EUROPEAN CLUSTER COLLABORATION PLATFORM

Input paper on the cluster policy landscapes and collaboration opportunities in the European Union and Canada

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Table of contents

Figures

Tables

Abbreviations

BL-NCEs	Business-Led Networks of Centres of Excellence (CA)
CAD	Canadian Dollar
CECRs	Centres of Excellence in Commercialisation and Research (CA)
DG GROW	Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (EU)
ECCP	European Cluster Collaboration Platform (EU)
EU	European Union
EUR	Euro
ESCP	European Strategic Cluster Partnership (EU)
ESCP-4i	ESCP for Going International (EU)
ESCP-4x	ESCP for Excellence (EU)
ESCP-S3	ESCP for Smart Specialisation (EU)
GIC	Global Innovation Clusters (CA)
INNOSUP	Innovation in SMEs programme (EU)
ISED	Innovation, Science and Economic Development Canada (CA)
ISI	Innovation Superclusters Initiative (CA)
NCE	Networks of Centres of Excellence (CA)
S3	Smart Specialisation Strategy (EU)

Executive Summary

The input paper presents the cluster policy landscapes and collaboration opportunities in the European Union (EU) and Canada. In the first part of the paper, the state of play of Canadian and EU trade relations is presented by focusing on the different economic profiles and key value chains of the EU and Canada as well as the existing cluster landscapes and policies in the EU and Canada. In the second part of the paper, a closer look is taken at existing and possible future cluster cooperation between the EU and Canada.

Economic profiles of the EU & Canada and key value chains

Canada has a diverse economy that encompasses various sectors, contributing to its overall growth. Despite challenges like the 2008-09 global financial crisis and the COVID-19 pandemic, Canada has shown resilience and rebounded with positive GDP growth. The EU27 Member States have also demonstrated consistent economic growth over the years, with periods of contraction during global crises. Regarding trade flows, the EU27 imported goods from Canada worth EUR 24.9 billion in 2021, while exporting goods worth EUR 38.8 billion, resulting in a trade surplus of EUR 13.89 billion for the EU. The analysis of trade flows highlights several key value chains in EU and Canadian trade, which present the potential for further cooperation between the two. These value chains are linked to the EU Industrial ecosystems such as aerospace and defence, agri-food, digital, health, mobility-transport-automotive, and renewable energy. The importance of raw materials, such as hydrogen for renewable energy, is also emphasized and expected to increase in future EU and Canadian trade flows.

Boosting cluster organisations in innovation ecosystems: Cluster policy landscape in the European Union and Canada

In the EU, cluster policy is implemented at various levels. The European Union offers supranational cluster support initiatives through the European Cluster Collaboration Platform (ECCP) and Joint Cluster Initiatives (Euroclusters). These initiatives aim to facilitate cross-regional cooperation among European cluster organizations, focusing on 14 Industrial ecosystems. The EU initiatives build upon previous programs such as the European Strategic Cluster Partnership (ESCP) and INNOSUP-1. In addition to the EU initiatives, the EU27 Member States also implement their own national and regional cluster programs. In Canada, the central national policy for clusters is the Global Innovation Clusters (GICs). These clusters operate at a country-wide level and focus on five key industries. The goal of the GICs is to build world-leading innovation ecosystems that enhance competitiveness, productivity, employment, and overall growth. Additionally, there are regional and network programs in Canada that support further cluster development.

Past and future of EU-Canadian cluster collaboration

The geographical distribution of cluster organizations within the EU shows that countries like Spain, Germany, and France have the highest absolute numbers of cluster organizations with profiles on the European Cluster Collaboration Platform (ECCP). The most prevalent EU Industrial ecosystem among profiled cluster organizations is "Digital," followed by "Agri-food" and "Health." In Canada, cluster development is supported by programs at different levels of government, both national and regional. The Global Innovation Clusters play a central role in boosting Canada's competitiveness in key industrial ecosystems. The GICs have distinct core regions but are national in scope. British Columbia, Ontario, and Quebec have the largest number of project partnerships. SMEs constitute half of the project partners across all cluster organizations, followed by large firms and research organizations.

Directly comparing the cluster landscapes in Canada and the EU is challenging due to data limitations and different governance structures. While Canadian clusters benefit from national and provincial support schemes, the EU adds a supranational layer of support.

Outlook: Potentials for future EU-Canadian cluster collaboration

Findings show that future cluster collaboration between Canada and the European Union can be based on existing strategies such as the Canada-EU Strategic Partnership Agreement (SPA) and the Canada-EU Comprehensive Economic and Trade Agreement (CETA). The third EU-Canada Joint Ministerial Committee concluded that cooperation in the fields of digital economy and emerging technologies will have a more important role in the upcoming years. In this context, the Global Partnership on Artificial Intelligence (GPAI) was introduced to enhance synergies in tackling the digital transition. Additionally, a Strategic Partnership on Raw Materials was initiated to intensify cooperation on raw materials and ensure stable supply chains.

Regarding cluster cooperation, an administrative agreement between Canada's Department of Industry and the EU's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) was established in 2019. The agreement aims to facilitate strategic business partnerships and linkages between cluster organizations and SMEs in the EU and Canada's five Global Innovation Clusters. Both Canada's Global Innovation Clusters and the European Euroclusters are already active in common sectors of interest for future cluster cooperation, including aerospace and defence, agri-food, digital, health, mobility-transport and automotive, and renewable energy.

Around 380 cluster organizations registered on the European Cluster Collaboration Platform (ECCP) indicate expertise in these sectors, particularly in digital industries, agri-food, health, and renewable energy. Canada’s Global Innovation Clusters also offer expertise relevant to the identified sectors. For example, Canada’s Digital Cluster has identified health as a strategic priority, the Protein Industries Cluster is forging partnerships within the agri-food sector to grow Canada’s global share of plant-based food products, and the Next Generation Manufacturing Cluster is advancing several initiatives to develop Canada’s electric vehicle manufacturing value chain. Out of the 30 Euroclusters in total, eight stand out as both indicating Canada as a target market and being active in common sectors of interest (see Box 5 in the Annex), suggesting potential for thematic cluster cooperation between Euroclusters interested in the Canadian market and the Global Innovation Clusters.

01

Setting the scene: Importance of cluster organisations

EUROPEAN CLUSTER COLLABORATION PLATFORM

Strengthening the European economy through collaboration

1. Setting the scene: Importance of cluster organisations

Canada's Global Innovation Clusters and the **European Union's Euroclusters** are among the latest iterations in the development of cluster policy. In recent decades, cluster support has become part of the standard repertoire of industrial and innovation policy.[1] Research has shown that the geographical clustering of certain economic sectors enhances collaboration on innovation and supply chains and boosts growth and job creation.[2] Following these insights, governments around the globe have put in place policy programmes to support the emergence and development of clusters through deliberate and targeted promotion by cluster organisations. The EU and Canada have both established dedicated and comprehensive cluster policies that support the creation and activities of cluster organisations.

The **EU's cluster support toolkit** includes a wide range of financial and technical instruments organised around the European Cluster Collaboration Platform (ECCP).[3] It provides a platform for networking, knowledge exchange, foresight, market intelligence, and cluster policy analysis. A correlation analysis of over 1,087 clusters in the European Union that are registered on the ECCP showed strong positive results for business R&D expenditure as well as weak positive correlations for several other regional competitiveness indicators.[4]

According to Michael Porter's widely recognised conceptualisation[5], **clusters can exist at different levels** and in different sizes from metropolitan areas to regions to countries and even in cross-border formations. While clusters are often perceived at the local or regional level, there is no such limitation in principle. A recent report on global cluster policymaking identifies a trend from "small, regional innovation clusters to fewer, stronger innovation Superclusters"[6]. Innovation superclusters are defined as "massive innovation systems, built around a

[1] See ECCP (2022): Summary report on cluster policies and programmes across Europe and priority third countries. 2022 edition. European Cluster Collaboration Platform. 15 December 2022. https://clustercollaboration.eu/sites/default/files/sites/default/files/editor/ECCP_Summary%20report%20cluster%20policies_2022_finalv2.pdf (last access 02.05.2023).
See also: EOCIC (2019): Cluster programmes in Europe and beyond. European Observatory for Clusters and Industrial Change. May 2019. https://op.europa.eu/en/publication-detail/-/publication/d7f45b00-81c0-11e9-9f05-01aa75ed71a1/language-en (last access 02.05.2023).

[2] See, among others, Ketels, C. & Protsiv, S. (2021): Cluster presence and economic performance: a new look based on European data, Regional Studies, 55:2, 208-220. Available at: https://www.tandfonline.com/doi/full/10.1080/00343404.2020.1792435 (last access 15.06.2023); Terstriep, J. & Lüthje, C. (2018): Innovation, knowledge and relations – on the role of clusters for firms' innovativeness, European Planning Studies, 26:11, 2167-2199. Available at: https://www.tandfonline.com/doi/full/10.1080/09654313.2018.1530152 (last access 15.06.2023); Humphrey, J. & Schmitz, H. (2002): How does insertion in global value chains affect upgrading in industrial clusters? Regional Studies, 36:9, 1017-1027. Available at: https://www.tandfonline.com/doi/abs/10.1080/0034340022000022198 (last access 15.06.2023).

[3] The ECCP can be accessed at: https://clustercollaboration.eu/ (last access 02.05.2023). An overview of the EU's cluster policy activities can be consulted at: https://single-market-economy.ec.europa.eu/industry/strategy/cluster-policy_en (last access 02.05.2023).

[4] Including human resources in science, technology, patent generation, labour productivity, presence of the ICT sector and GDP per Capita. See ECCP (2022): Summary report, p. 27, and Figure 14 in the Annex.

[5] Porter, M. (1998): Clusters and the New Economics of Competition. Harvard Business Review Nov-Dec 1998. https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition (last access 26.04.2023).

[6] Rangen, C.; Chaverri, R.; Foo-Hodne, J. (2021): National Cluster Programs – A Global Perspective. Report for Canada's Innovation Supercluster Program. A publicly available version can be consulted at: https://www.strategytools.io/rise-of-innovation-superclusters/ (last access 25.04.2023).

single theme." They are designed to target industries of the future and have a dedicated mission not only to strengthen existing comparative advantages but also to have a transformative impact on the economic structure. They follow a "contemporary trend in innovation policy, particularly in Europe, to focus on strengthening the performance of the innovation system as a whole by intervening to improve the system's linkages, rather than concentrating on the individual actors."[7]

The Canadian Global Innovation Clusters and the European Union's Euroclusters programmes are both policy programmes that operate above the regional level and aim to foster wider collaborative networks focused on pushing their economies towards new technologies and tackling big challenges. They are both linked to the implementation of broader industrial strategies: the European Commission's industrial strategy[8] on the one hand and the Canadian innovation and skills plan[9] on the other. In doing so, they link established cluster policy objectives to goals of industrial development strategy more generally. The paper explores how Canada's and the EU's policy programmes incorporate these strategic linkages.

The following paper provides an **overview of the cluster policy landscape in the European Union and Canada** as well as insights into the **economic and trade relations** of the European Union and Canada. By further analysing existing cluster cooperation and key thematic priority areas, the paper will present considerations on prospective cluster collaboration in the future. Chapter 2 provides insights into the economic strengths and trade flows of the European Union and Canada. Given the shared emphasis placed on digitalisation, sustainable growth, and resilience and the importance of cluster policy by both the EU27 and Canada, Chapter 3 outlines the key characteristics, similarities and differences concerning cluster policy landscapes of the European Union and Canada. Based on results from Chapters 2 and 3, Chapter 4 presents opportunities for further EU-Canadian collaboration, focusing on intensifying linkages and cooperation between existing European and Canadian clusters.

[7] Nicholson, P. (2018): Facing the Facts: Reconsidering Business Innovation Policy in Canada. Institute for Research on Public Policy. https://irpp.org/research-studies/facing-facts-reconsidering-business-innovation-policy-canada/ (last access 03.05.2023), p. 33-34.

[8] See https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en (last access 04.05.2023).

[9] See https://ised-isde.canada.ca/site/innovation-better-canada/en (last access 04.05.2023).

02

Economic profiles of the EU & Canada and key value chains in EU

2. Economic profiles of the EU & Canada and key value chains in EU & Canadian trade flows

The following chapter provides a general overview of the economic profiles, trade flows and potential market opportunities of the European Union and Canada.

2.1 Economic Profiles of the EU & Canada

Within the context of this input paper, it is important to highlight the **diversified and multifaceted nature of Canada's economy**, which encompasses a wide range of economic sectors, thus contributing to its overall growth and economic development. Overall, Canada's economy has performed relatively well over the past two decades, as reflected in its consistently positive GDP growth rate, barring the Global Financial Crisis of 2008-09, and more recently the COVID-19 pandemic (See Figure 15 in the Annex).[10] The latter adversely affected the Canadian economy, leading to a significant negative growth rate of 5.0%.Despite this, Canada has shown resilience and rebounded in the following two years, with real GDP growth of 5.0% in 2021 and 3.6% in 2022. Overall, Canada's sustained economic growth over the years **underscores Canada's ability to adapt and respond to global economic challenges**. As of 2022, **Canada's GDP amounted to CAD 2.81 trillion**[11] (equivalent to EUR 2.1 trillion) in nominal terms, positioning it as the ninth largest[12] economy in the world.[13] The **economy of the EU27 Member States** has demonstrated a relatively consistent pattern of economic growth over the years (See Figure 16 in the Annex). The global economic crises following the financial crisis of 2008-09 and the COVID-19 pandemic caused a -4.3 % growth rate in 2009 and a -5.6% growth rate in 2020.[14] The latter has been followed by high growth in 2021 and 2022, with growth rates of 6.0% and 3.4 %, respectively, highlighting the economic resilience of the EU27. The **nominal GDP in 2022 amounted to EUR 15.81 trillion**[15], positioning the EU27 as the third-largest economy in the world. This equates to a per capita GDP of EUR 35,440.[16]

To gain a more comprehensive understanding of the economic structure of both economies, it is helpful to analyse the **key sectors in terms of economic output as well as employment**. In Canada, the **dominance of the**

[10] Statistics Canada (2023). Table 36-10-0434-02 Gross domestic product (GDP) at basic prices, by industry, monthly, growth rates (x 1,000,000). Available under: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610043402 (last access on 05.05.2023)

[11] Statistics Canada (2023). Table 36-10-0222-01 Gross domestic product, expenditure-based, provincial and territorial, annual (x 1,000,000). Available under: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3610022201&pickMembers%5B0%5D=1.1&pickMembers%5B1%5D=2.2&cubeTimeFrame.startYear=2018&cubeTimeFrame.endYear=2022&referencePeriods=20180101%2C20220101 (last access 21.12.2023).

[12] World Bank (2023), GDP (current USD). Available under: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?most_recent_value_desc=true&year_high_desc=true (last access 05.05.2023).

[13] GDP data was converted from CAD to EUR using the average conversion rate based on Eurostat (2023): Euro/ECU exchange rates – annual data. Available under: https://ec.europa.eu/eurostat/web/products-datasets/-/tec00033 (last access 21.12.2023).

[14] Eurostat (2023). GDP and main components (output, expenditure and income). Available under: https://ec.europa.eu/eurostat/databrowser/view/tec00001/default/table?lang=en (last access 05.05.2023).

[15] Eurostat (2023). GDP and main components (output, expenditure and income). Available under: https://ec.europa.eu/eurostat/databrowser/view/tec00001/default/table?lang=en (last access 05.05.2023).

[16] Eurostat (2023). Gross domestic product at market prices. Available under: https://ec.europa.eu/eurostat/databrowser/view/tec00001/default/table?lang=en (last access 05.05.2023).

services sector is reflected in the top industry sectors by GDP (See Figure 17 in the Annex).[17] Real estate, rental and leasing make up the largest share of all industries in Canada by GDP, accounting for 13.0 %. Other significant services sectors include Finance and insurance (7.4%) and Professional scientific and technical services (6.5%). Additionally, Wholesale trade and Retail trade combined comprise 10.5% of the total economy. Other major industries in Canada include Manufacturing as well as Mining quarrying and oil and gas extraction, representing 9.4% and 7.7% of the Canadian economy, respectively. Particularly, the latter underscores the **importance of raw materials**, such as crude oil, to the Canadian economy, highlighting its exposure to commodity price fluctuations. In Europe, the Manufacturing sector constitutes the largest sector in terms of gross value added, accounting for 16.5% of the economy. This is followed by Wholesale and retail trade and real estate activities, which represent 10.8% and 11.5% of the EU27, respectively (See Figure 18 in the Annex).[18]

2.2 Key value chains in EU & Canadian trade flows

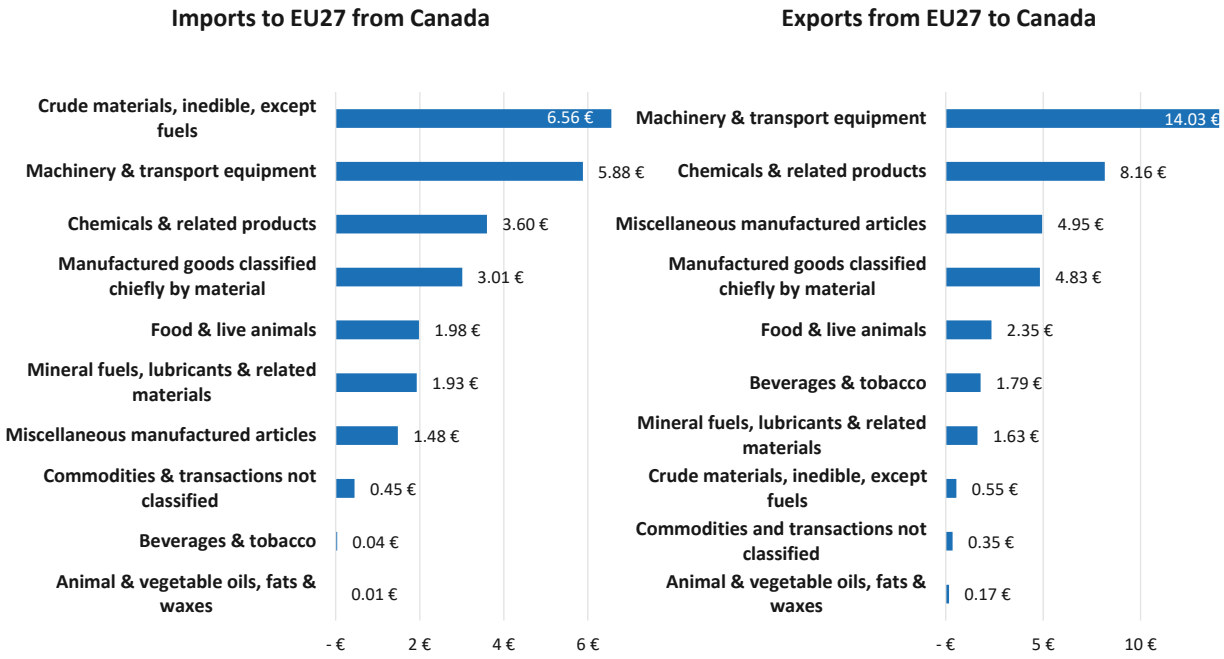
In 2021, the EU27 Member States imported goods from Canada with a **trading volume of EUR 24.3 billion**. At the same time, the EU27 Member States exported goods with a value of EUR 38.8 billion to Canada in 2021 leading to a trade surplus of EUR 13.89 billion for the European Union.

To gain insights into the trade flows between the EU27 Member States and Canada, the Comtrade database by the UN provides important information. Nonetheless, it needs to be highlighted that current trade data is only available up to 2021 in this database. However, it can be expected that the economic impact of the Russian invasion of Ukraine in February 2022 also had repercussions on the trade between the European Union and Canada.[19] Hence, in the following, the quantitative trade analysis will be complemented by qualitative evidence to outline new developments since 2021. The following Figure 1 examines the trade flows between the EU27 Member States and Canada by **traded goods** in 2021. For the imports from Canada to the European Union in 2021 crude materials are the most important traded goods with a value of around EUR 6.56 billion. This can be further substantiated by the analysis of the imported commodities to the EU27 from Canada in 2021 where commodities such as iron ores, diamonds or aluminium are among the top 10 most imported commodities. This points to the relevance of raw materials in the trade between the EU27 and Canada. It can be expected that the importance of **raw materials** increased after the Russian war against Ukraine since many European countries are looking for alternatives to Russian supplies.[20] Moreover, in this regard it can be pointed out that the third EU-Canada Joint Ministerial Committee meeting in 2022 has highlighted the importance of supply chains of minerals and metals[21] and a strategic partnership[22] between the EU and Canada on raw materials has been set up in 2021.

[17] Statistics Canada (2023). Table 14-10-0202-02 Employment by industry, annual. Available under: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410020201 (last access 05.05.2023).
[18] ECCP (2023), own computation of employment based on Eurostat.
[19] European Union External Action Service (2022): The war in Ukraine and its implications for the EU. Available under: https://www.eeas.europa.eu/eeas/war-ukraine-and-its-implications-eu_en (last access 07.03.2023); https://www.cpacanada.ca/en/news/canada/2022-04-07-war-economic-impact)last access 07.03.2023); OECD (2023): Assessing the Impact of Russia's War against Ukraine on Eastern Partner Countries. Available online: https://read.oecd-ilibrary.org/development/assessing-the-impact-of-russia-s-war-against-ukraine-on-eastern-partner-countries_946a936c-en#page1 (last access 07.03.2023)
[20] see also https://www.dw.com/en/von-der-leyen-to-talk-raw-materials-ukraine-in-canada-us/a-64903085 (last access 07.03.2023)
[21] European Commission (2022): Joint declaration following the third EU-Canada Joint Ministerial Committee meeting. Available under: https://www.consilium.europa.eu/en/press/press-releases/2022/05/16/joint-declaration-following-the-third-eu-canada-joint-ministerial-committee-meeting/ (last access 07.03.2023)
[22] European Commission (2021): Press release. EU and Canada set up a strategic partnership on raw materials. Available under: https://single-market-economy.ec.europa.eu/news/eu-and-canada-set-strategic-partnership-raw-materials-2021-06-21_en (last access 07.03.2023)

Traded goods related to machinery and transport equipment account for around EUR 5.9 billion of imports to the EU27. For the exports of the EU27 Member States to Canada in 2021, goods related to machinery and transport equipment are the most important goods with a value of more than EUR 14 billion. The examination of traded commodities between the EU and Canada further illustrates this as aeroplanes and other aircraft were the most important imported commodity from Canada to the EU (see Figure 1). Likewise, motor vehicles for the transport of persons were the most important commodity exported from the EU27 to Canada in 2021. This points out the relevance of value chains linked to the Industrial ecosystems "**Aerospace & Defence"** as well as "**Mobility-Transport-Automotive"** in the trade between the EU and Canada. It can be added that the recent geopolitical developments since 2022 have dramatically elevated the aspect of "Defence" which manifests in recent discussions between the EU and Canada around the production and purchasing of ammunition.[23]

Figure 1: Traded goods between the EU27 & Canada, by import to EU27 and export from EU27 in 2021, values in billion EUR



Source: ECCP (2023), own elaboration based on UN Comtrade database.

Furthermore, in the overview of traded goods, the importance of chemicals and related products emerges in both the imports from Canada to the EU and the exports from the EU to Canada. The scrutiny of the underlying commodities shows that commodities such as medicaments, hormones, antisera or vaccines are among the most important traded commodities. This points to the importance of value chains linked to the EU Industrial ecosystem "**Health"** in the trade between the EU and Canada. Figure 1 also illustrates the importance of value chains linked to the EU Industrial ecosystem "**Agri-food"** with goods such as food and live animals as well as beverages and tobacco accounting for a trading volume of around EUR 6.2 billion. The examination of the underlying commodities reveals that products like the wine of fresh grapes or Rape, colza and mustard seeds are among the most traded commodities between the EU27 Member States and Canada.

[23] Politico (2023): EU woos outside countries for joint ammo buying scheme. Available under: https://www.politico.eu/article/eu-outside-country-ammunition-howitzer-artillery-buy-plan-ukraine-war-norway-canada/ (see 07.03.2023)

Another aspect of the trade between the EU27 Member States and Canada can be linked to the EU Industrial ecosystem "**Renewable Energy**". For 2021 the trade volume of mineral fuels, lubricants and related materials amounted to around EUR 3.56 billion. Moreover, the top 10 most important traded commodities between the EU and Canada in 2021 included commodities such as crude petroleum and petroleum oils. Against the background of sanctions imposed by the EU on Russia[24] (which especially targets the Russian energy sector) and the announcement of Canada to replace Russian supplies,[25] it can be expected that the trade of these goods between the EU and Canada increased in 2022. For the future, it needs to be outlined that the third EU-Canada Joint Ministerial Committee meeting in 2022 agreed to further increase joint efforts related to trade and investments in green goods and also to use CETA as a facilitator in this regard.[26] In the context of value chains linked to the EU Industrial ecosystem "Renewable Energy," the importance of certain raw materials such as lithium has recently gained importance.[27] Additionally, bilateral agreements have been agreed upon in the last year between Canada and EU Member States that aim at increasing trade in the areas of renewable energy and especially clean hydrogen. [28]

Box 1: The concept of "EU Industrial Ecosystems"

The **concept of the EU Industrial ecosystem** has been introduced as part of the "A new industrial strategy for Europe" of the European Commission to provide an analytical tool which is not related to a fixed nomenclature. The EU has identified **14 Industrial ecosystems** which are:

1. Tourism
2. Aerospace and Defence
3. Retail
4. Digital
5. Creative & Cultural Industries
6. Textiles
7. Proximity & Social Economy
8. Construction
9. Energy Intensive Industries
10. Electronics
11. Agri-Food
12. Renewable Energy
13. Mobility, Transport & Automotive
14. Health

The EU promotes the development of the 14 Industrial ecosystems through policy initiatives, funding programs, and cluster collaborations, which facilitate knowledge exchange, capacity building, and access to markets and financing. By nurturing strong and interconnected Industrial ecosystems, the EU seeks to enhance the competitiveness of its industries, drive sustainable growth, and foster a resilient and inclusive economy.

Source: European Commission based on Definition of industrial ecosystems | European Cluster Collaboration Platform (last access 12.06.2023).

As a concluding remark, it must be outlined that the previous trade analyses focused on goods and did not account for services. For services, however, digital technologies play a particularly pivotal role. Moreover, in the

[24] see https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/sanctions-against-russia-explained/ (last access 07.03.2023)
[25] see https://www.reuters.com/business/energy/canada-can-boost-oil-gas-exports-2022-up-300000-bpd-minister-2022-03-24/ (last access 07.03.2023)
[26] European Commission (2022): Joint declaration following the third EU-Canada Joint Ministerial Committee meeting. Available under: https://www.consilium.europa.eu/en/press/press-releases/2022/05/16/joint-declaration-following-the-third-eu-canada-joint-ministerial-committee-meeting/ (last access 07.03.2023).
[27] see https://www.dw.com/en/von-der-leyen-talks-raw-materials-ukraine-in-canada-us/a-64903085 (last access 07.03.2023)
[28] Government of Canada (2022): Canada and Germany Sign Agreement to Enhance German Energy Security with Clean Canadian Hydrogen. Available under: https://www.canada.ca/en/natural-resources-canada/news/2022/08/canada-and-germany-sign-agreement-to-enhance-german-energy-security-with-clean-canadian-hydrogen.html (last access 07.03.2023).

relations between the EU and Canada, the digital transition plays an important role[29] and it was agreed to use CETA as a facilitator for the digital transition.[30] According to data from the European Commission[31], the trade volume in services between the EU and Canada amounted to around EUR 28.5 billion in 2021. Thereby, the EU exported services with a value of EUR 16.2 billion to Canada and imported services with a value of EUR 12.3 billion from Canada. The main types of services that were exported from the EU to Canada in 2021 were related to telecommunications, computer & information, transport and the use of certain Intellectual properties.[32] Moreover, trade in services between the EU and Canada has seen steady growth over the last decade and after the implementation of CETA.[33] Due to this relevance and since the cluster landscape in both the EU27 and Canada provides several relevant actors in this regard, the role of the EU Industrial ecosystem "**Digital**" in the trade between the EU and Canada can be underlined.

The analysis of trade flows identifies several value chains that are particularly relevant for trade between the European Union and Canada and also exhibit particular potential for further cooperation. A detailed overview and description of the key value chains in EU and Canadian trade flows are provided in the Annex. These value chains can be linked to the following **six key Industrial ecosystems**, which can be key areas for further cooperation between the EU and Canada, through Cluster programs and complementary to other government initiatives:

- Aerospace & Defence
- Agri-food
- Digital
- Health
- Mobility-Transport-Automotive
- Renewable Energy

Moreover, the analysis of the EU and Canadian trade flows points to the importance of raw materials which can play a role in various Industrial ecosystems (e.g., hydrogen for "Renewable Energy). Against the background of various recent agreements achieved between the EU and Canada (e.g., the strategic partnership on raw materials[34] which was set up in 2021) the importance of raw materials can be expected to increase in the future of EU and Canadian trade flows.

[29] Government of Canada (2023): Canada and the European Union. Available under: https://www.international.gc.ca/world-monde/international_relations-relations_internationales/eu-ue/index.aspx?lang=eng last access 07.03.2023); European Commission (2021): Workshop report. Canada-EU Joint Workshop Series for Enabling Interoperability and Mutual Support for Digital Credentials: Results and next steps. Available under: https://digital-strategy.ec.europa.eu/en/library/canada-eu-joint-workshop-series-enabling-interoperability-and-mutual-support-digital-credentials last access 07.03.2023)

[30] European Commission (2022): Joint declaration following the third EU-Canada Joint Ministerial Committee meeting. Available under: https://www.consilium.europa.eu/en/press/press-releases/2022/05/16/joint-declaration-following-the-third-eu-canada-joint-ministerial-committee-meeting/ (last access 07.03.2023).

[31] https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/canada_en (last access 13.04.2023)

[32] https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/canada_en (last access 13.04.2023)

[33] Government of Canada (2021): An overview of Canada-EU trade performance under CETA. Available under: https://www.international.gc.ca/trade-commerce/economist-economiste/statistics-statistiques/overview_canada_eu-apercu_canada_ue.aspx?lang=eng (last access 13.04.2023)

[34] https://single-market-economy.ec.europa.eu/news/eu-and-canada-set-strategic-partnership-raw-materials-2021-06-21_en (last access 07.03.2023)

03

Boosting cluster organisations in innovation ecosystems: Cluster policy landscape in the EU and Canada

EUROPEAN CLUSTER COLLABORATION PLATFORM

Strengthening the European economy through collaboration

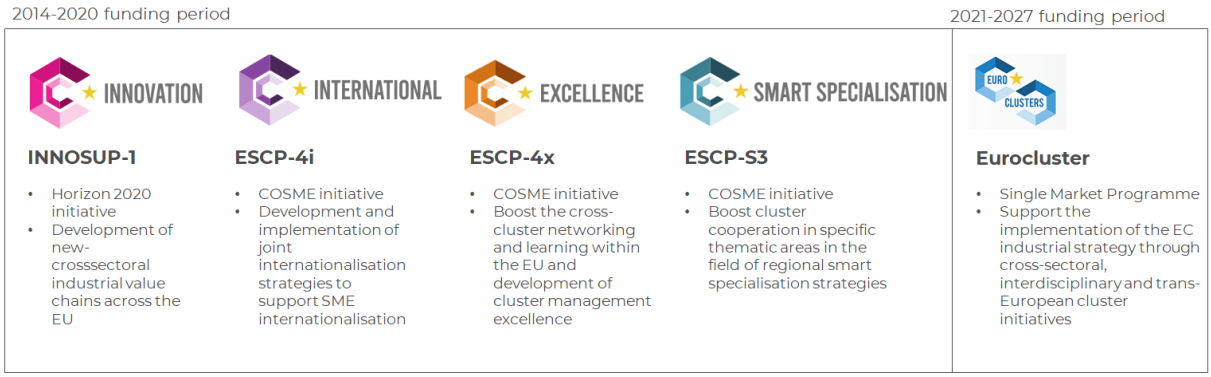
3. Boosting cluster organisations in innovation ecosystems: Cluster policy landscape in the European Union and Canada

The following chapter presents the **diverse cluster policy landscape in the EU and Canada** by highlighting their developments in recent years, their objectives within the broader strategic policies of the EU and Canada, the different governance structures, related support instruments and more. In the first and second parts of the chapter, the cluster policy landscapes in the European Union and Canada are presented separately.

3.1 Enhancing intra-European cluster cooperation: the cluster policy landscape in the European Union

In recent years, the European Union has implemented **different cluster support initiatives** to further develop and enhance the European cluster ecosystem, the interregional cooperation of clusters within Europe and the improvement of interlinkages with other priority areas of the EU such as smart specialisation and the twin transition. Figure 2 gives a first overview of central cluster support initiatives in the last and the current funding period.

Figure 2: Overview of the EU cluster support initiatives in the 2014-2020 and 2021-2027 funding period



Source: ECCP (2023).

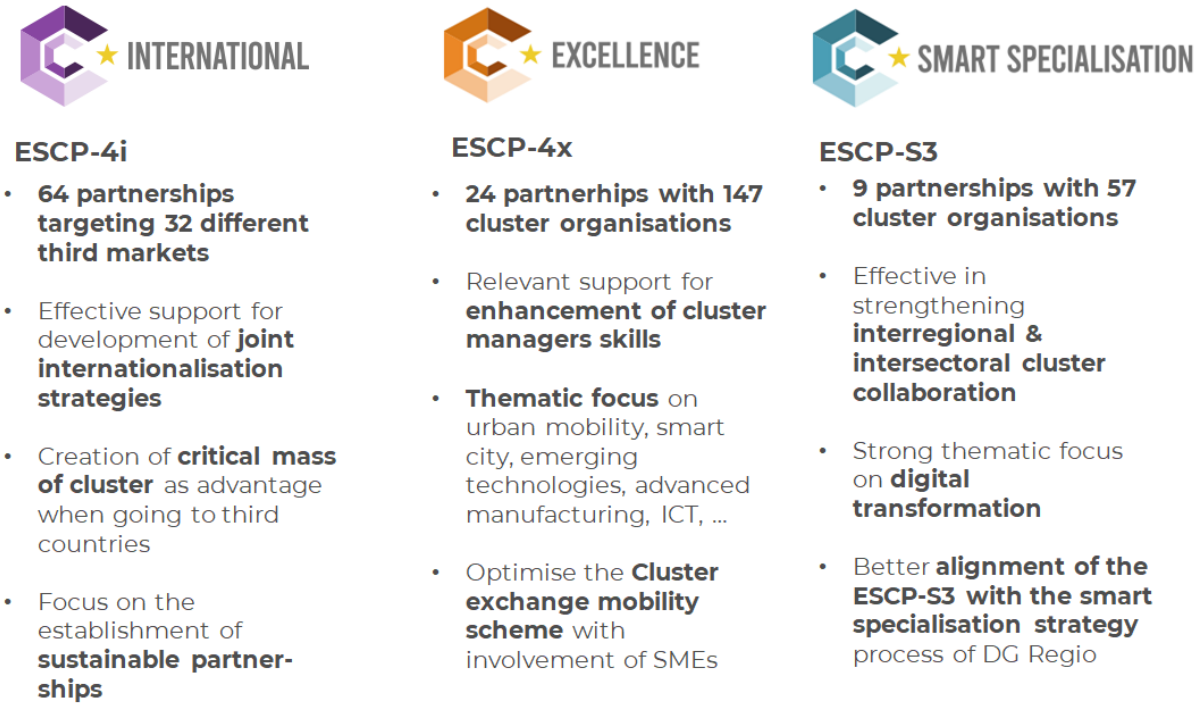
Cross-regional cooperation in new value chains: Cooperation of European cluster organisations through INNOSUP-1 and the European Strategic Cluster Partnerships (2014 – 2020)

In the 2014-2020 funding period, EU cluster initiatives included (1) **partnering projects between cluster organisations**, for instance through the European Strategic Cluster Partnerships and the INNOSUP-1 programme, (2) **platforms to support cluster collaboration**, namely the European Cluster Collaboration Platform and the European Resource Efficiency Knowledge Centre and (3) the **research initiatives** such as the European Observatory for Clusters and Industrial change. Findings from the Evaluation Study of and Potential Follow-Up to Cluster Initiatives under COSME, H2020 and FPI (2021), several EU cluster support initiatives aimed between

2014-2020 to facilitate market entries for SMEs through cluster collaboration within Europe, to support the development of cross-sectoral value chains and investments in cluster excellence.[35]

The **main objective of the ESCP** was to establish partnerships between European clusters and intermediary organisations from the different EU27 Member States and associated countries. Those partnerships focused on three different thematic areas, namely **internationalisation (ESCP for Going International)**, **cluster excellence (ESCP for Excellence)**, and **smart specialisation (ESCP for Smart Specialisation**).[36] In total, 97 partnerships were funded with **project budgets** ranging from EUR ~200.000 for ESCP-4i projects up to EUR ~450.000 for ESCP-4i strand 2 and ESCP-4x projects. Findings from the evaluation study show that **the main, overarching outputs** of partnerships were the development of joint internationalisation strategies (ESCP-4i), improved management excellence (ESCP-4x) and increased cooperation of clusters concerning regional smart specialisation strategies (ESCP-S3).

Figure 3: Key findings from the evaluation study (2021) for the European Strategic Cluster Partnerships



Source: ECCP (2022) based on the Evaluation Study of and Potential Follow-Up to Cluster Initiatives under COSME, H2020 and FPI (2021).

Another relevant cluster support initiative was the **INNOSUP-1 initiative "Cluster facilitated projects for new value chains"** funded under the EU programme Horizon 2020. The cluster initiative addressed the challenge to develop new cross-sectoral industrial value chains in Europe through European cross-sectoral cooperation of cluster organisations and other relevant intermediaries.[37] An innovative approach of the INNOSUP-1 initiative

[35] European Commission (2021): Evaluation Study of and Potential Follow-Up to Cluster Initiatives under COSME, H2020 and FPI. Available under: https://op.europa.eu/en/publication-detail/-/publication/a2c3e9e1-3deb-11ec-89db-01aa75ed71a1 (last access 18.11.2022).

[36] For more information on the European Cluster Partnerships see: https://clustercollaboration.eu/eu-cluster-partnerships (last access 18.11.2022).

[37] For more information on the ESCPs and the INNOSUP-1 initiative see: https://clustercollaboration.eu/eu-cluster-partnerships (last access 18.11.2022).

was 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. In total, 30 projects were funded by 222 consortium partners and 1,687 direct beneficiaries (SMEs). The total budget for six project calls was around EUR 132 million and the project budget was between EUR 2.5 – 5 million. All EU cluster initiatives of 2014-2020 have been evaluated in 2021.[38]

The next generation of European cluster networks: the Joint Cluster Initiative – Euroclusters (2021 – 2027)

In the current funding period 2021-2027, the central cluster support initiative by the EU is the Joint Cluster Initiative, also known as Euroclusters which is part of the Single Market Programme. As of September 2022, a total of **30 Euroclusters** have been initiated to implement the EU Industrial Strategy. All in all, the Euroclusters initiative expands on prior "European Strategic Cluster Partnerships" of the European Commission. As 20 of the Euroclusters direct their attention to implementing targeted initiatives in select Industrial ecosystems, the remaining 10 are dedicated to multiple Industrial ecosystems.[39] In a broader sense, Euroclusters are driven by overarching objectives, that collectively aid in fostering resilience and expediting the transition towards a green and digital economy (see Figure 4).

Figure 4: Overarching objectives of the Euroclusters

Source: ECCP (2023).

Concerning the budget allocated for the Euroclusters initiative, a total sum of EUR 42 million has been assigned to the designated clusters and affiliated agencies for a period of four years, from 2021 to 2024[40]. The earmarked budget of Euroclusters is distributed among 171 European clusters and their affiliated entities such as business agencies, hailing 22 EU27 Member States and one Norwegian partner, covering all 14 Industrial ecosystems. Spanish clusters exhibit the highest level of activity with 30 project participations, while Italy and France follow

[38] Prognos et al. on behalf of the European Commission (2021) : Evaluation study of and potential follow-up to cluster initiatives under COSME, H2020 and FPI. Available under: https://op.europa.eu/en/publication-detail/-/publication/a2c3e9e1-3deb-11ec-89db-01aa75ed71a1/language-en (last access 05.05.2023).

[39] For more information on the EU Industrial Ecosystem refer to Figure 20 in the Annex.

[40] European Commission (2023): Euroclusters for Europe's recovery. Available under: Funding & tenders (europa.eu) (last accessed 17.03.2023)

with 23 and 21 participations respectively. Greece and Belgium also rank among the top five countries with the highest number of Euroclusters, with 10 and 11 beneficiaries, respectively.

Figure 5 illustrates how the network of cluster partners consisting of 30 Euroclusters and 14 Industrial ecosystems intersect with each other, forming a cohesive web of collaboration among diverse sectors and stakeholders. The visual demonstration showcases how these entities intertwine and work together to create a robust network of interconnected partners.

Figure 5: Overview of the 30 Euroclusters by their Industrial Ecosystem specialisations

Source: ECCP (2023).

An exemplary case of the Agri-food Industrial ecosystem is the SUAVA Eurocluster project ("Stimulating SMEs in New Urban Agriculture Value Chain for sustainable growth in Europe"), dedicated to creating sustainable and resilient urban food systems[41]. Cluster members of SUAVE come from France, Spain, Hungary, Lithuania and Poland. On a specific note, SUAVE aims at promoting innovation in urban farming systems through the collaboration of five agri-food and digital clusters. This joint effort is reinforced by various funding opportunities, including calls and vouchers, amounting to a total budget of EUR 1.05 million. The partners involved in SUAVA aspire to expand the project's impact and develop business internationally, with a particular focus on North America. To support SMEs interested in participating in the green and digital future of urban food supply, the project offers continuous guidance and strong support both in Europe and internationally.

[41] European Cluster Collaboration Platform (2023): SUAVE. Available under: https://profile.clustercollaboration.eu/profile/cluster-partnership-initiative/bb0add61-ed3f-4d3d-9b2e-77cdef83b7bd (last accessed (23.03.2023).

3.2 Strengthening national and regional cluster organisations within Europe: EU27 Member States policies and programmes

Regarding specific cluster policies and programmes, there are numerous examples of distinct cluster policies and programmes implemented in various EU Member States, such as Germany, France, Spain, and Poland.

Driving Innovation and Collaboration for Lasting Value: Germany's Cluster Policies

Germany's Clusters4Future policy focuses on emerging research topics and technologies, to develop lasting value systems and speed up the application of research to society[42]. The policy benefits a range of stakeholders, particularly research organizations as it is implemented over three years. Financial instruments are the primary means of achieving the policy's objectives, with a budget of approximately EUR 450 million allocated to fund collaboration initiatives, R&D&I projects, and networking events that facilitate market entry.

Germany's economic structures are organised by its regional governances, known as "Bundesländer", which feature a diverse range of economic regions. It is therefore pertinent to consider cluster policies that operate within one of these 16 regions. For instance, the Cluster and Network Support Saxony policy is a suitable example due to its dual focus on supporting both new and existing clusters[43]. Said policy aims to facilitate the establishment or growth of existing cluster organisations, which foster collaboration between cluster actors. By doing so, the policy contributes to increased competitiveness and growth of small and medium-sized enterprises (SMEs) and encourages innovation activities within their respective ecosystems. The policy is exclusively geared towards cluster organisations, as its primary objective is to create and support these entities. A range of cluster activities, such as knowledge transfer, networking, partnership building, training, R&D projects, and cross-cluster projects, are executed through financial and technical support. The budget allocated for each "innovation cluster" is EUR 5 million, while "cooperation networks" receive EUR 200,000.

Fostering Innovation and Growth: France's Competitive Cluster Policy

France's Competitiveness Cluster Policy (Pôle de compétivité) primarily aims to encourage collaboration among clusters, participation in European projects (Horizon 2020; Horizon Europe), and the promotion of cluster excellence with a particular focus on innovative SMEs[44]. The policy's beneficiaries include a diverse group of actors, such as organisations, large and small enterprises, research organisations, and academic institutions focused on technology and technology centuries. The policy objectives are supported by both technical and financial assistance. As this policy builds on earlier initiatives in France, it has been subject to past evaluations that have demonstrated a positive impact. As a result of this policy, enterprises and startups have experienced growth, with 40% of cluster members reporting an increase in their turnover.

[42] Bundesministerium für Bildung und Forschung (2022): Zukunftscluster-Initiative (Clusters4Future). Available under: https://www.bmbf.de/bmbf/de/forschung/zukunftsstrategie/zukunftscluster-initiative-clusters4future/zukunftscluster-initiative-clusters4future.html (last accessed: 23.03.2023)

[43] Sächsische Aufbaubank (2023): Programm zur Förderung von Clustern und Netzwerken der Wirtschaft im Freistaat Sachsen (RL Clusterförderung). Available under: https://www.sab.sachsen.de/programm-zur-f%C3%B6rderung-von-clustern-und-netzwerken-der-wirtschaft-im-freistaat-sachsen-rl-clusterf%C3%B6rderung- (last accessed: 23.03.2023).

[44] Foundation IFRAP (2018): Pôles de compétitivité : 2018, Phase IV, le temps des résultats. Available under: https://www.ifrap.org/emploi-et-politiques-sociales/poles-de-competitivite-2018-phase-iv-le-temps-des-resultats (last accessed 23.03.2023)

Boosting Competitiveness and Innovation: Spain's Cluster Policies

Spain's national cluster policy, known as "Programa de Apoyo an Agrupaciones Empresariales Innovadoras" aims to reinforce the role of clusters or AEIs as agents capable of promoting cooperation between universities, R&D&I centres, and industry to enhance competitiveness, innovation, internationalisation, and ultimately support SMEs[45]. Both cluster organizations and cluster members benefit from this policy, but large companies can only participate in cooperation with SMEs. The policy is supported by technical and financial instruments, including subsidies for the establishment and development of coordination and management structures of emerging AIEs, technical viability studies, innovative activities, and innovation projects in cooperation. The program has an overall budget of 49.6 million euros. As this policy builds on earlier national Spanish cluster policies, past evaluations have demonstrated a positive impact, including the creation of 1.8 million jobs and collaboration with more than 340 technology centres and research organisations.

Similar to the case of Germany, Spain also has a strong degree of regionality, featuring a diverse range of economic regions. It is therefore pertinent to consider cluster policies that operate within Spain, for example with the case of the Catalonia Clusters Programme (2021-2023)[46]. The aim of this programme is not to encompass all the clusters in Catalonia, but rather to act as a catalyst for excellence. The programme is bifurcated into two distinct calls, namely IRC and NON, each with its unique approaches. The IRC aims to strengthen competitiveness by supporting dynamic agents and competitive projects. Meanwhile, the NON-call is designed to promote new business opportunities by focusing on strategic and structural change projects. This programme offers financial instruments and technical assistance to support innovation projects, competitiveness reinforcement, structural change, and strategic change initiatives. The programme's budget totals EUR 5.6 million, with the IRC and NON receiving EUR 2.5 million and EUR 3 million, respectively. These funding allocations aim to drive economic growth and development in the target areas.

Expanding Markets and Supporting SMEs: Poland's National Cluster Policy

Poland's national cluster policy ("Internationalisation of the Key National Cluster Programme") is driven by the main objective of providing comprehensive services that support the expansion of clusters by introducing or reinforcing their products on foreign markets, with an emphasis on technologically advanced products and SME support[47]. The programme is not sector-specific and aims to promote the internationalization of diverse sectors. SMEs are the main beneficiaries, and the programme is exclusively available to organisations designated as Key National Clusters. These organisations can participate either through their cluster coordination or as individual cluster members implementing a project. Clusters can receive co-financing for specific activities, such as personnel recruitment, cluster infrastructure creation, market entry facilitation, and other activities that encourage international cooperation. The total project cost is expected to amount to EUR 2.27 million, with participants eligible to receive total funding of EUR 1.8 million. Self-financing must therefore account for at least 20% of the total cost. Altogether, these measures are aimed at improving international competitiveness and boosting economic activity.

[45] Agencia Estatal Boletín Oficial del Estado (2021): Documento BOE-A-2021-16790. Available under: https://www.boe.es/eli/es/o/2021/10/09/ict1117/dof/spa/pdf (last accessed 23.03.2023).
[46] ACCIÓ – Agència per la Competitivitat del l'Empresa (2023): Uneix-te a la xarxa de clusters. Available under: https://www.accio.gencat.cat/ca/serveis/processos-acreditacio/clusters/ (last accessed 23.03.2023).
[47] Stip Compass (2021): Internationalisation of Key National Clusters. Available under: https://stip.oecd.org/stip/interactive-dashboards/policy-initiatives/2021%2Fdata%2FpolicyInitiatives%2F5361 (last accessed 23.03.2023).

3.3 Building transregional cluster organisations: Canada's Global Innovation Clusters programme

In Canada, like in other federal systems and the European Union, cluster programmes exist at different levels of governance, utilising various evolving approaches. At the federal level, over the last three decades, Canada has invested in a broad portfolio of programmes that promote collaboration and investment toward research and development (R&D) and commercialization of innovations through networks, centres, and organizations that stimulate activity and connections between industry, academia, government, and not-for-profits.

For example, foundational programs, such as the Networks of Centres of Excellence (NCE), established in 1989 as a joint initiative of the Natural Sciences and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC), the Canadian Institutes of Health Research (CIHR), and Innovation, Science and Economic Development Canada (ISED), made far-reaching multi-year investments in research, commercialization and knowledge translation. The NCE mandate was expanded in 2007 by adding the Centres of Excellence in Commercialisation and Research (CECRs) and the Business-Led Networks of Centres of Excellence (BL-NCEs) to address evolving needs along critical stages of the innovation continuum.

- **NCEs** were national research networks that contributed research in areas critical to Canadian economic or social development. In addition to the generation of knowledge, the networks focused on the development and retention of research professionals, and on the translation of research into products and technologies for commercialization and public policies.
- **CECRs** aimed to bridge the gap between innovation and commercialization, matching clusters of academic research expertise with the business community to share the knowledge and resources that bring innovations to market faster. CECRs were led by a consortium that included companies, academic institutions, not-for-profit research organizations, or other organizations, and leveraged investments through a matching requirement.
- **BL-NCEs** funded large-scale collaborative research networks that enhanced private sector innovation by blending academic expertise with the private sector's drive to respond to real-world challenges. The program's partnership model placed academic and private-sector partners on an equal footing and also included a match requirement.

At the national level, in 2017 the Canadian government introduced the 'Innovation Superclusters Initiative'[48] (ISI) which was rebranded as the 'Global Innovation Clusters' (GIC) programme in 2022 and recapitalised with additional funding.[49] It can be seen as part of a larger trend in the cluster policies of advanced industrial countries to refocus their efforts on a selection of leading and globally competitive industries.[50] In this vein, the Canadian initiative aims to aggregate the country's cluster landscape into so-called 'superclusters' in a handful of **flagship innovation ecosystems**, with sufficient scope and scale to have a significant impact. In 2018, after a competitive selection process, five successful superclusters were announced by the Department for Innovation, Science and Economic Development (ISED).

[48] ISED (2017): Innovation Superclusters. Program Guide. Available under: https://publications.gc.ca/collections/collection_2017/isde-ised/Iu4-214-1-2017-eng.pdf (last access 22.03.2023).
[49] ISED (2023): Government of Canada announces renewed funding for the Global Innovation Clusters. Available under: https://www.newswire.ca/news-releases/government-of-canada-announces-renewed-funding-for-the-global-innovation-clusters-807801125.html (last access 22.03.2023). The programme page can be consulted at https://ised-isde.canada.ca/site/global-innovation-clusters/en (last access 22.03.2023).
[50] See Rangen, C. (2021): Rise of Innovation Superclusters. Strategy Tools. Available under: https://www.strategytools.io/rise-of-innovation-superclusters/ (last access 21.03.2023).

Table 1: Overview of the five Canadian Global Innovation Clusters

DIGITAL SUPERCLUSTER	SCALE AI	CANADA'S OCEAN SUPERCLUSTER	Protein Industries Canada	NGen Next Generation Manufacturing Canada
Digital Supercluster	**Scale AI**	**Canada's Ocean Supercluster**	**Protein Industries Canada**	**Next Generation Manufacturing**
Digital technologies	Artificial intelligence	Ocean-based industries	Plant-based protein alternatives	Advanced manufacturing
$125 million (GIC) $173 million (ISI) $298 million (total)	$125 million (GIC) $230 million (ISI) $355 million (total)	$125 million (GIC) $153 million (ISI) $278 million (total)	$150 million (GIC) $173 million (ISI) $323 million (total)	$177 million (GIC) $250 million (ISI) $427 million (total)
Virtual, mixed, and augmented reality; data collection & analytics; quantum computing	AI & supply chain technology	Digital sensors & monitoring, autonomous marine vehicles, energy generation, marine biotech & engineering	Agri-food enabling technologies, incl. genomics, processing, and IT	IoT, machine learning, cybersecurity, additive manufacturing
Regional headquarters: British Columbia	Regional headquarters: Quebec	Regional headquarters: Atlantic Canada	Regional headquarters: Prairie provinces	Regional headquarters: Ontario

Source: Own elaboration based on information from ISED and Invest Canada, see here, here, and here. Budget numbers are shown in Canadian dollars ($).

One of the main objectives of Canada's cluster programming is to boost economic growth and improve **Canada's performance in translating its strength in science and technology research into product innovation and commercialisation**.[51] In this regard, low R&D investments in Canadian businesses[52] and sluggish productivity growth[53] have been identified as central obstacles. The GIC programme is one of the Canadian government's central initiatives to overcome this "low-innovation equilibrium"[54] and enter an innovation- and productivity-driven growth path. It was launched by the Canadian government's Department for Innovation, Science and

[51] Munro, D.; Ornston, D.; Wolfe, D. A. (2022). Breaking Canada's innovation inertia. Policy Options, 25.05.2022. Available under: https://policyoptions.irpp.org/magazines/may-2022/breaking-canadas-innovation-inertia/ (last access 24.03.2023).
[52] Government of Canada (2022): Chapter 2: A Strong, Growing, and Resilient Economy, in: Budget 2022. https://www.budget.canada.ca/2022/report-rapport/chap2-en.html (last access 03.05.2023).
[53] Deslauriers, J.; Gagné, R. (2023): The low productivity of Canadian companies threatens our living standards. Policy Options, 17.04.2023. https://policyoptions.irpp.org/magazines/april-2023/the-low-productivity-of-canadian-companies-threatens-our-living-standards/ (last access 03.05.2023).
[54] Nicholson, P. (2018): Facing the Facts: Reconsidering Business Innovation Policy in Canada. Institute for Research on Public Policy. https://irpp.org/research-studies/facing-facts-reconsidering-business-innovation-policy-canada/ (last access 03.05.2023). See also Munro, D.; Ornston, D.; Wolfe, D. A. (2022): Breaking Canada's innovation inertia. Policy Options, 25.05.2022. https://policyoptions.irpp.org/magazines/may-2022/breaking-canadas-innovation-inertia/ (last access 03.05.2023).

Economic Development Canada (ISED) in 2017 as part of the Innovation and Skills Plan[55], devised to generate growth and help Canada unlock its innovation potential in a new collaborative environment. Box 2 shows the official objectives of the GIC programme.

Box 2: Objectives of the Global Innovation Clusters programme

A national force: Develop ecosystems that create a global advantage for Canada by attracting investment, developing a global profile, and collaborating on projects at a national scale.

A driver of growth: Accelerate the scale-up of SMEs in cluster projects by fostering collaboration and integration into emerging value chains, to drive international opportunities, expand market share, and grow revenues.

A creator of networks: Strengthen connections and collaborations between private, public and academic organizations to drive impactful commercialization outcomes and develop domestic capacity.

A catalyst for skills development: Address skills gaps, act as a magnet for global talent, collaboration, and skills and talent development, and foster opportunities for equity-seeking groups to benefit from connections, drive innovation and contribute to inclusive economic growth.

Source: ISED

Although the Global Innovation Clusters are each based in a specific region, they can be understood as country-wide cluster networks focused on developing and growing specific innovation ecosystems. The innovation ecosystems reach across industrial sectors in cross-cutting innovation areas. For example, the Digital Supercluster explores the use of advanced digital technologies like augmented reality, machine learning and quantum computing to improve service delivery in focus areas as diverse as natural resources, precision health, and manufacturing (see also Box 5 in the Annex). Additionally, individual cluster projects or initiatives have applicability that can reach across industrial sectors. For example, the Next Generation Manufacturing cluster's Transformation Leadership Program has designed training modules that improve efficiency between companies and their supply chain, which has shown to be applicable across a wide-range of sectors, including the aerospace sector.

The **clusters are set up as independent industry-led organizations** that leverage additional investment from the private sector and other levels of government. While ISED is in charge of designing programme parameters and conducting a competitive selection process that led to the creation of the five clusters, it is important to note that ISED's role in selection pertains to the clusters themselves, and not at the project or activity level. Additionally, ISED provides funding via non-repayable contributions, and ensures ongoing support and oversight, while the clusters are responsible for day-to-day decisions, including selecting projects and advancing capacity-building initiatives to grow their respective ecosystems. Recognising the important role clusters can play in advancing national priorities (e.g., COVID-19 response, supporting inclusive innovation), upon re-capitalisation, each cluster was challenged to deepen its impact through the introduction of common missions related to fighting climate change and strengthening supply chain resiliency. These missions will not replace the cluster's identified areas of focus, but rather recognises that the clusters have been, and will continue to contribute to these important priorities while delivering on their activities in areas of key competitive advantage for Canada.

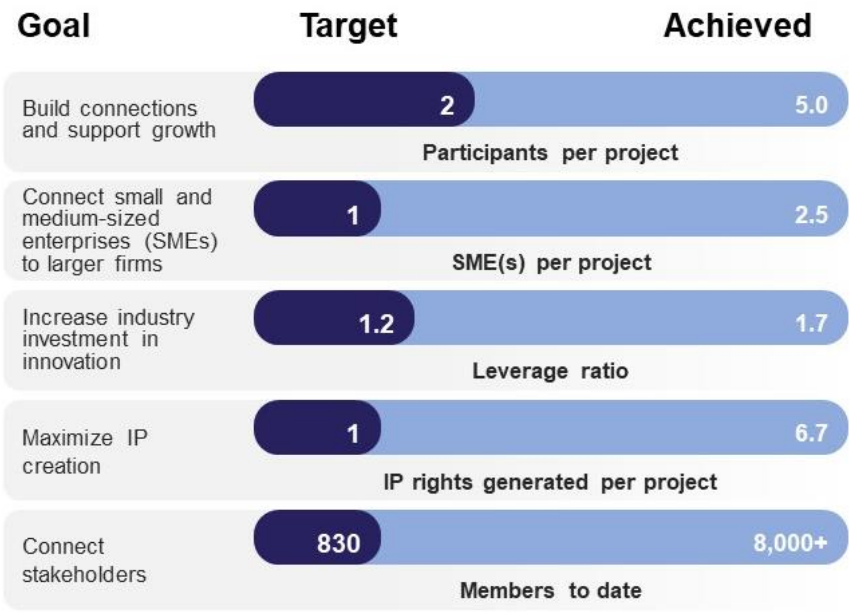
[55] Government of Canada (2017): Chapter 1 – Skills, Innovation and Middle Class Jobs ("Innovation and Skills Plan"), in: Budget 2017. https://www.budget.canada.ca/2017/docs/plan/chap-01-en.html (last access 03.05.2023).

Federal funding is to be matched at least "dollar-by-dollar"56 by private sector investment. This approach creates a demand-pull for innovation and commercialization where Clusters can serve as a catalyst, bridging the gap between innovation and market needs. By focusing on emerging sectors where the Clusters can have the greatest impact, the Clusters mobilize ecosystem stakeholders to advance a forward-looking economic vision.

Regarding **duration and budget,** it makes sense to look at both the ISI and the GIC together as successive phases of Canada's innovation clusters programme. The ISI was initially funded for five years between 2018 and 2023. It was rebranded as the GIC in 2022, with funding allocated until 2028. The GIC came with a budget of CAD 750 million[57] (EUR 523 million[58]) for the period of 2022/23 to 2028, adding to the original ISI budget of CAD 950 million (EUR 663 million) for the 2018-2023 phase, as well as additional investment of CAD 60 million announced in 2021, totalling CAD 1.76 billion (EUR 1.2 billion) combined.

Global Innovation Clusters are on track to meet or exceed all initially set **programme targets** related to, for example, industry investment, creating connections including SME partnerships, and the creation of IP. The programme has gained momentum since its launch, with more than 500 projects announced involving over 2,500 partners, thousands of new jobs having been created, and membership now exceeding 8,200 members across all five Clusters. The co-investment between industry and government has leveraged total investments of over CAD 2.29 billion (EUR 2.09 billion), with more than CAD 1.42 billion (EUR 1.3 billion) invested by industry and other partners.

Figure 6: Global Innovation Clusters Programme Results



Source: ISED. Results as of 31.03.2023.

[56] See https://www.investcanada.ca/programs-incentives/global-innovation-clusters (last access 23.03.2023).
[57] All dollar ($) numbers refer to Canadian dollars.
[58] All sums converted at the InforEuro exchange rate of March 2023, see https://ec.europa.eu/info/funding-tenders/procedures-guidelines-tenders/information-contractors-and-beneficiaries/exchange-rate-inforeuro_en (last access 23.03.2023).

There are several **evaluation and assessment reports** available that highlight different aspects of the programme. An early 2020 report by the Parliamentary Budget Office[59] indicated that the programme was delayed in its rollout, and it did not yet have in place a well-developed results framework; however, its conclusions were influenced by the very early timing of its analysis in the programme's development. By contrast, later reports confirm the programme to be (back) on track. For example, an official economic analysis commissioned by ISED and conducted by EY in 2021[60] reports a promising launch in terms of projected employment and economic impacts over the short and longer-term. It also provides insights into how managing authorities perceive the benefits of the programme based on interviews. In a 2021 report, the former Deputy Minister of ISED, John Knubley, who played a leadership role in the creation and launch of the superclusters, provides his assessment, arguing for judging the programme according to its large-scale, long-term perspective.[61]

ISED also released its **official programme evaluation**[62] in March 2022 based on results and data through 2021. It shows that the GIC programme has been gaining traction while also providing recommendations on points for further improvement. On the one hand, it shows that the roll-out varied by a large degree between the clusters. On the other hand, the evaluation shows that the programme is delivering on its promises as each cluster had surpassed the goal of matching public and industry funds. Crucially, the programme is reported to have fostered collaborations between private, public, academic, and not-for-profit actors while supporting projects to develop and advance technologies and address ecosystem gaps. On top of that, it was flexible enough to take on new challenges when the Covid-19 pandemic hit.

Most recently, an **internal programme audit**[63] was published in May 2023, which examined whether appropriate processes, activities, and controls are in place to ensure strong programme oversight. The audit found that effective programme management systems are largely in place and provided recommendations to strengthen certain risk management and monitoring tools.

Alongside these programme-level evaluations, **each cluster publishes an annual report** covering its activities and outcomes and providing insights on a range of performance indicators.[64] The Clusters have reported a series of positive outcomes and achievements that have had a transformative impact on their respective sectors. For example, during the COVID-19 pandemic, Scale AI brought together key players across critical supply chains to develop an AI solution to swiftly identify containers stocked with critical cargo to improve timely supply chain

[59] Bergeron, E.; Ahmed, S. M. (2020): The Innovation Superclusters Initiative – A preliminary analysis. Office of the Parliamentary Budget Officer. Available under: https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/RP-2021-024-S/RP-2021-024-S_en.pdf (last access 23.03.2023).

[60] EY (2022). Innovation Superclusters Initiative: Economic Analysis. Final Report. March 2022. Available under: https://ised-isde.canada.ca/site/global-innovation-clusters/sites/default/files/documents/2022-06/isi-exec-summ-2022-eng.pdf (last access 21.03.2023).

[61] Knubley, J. (2021): Building Superclusters for Canada. Brookfield Institute for Innovation and Entrepreneurship. April 2021. Available under: https://brookfieldinstitute.ca/wp-content/uploads/Superclusters_Final2.pdf (last access 23.03.2023).

[62] ISED (2022). Evaluation of Innovation, Science and Economic Development (ISED) Canada's Innovation Superclusters Initiative. Audit and Evaluation Branch. Available under: https://publications.gc.ca/site/eng/9.911869/publication.html (last access 22.05.2023).

[63] ISED (2023): Audit of Innovation, Science and Economic Development (ISED) Canada's Innovation Superclusters Initiative. Audit and Evaluation Branch. Available under: https://ised-isde.canada.ca/site/audits-evaluations/en/internal-audit/internal-audit-reports-fiscal-year/audit-innovation-supercluster-initiative (last access 22.05.2023).

[64] The 2021/2022 annual reports can be consulted under: Digital Supercluster, ScaleAI, Ocean Supercluster, Protein Industries Canada, NextGen Manufacturing (last access 23.03.2023).

distribution. The project has been highlighted internationally and was intentionally designed to be scalable and flexible for application to marine, train, and truck supply chains. The Next Generation Manufacturing cluster has leveraged advanced manufacturing solutions and brought together key partners to develop a fully automated, indoor protein production facility to process crickets into a variety of food ingredients in Canada. The project supports the digital and green transformation, applying advanced manufacturing processes toward an affordable, all-natural, drought-resistant, eco-friendly protein source and the IP generated from the project has direct application to many Canadian industries. In general, the Clusters help to de-risk investments in innovation and serve as a catalyst for mutually beneficial partnerships. Additional success stories and detailed narratives on projects can also be found on the Global Innovation Clusters website.[65]

In conclusion, the Innovation Superclusters Initiative took some time to get off the ground as it was set up as a large-scale cluster programme built from scratch. Emerging from its start-up phase and recapitalised as the rebranded Global Innovation Clusters programme, it appears to have gained traction as shown by the rising number of members, the leveraged capital, and feedback from practitioners. As the programme is increasingly on track to complete projects and meet its objectives, the long-term effects it aims for will need to be evaluated after the end of its programming period in 2028.

Next to the flagship GIC programme on the national level, many Canadian provinces run their own **regional cluster programmes**. Box 3 showcases Québec's ACCORD programme which supports regional and local business networks, characterised as 'niches' or 'poles of excellence' since 2002, while Box 4 covers the more recent Zones d'Innovation programme which concentrates much larger funds to support fewer high-profile clusters focused on cutting-edge technology.

Box 3: Regional cluster policy example: Québec's ACCORD programme

Name	**ACCORD :** ***Action concertée de coopération régionale de développement***
Province	Québec
Objectives	The main goal is to strengthen Québec's competitiveness in strategic sectors and 'niches of excellence'. The programme supports regional business networks, their visibility, and their connection with education and research institutions. Thereby, the programme focuses not only on projects but also on capacity building for business and cluster organisations or other business-related not-for-profit organisations.
Implementation	ACCORD provides its support through business organisations, business NGOs, and collaborations of SMEs. Individual enterprises can only benefit from direct support on an exceptional basis. Furthermore, support is granted to professional schools ("Cégeps"), municipalities and research centres. Drafting and implementation of calls are delegated to regional and local authorities.
Budget and duration	The programme was launched in 2002 and the annual financial assistance coming from the Ministry of Economy and Innovation currently varies between CAD 100,000–300,000 (EUR 75,222– 270,799).

Source: Ministry of Economy, Innovation and Energy of Québec. For the programme guide see here, for more information on the 'niches and poles of excellence', see here.

[65] https://ised-isde.canada.ca/site/global-innovation-clusters/en/success-stories (last access 13.12.2023).

Box 4 : Regional cluster policy example: Québec's Zones d'Innovation

Name	**Zones d'Innovation**
Province	Québec
Objectives	Québec's zones d'innovation (innovation districts) initiative aims to create internationally competitive innovation clusters to increase the commercialization of innovations, exports, firm productivity and domestic as well as foreign investment. Further goals are to hold and attract talent and to improve the socioeconomic performance of regions. A zone d'innovation is characterized by its larger size, strategic importance, and defined geography, all of which are generally bigger than the créneaux, poles d'excellence or even clusters supported by ACCORD.
Implementation	Québec's Department of Economy, Innovation and Energy is currently reviewing applications for the establishment of zones d'innovation. The first two innovation districts, respectively on microelectronics in Bromont and quantum technology in Sherbrooke, were announced in February 2022. More clusters are expected to be established in the near future.
Budget and duration	Initiated in 2019, the zones d'innovation programme's funding period is currently aligned with the innovation strategy of Québec 2022-2027. The government announced a total contribution of CAD 690 million (EUR 481 million) over five years for the two confirmed zones d'innovation.

Source: Ministry of Economy, Innovation and Energy of Québec. See here for an overview and here for the project guide.

04

Past and future of EU-Canadian cluster collaboration

4. Past and future of EU-Canadian cluster collaboration

The involvement of clusters in innovation economic governance and ecosystem development, and their support through dedicated policies at the European, national, and regional levels are of central importance for regional economic development. As outlined by Porter, critical masses of clusters are "a striking feature of virtually every national, regional, state, and even metropolitan economy (…)."[66]. To better understand the development and geographical distribution of the European and Canadian clusters, the following chapter presents the key characteristics of the cluster landscapes in the EU and Canada and maps cluster organisations by geographical distribution. In the second part of the chapter, existing cases of EU-Canadian cluster cooperation are presented, and success stories of EU-Canadian cluster cooperation are showcased.

4.1 Overview of the cluster landscapes in the EU and Canada

4.1.1 Cluster Landscape in the EU

All EU27 Member States recognize cluster organisations as important vehicles for economic growth and regional development by having implemented cluster-specific policy approaches or broader sectoral policies also targeting cluster organisations. Examples of sectoral policies are smart specialisation strategies which are implemented by all regions of the EU27 Member States. Regarding the landscape of cluster policies, a majority of 14 countries are running a dedicated cluster support scheme, two countries employ sectoral industrial policies to support cluster development while the remaining 11 are relying on broader regional development, business and/or innovation programmes that include cluster support. Additionally, there are numerous cluster policy programmes at the regional level (not displayed). Examples of national cluster policies include the French Pôles de compétetivité, the Polish Key National Clusters, the German Zukunftscluster initiative, and the Portuguese Competitiveness Clusters.

When looking at the geographical distribution of cluster organisations within the EU, the number of cluster organisations with profiles on the ECCP by EU27 Member State provides a good overview. Spain (176 cluster organisations), Germany (124 cluster organisations) and France (111 cluster organisations) have the highest absolute numbers of cluster organisations with profiles on the ECCP. These countries are followed by Italy (94 cluster organisations), Poland (80 cluster organisations) and Romania (63 cluster organisations). Figure 21 and Table 4 in the Annex provide a detailed overview of the number of cluster organisations with profiles on the ECCP by Member State of the European Union. The average membership composition across all EU27 cluster organisations is shown in Table 2 below.

[66] Porter, M. (1998): Clusters and the New Economics of Competition. Harvard Business Review Nov-Dec 1998. https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition (last access 05.05.2023).

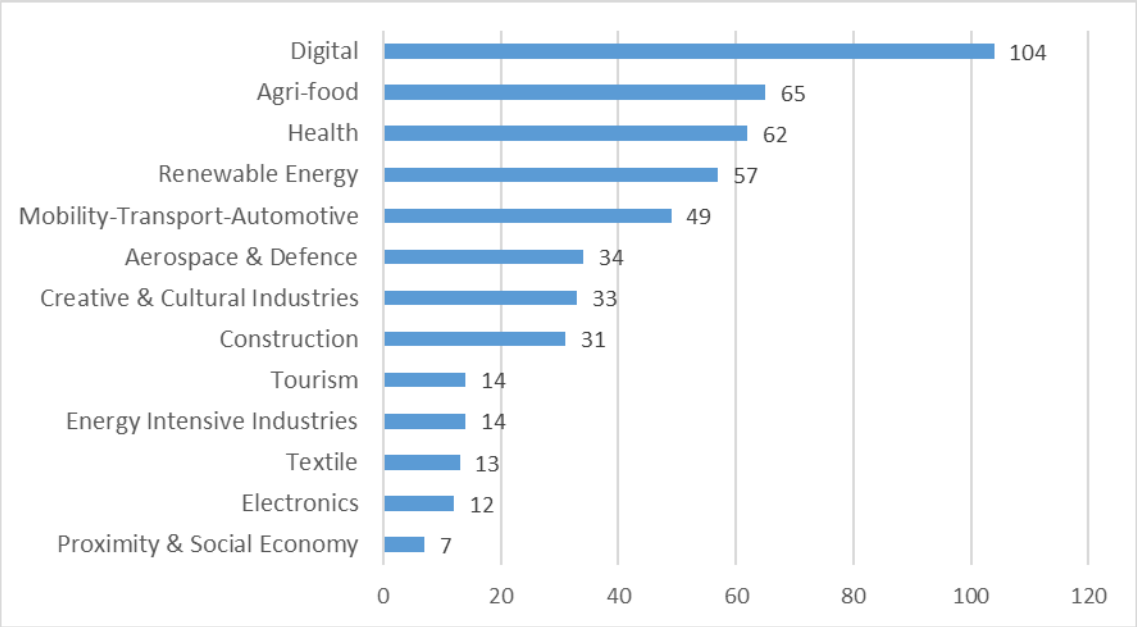
Table 2: Membership composition across all EU27 cluster organisations

SMEs	Large companies	Research organisations	Other	Total
166,034	17,993	12,716	22,736	219,479
76%	8%	6%	10%	100%

Source: ECCP (2023)

When looking at the Industrial ecosystems in which the registered cluster organisations are located, the Industrial Ecosystem "Digital" is by far the most prevalent among the profiled cluster organisations since it is linked to 104 cluster organisations on the ECCP. The Industrial ecosystems "Agri-food" and "Health", with more than 60 cluster organisations, are also among the most represented Industrial ecosystems. There are no EU27 cluster organisations with profiles on the ECCP that are active in the EU Industrial ecosystem "Retail".

Figure 7: Cluster organisations on the ECCP by Industrial Ecosystem

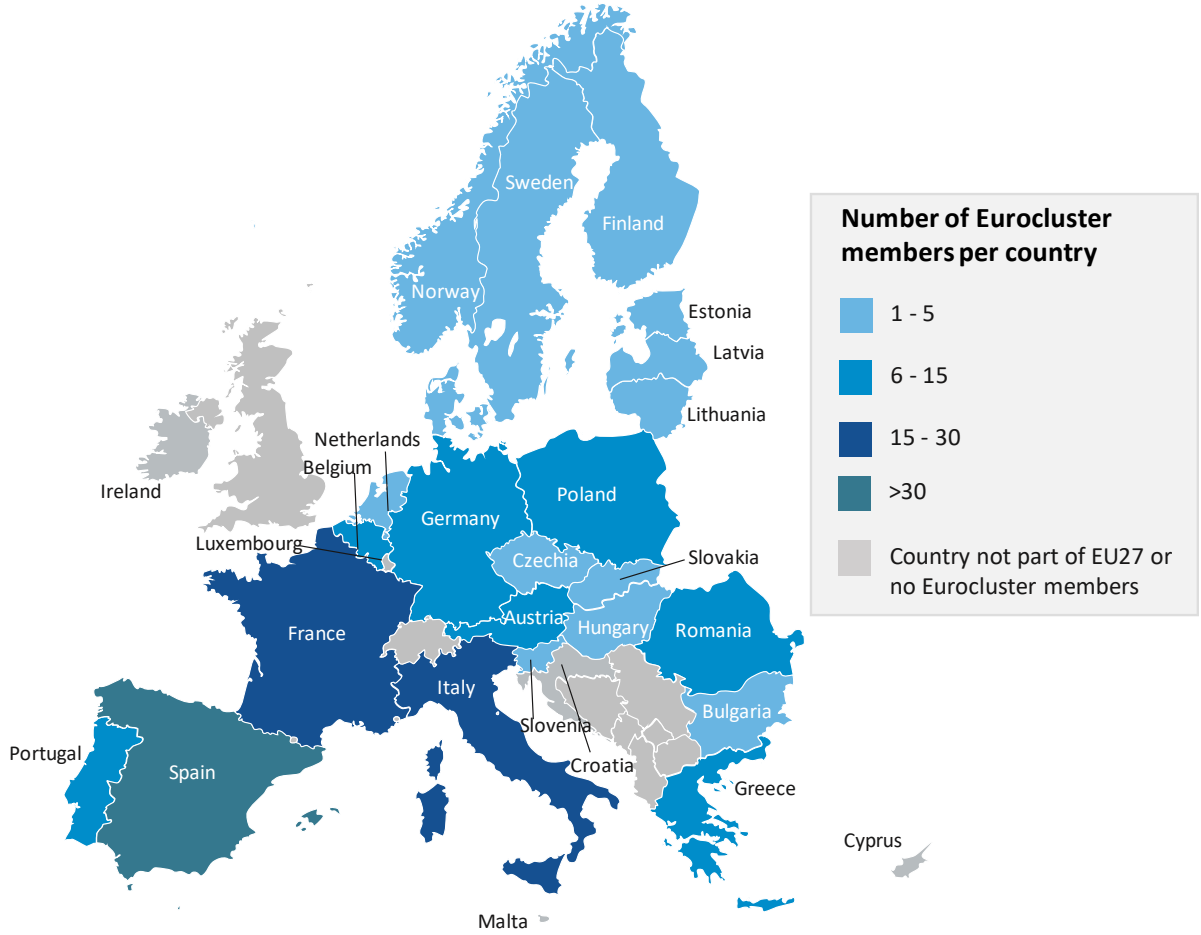


Source: ECCP (2023), own elaboration based on profile information extracted from the ECCP. Note: The numbers do not add up to the total number of registered cluster organisations as not all of them indicated their industrial ecosystem.

Figure 8 shows the distribution of the **156 Eurocluster members by country**. It shows that a high number of Eurocluster members are in Spain (33) followed by France (21) and Italy (21). The most predominant Industrial ecosystems of the 30 Euroclusters are Agri-food and mobility, transport and automotive (each targeted by six Euroclusters), followed by digital industries (5 Euroclusters).[67]

[67] It is important to note that 10 Euroclusters indicated that they are cross-sectoral and are active in more than one Industrial Ecosystem.

Figure 8: Eurocluster members per country



Source: ECCP (2023), own elaboration based on profile information extracted from the Funding & Tenders Portal.

4.1.2 Cluster Landscape in Canada

In **Canada**, like in the EU, cluster development is supported by different programmes at different levels of government, particularly national, provincial and territorial governments. As there is no aggregated data available for all Canadian clusters across programmes, this section focuses on the GIC-supported cluster organisations. Some complementary data and information on Canada's regional economic strengths and assets are available from ISED's Cluster Map[68] tool – a cluster mapping[69] exercise dating from 2016.

Regarding Global Innovation Cluster **membership**, membership structures vary across the five Clusters, as each Cluster has the ability to choose a membership structure that meets the evolving needs of their respective innovation ecosystems. Scale AI and Next Generation Manufacturing have the highest membership levels, with both exceeding 3000 members. The clusters have built and nurtured membership networks that span across the country, playing a significant role in strengthening and building healthy innovation ecosystems. The clusters

[68] ISED (2023): Cluster Map. Available under: https://www.clustermap.ca/app/scr/is/ccmp/web#!/en/home (last access 23.05.2023).
[69] Spencer, G. M. (2014): Cluster Atlas of Canada. Available under: https://clustercollaboration.eu/sites/default/files/international_cooperation/cluster-atlas.pdf (last access 23.05.2023).

leverage their membership networks to invest in networking and capacity building activities, and collaborative projects that accelerate innovation beyond what any one project partner could accomplish on its own.

Figure 9: Membership by Global Innovation Cluster in Canada

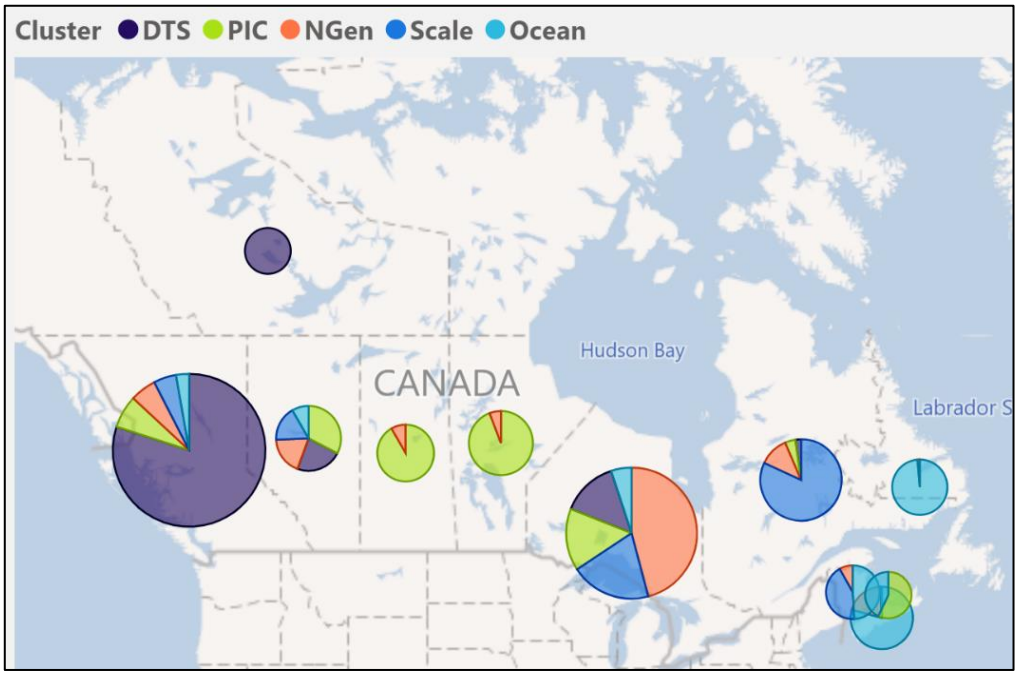
Cluster	Membership
Digital Supercluster	1,228
Protein Industries Canada	230
Next Generation Manufacturing	3,080
Scale AI	3,147
Ocean Supercluster	532
Total	**8,217**

Source: ISED. Data as of 31.03.2023.

The clusters' collaborative model requires **each project to be composed of multiple partners**, including at least one small- or medium-enterprise (SME), which helps provide these SMEs with access to both domestic and global supply chains, and, have turned them into sector consortiums that are producing long-lasting impacts on their respective ecosystems. The collaborative model provides SME participants with access to both domestic and global supply chains and membership networks that span across the country, increasing access to potential customers and collaborators. Through cluster projects and ecosystem activities, SMEs get access to mentorship and information on building capacity internally. That knowledge transfer between large and small firms helps them scale up better and faster. The collaborative model also reduces risks and allows for participants to share the costs of innovation, a key component to scaling. Through the Clusters' collaborative projects to date, nearly 2,400 partners are actively participating in projects, with over 75% of business partners being SMEs.

Figure 10 displays the **geographical distribution** of the Global Innovation Clusters' project partners. It shows clearly that the cluster organisations have distinct core regions while also operating country-wide collaborations. The size of the pie charts represents the total number of project partnerships. British Columbia has the largest number of partnerships (794), followed by Ontario (632) and Quebec (265). The absolute numbers of project partnerships, however, should be handled with care as they do not necessarily reflect project volumes.

Figure 10: Geographical distribution of the Global Innovation Clusters' project partners



Source: ISED. Data: 31.03.2023.

Regarding the **member composition** within project partnerships, half of the project partners across all cluster organisations are SMEs (51%), about equally as many are large firms (14%) and research organisations (16%), while the remaining 19% are made up by other types of partners. The composition varies across regions and cluster organisations (see Table 3).

Table 3: Partnership composition across Global Innovation Clusters, by number and percentage

	SMEs	Large firms	Research organisations	Other	Total
Digital	295	127	127	216	**765**
	39%	17%	17%	28%	
NGen	325	33	75	5	**438**
	74%	8%	17%	1%	
Ocean	127	21	32	74	**254**
	50%	8%	13%	29%	
Protein	192	48	77	102	**419**
	46%	11%	18%	24%	
Scale	232	100	53	47	**432**
	54%	23%	12%	11%	
Total	1171	329	364	444	**2308**
	51%	14%	16%	19%	

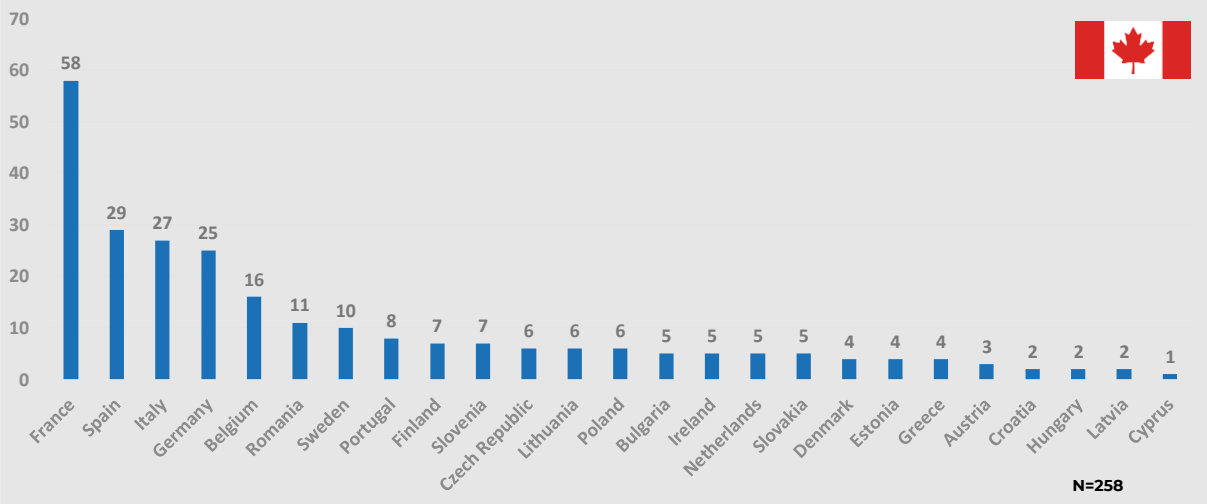
Source: ISED. Percentages refer to the shares within the same cluster. Data: 31.03.2023.

A direct comparison of Canadian and EU cluster landscapes is difficult not only because of data limitations but also because of their different governance structures and layers. While the Canadian clusters benefit from national and provincial support schemes, the EU's Euroclusters programme adds a supranational layer above European national and regional programmes. And while the European Euroclusters are membership-based, the Canadian Global Innovation Clusters have a more hybrid approach, serving the ecosystem needs of their members while also advancing a portfolio of collaborative technology leadership projects. This divergence is reflected in the figures and data presented in this chapter.

4.2 Past EU-Canadian cluster cooperation

When looking at the concrete interest of European cluster organisations to cooperate with Canadian counterparts, 258 out of 1320 registered cluster organisations (~19.5%) on the ECCP indicate that the Canadian market belongs to one of their main target markets. Figure 11 gives an overview of the origin of European cluster organisations registered on the ECCP interested in targeting the Canadian market. While a high number of 58 cluster organisations come from France, also 29 Spanish and 27 Italian cluster organisations indicate Canada as one of their target markets.

Figure 11: Number of European clusters registered on the ECCP targeting the Canadian market by country of origin

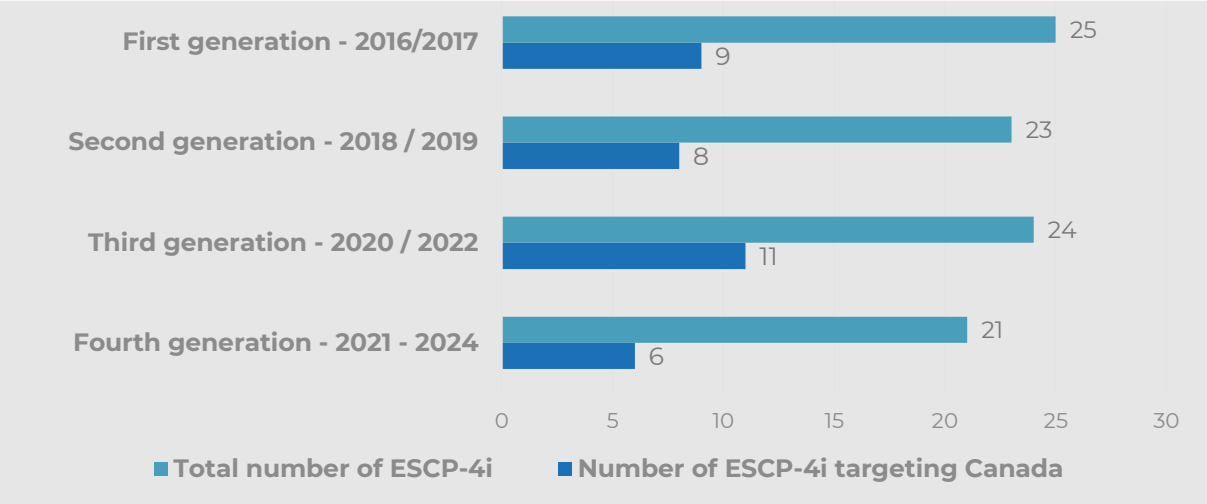


Source: ECCP (2023) based on information from registered cluster organizations on the ECCP. Data: Second quarter of 2023.

European cluster organisations interested in the Canadian market are active in the following Industrial ecosystems: digital industries (23%), aerospace and defence (15%) and agri-food (12%). Other named Industrial ecosystems of the European cluster interested in the Canadian market include health, mobility and transport, construction, and renewable energies.

In the 2014-2020 funding period, the European Cluster Partnerships for Going International (ESCP-4i) focused on the development and implementation of joint internationalization strategies between European cluster organisations. Figure 12 shows the number of ESCP-4i's targeting the Canadian market by each partnership generation and in comparison, the total number of ESCP-4i's of each generation.

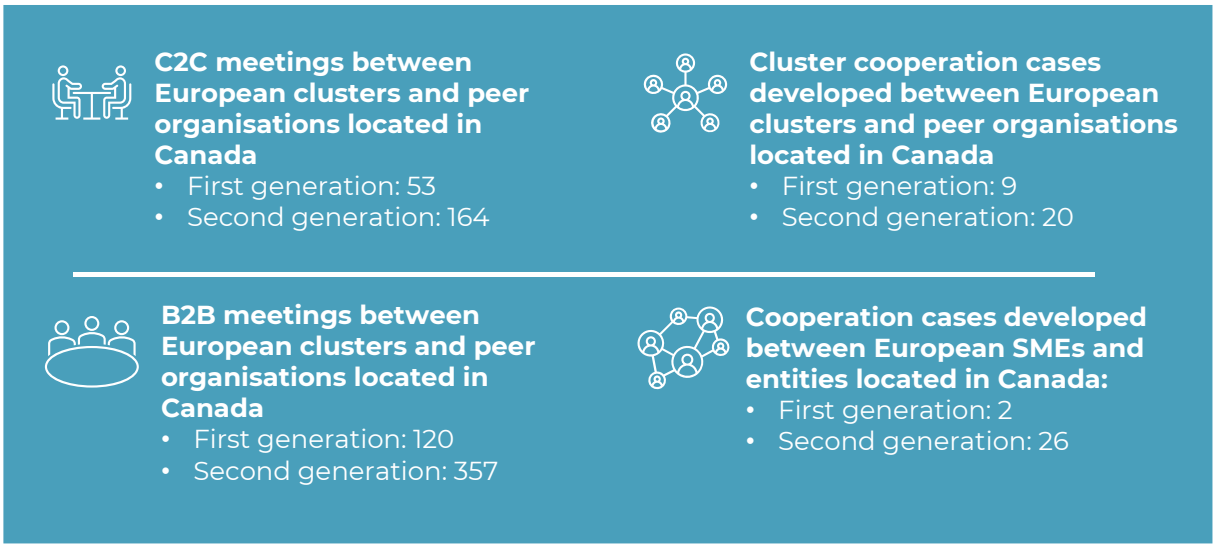
Figure 12: ESCP-4i targeting Canada as the third market by generation (2016-2024)



Source: ECCP (2023), own elaborations based on profile information extracted from the ECCP.

As part of the ESCP-4i partnerships, European cluster organisations developed and introduced joint internationalization strategies to help their SME members go international and scrutinize market opportunities in third countries. Canada, along with the USA, China, Singapore and Israel, was one of the most often targeted markets.[70] To support SMEs to explore market opportunities, more than 200 Cluster to Cluster (CSC) and 400 Business to Business (B2B) events and meetings were organized by the partnerships targeting Canada as a third market (see Figure 13).

*Figure 13: Number of exchanges between European and Canadian clusters and their members through the ESCP-4i's**



Source: ECCP (2023). *Please note that only information for the first and second generation of ESCP-4i's is available.

The rebranding of Canada's Global Innovation Clusters programme places a greater emphasis in the program's second phase on international engagement and partnerships, integration in global value chains, and increased

[70] For a complete overview of ESCP-4i's targeting Canada, please see Figure 24 in the Annex.

global awareness of the program and Canadian innovation ecosystems. In developing their strategic plans, clusters have taken steps to expand their international network of partners to increase competitiveness in global markets, ensure long-term economic growth, and strengthen supply chain resilience. All of Canada's Global Innovation Clusters have indicated an interest either in the EU market as a whole or in specific EU countries as targets for engagement and future growth.

International engagement so far is nascent, with Canada's Clusters in the early stages of exploring international innovation R&D partnerships, business development opportunities, and FDI targets. Each Cluster with activity or strategic interest in the EU has engaged key federal partners, including Canada's Trade Commissioner Service, NRC-IRAP, or Invest in Canada, to inform and support their initiatives, aided by Cluster program officials. Several promising external engagements have already occurred to date, including: Cluster participation in Hannover Messe (advanced manufacturing trade show, Germany) and a future role for Canada as the 2025 partner host country, successful participation at VivaTech Conference (Europe's largest technology and startup event, France), and formalized partnership between Wageningen University (Netherlands) and Protein Industries Canada to support plant-protein collaboration.

05

Overarching learnings and outlook: Potential for future EU-Canadian cluster collaboration

5. Overarching learnings and outlook: Potential for future EU-Canadian cluster collaboration

5.1 Overarching learnings

While the importance of cluster organisations is generally recognized and supported with dedicated cluster policies and programmes in Canada and the European Union, the respective approaches differ depending on a variety of factors such as budget available, geographical reach, beneficiaries and activities funded and more.

Policy approach: The results presented in chapter 3 indicate that both Canada and the EU are actively pursuing cluster policy strategies to further support cross-regional cluster formations, emphasising dedicated thematic focuses. The European Commission introduced in 2021 the Joint Cluster Initiatives (Eurocluster) – a European supranational cluster support programme serving as a vehicle to bring forward EU policy priorities such as the twin transition and resilience building. In Canada, the national Global Innovation Clusters programme (formerly Innovation Superclusters Initiative) was kicked off in 2017 as a national cluster programme to forge nationwide flagship clusters in the country's leading industries poised for future growth and competitive advantage.

Objectives: Examining the overarching objectives of Canadian and EU cluster policies, the primary goals for the currently 30 Euroclusters are to diversify and establish new value chains, to foster up- and reskilling to attract talents and to boost internationalisation activities while offering cascade funding for European SMEs. Activities implemented under the Eurocluster scheme help implement overarching EU policy objectives put forward in the EU Industrial Strategy. In addition to the implementation of a European-wide cluster policy agenda, the European Member States often implement additional national cluster policies (e.g. Germany, France, Poland), combine national strategies with cluster support in broad or sectoral policies (e.g. the regional innovation strategy of Romania) or even have regional cluster policies (e.g. the Catalonia cluster programme).

The overall objective of the Global Innovation Clusters is to help build world leading innovation ecosystems in areas of Canadian competitive advantage and global opportunity. Canada's five selected clusters are focused on strengthening industrial collaboration and connecting innovation ecosystem stakeholders through initiatives focused on artificial intelligence, plant-protein, digital technologies, ocean technologies, and advanced manufacturing. Canada's Clusters are also mandated to address broader horizontal objectives, including the integration of female entrepreneurs and Indigenous communities, to ensure a comprehensive and inclusive approach.

Organisational structure: The industry-led cluster organisations constituting the Canadian GIC clusters are relatively big, collectively having over 8,200 members, and several hundred partner organisations directly involved in Cluster projects. For membership, size varies according to the membership structure selected by each Cluster, from 230 members in the Protein Global Innovation Cluster to over 3000 members in the Next Generation Manufacturing and Scale AI Global Innovation Clusters. For partnerships, their size varies from 419 partnerships in the Protein cluster to 765 partnerships for the Digital cluster. The clusters have both project and ecosystem building objectives with a mandate to advance projects and activities and meet the evolving needs of their innovation ecosystems. Within each project, funds from the cluster organisation must be at least matched by private funds from the industry project partners, and every project must include at least one SME partner.

Euroclusters consist of three to ten cluster organisations coming from different EU27 Member States. While the cluster organisations are the direct beneficiaries, one main characteristic of the Euroclusters is that at least 75% of the consortia grants must be allocated to SMEs through dedicated sub-calls (cascade funding). Grants can be directed to SMEs in different ways such as support services, innovation vouchers, lump sums, living labs and more. The maximum grant amount for each SME is EUR 60,000.

In comparison, both the GIC and the Eurocluster programmes channel funding through their cluster organisations to members and project partners as final recipients. The GIC funding is allocated directly by the GIC cluster organisations to collaborative projects that involve consortia (e.g., of industry, academia, and SMEs), while Eurocluster funding runs through their constituting cluster organisations onto the final recipients.

5.2 Outlook

As cluster networks become larger, transregional and cross-border, Canada's Global Innovation Clusters and the European Union's Euroclusters represent prime examples of this major trend. Both aim to build and link up massive systems of cluster collaboration at the highest political level with the goal to strengthen globally competitive industries and to facilitate commercial advances into new transformative technologies.

By building on existing cluster programmes and **common areas of investment** between Canada and the EU27, the following outlook will briefly point to opportunities for future cluster collaboration by looking at the current political framework conditions and by identifying common fields of interest which might be interesting for future collaboration activities.

Strategic cooperation between Canada and the EU has a long tradition reaching back to the Treaty of Rome in the late 1950s. Today the strategic EU-Canadian partnership is framed by the Canada-EU Strategic Partnership Agreement (SPA) and the Canada-EU Comprehensive Economic and Trade Agreement (CETA), both entering into force in 2017. CETA[71] is a far-reaching free trade agreement that provides the cornerstone of Canada-EU economic relations. The SPA[72] complements CETA by facilitating dialogue in various areas of policy and cooperation, including security, defence, development, climate change, clean energy, digital transition and public health.

As a result of the third EU-Canada Joint Ministerial Committee meeting in May 2022, Canada and the EU have decided to intensify cooperation in the fields of digital economy and emerging technologies. On the one hand, a Global Partnership on Artificial Intelligence (GPAI) has been introduced to further increase synergies in tackling the digital transition with common actions. On the other hand, Canada and the EU decided to work together towards a Strategic Partnership on Raw Materials emphasising to intensify cooperation on raw materials to guarantee the stability of supply chains and to work together on the twin transition (green and digital transition).[73]

When looking at **potential for cluster cooperation**, as of 2019, an administrative agreement between Canada's Department of Industry (ISED), and the EU's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), was established to facilitate cluster cooperation.[74] The primary objective of this

[71] See https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/canada/eu-canada-agreement_en and https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/ceta-aecg/index.aspx?lang=eng (last access 04.05.2023).
[72] See https://www.eeas.europa.eu/node/13529_en and https://www.international.gc.ca/world-monde/international_relations-relations_internationales/spa-aps.aspx?lang=eng (last access 04.05.2023).
[73] European Commission (2021): Press release. EU and Canada set up a strategic partnership on raw materials. Available under: https://single-market-economy.ec.europa.eu/news/eu-and-canada-set-strategic-partnership-raw-materials-2021-06-21_en (last access 07.03.2023).
[74] ISED; DG GROW (2019). Administrative Arrangement on Cluster Cooperation. https://clustercollaboration.eu/sites/default/files/administrative_arrangement_can-eu_clusters_signed.pdf (last access 04.05.2023).

arrangement is to provide greater opportunities for cluster organisations and SMEs to foster strategic business partnerships and linkages with Canada's five innovation clusters.[75] Through the agreement, the EU and Canada aim to establish strategic business partnerships and linkages of around 25 cluster organisations and firms in the EU with the five GICs.

Based on findings from chapter 2, Clusters in Canada and the EU are already active in **common sectors of strength related to traded goods** (e.g., aerospace and defence, agri-food, digital, health, mobility-transport and automotive, and renewable energy) while there remains additional scope for future cluster cooperation activities in key sectors aligned with Cluster areas of focus. In addition, findings from Chapter 2 show that around 380 cluster organisations registered on the ECCP indicate that they have expertise in the mentioned Industrial ecosystems, especially in digital industries, agri-food, health and renewable energy. At the same time, Canada's GICs are also active in these Industrial ecosystems: the Digital Supercluster in digital technologies and health; Scale AI in health and transport; Protein Industries Canada in agri-food; Next Generation Manufacturing in mobility-transport and automotive; and the Ocean Supercluster in transport and renewable energy. For future cooperation of the Canadian GICs and the European Euroclusters, the aforementioned six Industrial sectors could be possible connecting factors. Out of 30 Euroclusters, 18 are involved in the relevant Industrial Ecosystems and eight Euroclusters indicate Canada as one of their target markets for international cooperation (see Box 5 in the Annex).

In conclusion, cluster organisations have a central function in the innovation ecosystems in the EU and Canada and joint strategic opportunities between the European Union and Canada hold tremendous potential for shared economic growth and innovation. By working on closer trade relations in the context of CETA and by fostering strong partnerships and promoting collaboration between innovation ecosystems, the EU and Canada can leverage their complementary strengths, share knowledge, and drive transformative change. Through cluster-to-cluster collaboration, new synergies, and cultivated innovation can be unlocked to build resilient economies that thrive in the face of global challenges.

[75] ISED; DG GROW (2019). Administrative Arrangement on Cluster Cooperation. https://clustercollaboration.eu/sites/default/files/administrative_arrangement_can-eu_clusters_signed.pdf (last access 04.05.2023).

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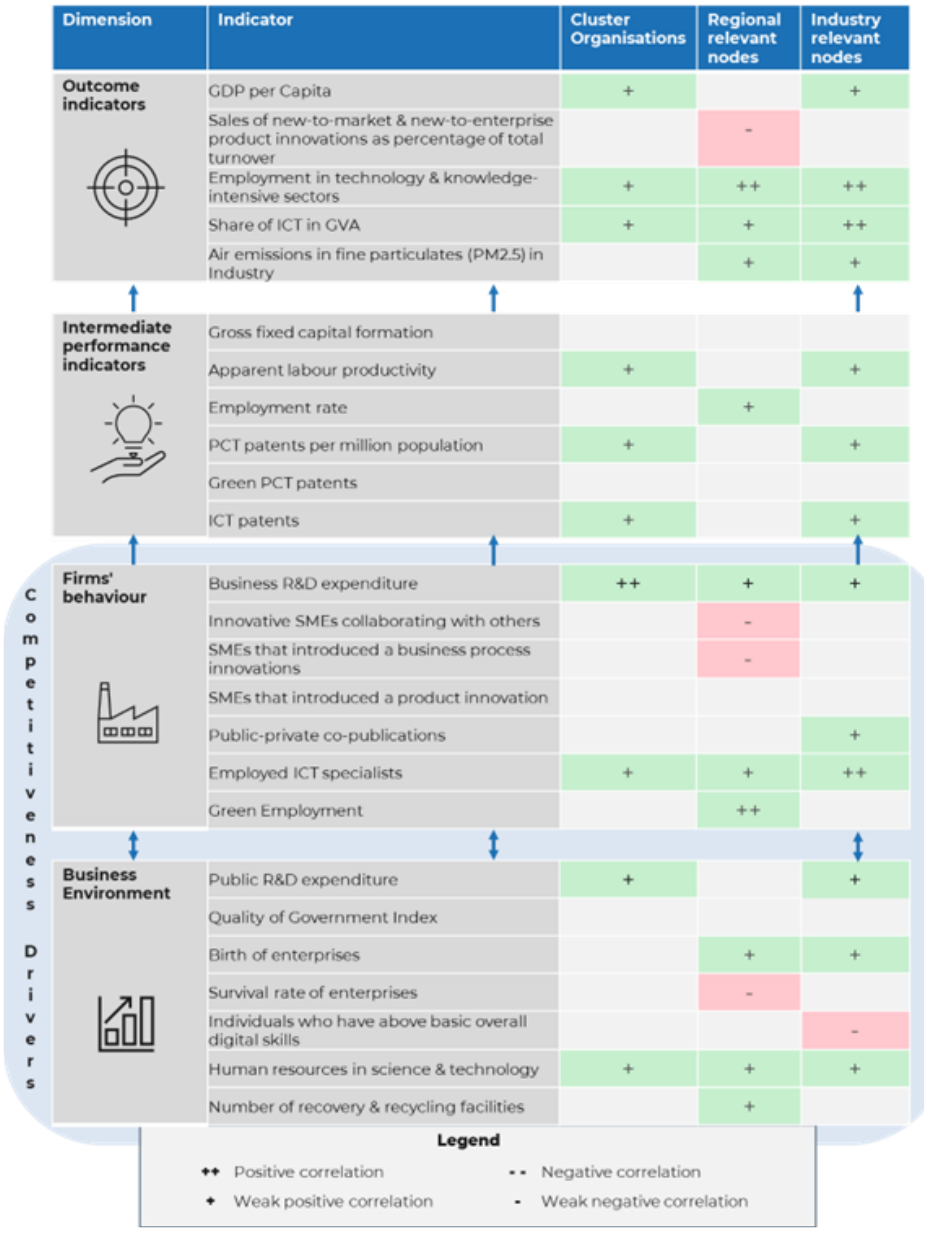
Annex

Additional information on economic profile and key value chains

Figure 14: Relationship of clusters and regional competitiveness, correlation results



Dimension	Indicator	Cluster Organisations	Regional relevant nodes	Industry relevant nodes
Outcome indicators	GDP per Capita	+		+
	Sales of new-to-market & new-to-enterprise product innovations as percentage of total turnover		-	
	Employment in technology & knowledge-intensive sectors	+	++	++
	Share of ICT in GVA	+	+	++
	Air emissions in fine particulates (PM2.5) in Industry		+	+
Intermediate performance indicators	Gross fixed capital formation			
	Apparent labour productivity	+		+
	Employment rate		+	
	PCT patents per million population	+		+
	Green PCT patents			
	ICT patents	+		+
Firms' behaviour	Business R&D expenditure	++	+	+
	Innovative SMEs collaborating with others		-	
	SMEs that introduced a business process innovations		-	
	SMEs that introduced a product innovation			
	Public-private co-publications			+
	Employed ICT specialists	+	+	++
	Green Employment		++	
Business Environment	Public R&D expenditure	+		+
	Quality of Government Index			
	Birth of enterprises		+	+
	Survival rate of enterprises		-	
	Individuals who have above basic overall digital skills			-
	Human resources in science & technology	+	+	+
	Number of recovery & recycling facilities		+	

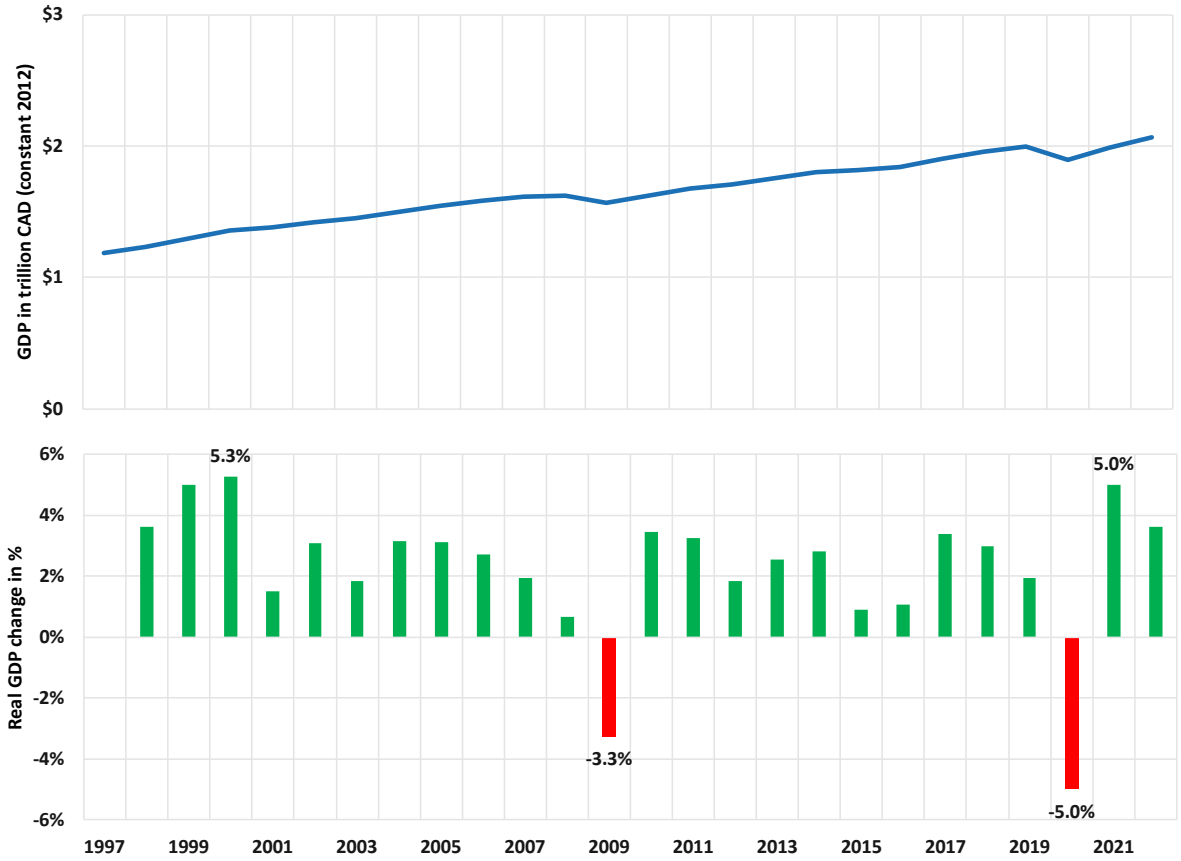
Competitiveness Drivers

Legend

++ Positive correlation
+ Weak positive correlation
-- Negative correlation
- Weak negative correlation

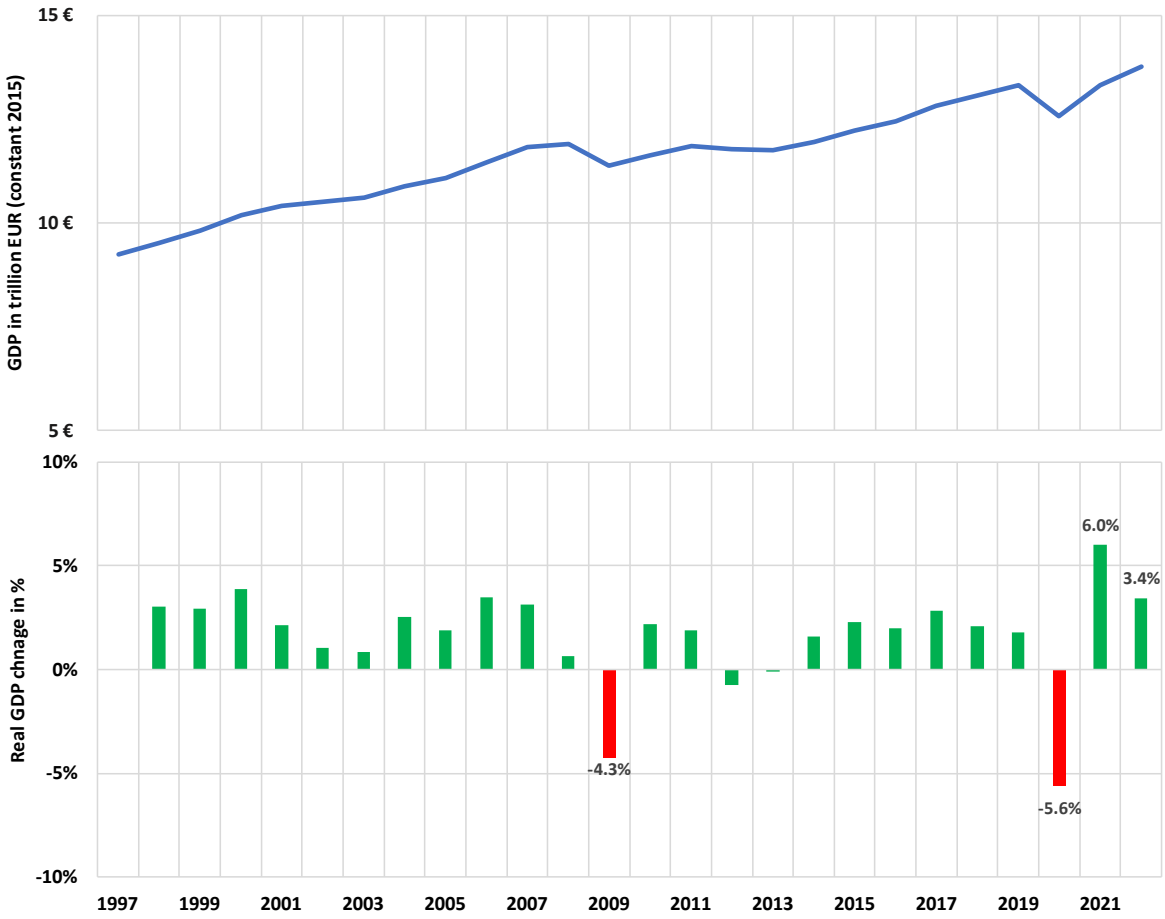
Source: ECCP (2022); cluster organisation data based on information from 1087 cluster organisation in the EU27 extracted from ECCP Platform on 14/10/22, sources of regional competitiveness indicators provided in Table 15 in the Annex. Note: The numbers in the table indicate Pearson correlation coefficients that are significant at 95% level. Positive/negative Correlations include coefficients >=0.3, weak correlations include coefficients >=0.1. Green fields indicate a positive relationship and red a negative relationship.

Figure 15: Canada's GDP at constant prices (2012) in trillion CAD and GDP change in % over time



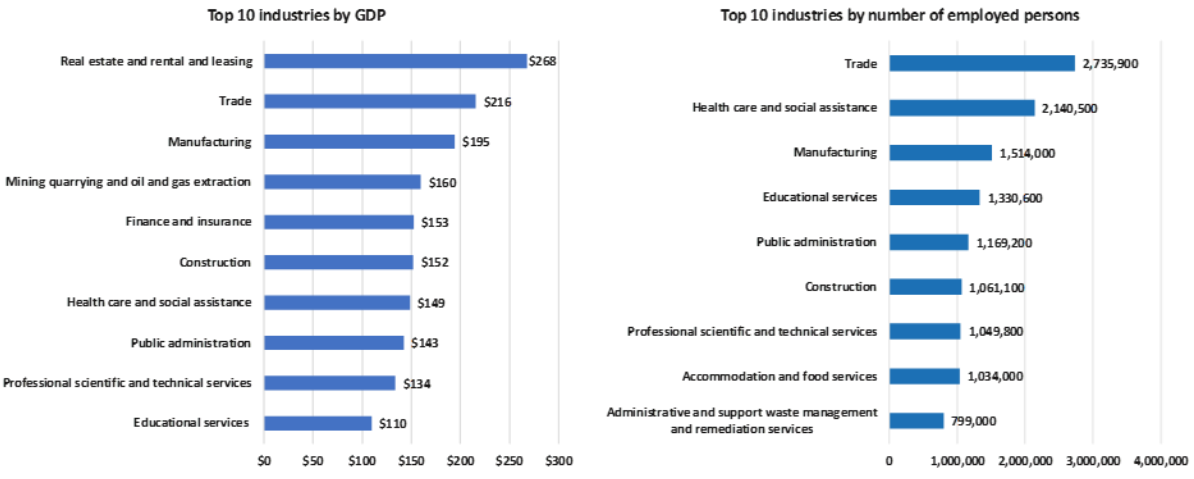
Source: ECCP (2023), own elaboration based on Statistics Canada (2023), Gross domestic product (GDP) at basic prices, by industry, annual average (x 1,000,000).

Figure 16: EU27 Member States' GDP at constant prices (2015) in trillion EUR and real GDP change in % over time



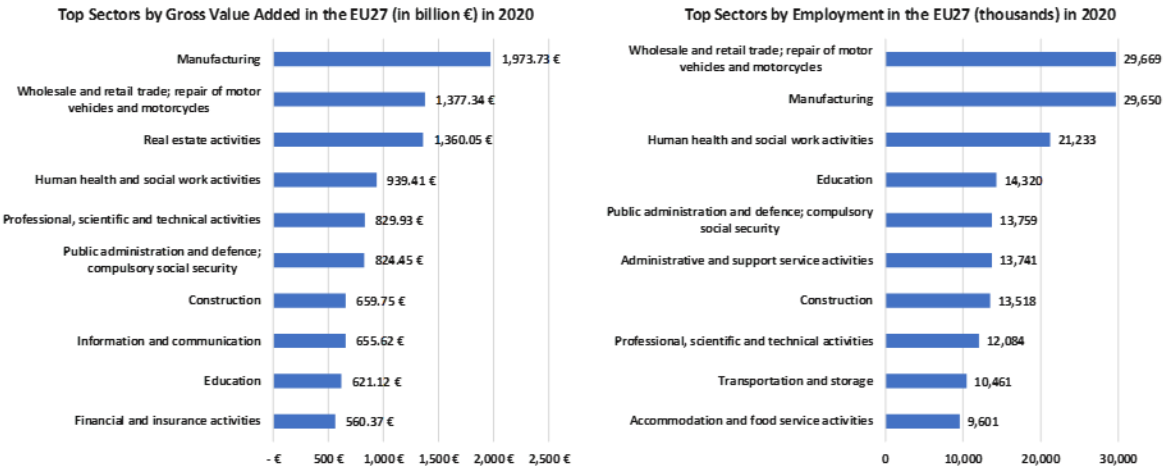
Source: ECCP (2023), own elaboration based on Eurostat, GDP and main components (output, expenditure and income).

Figure 17: Top 10 sectors for gross domestic product (left) and employment (right) in Canada in 2020



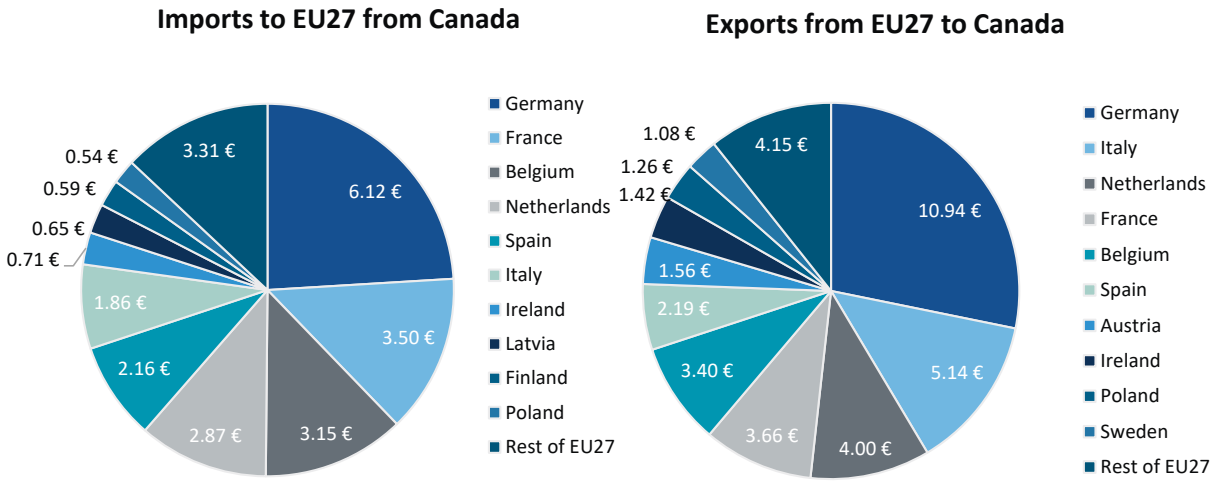
Source: ECCP (2023), own elaboration based on Statistics Canada, Gross domestic product (GDP) at basic prices, by industry, annual average (x 1,000,000).

Figure 18: Top 10 sectors for gross value added (left) and employment (right) in the EU27 in 2020



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

Figure 19: The 10 most important EU27 trading partners for Canada, by imports to EU27 and export from the EU27 in 2021, values in billion EUR



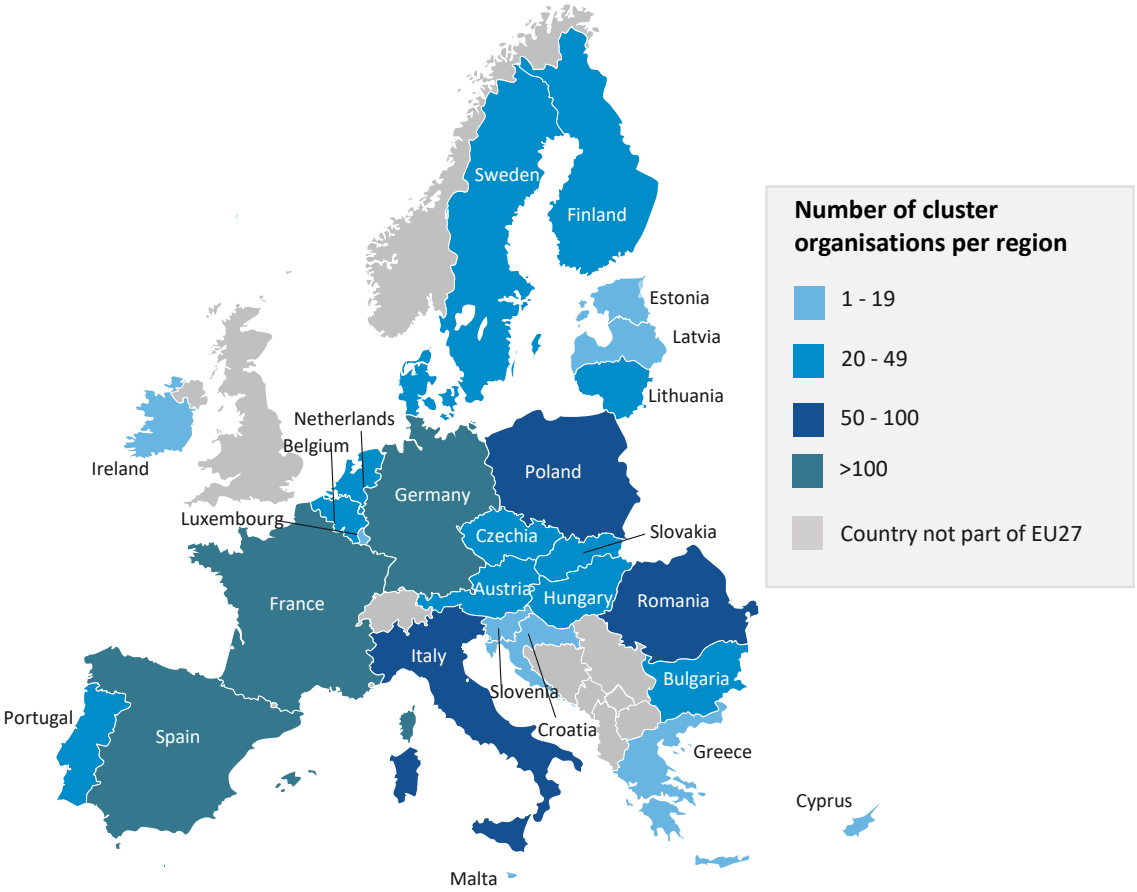
Source: ECCP (2023), own elaboration based on UN Comtrade database.

Additional insights on EU cluster landscape and policy approaches

Figure 20: EU industrial ecosystems based on the European industrial strategy

Source: European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en (last access 21.12.2023)

Figure 21: Number of cluster organisations with profiles on the ECCP, by EU27 Member State



Source: ECCP (2023), own elaboration based on profile information extracted from the ECCP. See Table 4 in the Annex for a more detailed country-by-country overview.

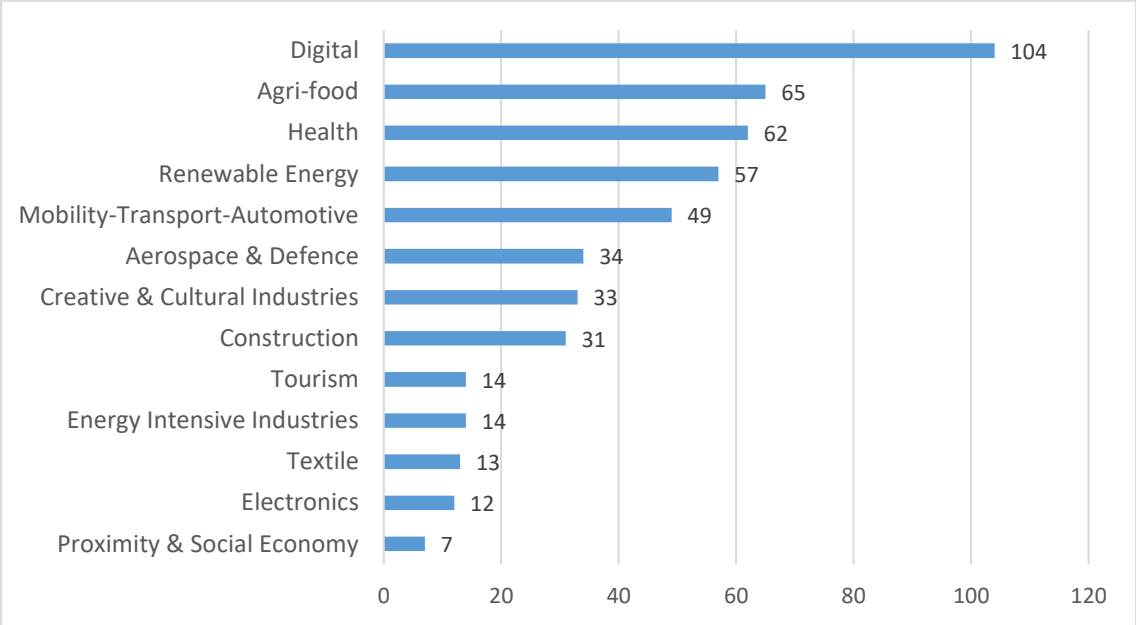
Table 4: Overview of number of cluster organisations with profiles on the ECCP, by EU27 Member State

Country	Number of cluster organisations profiled on the ECCP
Austria	28
Belgium	45
Bulgaria	31
Croatia	15
Cyprus	3
Czechia	24
Denmark	21

Estonia	14
Finland	34
France	111
Germany	124
Greece	18
Hungary	28
Ireland	13
Italy	94
Latvia	14
Lithuania	29
Luxembourg	1
Malta	1
Netherlands	32
Poland	80
Portugal	25
Romania	63
Slovakia	26
Slovenia	19
Spain	176
Sweden	39
Total	**1108**

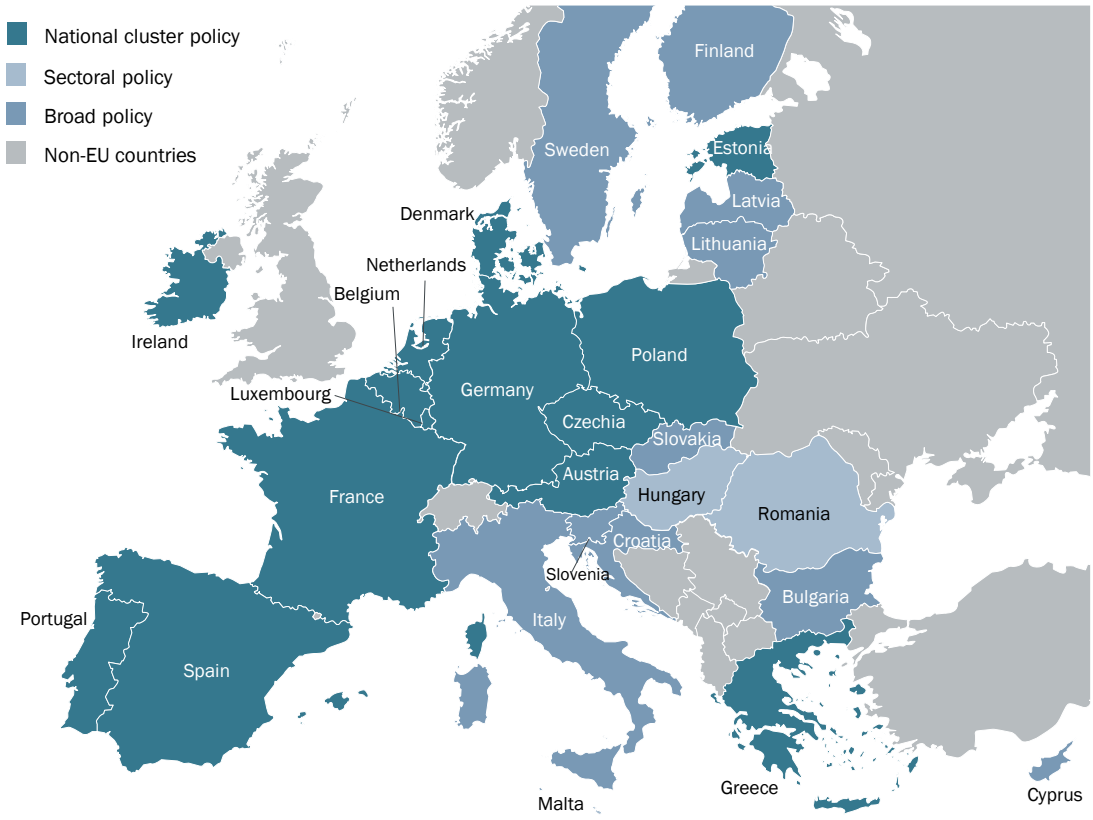
Source: ECCP (2023).

Figure 22: Number of EU27 cluster organisations with profiles on the ECCP, by EU Industrial Ecosystem



Source: ECCP (2023), own elaboration based on profile information extracted from the ECCP. Note: The numbers do not add up to the total number of registered cluster organisations as not all of them indicated their industrial ecosystem.

Figure 23: The state of cluster policy across the EU27



Source: ECCP (2023), own depiction based on information extracted from the ECCP, data as of January 2023.

Box 5: Brief descriptions of the Euroclusters with Canada as target market

Eurocluster	Description/Objectives
CIRCINWATER (ECCP profile)	**Boosting the triple transitions through innovative water-smart solutions** - Connect SMEs along the water value chain with agrifood and energy-intensive industrial ecosystems to promote green, digital and resilient transitions (triple transitions). - Boost SMEs' innovation in terms of products and tools to build water-smart industries. - Improve de collaborative and innovation capacity of the SMEs. - Foster the adoption of processes and technologies to reinforce transformation into a greener and more digital economy. - Speed up SMEs' internationalisation. - Maximise the communication impacts towards agrifood and energy-intensive ecosystems and SMEs. -Define a long-term strategy to ensure the EUROCLUSTER continuity.
DESIRE (ECCP profile)	**Development of E-Health Solutions Improving Resilience in Europe** The DESIRE Eurocluster - 1 business support organisation and 4 clusters (AT, FR, RO, PL) - addressess challenges the SMEs face when accessing the European e-health and digital health market, in order to build resilience and facilitate green and digital transition. DESIRE aims to: - Initiate, develop and maintain long-term partnerships among various actors of the healthcare system. (DESIRE Collaboration Platform). - Provide support services to SMEs in the fields of innovation, green technologies, digitalization, re-upskilling of workforce and internationalization. - Identify innovation and cooperation potentials. - Provide financial support to SMEs, for product and business process innovation, as well as innovation actions.
DREAM (ECCP profile) (LinkedIn)	**DREAM - Digital Resilient Europe for Advanced Manufacturing** is the Eurocluster project, strand DIGITAL, focused on digital and smart manufacturing. It aims at supporting clusters' activities towards SMEs to speed up the adaptation of digital technologies and processes to transform manufacturing companies as greener and more digital. DREAM, launched to implement the EU Industrial Strategy, will contribute to building resilience and accelerating transition to green and digital economy through 6 specific objectives: 1. Network to improve the resilience of the EU industrial ecosystems by developing value chains interlinkages in the EU Single Market. 2. Innovate for strategic autonomy to build capacity in the most critical supplies and technologies of their ecosystems. 3. Adopt processes and technologies to reinforce transformation into a greener and more digital economy. 4. Train to foster up- and re-skilling of the workforce whilst attracting talents.

	5. Go international to boost access to global supply and value chains. 6. Outreach to attract economic actors, mainly SMEs, beyond Euroclusters' locations.
E-BOOST (ECCP profile) (Website)	**ElectromoBility for the recOvery and internatiOnalisation of Small enTerprises** Sustainable mobility is at the core of the European strategy to accelerate the ecological and digital transition, as the transport sector is a major contributor to GHG emissions. On internationalisation: For SMEs that need to internationalize their activities Based on the E-BOOST clusters links in both Canada and the United States of America, the consortium will fuel these connexions within the project activities dedicated to the establishment of cooperation and business agreements. Moreover, North American territory represents a major electromobility market for the deployment of SMEs' businesses. Transports stakeholders from this zone have a head start on other world countries regarding the development of electromobility infrastructure thanks to innovative technologies in terms of hydrogen or electric mobility.
GEMSTONE (ECCP profile) (Website)	**Green Manufacturing supporting recovery and resilience of industrial SMEs** GEMSTONE has the ambition of mobilizing manufacturing companies, in particular innovative SMEs, on the challenges of "Green manufacturing" by developing a dedicated joint service offer and operational and financial support tools around the 3 pillars: Train, Innovate, Expore. The Project will bear a transversal approach and bring this ambition to 5 Thematic Sectors: 1. Energy 2. Mobility 3. Materials 4. Aeronautics/Defence 5. Agriculture/Agrifood
LEVIATAD (ECCP profile) (Website)	**Level 1 Accelerator for Defence Sector** LEVIATAD aims to create the first Eurocluster of excellence in naval defence through cooperation, in terms of synergies and integration, among project partners. The goal will be achieved by following a three-step action plan: - Mapping the value chain of the naval and aeronaval defence sector after the pandemic crisis to better understand the structure of the European ecosystem and possible synergies and complementarities at transnational level. This will enable the Consortium to draw lessons concerning the sector's disruptions and dependencies and develop a more efficient industrial strategy that incorporates the principles of green and digital transitions and increases resilience and competitiveness in a long-term European strategic approach. - Put in place actions to support SMEs in their up-skilling towards strategic technological innovation, seen as the starting point of their path of resilience towards autonomy, while strengthening European sovereignty in the defence sector. Supporting measures include thematic training workshops and financial support actions. - "Go-to-international," i.e. additional supporting measures to help SMEs acquire skills in third-country markets. The aim is to promote action plans to improve the European position in the value chain by supporting innovation processes

	and pushing SMEs to strengthen cooperation with key public and private groups in domestic, European and international markets.
METASTARS (ECCP profile) (Website)	**METAcluster Support Towards a more resilient AeRospace and defence ecosystem** The METASTARS project is designed to provide the most efficient services to boost the competitiveness of SMEs and to build a sustainable and representative network at European level. The project will offer SMEs financial support to develop innovative projects and to benefit from services to adapt to new technologies, to develop or strengthen their green and digital transition, their innovation potential, their internationalisation strategy towards Japan and Canada, and the upskilling of their work force.
SUAVE (ECCP profile) (Website)	**Stimulating SMEs in the new Urban Agriculture Value Chain for sustainable growth in Europe** Several types of Urban Agriculture models exist in parallel, but the market is not structured enough yet and there is a lack of knowledge transfer to the actors, especially SMEs, which often do not sufficiently and efficiently identify and adopt new opportunities or practices offered by new technologies. SUAVE aims to support stakeholders from Urban Agriculture to innovate and develop new practices for urban food systems. SUAVE helps European AgriFood SMEs all along the value-chain with a number of actions to reinforce its autonomy both at technological & industrial levels by increasing the competences. The project beneficiaries earn advantages from different types of services and vouchers value of 1,050 M €: - Network for resilience: Build network to improve their resilience and business models of SMEs; - Innovation in processes and products: Innovate via vouchers to develop new solutions and practices for sustainable and resilient urban food systems; - Adopt processes and technologies: Accelerate twin transition towards green and digital economy; - Training: Increase competences by training for upskilling, networking and learning activities; - Go International: Expand globally, access third markets and generate growth from international activities by participating in international missions to Canada, USA and Mexico. Besides its direct support, SUAVE contributes to lever regional, national and European funding addressed to SMEs and aligned with EC policy on resilience, green, digital, and industrial priorities as well - particularly the Green Deal and the Farm to Fork programme.

Source: ECCP (2023), for an overview of all Euroclusters, see https://clustercollaboration.eu/euroclusters (last access 04.08.2023), further sources noted per Eurocluster.

Additional insights on the Canadian cluster landscape and policy approach

Box 6: Example for the programmatic structure of a supercluster: Digital Supercluster

Cluster	Digital Supercluster

Programme streams	• Health – support the resiliency and sustainability of health care systems and advance health care in ways that support health living, accessibility, and delivering positive outcomes • Natural Resources – advance environmental health, and strengthen the natural resources sector to succeed in a prosperous, low carbon economy • AI – AI for health, AI for resource and agriculture sector, and AI for service agents • Quantum – quantum technologies for safety and security, operations and logistics, and material and chemical discovery • Capacity Building – Increase diversity of the STEM workforce and up-skill workers as they transition away from traditional industry.
Members	• 1000+ Organisations • Industry: Startups, SMEs, Large, Multinational • Research: Universities, colleges, institutes, Government, Not-for-profits
Collaboration approach	• Technology Lead Partners: Product Companies • Co-development Partners: Startups/SMEs • Industry Partners: Customers/Adopters • Digital Supercluster: Co-investor • Technical Service Providers: Solution Integration • Post-secondary & Research Partners: Commercialisation Research
Project example	*Earth X-ray for Low-Impact Mining* is a project led by Ideon Technologies to develop a Discovery Platform facilitating the implementation and integration of methods to identify density and magnetic anomalies with greater resolution and clarity up to 1 km beneath the Earth's surface and thereby avoid costly and invasive drilling. (Project budget: CAD 13.5 million = CAD 7.9 million partner co-investment + CAD 5.6 million supercluster co-investment)

Source: Digital Supercluster. For the Corporate Overview, see here. For the project example, see here.

Box 7: Example for national policy coordination in Canada in the aerospace sector

The Global Innovation Clusters were designed as a long-term investment in key areas where Canada could enhance its position to seize new market opportunities for key sectors and the country. The five Clusters were identified through a national competitive process to find the Canadian economic areas with future global potential and offered the greatest opportunity for impact, with consideration to other government programmes and support. For example, as it relates to other Canadian government support for aerospace, Budget 2021 provided $2 billion in direct support for Canada's aerospace industry to foster innovation, bolster competitiveness and position Canada as a global leader in sustainable aviation. This support included $250 million for the Aerospace Regional Recovery Initiative, and a $1.75 billion aerospace investment target through the Strategic Innovation Fund (SIF). Notably, under this target, a $350 million investment was announced in June 2023 to support the Initiative for Sustainable Aviation Technology of Canada (INSAT) aimed at accelerating the green industrial transformation of Canada's aerospace industry.

Source: ISED.

Additional insights on EU-Canadian cluster cooperation

Figure 24: Overview of ESCP-4i's targeting (besides others the Canadian market (Generation 1 - 4)

Number	ESCP-4i generation	Name of ESCP-4i	Thematic focus	Origin of European clusters involved
1	First generation – Strand 1	LASER-GO	European Cluster Partnership in Photonics for Health	• Lithuania • Austria • France • Germany
2	First generation – Strand 1	AdPack	Future Materials and products for advanced smart packaging	• Germany • Portugal • Belgium • Sweden • Czechia
3	First generation – Strand 1	MobiGoIn	Mobility Goes International	• Sweden • Italy • France • Germany
4	First generation – Strand 1	New Frontier in Food	New Frontiers for Emerging Industries in Food	• France • Belgium • Netherlands
5	First generation – Strand 1	SPACE2ID	Space Clusters International Industrial Diversification	• Greece • Italy • Belgium • France • Poland • Spain
6	First generation – Strand 2	EACP ABROAD	Activities and Businesses from Real Opportunities for Aerospace Developments (EACP network)	• France • Spain • Germany • Cyprus • Turkey
7	First generation – Strand 2	bioXclusters plus	ESCP on Personalised Healthcare	• France • Spain • Italy • Germany
8	First generation – Strand 2	REINA PLUS	Renewable Energy Internationalisation ESCP project for European SMEs	• Portugal • Finland • Spain • Austria
9	Second generation – Strand 1	SpaceWave	Clusters waving the flag to the internationalisation of European SMEs taking advantage of the cross-sectoral dimension of Earth	• France • United Kingdom • Greece

			observation for Blue Growth market	
10	Second generation – Strand 1	ELBE	Europe Leading Blue Energy	• France • Spain • Belgium • United Kingdom • Denmark
11	Second generation – Strand 1	DIA	European Digital Industry Alliance	• France • Germany • Portugal • Spain • Sweden
12	Second generation – Strand 1	EU KETs4Dual-Use	European Key Enabling Technologies for Dual-Use Worldwide	• France • Denmark • Estonia
13	Second generation – Strand 1	FoodNet	Food In Eco Network	• Belgium • Romania • Latvia • Poland • Spain
14	Second generation – Strand 1	GEO-ENERGY EUROPE	Geo-Energy for the XXIst Century	• Belgium • Italy • Hungary • Ireland • Spain • France • Germany • Turkey
15	Second generation – Strand 1	PIMAP Partnership	PIMAP Partnership – Photonics for International Markets and APplications	• Portugal • France • Finland • Nepal • Sweden
16	Second generation – Strand 2	LASER-GO GLOBAL	European Cluster Partnership in Photonics for Health	• Spain • Lithuania • Austria • France • Germany
17	Second generation – Strand 2	AdPack²	European Strategic Cluster Partnership for Advanced Smart Packaging	• France • Germany • Portugal • Belgium • Czechia • Spain

18	Second generation – Strand 2	MobiGoIn-Action	Mobility Goes International - In Action	• Sweden • Italy • France • Germany
19	Second generation – Strand 2	NF4	New Frontiers in Food Fast Forward	• France • Spain • Belgium • Netherlands
20	Second generation – Strand 2	SPACE2IDGO	Space Clusters International Industrial Diversification	• Greece • Belgium • France • Italy
21	Third generation – Strand 1	BRIDGE	Building Relations to go International for Data-Driven Growing Enterprises (start-ups and SMEs)	• Italy • Germany • Romania • Bulgaria • Italy • Serbia • France
22	Third generation – Strand 1	C2Future	Clusters for Cities of the Future	• Bulgaria • Spain • Serbia • Italy • Greece • Ireland
23	Third generation – Strand 1	ELCA4i	European Lighting Cluster Alliance for Internationalisation	• Spain • Italy • France
24	Third generation – Strand 1	PRESTIGIOUS	European strategic cluster partnership to go international for UAV SMEs	• Belgium • France • Spain • Slovenia
25	Third generation – Strand 1	PERCY	PolymER reCYcling	• France • Germany • Slovakia • Denmark
26	Third generation – Strand 1	FASCINATE	Sustainable Fashion Alliance For International Markets	• Spain • Denmark • Portugal
27	Third generation – Strand 2	EUT	EU Techbridge	• Denmark • Spain • Italy • Netherlands • Sweden

28	Third generation – Strand 2	ELBE PLUS	European Leaders of Blue Energy	• United Kingdom • Belgium • France • Spain • Sweden • Czechia
29	Third generation – Strand 2	eT4S	European Technologies for Sustainability	• Spain • Poland • Bulgaria • Denmark
30	Third generation – Strand 2	GEO ENERGY EUROPE 2	Geo-Energy for the XXIst Century	• Belgium
31	Third generation – Strand 2	INTonomous	INTonomous	• France • Sweden • Italy • Hungary
32	Third generation – Strand 2	PIMAP Plus	Photonics for International Markets and Applications Plus	• Italy • Finland • Czechia • Sweden • Portugal
33	Third generation – Strand 2	S2W	Space2Waves	• United Kingdom • Greece • Italy • France • Portugal
34	Fourth generation – Strand 1	ADMANTEX2i	Advanced Manufacturing and Advanced Textile Materials going international to strengthen resilience and to empower industrial recovery	• Spain • Portugal • Italy • France
35	Fourth generation – Strand 1	F2F Health Matters	F2F Health Matters: International development of innovative European heathy food, and sustainable bio-based techno-functional ingredients and bio-solutions in new global markets	• France • Belgium • Portugal • Slovakia • Spain
36	Fourth generation – Strand 1	FGOI	Fostering Single EU Market, Grabbing Third Countries Markets	• Romania • Spain • Slovenia • Czechia • Bulgaria

37	Fourth generation – Strand 1	ICBUILD	ICBUILD Boosting the internationalisation for circularity in the building environment	• Poland • Hungary • Italy • Serbia • Slovenia
38	Fourth generation – Strand 2	EU-ALLIANCE	EU-ALLIANCE : European Alliance for international business development on advanced materials and connectivity for defence and sEcurity	• France • Italy • Netherlands
39	Fourth generation – Strand 2	EU KETs4Dual-Use 2.0	European Key Enabling Technologies for Dual-Use 2.0	• France • Denmark • Estonia

Source: ECCP (2023).