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Clusters meet Regions' event "Clusters as boosters of innovation in industrial ecosystems" – the case of Skåne

Input paper

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Executive Summary

The following paper presents observations on the Skåne clusters landscape and outlines some key considerations for the future development of the South Sweden region. These considerations may pose some open strategic questions, which can be addressed in the workshop of the “Clusters meets Regions” event to take place in Malmö, Sweden, on 15-16 June 2023. The following key takeaways are summarised below:

Context: Economic profile of the Skåne and South Sweden region

- The **economic structure** of Skåne and the broader South Sweden region is characterized by a large services sector, with notable growth observed in recent years. The education and health-related sectors play a significant role in employment, displaying a high degree of specialisation in those sectors. The growth in the economy is also traced back to the high degree of digitalisation and the substantial presence of the technology industry, as evidenced by the Digital industrial ecosystem. Additionally, the region's traditional agriculture and food production sectors maintain their significance, as shown in the relative employment levels and the prevalence of the Agri-Food ecosystem.
- The 2021 **Regional Innovation Scoreboard** classifies South Sweden as a “Leading Innovator”. This is evidenced by exceptional performances in several categories including “R&D expenditures public and business sector” “Product Innovators”, as well as “PCT applications”. In the **Regional Competitiveness Index**, South Sweden exhibits an above average performance in the category “Technological Readiness”.

Clusters in Skåne & their importance for regional economic development

- The region of South Sweden reports the **highest number of ECCP-registered cluster organisations** for Sweden (11 cluster organisations). Nine out of these eleven ECCP-registered cluster organisations are located in Skåne. These cluster organisations address 7 out of 14 EU Industrial Ecosystems
- 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 former study also highlights the **role of cluster organisations in Skåne**.

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

- In the **2014-2020 funding period**, three cluster organisations from the Skåne region participated in the **seven ESCP-4i projects** (GCA, INTononomous, MobiGoIn, MobiGoIn-Action, AdPack, EC2i and EUT) with partners coming from 12 countries. Target markets of the ESCP-4i partnerships were among others Canada, USA, Singapore, China and United Arab Emirates.
- Three cluster organisations were involved in three **INNOSUP-1 projects** (Cross4Health, INCluSilver and NEPTUNE) focusing on topics like aerospace, biotechnology, ICT, energy, medical devices, blue growth and silver economy.
- In the **current 2021-2027 funding period**, one cluster organisation from the Skåne region is involved in the **Euroclusters “Silicon Eurocluster”** with the focus on electronics value chain.

Smart Specialisation in the Skåne region

- Cluster organisations (can) play an important role in the **design and implementation of Smart Specialisation Strategies (S3)**. In Skåne cluster organisations are involved in the development of the S3 and the priority areas are based on existing business clusters in the region.
- **Skåne’s Innovation Strategy for Sustainable Growth** identifies six priority areas. These priority areas are “Tech”, Life science & health”, “Food”, “Advanced materials & manufacturing”, “Smart sustainable cities” and “ess, max iv & the Science Village innovation system”.



01

**Context: Economic
profile of the Skåne
region**



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1. Context: Economic profile of the Skåne region

This section will provide a short context about the socio-economic profile of the Skåne region as well as the region of South Sweden.¹

Macroeconomic profile of Skåne

Skåne County, located at the southwestern tip of Sweden, is recognized as the southernmost region in the country. Its exceptional geographical position provides it with advantageous accessibility to the Baltic Sea and close proximity to neighbouring European nations. Boasting a population of 1.402 million as of 2014, Skåne County accounts for 13.4% of Sweden's total population, positioning it as the third most populous county within the nation.² Spanning an area of 11,302 km², Skåne County holds the distinction of being the second most densely populated county in Sweden, which is mirrored by the presence of three cities with a population exceeding 100,000 within this county.³ Moreover, Skåne is home to **various significant industries**, including technology, life sciences, and food production. The latter sector holds particular importance in the region, as almost a third of Swedish food products coming from this county and making up the largest export of goods for this county.⁴ The prominence of these industries will also be reflected in the analysis of the specialisation of sectors and industries at the later stage of this chapter.

The figure below (Figure 1), displays a mostly consistent increase in the economic capacity of Skåne over the past two decades, with the **GDP** at current market prices peaking at €56.4 billion in 2020⁵. The region therefore makes up the majority of the GDP in the greater NUTS 2 region of South Sweden (€62.5 billion). In exception of the global financial crisis, which caused a significant economic downturn of annual GDP change in consecutive years (-5.6% in 2008; -12.8% in 2009), Skåne has been resilient to more recent crises, such as the COVID-19 pandemic. According to the 2021 Regional Innovation Scoreboard, the GDP per capita output of South Sweden was recorded at €31,500, which is lower than both the national (€37,000) and EU (€31,200) averages⁶. Despite this relatively overall lower level in GDP, this can be attributed to the aggregated data of both Skåne and Blekinge counties, with the latter region known for contributing lower to the GDP of South Sweden.

¹ Please note that Skåne (SE224) is a NUTS-3 region within the NUTS2-region of South Sweden (SE22) together with the NUTS3-region of Blekinge. As data availability at the NUTS-3 level is limited, information on the number of employed persons, gross value added at basic prices, sector specialisation, and cluster organizations is presented at the NUTS-2 level. Additionally, the data provided by the Regional Innovation Scoreboard and the Regional Competitiveness Index is only available at the NUTS-2 level.

² Eurostat (2023): Population on 1 January by age group, sex and NUTS 3 region. Available under:

https://ec.europa.eu/eurostat/databrowser/view/DEMO_R_PJANGRP3/default/table?lang=en&category=demo.demopreg (last accessed 08.05.2023).

³ Eurostat (2023): Area by NUTS 3 region. Available under: [Statistics | Eurostat \(europa.eu\)](https://ec.europa.eu/eurostat/databrowser/view/NAMA_10R_3GDP/default/table?lang=en&category=na10.nama10.nama10reg.nama10r_gdp) (last accessed 08.05.2023).

⁴ Invest in Skåne (2023). Key Industries in Skåne. Available under: <https://investinskane.com/en/why-skane/key-industries-in-skane> (last accessed 15.05.2023)

⁵ Eurostat (2023): Gross domestic product (GDP) at current market prices by NUTS 3 regions. Available under:

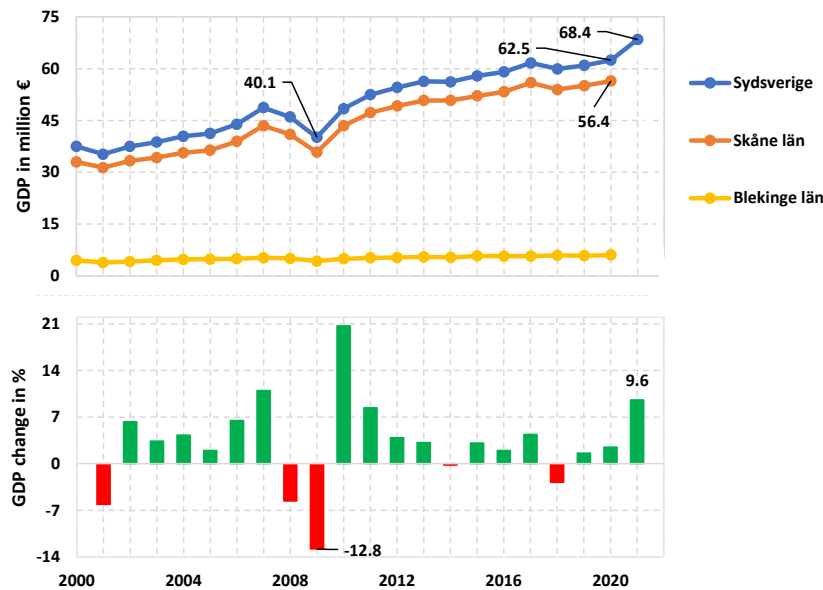
https://ec.europa.eu/eurostat/databrowser/view/NAMA_10R_3GDP/default/table?lang=en&category=na10.nama10.nama10reg.nama10r_gdp (last accessed 08.05.2023).

⁶ Regional Innovation Scoreboard (2023): Sydsverige (SE22). Available under:

<https://ec.europa.eu/docsroom/documents/45965> (last accessed 08.05.2023).



Figure 1: South Sweden, Skåne County and Blekinge County GDP 2000-2021 (in billion Euro)



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

The importance of **research & development (R&D)** in this region is highlighted when looking at its gross domestic expenditure on R&D. In 2019, approximately €2.7 billion was invested in R&D, accounting for 3.64% of the region's total gross domestic product (GDP).⁷ This places the region as the third-highest contributor to R&D expenditure in the country, after the regions of West Sweden and East-Central Sweden. This share is slightly higher than the national level at 3.39%, and significantly higher than the EU27 average of 2.22% in the same year. The majority of R&D expenditure in the region, 2.46% of total GDP, comes from the business enterprise sector. The higher education sector also makes a significant contribution to R&D expenditure, with 1.01% of total GDP, equivalent to €618.1 million. This share exceeds both the national level (0.8%) as well as the EU27 level (0.48%). Meanwhile, the government sector's R&D expenditure amounts to 0.16% of the region's GDP. The region's significant investment in R&D, particularly by the business enterprise and higher education sectors, demonstrates the importance placed on innovation and technological advancement and is reflected in the findings of the Regional Innovation Scoreboard and the Regional Competitiveness Index, as illustrated below.

Employment, GVA and Sector Specialisation in South Sweden

As per the statistics provided on the distribution of employment across various industries, the **service sector accounts for 73.2% of the overall employment in the region** in 2021, which is approximately equivalent to the national average of 72.3% and exceeds the EU27 average by approximately 10 percentage points⁸. In contrast, the Manufacturing industry has a significantly lower share of employment at 8.7%, which is lower than both the national and the EU27 average.

The left graph of Figure 2 provides a detailed breakdown of the most prominent economic sectors (NACE 2) within South Sweden with respect to employment. Notably, **Education is the largest sector in terms of**

⁷ Eurostat (2023): GERD by sector of performance and NUTS 2 regions. Available under https://ec.europa.eu/eurostat/en/web/products-datasets/-/RD_E_GERDREG (last accessed 11.05.2023).



employment, with roughly 82,000 persons employed. This makes up 11.7% of total employment in the region, slightly above the national level (11.1%). This sector's significance for the Swedish economy is emphasized by its comparison to the European average of 6.9%. Public administration and defence follow closely behind, accounting for 7.4% of total employment, slightly higher than the national level (7.1%). Human health and social work activities are also well-represented in the region, with human health activities comprising 6.4% of employment, and residential care activities and social work activities making up 4.4% and 3.2%, respectively. The importance of the services sector is also highlighted, with "Retail trade" and "Wholesale trade" featuring as the most prominent sectors in terms of employment, representing 6.1% and 5.1% of total employment, respectively.

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.⁹ The classification of the 14 industrial ecosystems has been calculated by aggregating NACE 2-digit activities, following the methodology established by the European Commission.¹⁰ The **Health Ecosystem** comprises the largest employment share across all ecosystems, reflecting the high share of human health and social work activities. Other notable ecosystems with a higher concentration than the EU27 average include **Digital, Cultural and Creative Industries, Proximity, Social Economy and Civil Security, as well as Digital**.¹¹ In this context, it is also worth mentioning **Agri-Food**, which accounts for 6.0% across all ecosystems in the region, exceeding the Swedish level (4.5%). This is particularly explained by the high number of persons employed in the sectors "Crop and animal production, hunting and related service activities", "Forestry and logging", and the "Manufacture of food products", with the latter making up a fourth of Sweden's total employment in the region. A more detailed depiction of employment across the different ecosystems is provided in the Annex.

For the purpose of analysing the specialisation in the region of South Sweden, this paper looks at the region's regionally relevant sectoral nodes.¹² The region exhibits five regionally relevant sectoral nodes, but no regionally relevant ecosystem nodes. The identified sectoral nodes comprise "Residential care activities", "Social work activities without accommodation," "Real estate activities," "Education," and "Sports activities & amusement & recreation activities". These specialisations within these **sectors mainly correspond to the Health and Proximity & Social Economy ecosystems**, with some linkages to the Creative & Cultural Industries and Tourism ecosystems.

⁹ see here for more information <https://clustercollaboration.eu/in-focus/industrial-ecosystems> (last access 08.05.2023).

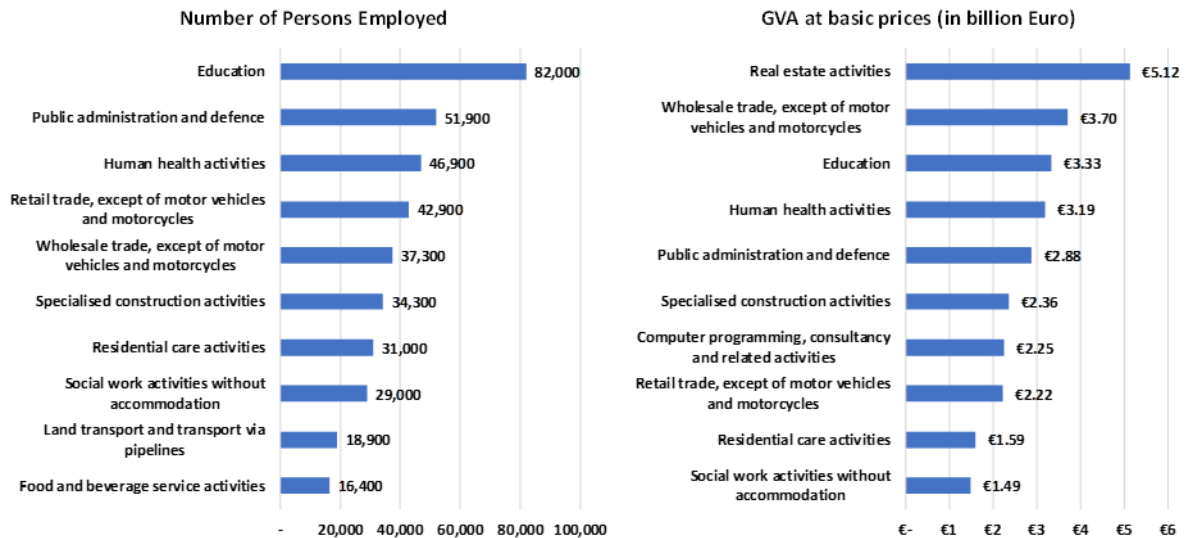
¹⁰ see European Commission (2021): Annual Single Market Report, SWD (2021), available online https://commission.europa.eu/system/files/2021-05/swd-annual-single-market-report-2021_en.pdf (last access 19.04.2023)

¹¹ These industrial ecosystems all exhibit a location quotient higher than one.

¹² 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.



Figure 2: Top 10 sectors for employment (left) and gross value added (right) in South Sweden (in 2020)



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

The graph presented on the right in Figure 2 illustrates the top ten sectors in South Sweden that have made the most significant contribution to **value added** at basic prices in 2020. Notably, the sector of “Real estate activities” stands out as the most prominent, accounting for a value of €5.12 billion. This is followed by sectors such as “Wholesale trade, except of motor vehicles and motorcycles” and “Education”, accounting for €3.7 billion and €3.33 billion, respectively. Sectors related to human health and social work activities are also represented in the top ten in terms of GVA, thus underscoring their importance to the economy of South Sweden. It is further noteworthy to mention that the sector of “Computer programming, consultancy and related activities” is positioned as the seventh highest contributor to value added at basic prices, having accounted for a total of €2.25 billion, highlighting the region’s contribution in the tech sector.

The analysis suggests that the sectoral composition in the economy of South Sweden presents 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. In the analysis, the significance of human health and social work activities, as well as the Health ecosystem for the region, was highlighted. Additionally, the employment data showed that the Agri-food ecosystem has relative strength, owing to a high percentage of employment in the agriculture and food production sectors. This is consistent with Skåne’s Innovation Strategy for Sustainable Growth¹³, which identifies **life science and health**, and **food** as two specialisation areas with potential for growth (see also Chapter 4).

Regional innovation level of the South Sweden region

This paper aims to examine the economic performance of the South Sweden region with a specific focus on clusters and how these are organised. To complement this chapter, the region’s economic profile, the Regional

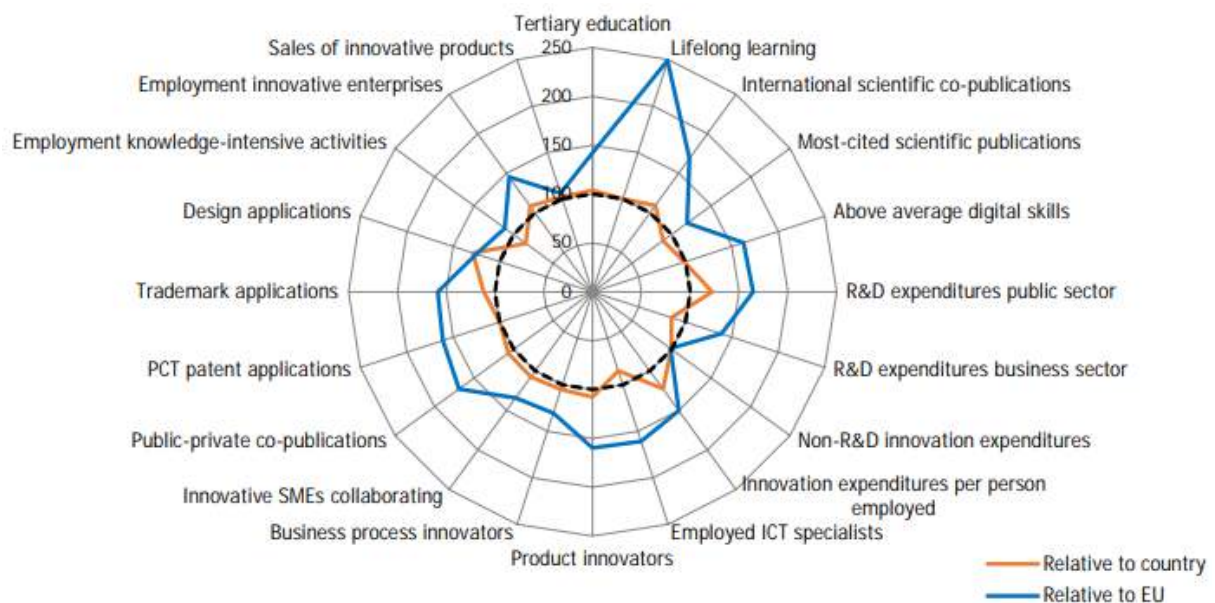
¹³ Forsknings-Innovationsådet | Skåne. Skåne’s Innovation Strategy for Sustainable Growth. Available under: https://utveckling.skane.se/siteassets/publikationer/firs_innovationsstrategi_2019_eng_220128_final-komprimerad.pdf (last access 08.05.2023).



Innovation Scoreboard (RIS) provides an avenue for assessing its level of innovativeness. The RIS framework is structured into the following four categories “Framework Conditions”, “Investments”, “Innovation Activities” and “Impacts”¹⁴. As mentioned before, the data provided by the Regional Innovation Scoreboard is only available at the NUTS-2 level (South Sweden).

There, the region of **South Sweden is classified as a “Leading Innovator”**¹⁵, with a considerable 13.4% increase in innovation performance from 2014 to 2021. This is a noteworthy observation that underscores the significance of the region’s capabilities. Figure 3 presents a radar graph highlighting the strengths of the region relative to Sweden and the EU. South Sweden displays a remarkable aptitude for research and science-driven development, as demonstrated by its above-average national and EU scores in “International scientific co-publications” and “Public-private co-publications. Additionally, the region’s high innovation scores in areas such as “R&D expenditures public and business sector”, “Innovation expenditures per person employed” and “PCT applications” are noteworthy. Furthermore, the scores for “Product Innovators”, “Sales of innovative products”, as well as “Employment in innovative enterprises” are also impressive compared to both Sweden and the EU. This can be attributed to the region’s emphasis on supporting research institutions whilst prioritising the effective transfer of knowledge and expertise in the private sector, thereby stimulating innovation and driving economic growth¹⁶.

Figure 3: Innovation performance of South Sweden in the Regional Innovation Scoreboard (2021)



Source: European Commission (2021): [Regional Innovation Scoreboard: Sweden 2021](#).

From a broader perspective, it is noteworthy that South Sweden’s performance across multiple categories significantly exceeds both the EU and national averages, except for “R&D expenditures in the business sector”,

¹⁴ European Commission (2021): Regional Innovation Scoreboard 2021 – Methodology report. Available under [DocsRoom - European Commission \(europa.eu\)](#) (last accessed 09.05.2023).

¹⁵ “Leading Innovator” implies that the region is found between 150% and 175% of the EU average of “innovators”.

¹⁶ Hunady, J. & Pisar, P. (2021): Innovation and invention in the EU business sector: the role of the research and development expenditures. Available under: <https://www.indecs.eu/2021/indecs2021-pp168-188.pdf> (last accessed 09.05.2023)



which registers a score lower than the national average. Although the region's proficiency in science-driven development is not as apparent at the national level, it is crucial to highlight the challenges faced in other areas. Specifically, indicators related to "Employed ICT specialists" and "Employment in knowledge-intensive activities" both exhibit scores below the national average. These lower scores may suggest that South Sweden faces obstacles in attracting and retaining highly skilled workers, which could limit the region's potential to thrive in the knowledge-based economy in the future. While this could be in part due to the aggregated score of both Skåne and Blekinge counties, one could consider this score as to help develop these areas so they are up to par with the region of Stockholm, the leading Swedish region in these categories. In order to tackle this challenge, it is recommended that tailored policies and strategies be formulated with the aim of promoting knowledge-based economic activities, investing in education and training initiatives, as well as cultivating an environment that is conducive to attracting highly skilled workers and businesses. Given the region's close proximity to Denmark and Germany, cross-border collaboration could play a significant role in drawing talented human capital from neighbouring EU countries and thus benefiting from knowledge transfers.

Regional competitiveness level of the South Sweden region

To conclude the chapter on the region's economic profile, the ranking of South Sweden in the **Regional Competitiveness Index**¹⁷. This index measures key aspects of competitiveness among regions across the EU in three dimensions: the Basic Sub-Index, the Efficiency Sub-Index and the Innovation Sub-Index.

A detailed overview of the region's performance in various indicators and dimensions of the Regional Competitiveness Index is provided in Figure 13 in the Annex. According to this, the region of South Sweden overall performs above the EU average, with a score of 120.5, ranking 28th out of all 234 regions assessed in the Regional Competitiveness Index. Particularly, the region stands out in the Basic Sub-Index and the Innovation Sub-Index, with a score of 128.3 and 136.4, respectively, while the Efficiency Sub-Index has a score of 111.4. In the Basic Sub-Index, all indicators outperform the EU average, with the indicator for institutions particularly standing out with a score of 153. In the Efficiency Sub-Index, the indicator for Higher education and Lifelong learning stands out, exceeding both EU and national scores. On the other hand, the indicator market size underperforms, with a score lower than the EU average. The high scoring of the Innovation Sub-Index can be traced back to its high performance in the indicators "Technological performance" (154.6) and "Innovation" (151.6), highlighting their focus on research & development. The high performance of South Sweden in this Innovation Sub-Index of the Regional Competitiveness Index is in line with the previously outlined score in the Regional Innovation Scoreboard.

¹⁷ https://ec.europa.eu/regional_policy/assets/regional-competitiveness/index.html#/SE/SE22 (last accessed 15.05.2023)



02

**Clusters in the Skåne
region and their
importance for regional
economic development**



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2. Clusters in the Skåne region and their importance for regional economic development

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

Clusters in the Skåne region

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 Skåne on the ECCP gives a first impression of the intensity of organisation in regional industrial networks.

Figure 4 displays the **geographical distribution of the cluster organisations in Sweden and the Skåne region**. Out of the total 1,108 registered EU-27 cluster organisations on the ECCP, there are 39 cluster organisations in Sweden of which 11 are located in South Sweden out of which 9 are in the region of Skåne. As displayed in Figure 4, the majority of cluster organisations in the Skåne region are located in Malmö (7 cluster organisation). Two ECCP-registered cluster organisations are located in Lund. Skåne's economy is closely intertwined with the neighbouring Danish capital city of Copenhagen where one of Skåne's cluster organisations, Medicon Valley Alliance, has its headquarters. The list of cluster organisations for the region can be consulted in the Annex.

Moreover, the Skåne region is also home to Clusters of Sweden¹⁸ as the national Swedish cluster association and the think tank, consultancy, and network builder MultiHelix¹⁹ which is registered on the ECCP as a cluster network and represents different clusters from the life science industries.

Looking at the region from a comparative perspective, South Sweden and especially Skåne and its 9 registered cluster organisations show the **highest number of ECCP-registered cluster organisations in Sweden**. Against the 11 cluster organisations in South Sweden (out of which 9 are located in Skåne), there are eight ECCP-registered cluster organisations in North-Central Sweden and five ECCP-registered cluster organisations in East-Central Sweden and West Sweden, respectively.

The ECCP-registered cluster organisations in Skåne can be related to six out of 14 different **EU Industrial Ecosystems**²⁰ (see also Table 2 in the Annex). These Industrial Ecosystems include Agri-food, Creative & Cultural Industries, Digital, Energy-intensive Industries, Renewable Energy and Tourism. The Copenhagen-based Medicon Valley Alliance adds the Industrial Ecosystem Health.

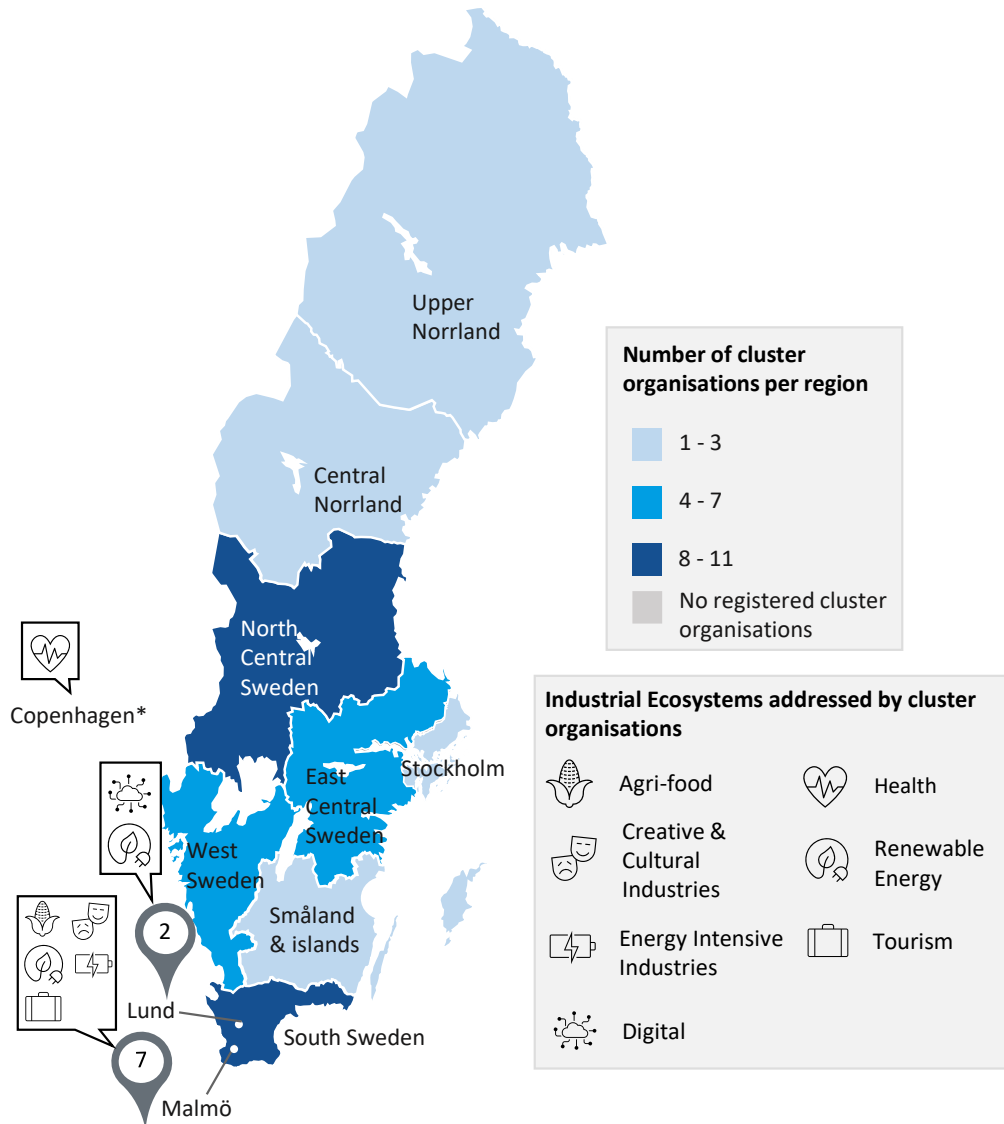
¹⁸ <https://clustersofsweden.com/> (last access 08.05.2023)

¹⁹ <https://www.multihelix.se/About-us> (last access 08.05.2023)

²⁰ see European industrial strategy. Available under: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en (last accessed 13.01.2023)



Figure 4: Overview of ECCP-registered cluster organisations in Sweden as well as regional and sectoral distribution of active cluster organisations in Skåne



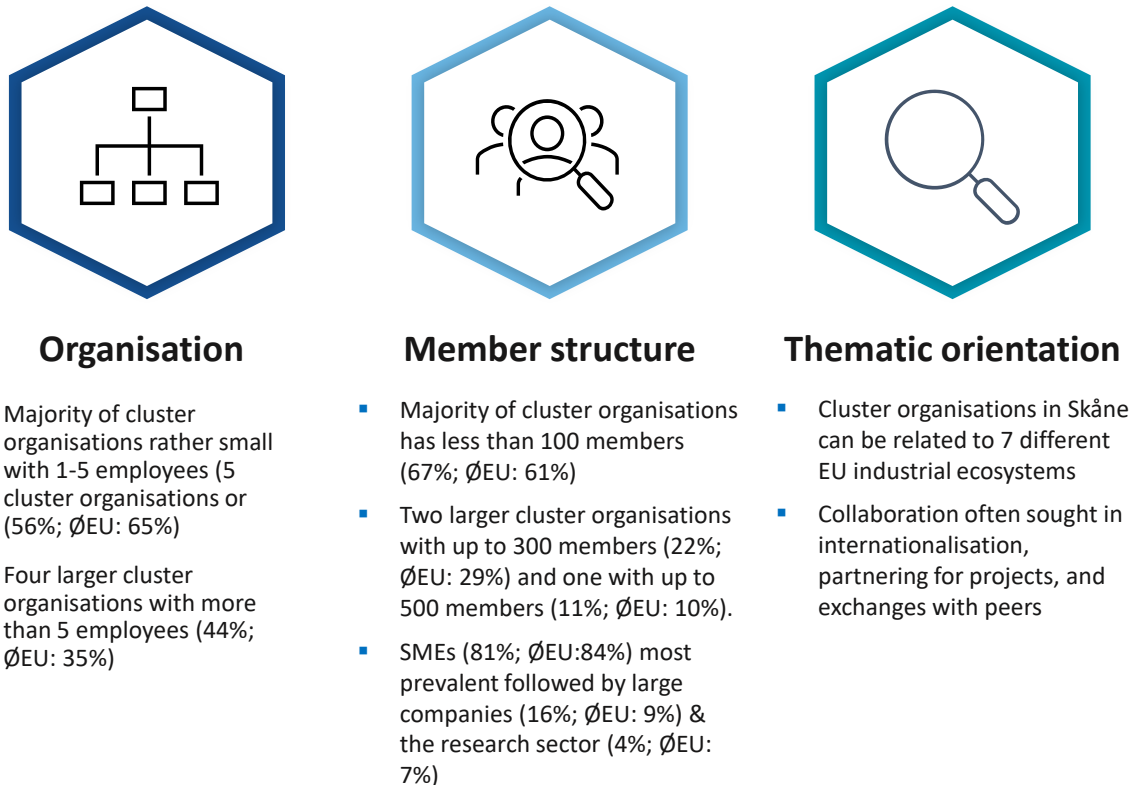
Source: ECCP (2023). Own elaboration based on <https://reporting.clustercollaboration.eu/all>; last accessed 05.05.2023. A full overview of the Skåne region cluster organisations is provided in Table 2 in the Annex. *The cross-border cluster organisation Medicon Valley Alliance is based in Copenhagen but its operational area includes Skåne.

As shown in Figure 5, **cluster organisations in Skåne** are mostly smaller and have between 1 and 5 employees. Nonetheless, four out of the nine cluster organisations have between 6 and 20 employees. With regard to the member structure, cluster organisations in Skåne are relatively rather small and have less than 100 members. Three larger cluster organisations have more than 100 cluster organisation members. SMEs account for most of the members of cluster organisations in Skåne (81%) which correspond roughly to the EU average. Large companies stand for 16% of the members of cluster organisations in Skåne (EU average: 9%) followed by research organisations with 4% (EU average: 7%). Cluster organisations from Skåne seek collaboration primarily in the



areas of partnering for projects, internationalisation, and exchanging with peers. Moreover, one cluster organisation from Skåne has been awarded with the Gold Label of Cluster Excellence, three with the Silver label and two with the Bronze Label.

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



Source: ECCP (2023).

The importance of clusters for regional economic competitiveness

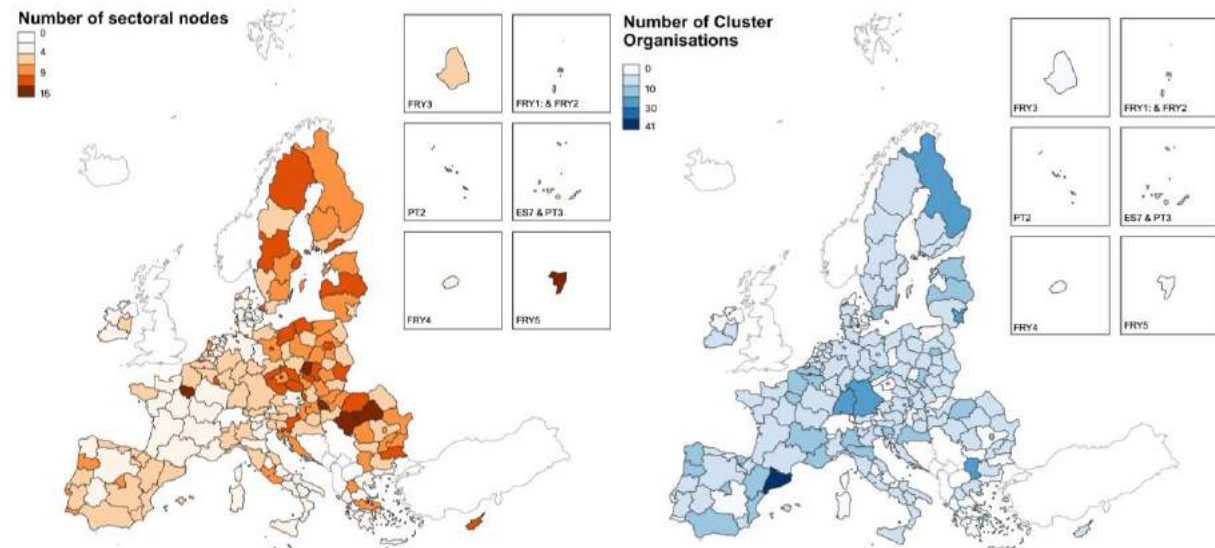
The European Cluster Panorama Report (2021) examines the relationship between clusters and regional competitiveness. The stand-out findings of this report showcase how the presence of cluster organisations is positively correlated with economic indicators such as GDP per capita, labour productivity, as well as business R&D expenditure. While public R&D expenditure is merely positively correlated with industry-relevant nodes²¹, 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.

²¹ 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%).



Figure 6 as seen below, one can see how industries in Skåne represent a medium number of region-relevant specialisation nodes²² and a medium number of cluster organisations, in comparison to other European regions.

Figure 6: Distribution of region-relevant sector specialisation nodes and cluster organisations in EU27



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)²³ 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, 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 14 in the Annex. In the context of the Skåne region, 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). The remainder of this chapter will look at the policy context for cluster development at the national as well as the regional level.

²² 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%).

²³ 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 accessed 06.03.2023).



Cluster policy at national and regional level

The development of clusters has been a tool in business sector development in Sweden since the late 1990s. A study²⁴ found that despite the private sector and academia encouraging cluster development, Swedish economic policy had for a long time taken a sceptical stance. Sweden has a long academic tradition of collaboration in specific geographic contexts. Furthermore, enterprises, academia, and the public sector have on their own initiative shared an interest in innovation systems and triple helix collaboration. The 2004 national strategy for innovation introduced the cluster terminology in the context of a major economic policy strategy. Six sector-specific industrial strategies for the leading sectors of the Swedish economy were established on the background of the strategy.

Since the second half of the 1990s, a focus has been on policies that could increase economic growth by exploiting growth potential in all regions of the country. The geographical county or region was thus given increased responsibility for stimulating the country's growth, something that was previously primarily seen as a national matter. Focus on innovation based on local and regional conditions, therefore, became a central part of the regional growth policy. The **cluster policy of the Skåne Region 2017-2021**²⁵ is a good illustration of this. In the 1990s, the regional authorities established a development structure to encourage and support innovative entrepreneurship. At the beginning of the 2000s, the region introduced sectoral triple helix collaboration for increased competitiveness and thereby turned the policy focus from traditional clusters and corporate networks to regional innovation systems and international collaborations. From the 2010s and onwards, the region has a policy emphasis on challenge-driven innovation for global competitiveness.

The defining Swedish national cluster policy is the “**National strategy for sustainable regional development throughout the country 2021-2030**”²⁶. Among the key strategic areas and priorities of this policy is strengthening innovation capacity, especially in SMEs and between the private sector and R&I actors in general. The National strategy has prioritised innovation and entrepreneurship, attractive environments and accessibility, provision and skills and international cooperation. The strategy is focused on giving the regions the opportunity to grow and develop based on their own specific regional conditions. This requires efforts and collaboration in a variety of sectors and at all levels of society. The strategy has no focus on specific sectors, i.e. a broad focus as the focus lies on regional development as such. Nevertheless, it includes national priorities for regional policy 2021-2023 and puts the main focus on:

- Accommodation, work & welfare
- Competence development & provision
- Innovation & entrepreneurship
- Digital communication
- Transport

The strategy is issued by the Swedish Ministry for Enterprise and Innovation and decided in the Swedish parliament. The strategy is central to the regional development policies as national as well as regional authorities

²⁴ Ketels, C. (2009): Clusters, Cluster Policy and Swedish Competitiveness in the Global Economy. Available online: <https://www.hhs.se/contentassets/f51b706e1d644e9fa6c4d232abd09e63/clustersclusterpolicyswedishcompetitivenessd6e53822.pdf> (last access 08.05.2023)

²⁵ <https://utveckling.skane.se/siteassets/publikationer/klusterprogram-eng.pdf> (last access 30.05.2023)

²⁶ <https://www.regeringen.se/contentassets/53af87d3b16b4f5087965691ee5fb922/nationell-strategi-for-hallbar-regional-utveckling-i-hela-landet-20212030/> (last access 08.05.2023)



play an important role in the implementation of the strategy. The main beneficiaries of the strategy are companies (of all kinds), research and academic institutions. Clusters are mentioned concerning cooperation possibilities between different types of actors. Moreover, the strategy sees cluster as one central input towards strong regional innovation systems and smart specialisation but also in the area of a sustainable economy.

The role of the innovation agency **Vinnova**²⁷ can also be highlighted as it plays a crucial role in Sweden and follows the aim of linking economic-technological competitiveness and societal problem-solving. Moreover, Vinnova has a focus on developing intensive cooperations in the Swedish innovation system. To pursue these aims, Vinnova offers a variety of services which include the development, coordination, and implementation of innovation policies as well as the bundling expertise. Other fields of work include the steering of innovation processes and mediation between different sectors and levels of action. In its role as an innovation agency, Vinnova also provides and supports in finding suitable funding sources for projects. The majority of Vinnova's funding is spent on projects of SMEs and thereby especially supporting their cooperation with scientific actors. The **Vinnväxt**²⁸ programme for clusters offered by Vinnova is an important source of funding for regional clusters. The programme, which is run by Swedish Innovation Agency Vinnova since 2001, is the flagship project of Swedish cluster policies. In 2003, the first three regional clusters were selected through national calls for proposals for a ten-year programme with up to approx. EUR 600-800 000 annual funding per innovation cluster, along with advisory and process support. Another five clusters were selected in 2004 and four more in 2008 were admitted to the programme. New clusters have been selected in 2013, 2016 and 2019: three clusters at each time. The programme generally enjoys high marks internationally. Vinnväxt programme aims to promote sustainable innovation-driven regional growth by developing internationally competitive research and innovation environments in specific growth fields. The 10-year-funding-cycles are indeed long-term funding which cluster organisations praise as a huge benefit for the proper establishment of projects.

In conclusion, the Skåne region is characterised by one of the strongest cluster landscapes in Sweden and an extensive cluster support system stretching national and regional levels. Evidence from the EU Cluster Panorama Report (2021) in connection with Ketels & Protsiv (2021) further supports the case for cluster organisation as a proven method to stimulate long-term growth and innovative activity on a regional level.

²⁷ <https://www.vinnova.se/en/about-us/> (last access 09.02.2023).

²⁸ <https://www.vinnova.se/en/m/ecosystems-for-innovative-companies/winegrowing/om-vinnvaxt/> (last access 08.05.2023)

03

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



EUROPEAN CLUSTER
COLLABORATION PLATFORM

Strengthening the European economy through collaboration



3. Cross-border cooperation and the involvement of Skåne 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.²⁹ To gain an overview of the existing cross-border cooperation of Skåne clusters, a closer look will be taken in this chapter on the involvement of Skåne clusters in European support initiatives with a focus on the **2014-2020 funding period** as well as the Joint Cluster Initiatives (Euroclusters) for Europe's recovery of the **2021-2027 funding period**³⁰ (see Figure 6).

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

2014-2020 funding period				2021-2027 funding period
 <p>INNOSUP-1</p> <ul style="list-style-type: none"> • Horizon 2020 initiative • Development of new cross-sectoral industrial value chains across the EU 	 <p>ESCP-4i</p> <ul style="list-style-type: none"> • COSME initiative • Development and implementation of joint internationalisation strategies to support SME internationalisation 	 <p>ESCP-4x</p> <ul style="list-style-type: none"> • COSME initiative • Boost the cross-cluster networking and learning within the EU and development of cluster management excellence 	 <p>ESCP-S3</p> <ul style="list-style-type: none"> • COSME initiative • Boost cluster cooperation in specific thematic areas in the field of regional smart specialisation strategies 	 <p>Euroclusters</p> <ul style="list-style-type: none"> • Single Market Programme • Support the implementation of the EC industrial strategy through cross-sectoral, interdisciplinary and trans-European cluster initiatives

Source: ECCP (2023)

Involvement of Skåne 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).³¹

²⁹ 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 under: <https://op.europa.eu/en/publication-detail/-/publication/a2c3e9e1-3deb-11ec-89db-01aa75ed71a1/language-en/format-PDF/source-241039860> (last access on 10.01.2023).

³⁰ For more information on the Euroclusters see: https://eisma.ec.europa.eu/funding-opportunities/calls-proposals/joint-cluster-initiatives-euroclusters-europes-recovery_en (last access on 10.01.2023).

³¹ For more information on the European Cluster Partnerships see: <https://clustercollaboration.eu/eu-cluster-partnerships> (last access 13.01.2023).



In total, the three cluster and network organisations Media Evolution Southern Sweden, Packbridge and Sustainable Business Hub Scandinavia participated in seven ESCP-4i projects with 33 partners coming from 12 countries (ES, FR, DE, DK, BE, IT, AT, PT, SE, CZ, NL, HU). The thematic focus of the partnerships was on autonomous driving, cleantech solutions and advanced smart packaging. Target markets of the ESCP-4i partnerships were besides others Canada, USA, Singapore, China and United Arab Emirates.

Figure 8 gives an overview of the three different ESCP-4i partnerships with involvement of the Media Evolution Southern Sweden, Packbridge and Sustainable Business Hub Scandinavia.

Figure 8: Overview of ESCP-4i partnerships with involvement of cluster organisations from the Skåne region



Source: ECCP (2023), based on data extracted from the COSME data hub (04.05.2023).

Involvement of Skåne cluster organisations in the INNOSUP-1 initiative

Apart 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.³² The INNOSUP-1 initiative aimed at boosting the cross-sectoral and cross-border cooperation in consortia of European cluster organisations and other relevant innovation intermediaries.³³ An innovative approach of the INNOSUP-1 initiative was that it consisted of 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.

From the Skåne region, the three Swedish cluster and network organisations Innovation Skane, Skanes Livsmedelsakademi and Ideon AB were involved in the three INNOSUP-1 projects with the names “Cross4Health”, “INCluSilver” and “NEPTUNE”. The thematic focus of the projects was on sector like the aerospace sector,

³² For more information on the ESCPs and the INNOSUP-1 initiative see: <https://clustercollaboration.eu/eu-cluster-partnerships> (last access 04.02.2022).

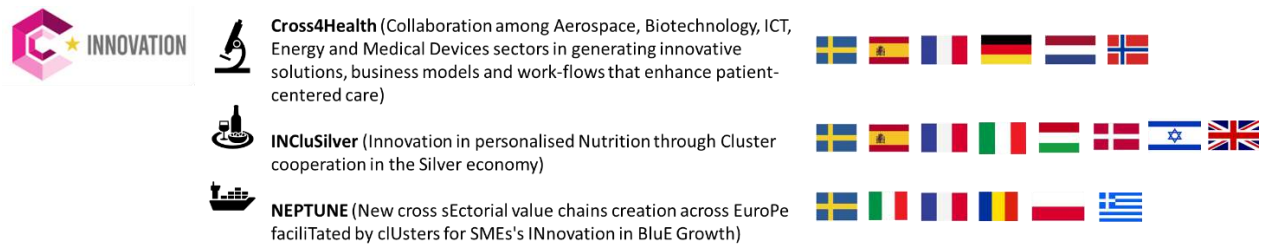
³³ European Commission (2020): Study on the effectiveness of public innovation support for SMEs in Europe . Annex E, INNOSUP evaluations. Available under: <https://op.europa.eu/en/publication-detail/-/publication/888d351a-9d97-11eb-b85c-01aa75ed71a1/language-en> (last access 10.01.2023).



biotechnology, ICT, energy, medical devices, silver economy and blue growth. The organisations from the Skåne region cooperated in the projects with a total of 29 partner organisations coming from 15 different countries (FR, ES, UK, SE, NO, NL, DE, EL, DK, IT, HU, IE, RO, PL).

Figure 9 shows an overview of the three INNOSUP-1 partnerships with involvement of the Swedish cluster and network organisations Innovation Skane, Skanes Livsmedelsakademi and Ideon AB.

Figure 9: Overview of INNOSUP-1 projects with involvement of cluster organisations from the Skåne region



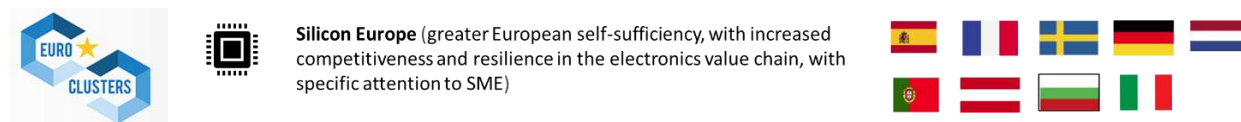
Source: ECCP (2023), based on data extracted from the Horizon data hub (04.05.2023).

Involvement of Skåne cluster organisations in the Euroclusters (2021-2027 funding period)

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 Euroclusters initiative aims at supporting cross-sectoral, cross-regional European industry clusters supporting small and medium enterprises through cascade funding.

From the Skåne region, the cluster organisation Mobile Heights³⁴ is involved in the Eurocluster “Silicon Eurocluster” (see Figure 10). Silicon Eurocluster aims at increasing and strengthening the competitiveness and resilience of SMEs which are part of the electronics value chain. A special focus is put on the micro- and nanoelectronics sector. With its activities, the Eurocluster wants to EU Chips Act.³⁵ In total, 9 other partner organisations from eight other European countries (FR, ES, NL, IT, AT, DE, PT, BG) are involved in Silicon Eurocluster.³⁶

Figure 10: Project consortium of the Silicon Eurocluster



Source: ECCP (2023).

³⁴ See more for additional information on Mobile Heights: [Mobile Heights - Silicon Europe \(silicon-europe.eu\)](https://silicon-europe.eu) (last access on 03.05.2023).

³⁵ European Commission: European Chips Act. Available at: [European Chips Act \(europa.eu\)](https://europa.eu) (last access on 03.05.2023).

³⁶ For more information on the Silicon Eurocluster and its activities see: [Eurocluster - Silicon Europe \(silicon-europe.eu\)](https://silicon-europe.eu) (last access on 03.05.2023).



04

Smart Specialisation in the Skåne region



**EUROPEAN CLUSTER
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Strengthening the European economy through collaboration

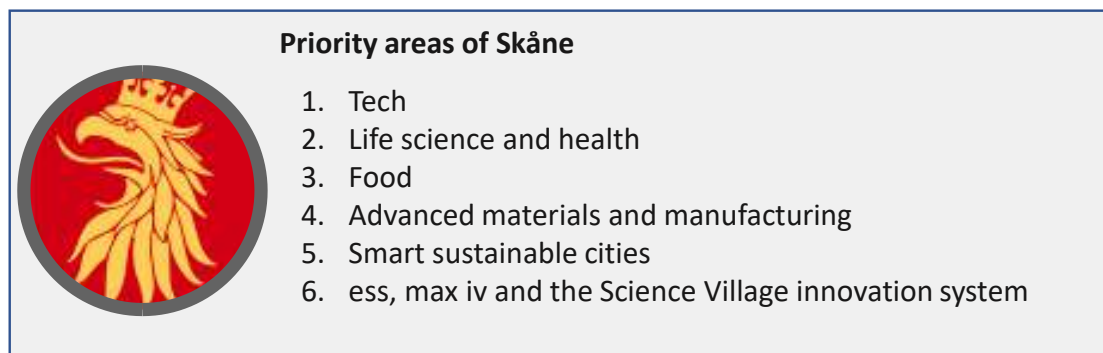
4. Smart Specialisation in the Skåne region

Cluster organisations (can) play an important role in the design and implementation of Smart Specialisation Strategies (S3) since in both concepts, the facilitation 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 Process³⁷ (EDP). Against this background, this chapter focuses on Smart Specialisation in the Skåne region. Before delving into the examination of the S3 of Skåne, it needs to be highlighted that in Sweden the S3 are traditionally designed at a granular regional level (NUTS3).

S3 of the Skåne region

A key starting point for the analysis of Smart Specialisation in the Skåne region is Skåne’s Innovation Strategy for Sustainable Growth³⁸. This innovation strategy is part of Skåne’s Regional Development Strategy (The Open Skåne 2030) and was developed by the Research and Innovation Council of Skåne. The Research and Innovation Council of Skåne is a forum of collaboration composed of a variety of actors from the public, private and the academic sector. Cluster organisations are represented through the board of the cluster organisations in the Research and Innovation Council of Skåne. Skåne’s Innovation Strategy for Sustainable Growth³⁹ was published in 2020 and builds upon a previous International Innovation Strategy for Skåne 2012–2020.

Figure 11: Priority areas of Skåne region



Source: ECCP (2023), own elaboration based on Skåne’s Innovation Strategy for Sustainable Growth⁴⁰.

In the Skåne Innovation Strategy for Sustainable Growth⁴¹ six priority areas are defined. These are displayed in Figure 11. These priority areas address a wide range of topics ranging from “Tech” (with a focus on hardware and software) over “Food” to “Smart sustainable cities”. With the exception of “ess, max iv and the Science Village innovation system” all the priority areas are based on existing business

³⁷ 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 on 13.01.2023)

³⁸https://utveckling.skane.se/siteassets/publikationer/firs_innovationsstrategi_2019_eng_220128_final-komprimerad.pdf (last access 08.05.2023)

³⁹https://utveckling.skane.se/siteassets/publikationer/firs_innovationsstrategi_2019_eng_220128_final-komprimerad.pdf (last access 08.05.2023)

⁴⁰https://utveckling.skane.se/siteassets/publikationer/firs_innovationsstrategi_2019_eng_220128_final-komprimerad.pdf (last access 08.05.2023)

⁴¹https://utveckling.skane.se/siteassets/publikationer/firs_innovationsstrategi_2019_eng_220128_final-komprimerad.pdf (last access 08.05.2023)

clusters in the region. The priority area “ess, max iv and the Science Village innovation system”⁴² can be regarded as cross-cutting and future-focused. ESS and Max iv are research facilities, and this priority area has the aim of developing innovation systems in which different innovation actors are involved through extensive collaboration.

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.

⁴² For more information see <https://www.vr.se/english/national-collaboration-for-ess-and-max-iv/the-research-facilities-ess-and-max-iv.html> (last access 24.05.2023)

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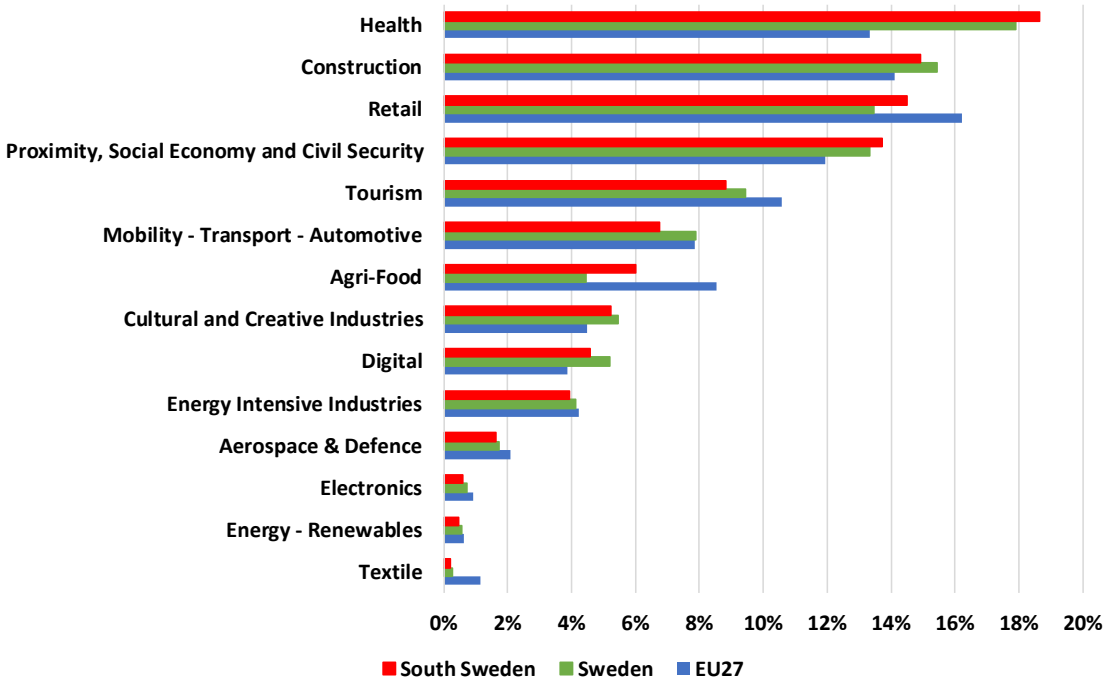
Prognos et al. (2021): Evaluation Study of & Potential Follow-Up to Cluster Initiatives under COSME, H2020 & FPI (DG GROW, Unit D2 - Industrial Forum, alliances, clusters). Study on behalf of the European Commission. Available under: <https://op.europa.eu/en/publication-detail/-/publication/a2c3e9e1-3deb-11ec-89db-01aa75ed71a1/language-en/format-PDF/source-241039860> (last access on 10.01.2023).

Annex

Employment across the industrial ecosystems

Figure 12 depicts the share of the number of persons employed across the fourteen industrial ecosystems. According to this figure, the largest ecosystem in the region of South Sweden is Health, with a total employment of around 116,000, representing 18.7% of the total number of persons employed in the region. This share exceeds both the national level (17.9%) and the EU level (13.3%), indicating the importance of this ecosystem for the region. This is followed by Construction, with a share of 14.9%, which is slightly lower than at the national level (15.4%) but higher than at the EU27 level (14.1%). Moreover, other ecosystems, such as Proximity, Social Economy and Civil Security, Culture and Creative Industries and Digital, stand out as exhibiting a higher share than the EU27 average. Particularly the former ecosystem plays a significant role in the region, with a share of 13.7% across all ecosystems, having a higher share than the national and EU 27 levels. Furthermore, albeit being smaller than the EU27 level, South Sweden's Agri-Food ecosystem contributes 6% to employment across all ecosystems, which is higher than the national level of 4.5%.

Figure 12: Employment in the Ecosystems



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

Regional Innovation Scoreboard

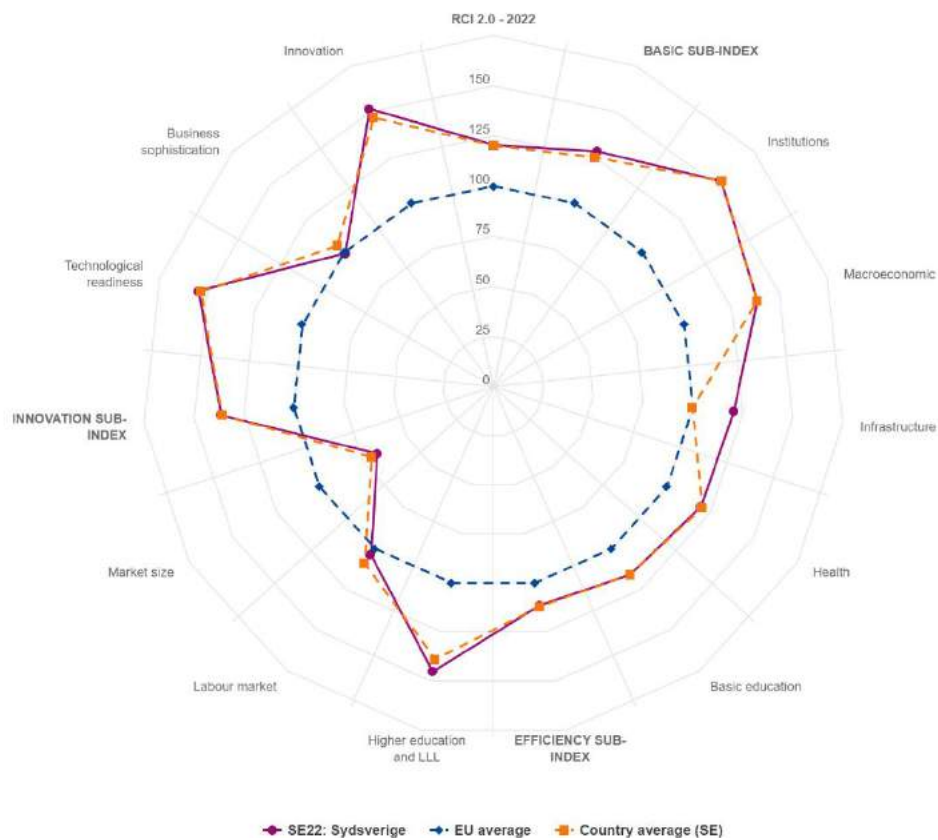
Table 1: Key socio-economic and sectoral indicators of South Sweden, Sweden and the EU27

	South Sweden	Sweden	EU27
GDP per capita (PPS)	31,500	37,000	31,200
GDP per capita growth (PPS)	0.98	1.18	3.21
Population density	110	25	109
Urbanisation	52.0	60.9	75.3
Population size (000s)	1,540	10,330	446,450
Share of employment in:			
Agriculture & Mining (A-B)	1.7	1.9	4.6
Manufacturing (C)	8.7	10.0	16.4
Utilities & Construction (D-F)	8.2	8.0	8.2
Services (G-N)	73.2	72.3	62.9
Public administration (O-U)	7.5	7.2	7.1
Average number of employed persons per enterprise	3.5	3.9	5.2

Source: European Commission (2021): Regional Innovation Scoreboard 2021

Regional Competitiveness Index

Figure 13: South Sweden in the Regional Competitiveness Index



Source: https://ec.europa.eu/regional_policy/assets/regional-competitiveness/index.html#/SE/SE22 (last access 10.05.2023)

List of cluster organisations in the Skåne

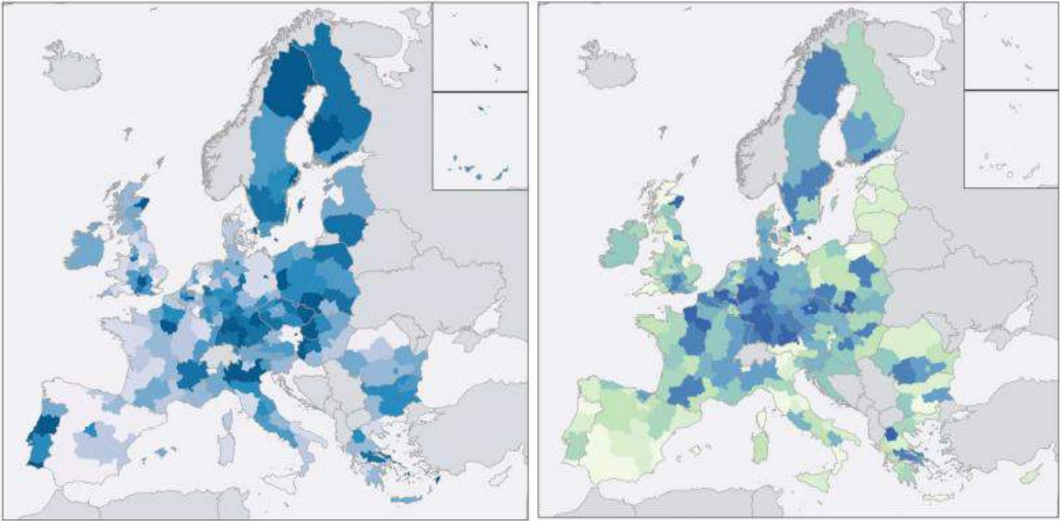
Table 2: Overview of cluster organisations in Skåne and their addressed EU Industrial Ecosystems

N°	Cluster organisation	Industrial Ecosystem
1	Cleantech Scandinavia	Renewable Energy
2	Visit Skåne	Tourism
3	Game Habitat Southern Sweden AB	Creative & Cultural Industries
4	IUC Syd	Energy-intensive Industries
5	Media Evolution Southern Sweden	Creative & Cultural Industries
6	Packbridge AB	Energy-intensive Industries
7	Skane Food Innovation Network	Agri-food
8	Sustainable Business Hub	Renewable Energy
9	Medicon Valley Alliance	Health
10	Mobile Heights	Digital

Source: ECCP (2023) and own adaptations.

Indicators of cluster strength

Figure 14: 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 EU Industrial Ecosystems

Figure 15: 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