regions' regionally relevant ecosystem nodes “Mobility Transport – Automotive”, “Electronics” and “Energy-intensive industries”. Aside from that, most regions in Czechia, with the exception of Prague (CZ01) and Central Bohemia (CZ02) have a regionally relevant node in the ecosystem “Energy-renewables”, which can be traced back to their sectoral specialisation nodes in sectors, such as the manufacture of electrical equipment (C27) and electricity, gas, steam and air conditioning supply (E36).

The analysis suggests that the sectoral and ecosystem composition as well as specialisation in Czechia's economy, present a **diverse range of prospects in various sectors** that can be leveraged to bolster regional growth through the support of economic and cluster structures. Said growth can be fostered through cross border collaboration, in which clusters assume a pivotal role. The analysis regarding employment specialisation shows the diversification of Czech regions. The specialisation nodes in the ecosystems are reflected in the priority areas of the Czech national S3 2021-2027 Strategy, such as “Advanced machinery/technologies for globally competitive industry”, “Digital technologies and electrical engineering” and “Cultural and creative industries”, which is further elaborated on in Chapter 4. The diverse sectoral composition in the Czech economy opens a myriad of opportunities, in which economic and cluster structures can support growth on a regional level. Hereby, cross-

---

<sup>10</sup> See European Commission (2021): Annual Single Market Report, SWD (2021), available online [https://commission.europa.eu/system/files/2021-05/swd-annual-single-market-report-2021\\_en.pdf](https://commission.europa.eu/system/files/2021-05/swd-annual-single-market-report-2021_en.pdf) (last access 24.07.2023).

<sup>11</sup> Specialisation can be measured through Location Quotients (LQ) that reflect the relative specialisation of an activity in a region compared to the EU average. If the LQ for a given activity-region combination is above 1.5, it is considered a specialisation node and if the activity accounts for at least 1 % of total employment in the region, it is considered regionally relevant.

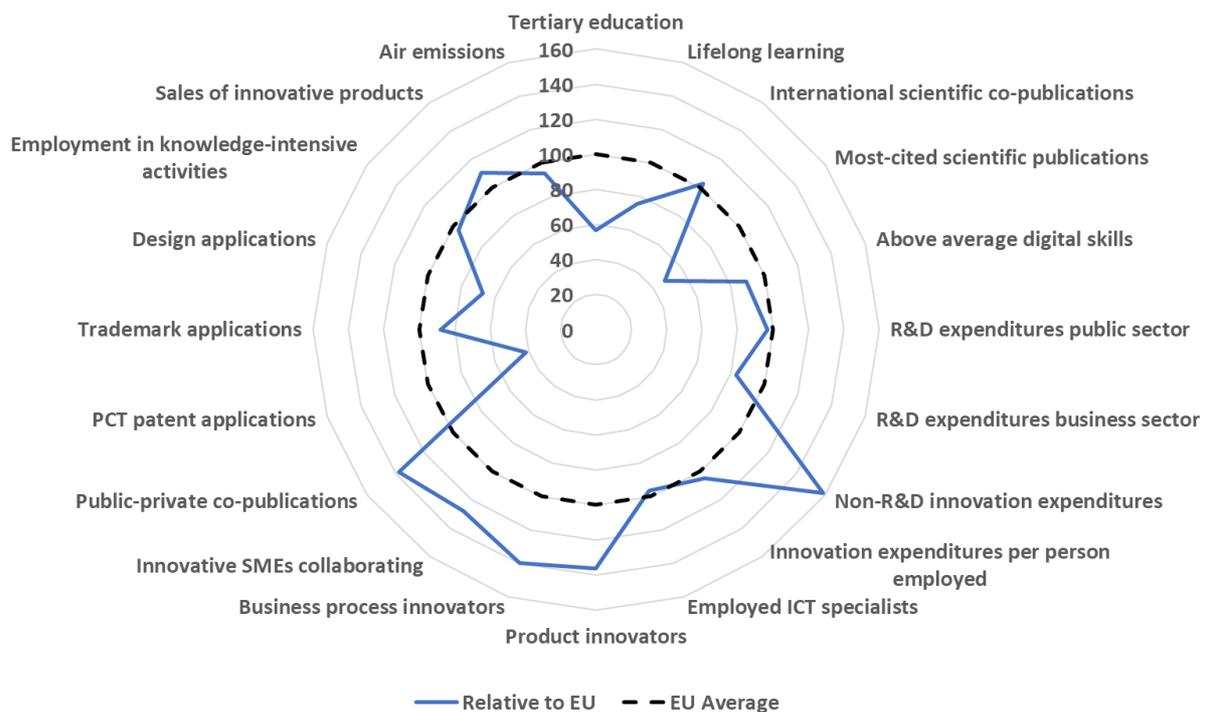
<sup>12</sup> An overview of the regionally relevant sectoral and ecosystem nodes of Czechia's regions can be found in the Annex, presented in Table 2 and Table 3, respectively.

border cooperation can be effective in fostering further development in the region, with clusters playing a key role in this process. This will be focus in Chapter 2.

### Innovation performance of Czechia

In the following, the innovation performance of Czechia will be investigated. As a fundamental pillar of the assessment of the innovation levels, one can look at the level of innovativeness in Czechia by employing information from the **European Innovation Scoreboard (EIS)**. The EIS is conducted annually to evaluate the research and innovation achievements of EU Member States and selected third countries, assisting them in recognizing areas of strength and weakness to improve their innovation performance. Member States are classified into four performance categories – Innovation Leaders, Strong Innovators, Moderate Innovators, and Emerging Innovators – based on their performance compared to the EU average. Within the EIS, 32 indicators covering twelve innovation dimensions have been considered, each representing a distinct aspect of innovation within a country.<sup>13</sup>

**Figure 3: Innovation performance of Czechia in the European Innovation Scoreboard (2023)**



Source: European Commission (2023): European Innovation Scoreboard 2023.

As per the most recent data<sup>14</sup> from the 2023 European Innovation Scoreboard, **Czechia is classified as a "Moderate Innovator"**<sup>15</sup> with a summary innovation index score of 94.7. In the period since 2016, the summary innovation index has seen a notable increase of 21 percentage points, along with a further 10.5 percentage points rise compared to the preceding year. This growth has outpaced that of the EU, thereby narrowing the innovation

<sup>13</sup> EU Commission (2023): European Innovation Scoreboard 2023 – Methodology report.

<sup>14</sup> An overview of Czechia performance within the various indicators and innovation dimensions is featured in the European Innovation 2023 Country Profile: [https://ec.europa.eu/assets/rtd/eis/2023/ec\\_rtd\\_eis-country-profile-cz.pdf](https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-cz.pdf) (last access 12.09.2023).

<sup>15</sup> The classification "Moderate Innovator" implies that the region is found between 70% and 100% of the EU average.

performance gap between Czechia and the EU. Czechia exhibits particular strengths in certain key indicators associated with the dimensions of Firm Investments, Innovators, and Linkages, as shown by Figure 3. The indicators “Product innovators” and “Business process innovators” showing high performance levels, with both displaying substantial increases since 2022 and 2016, respectively. Moreover, the indicator "Innovative SMEs collaborating with others" is notably high, underscoring the country's commitment to collaborative innovation efforts. Czechia also demonstrates a commendable presence in "International Scientific Co-Publications" and "Public-Private Co-Publications," highlighting its active participation in international research collaborations.

On the other hand, the Czech Innovation ecosystem displays areas with potential for enhancement, representing relative weaknesses. These areas are notably evident in indicators related to Intellectual Assets. Specifically, both PCT patent applications and design applications fall short of reaching 70% of the EU average performance, with the latter experiencing significant declines since 2016. Furthermore, R&D expenditure in both the public sector and business sector exhibit performance levels below the EU average. While R&D expenditure in the business sector has increased over time since 2016, the opposite is discernible for the public sector, with a decrease of 21.0 percentage points.

### Regional competitiveness level of Czechia

This section examines the regional competitiveness of the Czech regions based on the **Regional Competitiveness Index (RCI)**.<sup>16</sup> The RCI evaluates competitiveness across EU regions in three dimensions: the Basic Sub-Index, the Efficiency Sub-Index, and the Innovation Sub-Index. The findings aim to provide insights into Czechia's performance in these areas and identify opportunities for improvement.

Czechia's overall average score in the RCI stands at 99.7, positioning it slightly below the EU average benchmark of 100. However, it's essential to note the significant variations in performance among different Czech regions. The capital region, unsurprisingly, emerges as a standout performer with an impressive score of 114.3, surpassing both the national and EU averages. In contrast, other regions within Czechia fall below the national average, exhibiting scores ranging from 86.6 to 98.8.

The sub-indexes across the various dimensions of the RCI closely align with the EU average. When we assess regional performance levels, we can discern the capital region's notable advancement compared to the less urban regions in Czechia, as well as in comparison to the broader EU context. Across all three sub-indexes, the Prague region consistently demonstrates performance levels that exceed both the national and EU averages. This is particularly pronounced in the Innovation Sub-Index, where the relative performance stands at an impressive 122.4, in contrast to the national average of 99.5. At the national level, the indicator of Technological Readiness notably exhibits a high relative performance. Conversely, indicators like Business Sophistication and Innovation display relatively weaker performance levels. It's important to note that these averages are influenced by significantly higher performance levels relative to the EU, underscoring the dominance of Prague's regional innovation system in comparison to other regions within the country.

---

<sup>16</sup> For more information on the EU Regional Competitiveness Index 2.0, please refer to [https://ec.europa.eu/regional\\_policy/information-sources/maps/regional-competitiveness\\_en](https://ec.europa.eu/regional_policy/information-sources/maps/regional-competitiveness_en) (last access 12.09.2023).

# 02

## Clusters in Czechia and their importance for regional economic development



EUROPEAN CLUSTER  
COLLABORATION PLATFORM

Strengthening the European economy through collaboration

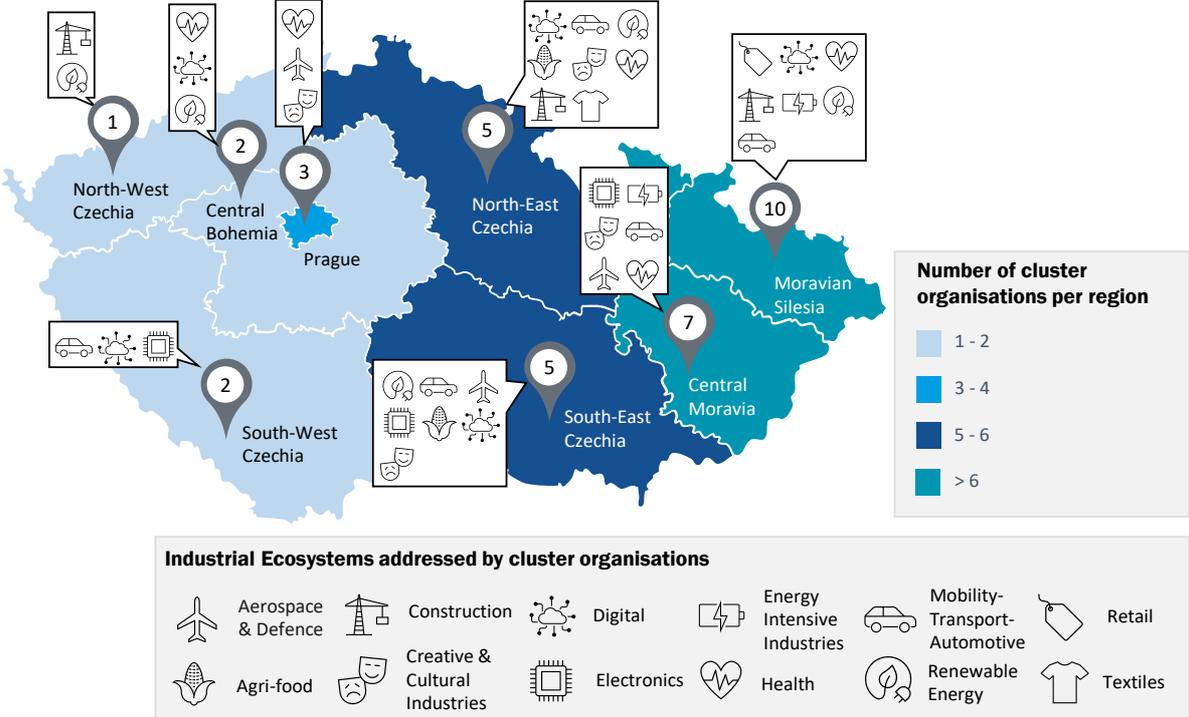
## 2. Clusters in Czechia and their importance for regional economic development

The involvement of clusters in economic governance, policy design and implementation at the regional level is of central importance for economic development. This chapter will provide an overview of the cluster landscape in Czechia and the policy framework under which cluster organisations are operating in the country.

### Clusters in Czechia

The European Cluster Collaboration Platform serves as a one-stop-shop for cluster organisations at the European level. Therefore, the number of registered cluster organisations and other innovation actors in Czechia on the ECCP gives the first impression of the intensity of organisation in regional industrial networks. Out of the total 1,142 registered EU-27 cluster organisations on the ECCP, there are **35 cluster organisations from Czechia**. Figure 4 displays the geographical distribution of the cluster organisations across the country. There is a clear East-West divide with Moravian Silesia at the Eastern border to Polish Silesia hosting 10 cluster organisations while North-West and South-West Czechia showing only one and two cluster organisations respectively.

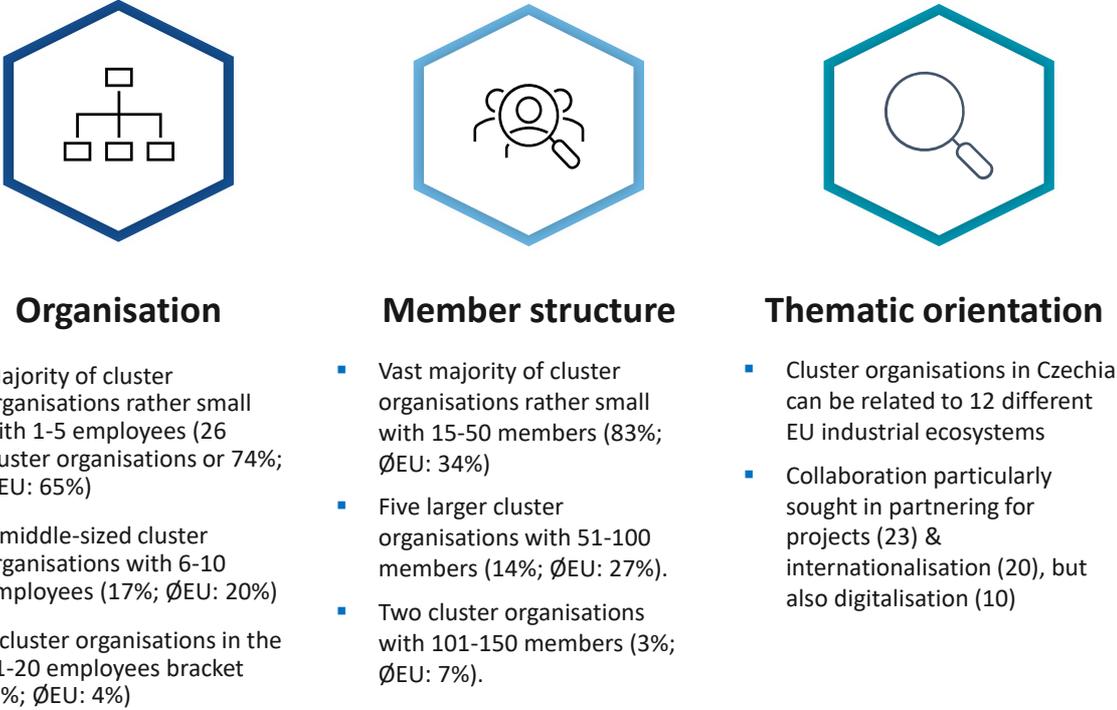
Figure 4: Overview of the regional and sectoral distribution of ECCP-registered cluster organisations in Czechia



Source: ECCP (2023), own elaboration based on the ECCP Mapping Tool, available at <https://reporting.clustercollaboration.eu/all> (last access 26.09.2023). A full overview of Czech clusters is provided in Table 4 in the Annex.

The cluster organisations in Czechia can be related to 12 out of 14 different EU industrial ecosystems<sup>17</sup> (see also Table 4 in the Annex). The strongest industrial ecosystem is Digital represented by 8 cluster organisations, followed closely by Mobility-Transport-Automotive and Renewable Energy (7 each) and Electronic (6). Construction, Creative & Cultural Industries, and Health are covered by 5 cluster organisations each; Aerospace & Defence and Energy Intensive Industries by 3 cluster organisations each; Agri-food and Textiles by 2 cluster organisations each; and Retail by 1 cluster organisation. There is, therefore, a very strong clustering around Industry 4.0 clusters like Digital, Mobility-Transport-Automotive, and Electronics, but also around Renewable Energy and Energy Intensive Industries. Additional information can be found via the cluster map of the **National Cluster Organisation of Czechia**, including detailed cluster member lists.<sup>18</sup>

**Figure 5: Overview of organization, structure, and thematic orientation of ECCP-registered cluster organisations in Czechia**



Source: ECCP (2023).

As shown in Figure 5 above, the majority of cluster organisations in Czechia with a profile on the ECCP are mostly **small in** size since 26 out of the 35 Czech cluster organisations on the ECCP have between 1 and 5 employees. This share of cluster organisations with between 1 and 5 employees is slightly higher compared to the EU average. Regarding the **member structure** of Czech cluster organisations with profiles on the ECCP, a similar picture emerges since the vast majority of cluster organisations are rather small. Here, 34 out of the 35 ECCP registered Czech cluster organisations have below 100 cluster members. In addition to that, cluster organisation in Czechia seek collaboration primarily in the areas of partnering for projects (23 cluster organisations) and internationalisation (20 cluster organisations), but also digitalisation (10 cluster organisations). Six Czech ECCP

<sup>17</sup> see European industrial strategy. Available at: [https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en) (last access 26.09.2023)

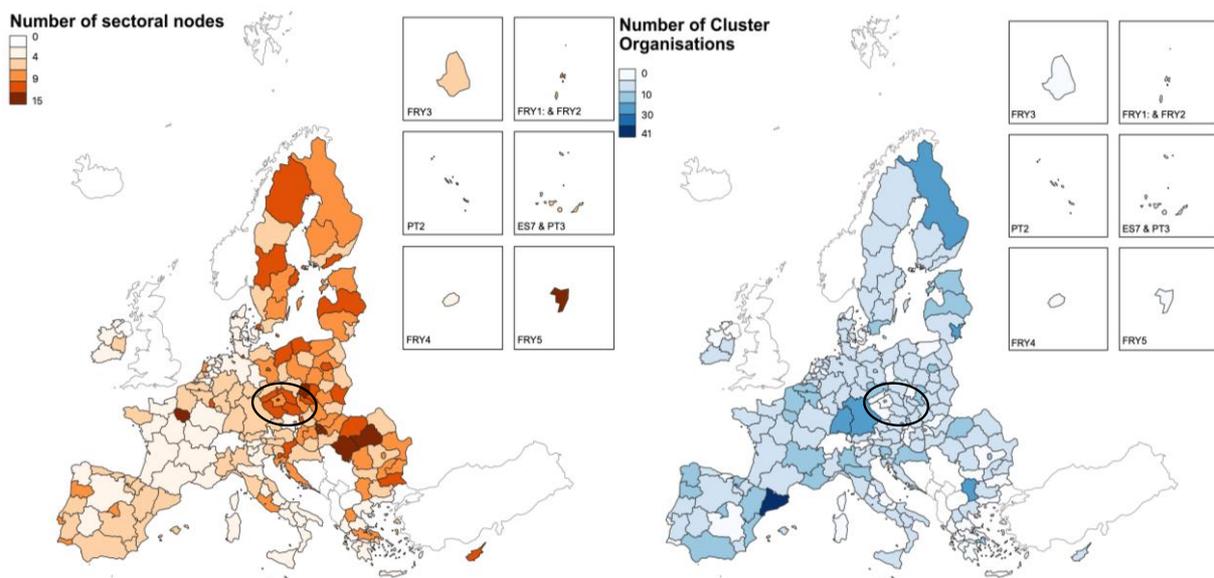
<sup>18</sup> For the cluster map of the National Cluster Organisation of Czechia, see <https://nca.cz/en/clusters-map-cr/> (last access 26.09.2023).

registered cluster organisations have been awarded with the Bronze **Label of Cluster Excellence**, two with the Silver Label and one with the Gold Label.

### The importance of clusters for regional economic competitiveness

The European Cluster Panorama Report (2021) examines the relationship between clusters and regional competitiveness. The stand-out findings of this report showcase how the presence of cluster organisations is positively correlated with economic indicators such as GDP per capita, labour productivity, as well as business R&D expenditure. While public R&D expenditure is merely positively correlated with industry-relevant nodes<sup>19</sup>, it does indicate how regions could earn greater public support, when certain industries have a local significance. Particularly indicators of R&D expenditures are key in measuring economic performance concerning innovation. As shown in Figure 6 below, industries in Czechia account for a clearly above-average number of sectoral specialisation nodes<sup>20</sup>, but a rather below-average to average number of cluster organisations, in comparison to other European regions.

**Figure 6: Distribution of region-relevant sector specialization nodes and cluster organisations in EU-27**



Source: ECCP (2023), own contribution based on Eurostat and data from the ECCP.

Next to clusters having an enabling and facilitating effect on economic performance and growth, other studies have provided complementary information on the impact clusters can have. For example, Ketels & Protsiv (2021)<sup>21</sup> provide a thorough account of the positive relationship between cluster presence and industry-level wages across European regions. Key takeaways emphasise how particular clusters relate to sector-specific industries, as opposed to the mere “concentration of economic activity in a specific field” (p. 217). On top of that,

<sup>19</sup> From the European Cluster Panorama Report (2021): Industry-relevant specialisation nodes: When the region is specialised in the sector (or industrial ecosystem) and regional employment in the sector is relevant in the EU context (industry employment share > 1%).

<sup>20</sup> From the European Cluster Panorama Report (2021): Region-relevant specialisation nodes: When the region is specialised in the sector and the employment share of that sector is relevant for the region (regional employment share > 1%).

<sup>21</sup> Ketels, C. & Protsiv, S. (2021): Cluster presence and economic performance: a new look based on European data, *Regional Studies*, 55:2, 208-220, DOI: 10.1080/00343404.2020.1792435. Available at: <https://www.tandfonline.com/doi/full/10.1080/00343404.2020.1792435> (last access 06.03.2023).

the data showcases how the influence and strength of clusters have an independent relationship with economic outcomes. Their findings suggest how the degree and nature of competitiveness within clusters must be understood on a location-to-location basis. This further reflects on what they refer to as the “business environment quality” that can have striking knock-on effects on wage levels. Most importantly, Ketels & Protsiv delineate how “cluster strength” has a unique impact on “wages and prosperity”.

A visual depiction that highlights this trend can be found in Figure 15 in the Annex. In the context of the Czech regions, the statistical data and analysis of Ketels and Protsiv show a high cluster portfolio strength (share of payroll accounted for by strong clusters) and an above-average cluster mix (bias towards cluster categories with higher wages). In other words, strong clusters are very important for wages in Czech regions and they are mostly in sectors that account for particularly high wages when viewed across all European regions.

## Cluster policy in Czechia

The remainder of this chapter will, first, look at the policy context for cluster development at the national as well as the regional and local level and, second, evaluate the success of cluster policy in strengthening regional economic development so far.<sup>22</sup>

**Support for clusters has been provided over the years** through several policies and funding lines.<sup>23</sup> In 2005, a National Cluster Strategy for 2005 to 2008 was adopted by the Czech Government, however, this strategy as such was never completely implemented. According to the Ministry of Industry and Trade, the strategy and cluster support was mainly implemented through operational programmes, first under OP Industry and Entrepreneurship (during the period 2007-2013). There were specific calls published under the operational programme which focused on fostering collaboration between clusters in the Czechia and their further development in terms of research, development and innovation. The objectives of this specific strand of financing are **aligned with the Smart Specialisation Strategy's** objective to increase innovation demand in companies and the public sector.

In 2019, the Government introduced **Czechia's Innovation Strategy 2019-2030**<sup>24</sup> where clusters are specifically singled out and included within the focus point "The Country for Excellence" which aims to support innovation and research centres to reach their potential. One of the further goals is to achieve the integration of Czech companies into sectorial clusters with the participation of research institutions. While there is no specific cluster strategy in place, clusters and their development have always been supported either through specific budget lines in operational programmes or by including them in the country's smart specialisation strategy, Industry 4.0 strategy or various digitalisation strategies. At the moment, clusters are supported under a specific support programme Cooperation Clusters under the Operational Programme Enterprise and Innovation for Competitiveness for the 2014-2020 period (running until the end of 2023) and through a broad policy named Operational Programme Technologies and Applications for Competitiveness 2021 – 2027.<sup>25</sup>

---

<sup>22</sup> For a detailed overview of Czechia's current cluster policies as well as the sources and documents for the following paragraphs, see the ECCP country factsheet Czechia 2022. Available at: <https://clustercollaboration.eu/in-focus/policy-acceleration/country-factsheets-on-cluster-policies-and-programmes> (last access 26.09.2023).

<sup>23</sup> See also the material provided by the National Cluster Association of Czechia on cluster policy, available at (in Czech): <https://nca.cz/o-nas/#clustersPolicy> (last access 26.09.2023).

<sup>24</sup> The Innovation Strategy of the Czech Republic 2019-2030 is available at: <https://www.vyzkum.cz/FrontClanek.aspx?idsekce=867922&ad=1&attid=867987> (last access 26.09.2023).

<sup>25</sup> For more information on the OP TAK, see (in Czech): <https://www.dotace-optak.cz/> (last access 26.09.2023).

An **official evaluation** of the Operational Programme Enterprise and Innovation for Competitiveness was completed in June 2020 through which the Support Programme Cooperation Clusters was evaluated as well. The results of the evaluation are not publicly available. There is, however, an interim evaluation of the Support programme Cooperation – Clusters under OP EIC Specific Objective 1.2.<sup>26</sup> It confirms that the interim goals 2018 had been reached and found that the programme improved the Czech innovation performance by supporting the cooperation between enterprises and research organisations. For the new OP TAK, a monitoring committee has been established by the Ministry of Industry and Trade that will evaluate the implementation of the programme in annual meetings.

**Further studies** on Czechia's cluster policies support the general claim, that cluster support is by now well established in Czechia. An early study by Skokan (2007) acknowledges that cluster support conducted via Czech regional policy was successful in mapping the cluster landscape, establishing a range of new clusters, and generally proliferating the notion and importance of clusters.<sup>27</sup> Pavelková et al. (2016) emphasise as well that cluster support had been well established in Czechia since the beginning of public support in 2004/05 but also see room for improvement when it comes to the coordination of different policy programmes and the implementation of certified methodologies. They also show a set of best practices.<sup>28</sup> Žižka and colleagues (2019) show that the public support for cluster organisations in Czechia is efficient and even generates an overall return for the state via taxes and social security payments from companies and employees.<sup>29</sup>

In **conclusion**, Czechia shows an overall dense if geographically unequally distributed cluster landscape. Its cluster-related policy programmes have been credited with successfully supporting the organisation of Czech clusters and their collaborative activities. The EU Cluster Panorama Report (2021) in connection with Ketels & Protsiv (2021) further makes the case for cluster organisations as a proven method to stimulate long-term growth and innovative activity on a regional level.

---

<sup>26</sup> Available at (in Czech): <https://www.mpo.cz/cz/podnikani/dotace-a-podpora-podnikani/oppik-2014-2020/evaluace-a-analyzy/evaluace-a-jine-analyzy--157435/> (last access 26.09.2023).

<sup>27</sup> Skokan, K. (2007). The Role of Clusters in the Regional Policy of the Czech Republic. Available at: [https://www.researchgate.net/publication/23691778\\_The\\_Role\\_of\\_Clusters\\_in\\_the\\_Regional\\_Policy\\_of\\_the\\_Czech\\_Republic](https://www.researchgate.net/publication/23691778_The_Role_of_Clusters_in_the_Regional_Policy_of_the_Czech_Republic) (last access 26.09.2023).

<sup>28</sup> Pavelková, D., P. Bednář, A. Knápková, P. Břusková and M. Sopoligová (2016). Cluster Policy in the Czech Republic. V4 Cluster Policies and their Influence on the Viability of Cluster Organisations. Available at: [https://nca.cz/Resources/Upload/Home/nca/projekty/v4clusterpol/policy-reports/v4cp\\_cluster-policy\\_czech-republic.pdf](https://nca.cz/Resources/Upload/Home/nca/projekty/v4clusterpol/policy-reports/v4cp_cluster-policy_czech-republic.pdf) (last access 26.09.2023).

<sup>29</sup> Žižka, M.; Hovorková Valentová, V.; Pelloneová, N.; Štichauerová, E. (2019). Evaluation of the efficiency of public support for cluster organizations in the Czech Republic, DANUBE: Law, Economics and Social Issues Review, 10:4, 299-320. Available at: <https://www.econstor.eu/bitstream/10419/242152/1/1691729337.pdf> (last access 26.09.2023).

# 03

## Cross-border cooperation & the involvement of Czech clusters in European networks & support initiatives



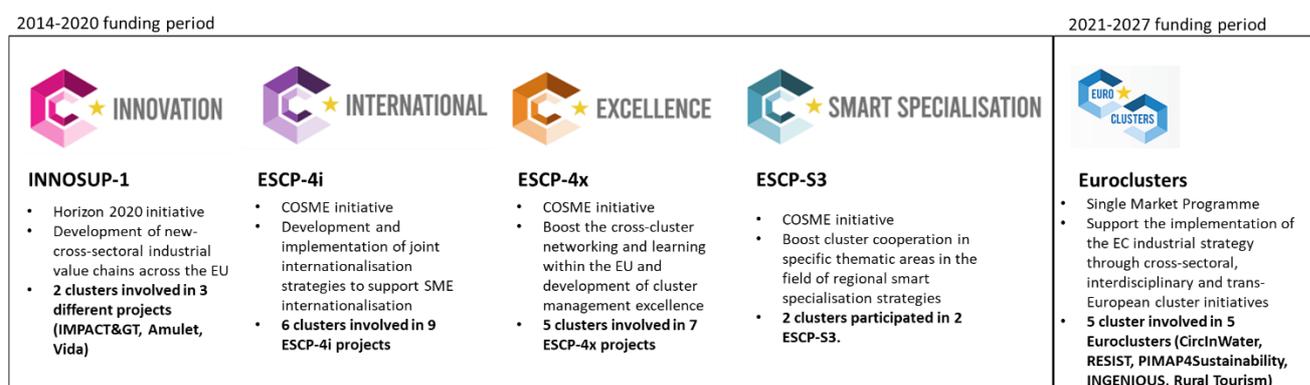
EUROPEAN CLUSTER  
COLLABORATION PLATFORM

Strengthening the European economy through collaboration

### 3. Cross-border cooperation and the involvement of Czech clusters in European networks and support initiatives

Findings from the Evaluation Study of and Potential Follow-Up to Cluster Initiatives under COSME, H2020 and FPI of the European Commission (2021) show that cross-border cooperation is perceived by innovation stakeholders as a highly relevant activity for clusters to support sustainable growth and resilience-building of their SME members.<sup>30</sup> To gain an overview of the existing cross-border cooperation of Czech clusters, a closer look will be taken in this chapter on the involvement of Czech clusters in European support initiatives with a focus on the **2014-2020 funding period** as well as the Joint Cluster Initiatives (Eurocluster) for Europe’s recovery of the **2021-2027 funding period**<sup>31</sup> (see Figure 7).

**Figure 7: Overview of Czech cluster participation in EU support initiatives in the funding period 2014-2020 and 2021-2027**



Source: ECCP (2023)

#### Involvement of Czech cluster organisations in the European Strategic Cluster Partnerships (ESCP)

In the 2014-2020 funding period, one relevant EU support initiative to increase cross-border cooperation of EU cluster organisations and other intermediary organisations was the European Strategic Cluster Partnership (ESCP) initiative, funded under the EU Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME). The ESCP initiative established partnerships of European clusters and intermediary organisations from the different EU Member States or associated countries. Those partnerships focused on three different thematic areas which were internationalisation (ESCP for Going International), cluster excellence (ESCP for Excellence) and smart specialisation (ESCP for Smart Specialisation).<sup>32</sup>

<sup>30</sup> Prognos et al. (2021): Evaluation Study of & Potential Follow-Up to Cluster Initiatives under COSME, H2020 & FPI (DG GROW, Unit D2 - Industrial Forum, alliances, clusters). Study on behalf of the European Commission. Available at: <https://op.europa.eu/en/publication-detail/-/publication/a2c3e9e1-3deb-11ec-89db-01aa75ed71a1/language-en/format-PDF/source-241039860> (last access 12.09.2023).

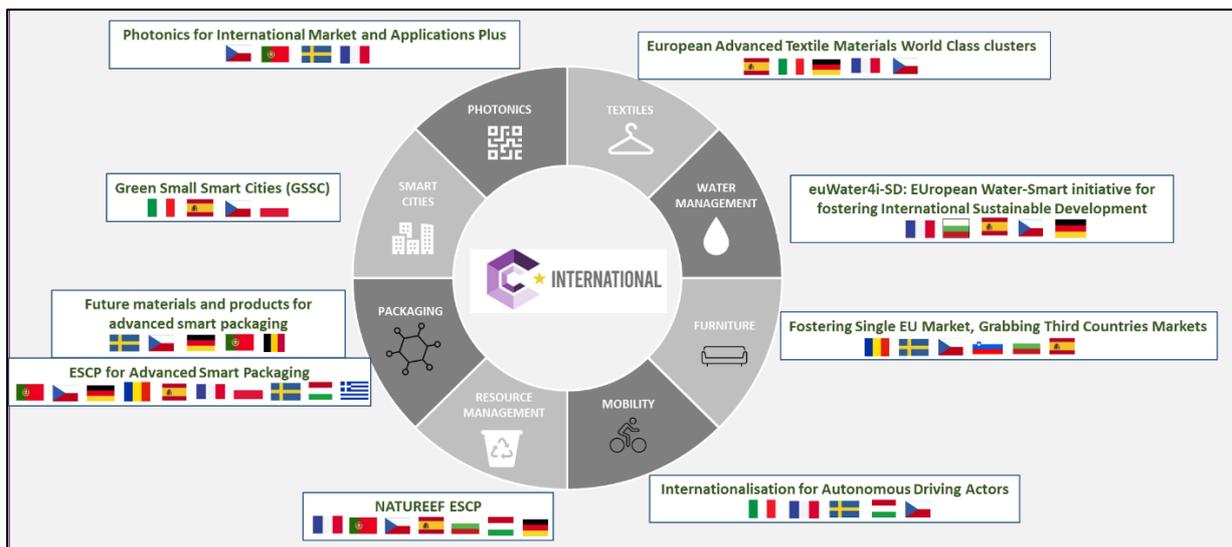
<sup>31</sup> For more information on the Euroclusters see: [https://eisma.ec.europa.eu/funding-opportunities/calls-proposals/joint-cluster-initiatives-euroclusters-europes-recovery\\_en](https://eisma.ec.europa.eu/funding-opportunities/calls-proposals/joint-cluster-initiatives-euroclusters-europes-recovery_en) (last access 12.09.2023).

<sup>32</sup> For more information on the European Cluster Partnerships see: <https://clustercollaboration.eu/eu-cluster-partnerships> (last access 13.01.2023).

Figure 7 gives an overview of the clusters and projects in which Czech clusters have participated or are participating. Overall, **seven Czech cluster organisations participated in 18 ESCP projects** and requested grants for a combined value of around €921,000. More specifically, six cluster organisations participated in nine ESCP-4i (€506,000), five participated in seven ESCP-4x (€361,000), and two participated in as many ESCP-S3 projects (€53,000). The organisations represented disparate industrial sectors, such as, but not limited to, textiles, hydro-electricity, automotive and nanotechnologies.

Focusing specifically on the **ESCP-4i** (see Figure 8), the projects involved cluster organisations from 23 different countries and pertained to diverse thematic areas, ranging from packaging textiles to packaging, photonics and autonomous driving, amongst others. Moreover, the ESCP-4i projects in question looked towards diverse target markets in Africa (Kenya, Uganda), Latin America (Bolivia, Chile, Brazil), Asia (China, Philippines) and Central and North America (USA, Mexico). The figure below recaps the participation of Czech clusters in ESCP-4i projects.

**Figure 8: Overview of the ESCP-4i projects in Czechia**



Source: ECCP (2023)

As regards the seven **ESCP-4x** projects, they touch upon several industrial sectors, such as, but not limited to, automotive, textiles, lighting, HEMP, land machine and manufacturing. In total, the projects involved 39 cluster organisations from 18 different countries. Finally, the two Czech clusters that participated in the **ESCP-S3** projects, namely “Textile Cluster for Industrial Modernisation” (Tex4IM) and EACP-EuroSME, focused on the textiles and aerospace industries. The former involved partner organisations in the textile industries from seven different EU countries, while the latter groups six cluster from four different EU countries (CZ, DE, FR, IT) and the United Kingdom.

### Involvement of Czech cluster organisations in the INNOSUP-1 initiative

Aside from the ESCPs, the INNOSUP-1 initiative “Cluster facilitated projects for new value chains” funded under the EU programme Horizon 2020 was a relevant EU support initiative that addressed the challenge to develop new cross-sectoral industrial value chains in Europe through European cooperation of cluster organisations and other relevant intermediaries.<sup>33</sup> The INNOSUP-1 initiative aimed at boosting the cross-sectoral and cross-border

<sup>33</sup> For more information on the ESCPs and the INNOSUP-1 initiative see: <https://clustercollaboration.eu/eu-cluster-partnerships> (last access 04.02.2022).

cooperation in consortia of European cluster organisations and other relevant innovation intermediaries.<sup>34</sup> An innovative approach of the INNOSUP-1 initiative was that it followed the so-called cascade funding approach, meaning that cluster organisations served as intermediaries to support their SME members through different support instruments like direct financial support or capacity-building training. Findings from the Evaluation Study of and Potential Follow-Up to Cluster Initiatives under COSME, H2020 and FPI of the European Commission (2021) confirm that the transnational component of the cluster initiatives was perceived by beneficiaries as an EU added value with high mutual learning effects for cluster organisations and the supported SMEs.

In **Czechia**, two different cluster organisations participated in three different projects:

1. The Moravian-Silesian Automobile Cluster Organisations participated in:
  - a. The *Impacting on the Emerging Connected Car Value Chains* (IMPACT&GT) project, which aimed at building a 'Connected Car Open Space' where Innovation Actors could validate and accelerate cross-sectoral and cross-border business solutions, which would result in the foundation of new value Link-chains for the Connected Car emerging industry.
  - b. In the Advanced Materials and Manufacturing Technologies United for Lightweight (AMULET) project, which aims to promote the penetration of advanced lightweight materials through cross-regional and cross-sectoral knowledge exchange in four sectors: automotive, aerospace, energy and construction. AMULET will unlock the untapped innovation potential for SMEs in the field of lightweight construction and identify new value chains for advanced lightweight materials such as polymer matrix composites, ceramic matrix composites and light metal alloys.
2. The Nanoprogress cluster organisation, representing Czech nanotechnology companies, participated in the *Value-added Innovation in food chains (VIDA) project*, which will nurture and harness the growth and innovation potential of SMEs working across European food chains, bringing together four complementary and mutually dependant sectors: food, energy, water and key enabling technologies (KET). The project works to strengthen current and develop new cross-sectoral industrial value chains within the food production and processing industries through a combination of direct and indirect innovation actions, as well as support and capacity building measures.

## Involvement of Czech clusters in the Eurocluster initiative

With regards to 2021-2027, the European Commission has launched the implementation of the EU Industrial Strategy. In this context, so-called Euroclusters are funded under the Single Market Programme. The Eurocluster initiative aims at supporting cross-sectoral, cross-regional European industry clusters cooperating with other economic stakeholders such as companies or business organisations. **Five different Czech cluster organisations are participating in as many different Euroclusters** (see also Figure 9):

1. The Eurocluster *CirInWater*<sup>35</sup>, which aims to boost the transitions of European industrial ecosystems by developing and implementing supporting measures for European SMEs to address the lack of water-smart solutions in the most pressing and vulnerable industries. CirInWater will lead the green transition of key EU industrial ecosystems towards a clean, circular, and climate neutral economy, accelerate the digital leap by facilitating the uptake of intelligent solutions and build resilience by anticipating changes.

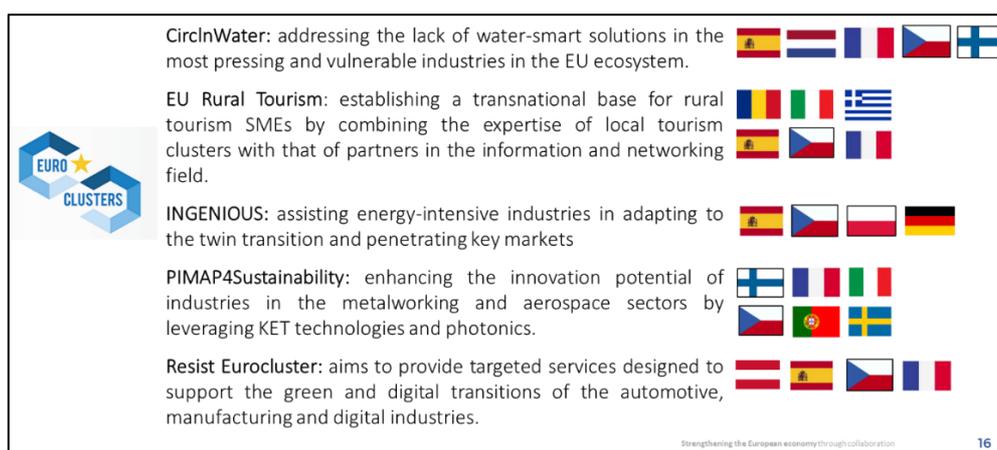
---

<sup>34</sup> European Commission (2020): Study on the effectiveness of public innovation support for SMEs in Europe . Annex E, INNOSUP evaluations. Available at: <https://op.europa.eu/en/publication-detail/-/publication/888d351a-9d97-11eb-b85c-01aa75ed71a1/language-en> (last access 10.01.2023).

<sup>35</sup> The Czech cluster organisation that is involved in this project is the Innovation Center Of Olomouck Region (Inovacni Centrum Olomouckeho Kraje)

2. The Eurocluster *Resilience through Sustainable processes and production for the European automotive Industry (RESIST)*<sup>36</sup>, which brings together three Automotive-Transport-Mobility clusters and two clusters from manufacturing and from digital to provide targeted services designed to support the green and digital transitions of their respective members. SMEs can access to co-funding for innovation projects, coaching & mentoring services, networking, training, and internationalisation services, as well as access to key information and studies such as future challenges, opportunities and benefits from greening and digitizing production.
3. The Eurocluster *PIMAP4Sustainability*<sup>37</sup>, which brings together six leading European clusters to leverage in the field of KETs technologies, photonics, advanced manufacturing and advanced materials, to boost the innovation potential of European SMEs and companies in two key industrial European industries: metalworking and aerospace. Beneficiaries will benefit from a comprehensive package of services and financial mechanism dedicated to establishing European innovation projects, support the skilling and reskilling of the workforce in critical innovative areas and maximising the international opportunities for the SMEs.
4. The Eurocluster *Building resilience and accelerating transition to green and digital economy in Energy Intensive Industries (INGENIOUS)*<sup>38</sup>, which will serve as a lever for involved companies to implement highly innovative solutions, penetrate key markets and attract partners from energy intensive industries.
5. The Eurocluster *Rural Tourism (EU Rural Tourism)*<sup>39</sup>, which aims to establish a transnational base for rural-tourism SMEs by combining the expertise of partners in the field of networking and information exchange with the experience of local tourism clusters in four European countries (Italy, Spain, Czechia and Romania) so as to strengthen their networking, innovation, education and internationalization opportunities.

**Figure 9: Overview of Czech cluster's participation in Eurocluster projects**



Source: ECCP (2023)

<sup>36</sup> The Czech cluster organisation that is involved in this project is the Moravian-Silesian Automobile Cluster (Moravskoslezský automobilový klastr).

<sup>37</sup> The Czech cluster organisation that is involved in this project is the Czech Aerospace Cluster (Moravský Letecký Klastr).

<sup>38</sup> The Czech cluster organisation that is involved in this project is Nanoprogress Z.S.

<sup>39</sup> The Czech cluster organisation that is involved in this project is the National Cluster Organisation of Czechia (Narodni Klastrova Asociace).

04

## Smart Specialisation in Czechia



EUROPEAN CLUSTER  
COLLABORATION PLATFORM

Strengthening the European economy through collaboration

## 4. Smart Specialisation in Czechia

Cluster organisations (can) play an important role in the design and implementation of Smart Specialisation Strategies (S3) since in both concepts, the promotion of economic growth and competitiveness through regional proximity are key elements. Box 1 provides some good practices of cluster involvement in S3 from other European regions and especially in the Entrepreneurial Discovery Process<sup>40</sup> (EDP). Against this background, this chapter focuses on Smart Specialisation in Czechia.

### The S3 of Czechia

A key starting point for the analysis of the Czech S3 2021-2027 is the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021–2027.<sup>41</sup> This innovation strategy was developed by the Czech Ministry of Industry and Trade and was published in 2022. Cluster organisations play a key role in the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021–2027. For instance, the EDP for the definition of the S3 priority areas involved cluster organisations and also a wide range of other actors such as the representatives of companies, research organisations and universities and other associations. Moreover, the National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021–2027 outlines National innovation Platforms which act as consulting groups to identify needs and/or to refine specific priority areas of the S3. Cluster organisations are an important pillar in the composition of the respective National innovation Platforms.

*Figure 10: Priority areas of the Czech national S3 2021-2027*



Source: ECCP (2023), own elaboration based on [National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021–2027](#)

The National Research and Innovation Strategy for Smart Specialisation of the Czech Republic 2021–2027 identifies six priority areas which are summarised in Figure 10. These priority areas address a wide range of topics ranging from “Advanced machinery/technologies for globally competitive industry” over “Healthcare, advanced medicine” to “Sustainable agriculture & environmental sectors”.

<sup>40</sup> The entrepreneurial discovery is an interactive and inclusive process in which the relevant actors identify new and potential activities and inform the government. The government assesses this information and empowers those actors most capable of realising the potential. See <https://s3platform.jrc.ec.europa.eu/edp> (last access 18.07.2023)

<sup>41</sup> see here: [https://www.mpo.cz/assets/en/business/ris3-strategy/2022/1/National-RIS3-Strategy\\_2.pdf](https://www.mpo.cz/assets/en/business/ris3-strategy/2022/1/National-RIS3-Strategy_2.pdf) (last access 18.07.2023)

### Box 1: Good practices of cluster involvement in S3

#### Good practices of cluster involvement in S3

##### **Berlin/Brandenburg – Cluster ‘Master Plans’:**

In Berlin/Brandenburg cluster organisations developed ‘Master Plans’ for priority areas in which specific objectives and actions for implementation were laid out. Thereby, an important element of these ‘Master Plans’ is the highly participatory and consultative process in which the various stakeholders are involved and can postulate their opinions on the priorities.

##### **Lombardy - Technology clusters and biannual work programmes:**

While priority areas are defined in a rather generic manner in the strategy, Lombardy has foreseen biannual Work Programmes that structure priorities into macro-themes and macro-themes into development themes. The establishment of these biannual work programmes is the result of a continuous Entrepreneurial Discovery Process (EDP) to identify more specific domains of the priorities. Thereby especially technology cluster organisations played a crucial role in the S3 process and were involved in identifying areas for further development and the further refinement of the priority areas in biannual Work Programmes.

##### **Slovenia - Strategic Research and Innovation Partnerships and the role of clusters (SRIPs):**

In Slovenia, lasting partnerships between different types of stakeholders were created to implement the S3 through action plans. Cluster organisations can get involved in this process and these Strategic Research and Innovation Partnerships (SRIPs). There, priority areas are implemented through one SRIP per priority area and constitute long-term partnerships between different actors such as the business communities, research organisations, and the state.

### Outlook: Competencies and involvement of Czech cluster organisations in Smart Specialisation

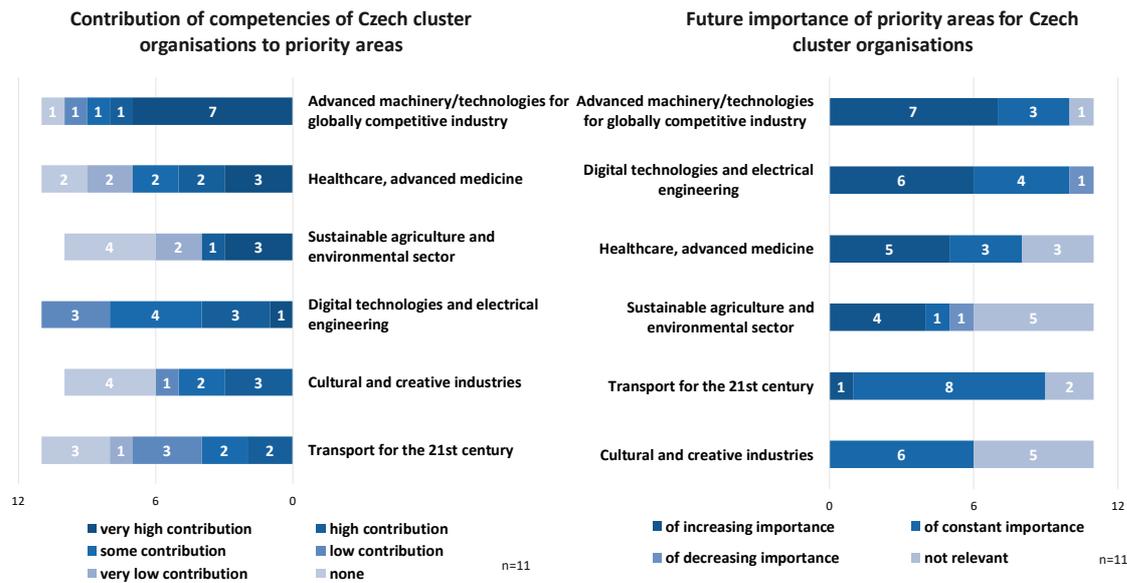
To provide a comprehensive overview of the competencies and engagement of Czech cluster organisations in the context of Smart Specialization Strategy (S3) 2021-2027 for Czechia, an online survey was conducted involving eleven Czech cluster organisations, encompassing ten industrial ecosystems. In this section, the survey results are summarised.

#### *Contribution of competencies to priority areas and future importance*

The results of the online survey conducted among Czech cluster organisations demonstrate a high level of contribution to the overarching priority areas outlined in the joint S3 2021-2027 for Czechia. Notably, the majority of Czech clusters indicated a significant contribution, with many reporting a very high contribution specifically in the area of “Advanced machinery/technology for globally competitive industry”. Other priorities where a substantial share of organizations reported a high or very high contribution include “Healthcare, advanced medicine”, “Sustainable agriculture and the environmental sectors” (See Figure 11). Overall, it can be said that the collective commitment to all priority areas indicates that Czech cluster organizations play a pivotal role in fostering a functional EDP and prioritisation within the region.

In terms of the future importance of these priority areas, a similar pattern emerges. Advanced Machinery/Technology for a Globally Competitive Industry stands out as the area expected to gain increasing significance, as reported by the majority of clusters. Furthermore, Czech cluster organisations anticipate the rising importance of “Digital technologies and electrical engineering”, as well as “Healthcare, advanced medicine”, and “Sustainable agriculture and environmental sectors” in the future.

Figure 11: Survey results - Priority areas of the joint S3 2021-2027 of Czechia

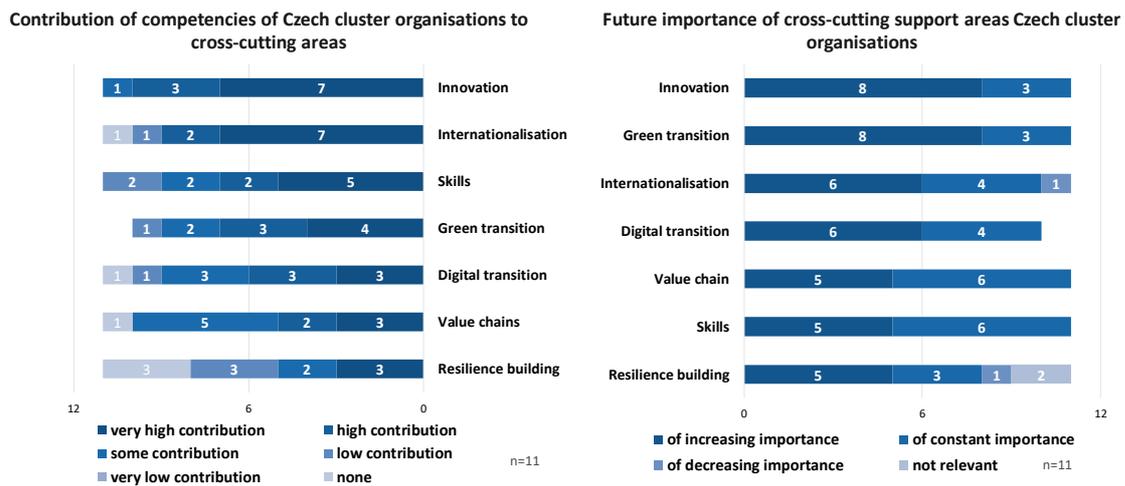


Source: ECCP (2023), results are based on the self-assessment of Czech cluster organisations. Survey was conducted in September & October 2023.

#### Cross-cutting support areas and strategic challenges

Figure 12 presents the survey results regarding the cross-cutting support areas and strategic challenges faced by Czech cluster organisations. Notably, Czech cluster organisations demonstrate a very high level of contribution in areas such as innovation and internationalisation. Additionally, clusters exhibit significant competency in skills development, green transition, and the digital transition. Looking ahead, Innovation and the Green Transition are expected to play crucial roles in the evolving landscape of Czech cluster organisations.

Figure 12: Survey results – Cross-cutting support areas and strategic challenges

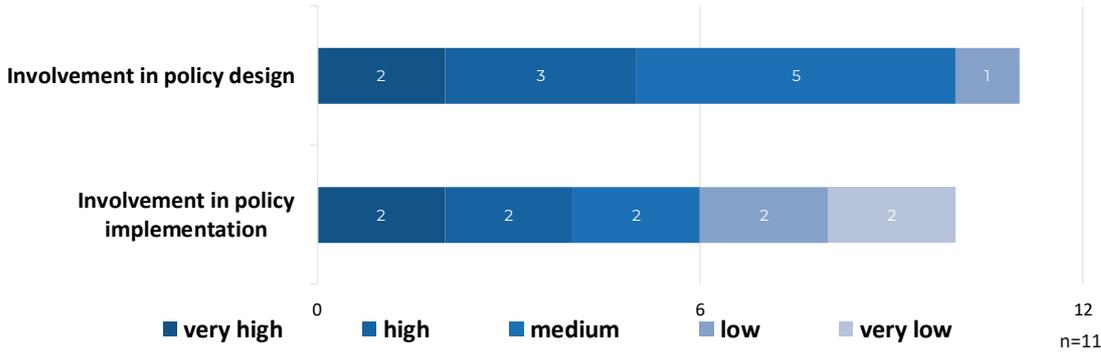


Source: ECCP (2023), results are based on the self-assessment of Czech cluster organisations. Survey was conducted in September & October 2023.

*Involvement of Czech clusters in regional initiatives*

Cluster organisations can actively participate in various regional initiatives, including regional economic governance and policy design and implementation at the regional level. The survey results indicate that the participating cluster organisations are generally engaged in both designing and implementing regional initiatives. However, they seem slightly more involved in the design of regional initiatives rather than the implementation (See Figure 13). There may be room for further deepening their involvement in shaping and implementing policies and actions at the regional level.

**Figure 13: Survey results – Level of involvement in regional initiatives of Czech cluster organisations in the 2014-2020 funding period**



Source: ECCP (2023), Results are based on the self-assessment of Czech Finland cluster organisations. Survey conducted in September & October 2023.

## Bibliography

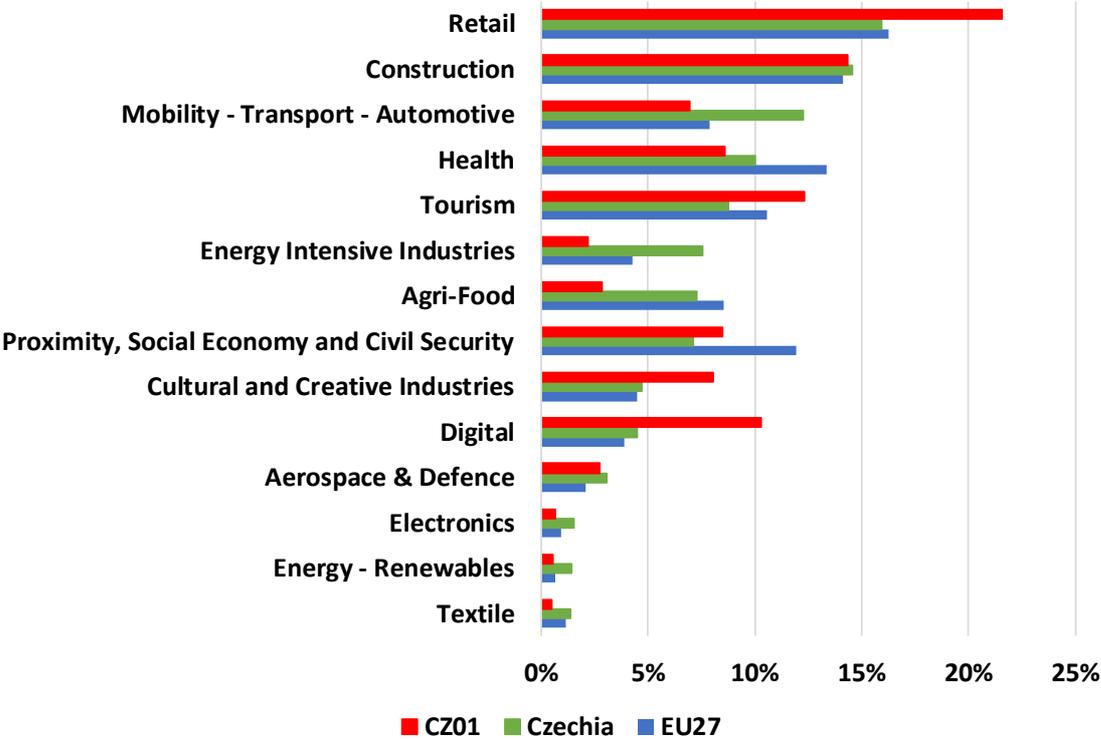
- ECCP (2021): European Cluster Panorama Report 2021. Available at: [https://clustercollaboration.eu/sites/default/files/2021-12/European\\_Cluster\\_Panorama\\_Report\\_0.pdf](https://clustercollaboration.eu/sites/default/files/2021-12/European_Cluster_Panorama_Report_0.pdf) (last access 25.09.2023)
- ECCP (2023): Country factsheet Czechia. Available at: <https://clustercollaboration.eu/in-focus/policy-acceleration/country-factsheets-on-cluster-policies-and-programmes> (last access 26.09.2023).
- European Commission (2023): European Innovation Scoreboard 2023 Country profile Czechia. Available at: [https://ec.europa.eu/assets/rtd/eis/2023/ec\\_rtd\\_eis-country-profile-cz.pdf](https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-cz.pdf) (last access 25.09.2023).
- European Commission (2020): Study on the effectiveness of public innovation support for SMEs in Europe. Annex E, INNOSUP evaluations. Available at: <https://op.europa.eu/en/publication-detail/-/publication/888d351a-9d97-11eb-b85c-01aa75ed71a1/language-en> (last access 25.09.2023).
- Ketels, C. & Protsiv, S. (2021): Cluster presence and economic performance: a new look based on European data, *Regional Studies*, 55:2, 208-220, DOI: 10.1080/00343404.2020.1792435. Available at: <https://www.tandfonline.com/doi/full/10.1080/00343404.2020.1792435> (last access 25.09.2023)
- Mora, Marek & Galuščák, Kamil (2022): "Monetary and fiscal policy interactions in the wake of the pandemic: the case of the Czech Republic", Bank for International Settlements: BIS Papers n. 122.f
- Pavelková, D., P. Bednář, A. Knápková, P. Břusková and M. Sopoligová (2016). Cluster Policy in the Czech Republic. V4 Cluster Policies and their Influence on the Viability of Cluster Organisations. Available at: [https://nca.cz/Resources/Upload/Home/nca/projekty/v4clusterpol/policy-reports/v4cp\\_cluster-policy\\_czech-republic.pdf](https://nca.cz/Resources/Upload/Home/nca/projekty/v4clusterpol/policy-reports/v4cp_cluster-policy_czech-republic.pdf) (last access 26.09.2023).
- Prognos /CSIL (2021): Study on prioritisation in Smart Specialisation Strategies in the EU. Study on behalf of the European Commission. Available at: [https://ec.europa.eu/regional\\_policy/en/information/publications/studies/2021/study-on-prioritisation-in-smart-specialisation-strategies-in-the-eu](https://ec.europa.eu/regional_policy/en/information/publications/studies/2021/study-on-prioritisation-in-smart-specialisation-strategies-in-the-eu) (last access 25.09.2023)
- Prognos /CSIL (2022): Analysis of key parameters of smart specialisation strategies (S3). Study on behalf of the European Commission. Available at: <https://op.europa.eu/en/publication-detail/-/publication/3026007b-8be2-11ed-999b-01aa75ed71a1/language-en/format-PDF/source-279324673> (last access 25.09.2023)
- Prognos et al. (2021): Evaluation Study of & Potential Follow-Up to Cluster Initiatives under COSME, H2020 & FPI (DG GROW, Unit D2 - Industrial Forum, alliances, clusters). Study on behalf of the European Commission. Available at: <https://op.europa.eu/en/publication-detail/-/publication/a2c3e9e1-3deb-11ec-89db-01aa75ed71a1/language-en/format-PDF/source-241039860> (last access 25.09.2023).
- Skokan, K. (2007). The Role of Clusters in the Regional Policy of the Czech Republic. Available at: [https://www.researchgate.net/publication/23691778\\_The\\_Role\\_of\\_Clusters\\_in\\_the\\_Regional\\_Policy\\_of\\_the\\_Czech\\_Republic](https://www.researchgate.net/publication/23691778_The_Role_of_Clusters_in_the_Regional_Policy_of_the_Czech_Republic) (last access 26.09.2023).
- Žižka, M.; Hovorková Valentová, V.; Pelloneová, N.; Štichhauerová, E. (2019). Evaluation of the efficiency of public support for cluster organizations in the Czech Republic, *DANUBE: Law, Economics and Social Issues Review*, 10:4, 299-320. Available at: <https://www.econstor.eu/bitstream/10419/242152/1/1691729337.pdf> (last access 26.09.2023).

# Annex

## Employment across the industrial ecosystems

Figure 14 presents the employment distribution among the 14 industrial ecosystems in the capital region of Prague (CZ01), Czechia and the EU27. Notably, the Retail ecosystem stands out with the largest share of employment, accounting for ca. 741,000 of the total employment across all industrial ecosystems, surpassing the EU average of 15.9%. It is noteworthy that this national average is high, particularly due to the high concentration in the capital region of Prague, with an employment of around 21.5% across all industrial ecosystems. This is followed by the ecosystems Construction and Mobility – Transport – Automotive, making up 14.5% and 12.2%, respectively. The latter shows the importance of the automotive sector for the national economy, compared to the EU27 average level. Apart from that, other ecosystems showcasing higher concentration of employment compared to the EU27 average include Energy Intensive Industries, Cultural and Creative Industries, Digital, Aerospace & Defence, Electronics, Energy-Renewables and Textile. The Energy Intensive Industries ecosystem particularly stands out as its share in the national economy (7.6%) surpasses the EU average (4.2%) significantly. The ecosystem Energy-Renewables makes up 1.4% of employment across the ecosystem, compared to the 0.6% at the EU27 level. The exceeding shares in the Tourism, Proximity, Cultural and Creative Industries and Digital can be traced back to high concentration in the Capital region.

Figure 14: Employment across the industrial ecosystems for the region of Prague, Czechia and the EU27



ECCP (2023), own elaboration based on data from Eurostat.

## Regional Innovation Scoreboard

**Table 1: Key socio-economic and sectoral indicators of the region of Prague, Czechia, and the EU**

	Region Prague	Czechia	EU27
GDP per capita (PPS)	65,800	29,700	32,600
GDP per capita growth (PPS)	2.9	2.7	4.4
Population density	2,692	136	106
Urbanisation	100.0	67.4	75.8
Population size (000s)	1,340	10,700	447,210
Share of employment in:			
Agriculture & Mining (A-B)	0.2	3.2	4.4
Manufacturing (C)	8.2	26.8	16.4
Utilities & Construction (D-F)	8.6	9.8	8.3
Services (G-N)	75.8	53.7	63.7
Public administration (O-U)	7.2	6.5	7.2
Average number of employed persons per enterprise	4.1	3.4	5.1

Source: European Commission (2023): Regional Innovation Scoreboard 2023 Regional profiles Czechia.

## Regional Employment Specialisation in Czechia

**Table 2: Number of regionally relevant sectoral nodes and Top 5 nodes by region (NACE)**

Region	# of nodes	Node 1	Node 2	Node 3	Node 4	Node 5
<b>CZ01: Prague</b>	13	L68 - Real estate activities	J58 – Publishing activities	M74 – Other professional, scientific and technical activities	M73 - Advertising and market research	J62 - Computer programming, consultancy and related activities
<b>CZ02: Central Bohemia</b>	9	C29 - Manuf. of motor vehicles & trailers	C32 - Other manufacturing	C26 - Manuf. of computer, electronic and optical products	C23 - Manuf. of other non-metallic mineral products	C16 - Manuf. of wood and of products of wood and cork, except furniture
<b>CZ03: South-West (Czechia)</b>	11	C27 - Manuf. of electrical equipment	A02 – Forestry & logging	C29 - Manuf. of motor vehicles & trailers	C32 - Other manufacturing	C16 – Manuf. of wood and of products of wood and cork, except furniture
<b>CZ04: North-West (Czechia)</b>	12	B05 - Mining of coal & lignite	C23 - Manuf. of other non-metal mineral products	C27 - Manuf. of electrical equipment	C33 - Repair, installation of machinery	C20 - Manuf. of chemicals and chemical products
<b>CZ05: North-East (Czechia)</b>	10	C13 - Manuf. of textiles	C29 - Manuf. of motor vehicles & trailers	C27 - Manuf. of electrical equipment	C26 - Manuf. of computer, electronic and optical products	C32 - Other manufacturing
<b>CZ06: South-East (Czechia)</b>	10	C27 - Manuf. of electrical equipment	C16 - Manuf. of wood and of products of wood and cork, except furniture	C32 - Other manufacturing	C25 - Manuf. of fabricated metal products	C28 - Manuf. of machinery and equipment
<b>CZ07: Central Moravia</b>	9	C22 - Manuf. of rubber & plastic products	C27 - Manuf. of electrical equipment	C25 - Manuf. of fabricated metal products	C16 - Manuf. of wood and of products of wood and cork, except furniture	C26 - Manuf. of electronic & optical products

<b>CZ08: Moravian Silesia</b>	10	B05 - Mining of coal & lignite	C24 - Manuf. of basic metals	C27 - Manuf. of electrical equipment	C29 - Manuf. of motor vehicles & trailers	C25 - Manuf. of fabricated metal products
-------------------------------	----	--------------------------------	------------------------------	--------------------------------------	---	---

Source: ECCP (2023), own elaboration based on data from Eurostat.

**Table 3: Regionally relevant ecosystem nodes**

Region	# of ecosystem nodes	Node 1	Node 2	Node 3	Node 4	Node 5
<b>CZ01: Prague</b>	2	Digital	Cultural and creative industries	-	-	-
<b>CZ02: Central Bohemia</b>	3	Mobility-Transport-Automotive	Electronics	Energy-intensive industries	-	-
<b>CZ03: South-West (Czechia)</b>	5	Energy-renewables	Mobility-Transport-Automotive	Energy-intensive industries	Electronics	-
<b>CZ04: North-West (Czechia)</b>	3	Energy-renewables	Energy-intensive industries	Mobility-Transport-Automotive	-	-
<b>CZ05: North-East (Czechia)</b>	6	Electronics	Energy-renewables	Energy-intensive industries	Textile	Mobility-Transport-Automotive
<b>CZ06: South-East (Czechia)</b>	5	Energy-renewables	Electronics	Energy-intensive industries	Textile	Digital
<b>CZ07: Central Moravia</b>	4	Energy-renewables	Energy-intensive industries	Electronics	Aerospace & Defense	-
<b>CZ08: Moravian Silesia</b>	4	Energy-renewables	Energy-intensive industries	Mobility-Transport-Automotive	Aerospace & Defense	-

Source: ECCP (2023), own elaboration based on data from Eurostat.

### List of cluster organisations in Czechia

**Table 4: Overview of cluster organisations in Czechia and their addressed EU industrial ecosystems**

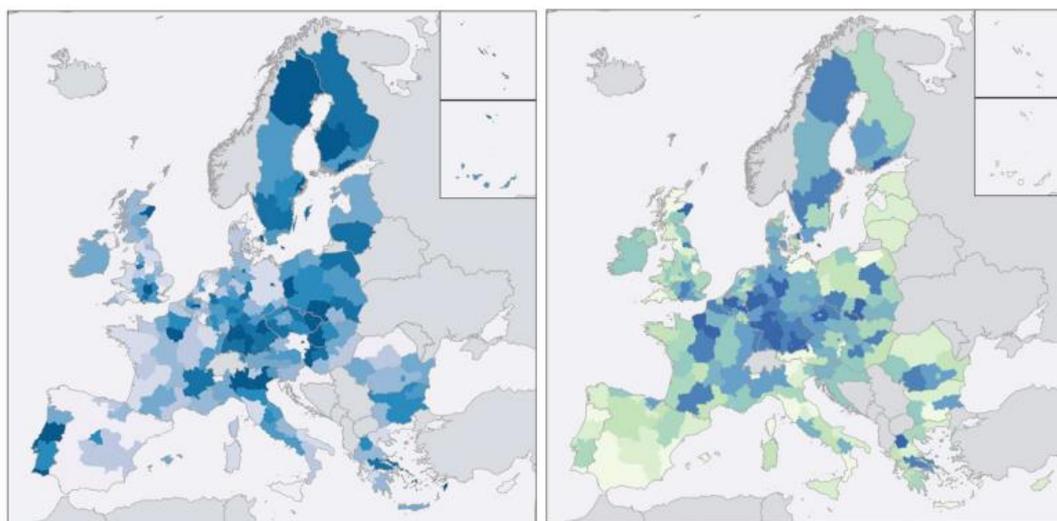
N°	Cluster organisation	Industrial Ecosystem
1	<b>Autoklastr</b>	Mobility-Transport-Automotive
2	<b>Cluster of Czech Furniture Manufacturers</b>	Creative & Cultural Industries
3	<b>CLUTEX - klastr technické textilie, z.s.</b>	Textile
4	<b>CREA Hydro&amp;Energy, z.s.</b>	Agri-food
5	<b>Czech Machinery Cluster</b>	Energy Intensive Industries
6	<b>Czech Marine Cluster, z. s.</b>	Electronics
7	<b>Czech Pellets Cluster</b>	Renewable Energy
8	<b>CZECH STONE CLUSTER, družstvo</b>	Construction
9	<b>CzechBio</b>	Health
10	<b>Defence and Security Industry Association of the Czech Republic</b>	Aerospace & Defence
11	<b>HK kovo cluster</b>	Energy Intensive Industries
12	<b>INDUSTRY CLUSTER 4.0</b>	Digital, Electronics, Mobility-Transport-Automotive
13	<b>Klastr Mechatronika, z.s.</b>	Electronics
14	<b>Nanoprogress</b>	Renewable Energy
15	<b>NATIONAL ENERGY CLUSTER, z.s.</b>	Renewable Energy
16	<b>NATIONAL WOOD PROCESSING CLUSTER</b>	Construction
17	<b>Network Security Monitoring Cluster, cooperative</b>	Digital

18	<b>Plastics Cluster</b>	Energy Intensive Industries
19	<b>Zlín Creative Cluster</b>	Creative & Cultural Industries
20	<b>The Czech Hemp Cluster</b>	Agri-food, Construction, Creative & Cultural Industries, Health, Renewable Energy, Textile
21	<b>Art of Glass - Czech and Moravian Glass Cluster</b>	Creative & Cultural Industries
22	<b>Czech Aerospace Cluster, z.s.</b>	Mobility-Transport-Automotive
23	<b>Czech Battery Cluster</b>	Aerospace & Defence, Electronics, Mobility-Transport-Automotive, Renewable Energy
24	<b>Czech Development Cluster</b>	Creative & Cultural Industries
25	<b>Czech Optical Cluster</b>	Aerospace & Defence, Electronics
26	<b>CZECHIMPLANT</b>	Digital, Health
27	<b>E-commerce &amp; Tech cluster, z.s.</b>	Digital
28	<b>Energy-Technical Innovation Cluster</b>	Digital, Renewable Energy, Mobility-Transport-Automotive
29	<b>General Engineering Cluster</b>	Digital, Electronics, Mobility-Transport-Automotive
30	<b>IT Cluster</b>	Digital
31	<b>MedChemBio</b>	Health
32	<b>National Construction Cluster</b>	Construction
33	<b>Safety Technology Cluster</b>	Health
34	<b>The Association for Innovation in Logistics</b>	Digital, Mobility-Transport-Automotive, Retail
35	<b>WASTen, z.s.</b>	Construction, Renewable Energy

Source: ECCP (2023), data as of September 2023.

### Indicators of cluster strength

*Figure 15: Indicators of cluster strength: cluster portfolio strength (share of payroll accounted for by strong clusters) (left) and cluster mix (right)*



Source: Ketels & Protsiv (2021): Cluster presence and economic performance: a new look based on European data. Note: Colours refer to deciles of the corresponding variables such that darker colours indicate higher values.

**Overview of the industrial ecosystems**

*Figure 16: EU industrial ecosystems based on the European industrial strategy*



14 industrial ecosystems are: aerospace and defence, agri-food, construction, cultural and creative industries, digital, electronics, energy intensive industries, energy-renewables, health, mobility – transport – automotive, proximity, social economy and civil security, retail, textile and tourism

Source: European Commission: [https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en) (last access 19.04.2023).