



EUROPEAN CLUSTER
COLLABORATION PLATFORM

Country factsheet

Luxembourg

An initiative of the European Union





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Introduction and economic policy context



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1. Introduction and economic policy context



This document presents an overview of the cluster policy in Luxembourg. To contextualise the cluster policies (and related) analysed in the factsheet, a comprehensive outlook of the country in socioeconomic terms can be consulted in the [European Semester Country Report for Luxembourg](#).

The European Semester was an instrument introduced to coordinate the EU Member States economic policies and address the economic challenges faced by the EU. Its goals are “to ensure sound public finances, to prevent excessive macroeconomic imbalances in the EU, to support structural reforms to create more jobs and growth, and to boost investment”. Thus, it focuses on the following areas: business environment; financial and fiscal stability; green economy; public administration; labour market and skills; and social protection and cohesion. Chapter 4.2 provides an overview on how Luxembourg’s cluster policy could help to tackle the economic policy challenges identified in the European Semester country recommendations.

The COVID-19 pandemic has caused an unprecedented economic shock to the European and global economy. In response, policymakers at EU and national level have acted decisively and at short notice to make available very significant financial resources, notably through the Recovery and Resilience Facility, to tackle the threat of a prolonged downturn. [National recovery and resilience plans](#) have been drafted in each Member State to ensure a recovery that addresses the challenges identified in the European Semester. The [national recovery and resilience plan for Luxembourg](#), endorsed by the European Commission on 18 June 2021, do not refer directly to clusters in order to support the implementation of the investment and reform measures presented. In addition to the COVID-19 pandemic, the ongoing Russian military aggression against Ukraine has also taken its toll on EU companies and industrial ecosystems, highlighting the significance of policy efforts in supporting SMEs and clusters.

The [ERDF partnership agreement 2021-2027](#) between the EU and Luxembourg mentions clusters only once as it states that the ERDF programme “does not support ‘networking’ or ‘clusters’ directly but is rather complementary to the CEF [Connecting Europe Facility], in particular in the areas of digital services and energy”. However, support for technology clusters (“grappes technologiques”) are among the eligible beneficiaries for the ERDF Operational Programme (OP) “[Investing in a smarter and greener Europe](#)” (EU investment 19.68 million EUR). The programme provides support for the Political Objectives (PO) of a Smarter Europe (PO1), focused on RDI capacities, digitalisation, and SME competitiveness and employment, as well as a Greener Europe (PO2), focused on energy efficiency measures and renewable energies.

In the following, a succinct overview of the cluster policy in Luxembourg will be provided. The structure of this factsheet generally encompasses:

- 1) an overview of the industrial ecosystems and cluster landscape
- 2) an overview of the national cluster policy and an insight into the regional cluster policy,
- 3) an assessment of the state of cluster policy in Luxembourg and its role in broader economic policy challenges mentioned in the European Semester Reports

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Industrial ecosystems and cluster landscape



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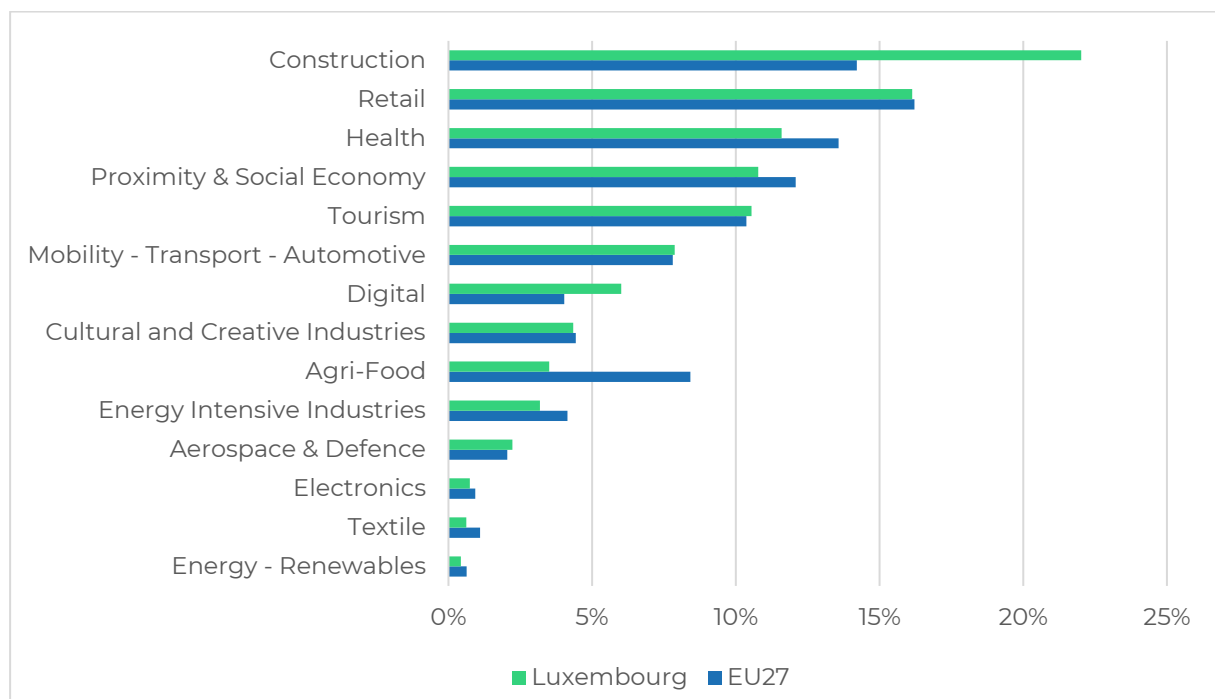
2. Industrial ecosystems and cluster landscape

2.1 Employment in the 14 industrial ecosystems

As part of its Industrial Strategy (March 2020), the European Commission has identified 14 industrial ecosystems that encompass all players operating in a value chain.¹ The classification of the 14 industrial ecosystems have been calculated by aggregating NACE 2 -digit activities, following the methodology established in the European Commission.² This means that the data provided below can differ from other publications by the European Commission that do not consider the industrial ecosystem classification.

In the following figure, the employment share of Luxembourg and the EU27 in each industrial ecosystem is shown relative to the number of employed persons in the 14 industrial ecosystems. The ecosystems are ordered, from top to bottom, according to the amount of employment in the country. When the bar for the country is higher than that of the EU27, it indicates that the country is more specialised in that ecosystem. In Luxembourg, the three strongest ecosystems by employment in absolute terms are Construction, Retail and Health. Of these, however, only Construction has an employment share significantly above the EU27 level, while Retail is slightly below and Health more significantly below average. The only other ecosystem with a clearly above-average employment share in Luxembourg is Digital. By contrast, it shows below-average employment shares for Proximity & Social Economy, Cultural and Creative Industries, Agri-food, and Energy Intensive Industries. Slightly above average are further Tourism, Mobility-Transport-Automotive, and Aerospace & Defence.

Figure 1: Employment across the ecosystems



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

¹ see here for more information <https://clustercollaboration.eu/in-focus/industrial-ecosystems> (last access 09.01.2024).

² see European Commission (2021): Annual Single Market Report, SWD (2022)351.



2.2 Regional agglomerations

Economic activity is not equally distributed across regions in the EU but tends to agglomerate in certain places. In this context, an Agglomeration is defined as the concentration of a certain industry, sector or ecosystem in a certain geographical area. The following section provides an analysis of, first, the sectoral agglomerations and, second, the ecosystem agglomerations in the regions. Agglomerations are operationalised through the employment-based Location Quotients (LQ), measuring the relative specialisation of one region compared to the EU level, as well as the employment size.

If the LQ for a given activity-region combination is above 1.5, it is considered an agglomeration, and if the activity accounts for at least 1 % of total employment in the region, it is considered a regionally relevant agglomeration.³ The following tables show the total number of regionally relevant agglomerations in the country and identifies the top five most specialised of these agglomerations. The first table focuses on the 88 NACE 2-digit activities or sectors, totalling eight in the country, while the second table is based on the 14 ecosystems, of which total one in the country.

Table 1: Number of regionally relevant sectoral agglomerations and Top 5 agglomerations by region (NACE)

Region	Number of agglomerations	Agglomeration 1	Agglomeration 2	Agglomeration 3	Agglomeration 4	Agglomeration 5
LU: Luxembourg	8	U99 - Extraterr. organisations & bodies	K64 - Financial services	K66 - Auxiliary financial activities	M74 – Other professional, scientific, and technical activities	M69 – Legal and accounting activities

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

As mentioned at the beginning of this Chapter, the NACE 2-digit activities have been aggregated to the 14 EU industrial ecosystems following the methodology established by the European Commission. Table 2 provides an overview of the regional distribution of industrial ecosystem agglomerations. Overall, there are fewer numbers of ecosystem agglomerations compared to the regionally relevant sectoral agglomerations by NACE sectors. This more concentrated agglomeration can at least partially be linked to the methodology of measurement of the 14 industrial ecosystems.

The by far most relevant sectoral agglomeration (NACE) is the sector extraterritorial organisations & bodies. This is followed by sectoral agglomerations covering financial and insurance activities, such as financial services (K64) and auxiliary financial activities (K66). However, none of these sectors is included in any of the 14 industrial ecosystems. The only regionally relevant ecosystem agglomeration in Luxembourg is Construction, which also accounts for the largest ecosystem in the country in terms of employment (see Figure 1). This ecosystem agglomeration can be linked to the sectoral agglomerations in the construction of buildings (F41) and specialised construction activities (F43) (top 6th and 8th respectively).

Table 2: Regionally relevant ecosystem agglomerations

Region	Number of ecosystem agglomerations	Agglomeration 1
LU: Luxembourg	1	Construction

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

³ for more information on the methodology see: <https://clustercollaboration.eu/in-focus/policy-acceleration/country-factsheets-on-cluster-policies-and-programmes> (last access 09.01.2023).



2.3 Cluster organisations & interregional cooperation

Cluster organisations in the country

As of January 2024, one Luxembourgish cluster organisation (Cluster Maritime Luxembourg asbl / CML), operating in the ecosystem Mobility-Transport-Automotive, is registered on the ECCP.

Interregional cooperation

In the 2014-2020 funding period⁴, the European Cluster Partnerships and the INNOSUP-1 initiative have been launched by the European Commission to encourage clusters from Europe to intensify collaboration across regions and sectors. Within the 2014-2020 funding period, one Luxembourgish network, the Luxembourg Intrisoft International was involved in the INNOSUP-1 project [BLOCK.IS](#) with partners coming from BE, UK, ES, RS, IE, NL, DE, EL and LT.

In the 2021-2027 funding period, no Euroclusters with participation of Luxembourgish cluster organisations have been funded so far (October 2023).

⁴ Many of the programmes of the 2014-2020 funding period have been terminated by December 2023. However, the collaborative projects that were funded may continue to operate.

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National cluster policy, programmes and initiatives



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3. National cluster policy, programmes, and initiatives


In this section, we provide an overview of the existing national cluster policy of Luxembourg. The breakdown is presented in the form of a table, with the first column showcasing information on the aspects which constitute the policy (beginning with 'Policy Objectives', following with 'Policy Focus', etc.). The second column represents the [Luxembourg Cluster Initiative](#), an initiative that was introduced in 2002.

The thematic focus of the six clusters supported by the Luxembourg Cluster Initiative is set in economic strategic key areas of Luxembourg. The overall objective of the clusters is to further support strategic successful economic priority areas and to improve the sustainable development of Luxembourg. The thematic focus of the six clusters is on:




- Automobility by the [Luxembourg Automobility Cluster](#)
- Health-Tech by the [Luxembourg HealthTech Cluster](#)
- Creative industries by the [Luxembourg Creative Industries Cluster](#)
- Clean-Tech by the [Luxembourg CleanTech Cluster](#)
- Wood industry by the [Luxembourg Wood Cluster](#)
- Materials and manufacturing by the [Luxembourg Materials & Manufacturing Cluster](#)

Within the table the text presented in bold (black) depicts standardised categories across country factsheets (56 in total for 2023), which are applied for comparative purposes. This is followed by a complementary descriptive text to provide more insights about the cluster policy in Luxembourg.

**Table 3: Overview of Luxembourg cluster policy**

Policy type:	National cluster policy
Policy name:	<u>Luxembourg Cluster Initiative</u>
<p>POLICY OBJECTIVES</p> 	<p>Strengthening cooperation between companies or industry and RTDI actors</p> <p>Increasing competitiveness and boosting scale up of SMEs</p> <p>Supporting internationalisation activities</p> <p>Enhancing the visibility of clusters</p> <p>Fostering R&D activities, technology development and implementation</p> <p>Fostering innovation and strengthening innovation ecosystems</p> <p>Supporting the consolidation of existing cluster organisations</p> <p>Supporting the creation of new cluster organisations</p> <p>Promoting entrepreneurship, start-ups, and spin-offs</p> <p>Promoting employment and upgrading skills and competences</p> <p>Strengthening the network of cluster organisations/cross-clustering</p> <p>The Luxembourg Cluster Initiative aims to bring together various clusters and innovation networks based in the country to: foster communication and the exchange of knowledge and know-how between cluster and innovation network members; stimulate the development and implementation of collaborative projects on a national, European and an international level; enhance the visibility of the technological excellence and the innovation potential of cluster and innovation network members; and, encourage the uptake of new technologies and the identification of potential business opportunities. Ultimately, the Initiative is expected to boost competitiveness through innovation, as well as to highlight the capabilities of Luxembourg's dynamic innovation community</p>
	Cross-sectoral






Policy type:	National cluster policy
Policy name:	Luxembourg Cluster Initiative
POLICY FOCUS 	<p>The focus of the Luxembourg Cluster Initiative is placed on strategic technology domains identified as being important to further boost already successful economic fields in Luxembourg as well as to develop new synergies which show the greatest potential for the future sustainable development of the national economy. So far, the domains are Eco-Innovation Technologies; Healthcare and Biotechnologies; Information & Communication Technologies; Materials Technologies; and Space Technologies, Logistics and Maritime activities.</p>
RESPONSIBLE AUTHORITIES 	<p>In charge of drafting</p> <p>In charge of implementation</p> <p>Provides funding</p> <p>Oversees the implementation</p> <p>The Ministry of Economy is responsible of drafting, providing funds and overseeing the implementation, while Luxinnovation, (the national agency for the promotion of innovation and research) oversees the implementation.</p>
BENEFICIARIES 	<p>SMEs</p> <p>Cluster organisations</p> <p>Research organisations</p> <p>Academic institutions</p> <p>Start-ups</p> <p>Large firms</p> <p>Technology centres</p> <p>The beneficiaries are cluster organisations, SMEs, large companies, and public research institutions and to a large extent, other actors involved in the cluster organisations and their activities.</p>



Policy type:		National cluster policy
Policy name:		Luxembourg Cluster Initiative
INSTRUMENTS 	Financial	Funding collaboration initiatives Support to R&D projects, SMEs becoming cluster members, etc. Subsidies to hire personnel Subsidies for cluster infrastructure (e.g. offices, equipment) Financing networking events Supporting market entry (e.g. testing, proof-of concept, prototyping, demonstration projects) Financing start-ups Innovation: voucher, support to hire PhDs, cooperation with R&I actors
	Technical assistance	Support for hard skill development: knowledge transfer, intellectual property, entrepreneurship, export advice, market intelligence Support for networking and partnership building (at national and/or international level) Marketing activities: advertising, communication, events, fairs, etc.
	Explanation	<p>The Luxembourg Cluster Initiative supports beneficiaries in the identification of their specific needs and provides guidance towards the most appropriate solutions from a wide range of internal services or redirecting them to the most relevant partners. Beneficiaries can access cluster knowledge, resources, and networks to optimise their know-how expertise and build on better processes, higher productivity and increased cooperative RDI, which will enable them to access to potential new markets or new growth opportunities. In a collaborative and cross-sectoral way, the Cluster initiative offers support to develop, from an innovative idea, and in collaboration with other private or public partners, a flagship project to contribute to the development of the ecosystem and, beyond, the national economy.</p> <p>There two national funding programmes targeting cluster organisations: Investment Aid for Innovation Clusters, to support the construction or upgrade of innovation clusters, financing the costs in intangible and tangible assets, and Aid for The Operation Of Innovation Clusters, funding the operational costs of cluster organisations, in particular, it covers 50% of the personnel and administrative costs (including overhead costs).</p>



Policy type:		National cluster policy
Policy name:		Luxembourg Cluster Initiative
HISTORY 	Period	Unlimited period
	Ending year <i>(for policies with limited period)</i>	Data not available
	Starting year	2002
	Explanation	No information provided about the ending year.
BUDGET 	Overall	The information is not publicly available.
	Annual	The information is not publicly available.
	Source of funding	Ministry of Economy
POLICY EVALUATION 	Availability	No policy evaluation
	Results	<p>In 2014, the Initiative set the following objectives: to contribute to the creation of 3,000 new jobs and 300 new companies by 2020, but no evaluation has been conducted thus far.</p> <p>“The objectives of the next performance contract (2018-2021) are being finalised. We are aiming for some 200 collaborative projects from cluster activities to be implemented or to be supported by cluster management, 40 of these projects will benefit from national RDI-type financing, four of which will be the subject of a public-private partnership and two of which are for RDI-type innovation clusters or research infrastructure” Johnny Brebels, Head of Cluster Initiative & Flagship Projects, Luxinnovation</p>



Policy type:	National cluster policy
Policy name:	Luxembourg Cluster Initiative
POLICY ALIGNMENT WITH THE EU PRIORITIES 	Green economy Digitalisation

Source: ECCP (2023)

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State of cluster policy and its role in broader economic policy challenges



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4. State of cluster policy and its role in broader economic policy challenges

4.1 The state of cluster policy

This section presents an overview on the state of play of Luxembourg's cluster policy in the form of a qualitative assessment across four categories of analysis – policy scope, continuity of cluster policies, evidence of performance, and the range of cluster support instruments. Please refer to the **Annex** for the detailed overview of the categories. The table below presents an overview of the **state of Luxembourg's cluster policy** for 2023.

Table 4: State of play

Luxembourg	State of play
POLICY SCOPE	Absence of cluster policy
	Broad policy
	Sectoral policy
	National and/or regional cluster policy
CONTINUITY	No cluster-specific policy available
	Cluster policy established recently
	Cluster policy established between over 2 and 10 years
	Cluster policy established over 10 years ago
EVIDENCE OF PERFORMANCE	No evaluation and / or monitoring available
	Existence of evaluations of past policies
	Existence of monitoring or an ongoing / interim evaluation
	Existence of monitoring and ex-ante or ongoing / interim evaluation
CLUSTER SUPPORT INSTRUMENTS	No instruments for cluster development
	Financial support for cluster development in the broader and / or sectoral policy
	Financial or technical support for cluster development in dedicated cluster policy
	Financial and technical support for cluster development in dedicated cluster policy

Source: ECCP (2023).

The text below provides a qualitative description of the state of play of the cluster policy in Luxembourg.

Policy scope

The "Luxembourg Cluster Initiative" was launched in 2002 and is a key element of the national cluster policy of Luxembourg. As such, the programme can be classified a dedicated national cluster policy. Overall, the initiative aims at promoting R&D activities and innovation efforts of companies as well as



their cooperation with public research and educational institutions. In this context, clusters are considered an instrument for knowledge transfer and best practice exchange. The Luxembourg Cluster Initiative is managed by Luxinnovation, the national agency for innovation and research. Luxinnovation works closely with companies, research institutions and politics. In addition, two further clusters have been established in the field of logistics and maritime industries.

Continuity

Cluster policy was first implemented in 2002 with the creation of the Luxembourg Cluster Initiative, which has continued uninterrupted until now. In 2013, the cluster policy was structured in five pillars for enhanced cluster activities, namely: 1. Business development, 2. Internationalisation, 3. Flagship projects, 4. Branding, and 5. Prospection and promotion, which are still relevant today. The Cluster Initiative is still ongoing and no specific termination date is foreseen.

Evidence of performance

No policy evaluations or monitoring are available at the moment that would reflect the impact and progress of the cluster initiative in Luxembourg.

Cluster support instruments

The Luxembourg Cluster Initiative offers different financial and technical support instruments on the national level. The Cluster Initiative is offering different stakeholders such as SMEs and networks, to support them with regards to their specific needs either through cluster knowledge and resources (technical support) or other financial support possibilities.

4.2 Cluster policy's potential impact on challenges identified in the European Semester Report



Cluster policy can provide important support to broader economic policy efforts. This section shows how Luxembourg cluster policy can play a role in addressing the challenges identified in the European Semester Report for the country. To this end, the European Semester 2023 country report for Luxembourg⁵ has been analysed across policy areas relevant to cluster policy. The results point to a series of issues where cluster policy can play an important role in tackling the country's economic challenges.

Table 5: Contribution of Luxembourg cluster policy to the challenges identified in the European Semester Reports

Policy area	Challenges	Cluster policy
INNOVATION 	<ul style="list-style-type: none"> Boosting productivity by supporting business investment, in particular in research and innovation 	<p>The activities of the Luxembourg Cluster initiative should stimulate synergies and emulation amongst members by promoting networking between the public and private sectors, open innovation and exchange of technologies. A reform aimed at setting up a cross-sectoral management of clusters should improve their visibility and impact on Luxembourg companies.</p> <p>The Luxembourg HealthTech Cluster and the Luxembourg Materials & Manufacturing Cluster both</p>

⁵ European Commission (2023): Country report Luxembourg. European Semester country reports 2023. Available at: https://economy-finance.ec.europa.eu/document/download/3bc05f70-1d9d-4b4f-a93a-282128013c78_en?filename=LU_SWD_2023_616_en.pdf



Policy area	Challenges	Cluster policy
		support R&D and innovation projects within their ecosystems. ⁶ Studies point out that the presence of clusters is positively linked to higher expenditures for research and development both in the public and especially the private sector. ⁷ Moreover, important contributions are usually also made by clusters to technology transfer in the innovation ecosystem. ⁸
SKILLS 	<ul style="list-style-type: none"> Promoting the skills needed for the green transition 	Research underlines the role of clusters in developing the skills of the workforce and attracting skilled workers to a region. ⁹
GREEN TRANSITION 	<ul style="list-style-type: none"> Reducing reliance on fossil fuels and accelerating the green transition Investing in renewable energy and promoting energy efficiency, especially in buildings and transport 	<p>As part of the Luxembourg Cluster Initiative, the Luxembourg CleanTech Cluster aims to contribute to the development of new environmental solutions in the field of eco-technologies and sustainable construction. Additionally, it supports Luxembourg companies in the development of new capabilities in the clean technologies field.¹⁰</p> <p>Studies show that clusters can play a vital role in the green transition of the economy through a large set of activities ranging from integrative measures like standard-setting, local value-chain building or the cooperation with other clusters; to organising the access to resources, infrastructure, finance and information; to education and awareness building through workshops, knowledge sharing, campaigns and the promotion of green products and services.¹¹</p>

Source: ECCP (2023).

⁶ see <https://luxinnovation.lu/innovate/partners/connect-with-companies/health-technologies> and <https://luxinnovation.lu/innovate/partners/connect-with-companies/materials-and-manufacturing> (last access 30.04.2024).

⁷ ECCP (2022): Summary report on cluster policies and programmes across Europe and priority third countries. Available online:

https://clustercollaboration.eu/sites/default/files/sites/default/files/editor/ECCP_Summary%20report%20cluster%20policies_2022_finalv2.pdf (last access 21.12.2023).

⁸ Fioravanti, V.; Stocker, F.; Macau, F. (2023): Knowledge transfer in technological innovation clusters. *Innovation & Management Review* 20:1. Available online: <https://www.emerald.com/insight/content/doi/10.1108/INMR-12-2020-0176/full/html> (last access 10.01.2024).

⁹ Hsu et al. (2014).

¹⁰ see <https://luxinnovation.lu/innovate/partners/connect-with-companies/clean-technologies> (last access 30.04.2024)

¹¹ Lis and Mackiewicz (2023); ECCP (2021).

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Annex

Table 6: Analytical framework for the state of cluster policy

Criterion	Description	Categorical variables
Policy scope	Assessment whether the country has a dedicated cluster policy, or cluster creation and/or development is targeted through broader policies, e.g. foreign trade policies, labour and social policies or specific sectoral policies, e.g. industrial policy tourism policies, agriculture policies	absence of cluster policy existence of broader policies existence of specific sectoral policies existence of targeted cluster policies
Continuity of cluster policies	Assessment of the duration and experience of the country in carrying out cluster policies. This criterion assesses only existence of targeted cluster policies and not broader policies or sectoral policies	absence of policies supporting cluster development cluster policy established recently (within the last 2 years) cluster policy established between over 2 and 10 years cluster policy established over 10 years ago
Evidence of performance	Assessment whether there are evaluations of past and ongoing policies and a monitoring system in place. The existence of monitoring and evaluation mechanisms determines the degree of policy development in the country	no evaluation and / or monitoring available existence of evaluations of past policies, e.g. ex-ante existence of monitoring or an ongoing / interim evaluation existence of monitoring and ex-ante or ongoing / interim evaluation
Cluster Support Instruments	Assessment whether the policies provide any instruments to support the policy implementation, being these financial and/or technical support	no instruments for cluster development financial support for cluster development in the broader and / or sectoral policy financial or technical support for cluster development in dedicated cluster policy financial and technical support for cluster development in dedicated cluster policy

Source: ECCP (2023).