EUROPEAN CLUSTER COLLABORATION PLATFORM

Country factsheet

Germany

An initiative of the European Union

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01

Introduction and economic policy context

1. Introduction and economic policy context

This document presents an overview of the cluster policy in Germany. Given the importance to contextualise the cluster policies (and related) analysed in the factsheets, a comprehensive outlook of the country in socioeconomic terms can be consulted in the European Semester Country Report for Germany.

The European Semester is 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 Germany's cluster policy can 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 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. In the Recovery and Resilience Plan for Germany,[1] innovation clusters are mentioned in Part 2 (Description of reforms and investments) as part of concrete national measures expand climate-friendly, wood-based construction with the goals to diversify the economy (resilience) in a sustainable and smart direction. 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.

Within the ERDF Partnership Agreement 2021-2027 Germany, there are reference points to clusters. Promoting innovation clusters and business networks, represents primarily targeted at SMEs, represent an important area of intervention. In the 2014-2020 funding period, the German development strategy with regard to research and development, innovation and the promotion of SMEs and innovative start-ups was already characterised by measures in favour of the players in regional innovation ecosystems. This includes measures to support business networks and clusters. In the 2021-2027 funding period, this fundamental orientation will be further developed and adapted.

Germany's Operational Programmes (OP) for the Cohesion policy funds 2021-2027 vary significantly. Among the 16 OPs, 14 reference clusters in their ERDF programmes. In these, clusters are either identified as possible beneficiaries (in 8 OPs) or as partners or important entities for achieving ERDF objectives, though they do not receive direct ERDF funding (in 6 OPs). The two federal states that do not mention clusters at all (2) still have cluster organisations and funding schemes for them in place.

[1] Bundesministerium der Finanzen, Deutscher Aufbau- und Resilienzplan (DARP). Available at: https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Europa/DARP/deutscher-aufbau-und-resilienzplan.html In particular Component 1.3: Climate-friendly construction and renovation, available at: https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Europa/DARP/2-03-klimafreundliches-bauen-und-sanieren.pdf?__blob=publicationFile&v=5 (last access 30.11.2023).

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

1) an overview of the industrial ecosystems and cluster landscape in Germany
2) an overview of the national cluster policy and an insight into the regional cluster policy,
3) an assessment of the state of play of the national cluster policy and its capacity to tackle wider economic policy challenges mentioned in the European Semester Reports.

02

Industrial ecosystems and cluster landscape

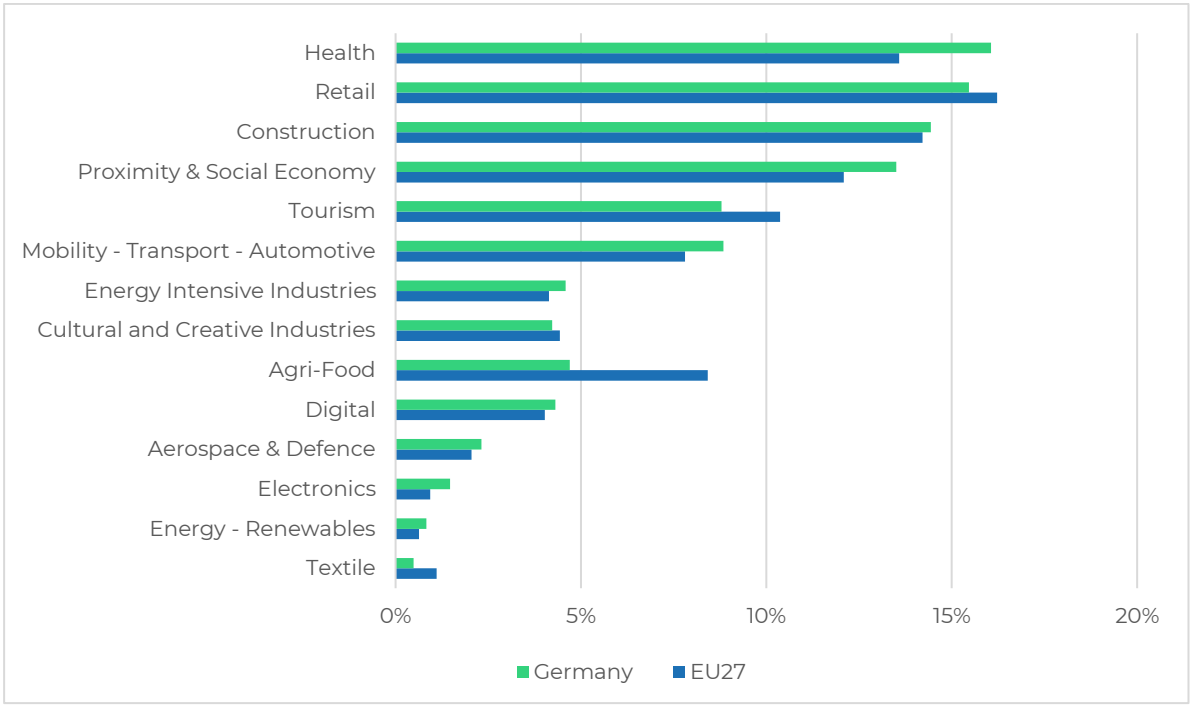
2. Industrial ecosystems and cluster landscape

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.[2] The classification of the 14 industrial ecosystems have been calculated by aggregating NACE 2 -digit activities, following the methodology established in the European Commission.[3] 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 Germany 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. Health is the most prominent industrial ecosystem in both absolute and relative terms, accounting for roughly 16% of employment in all ecosystems, while the EU27 average share is only about 13%. Other ecosystems in which Germany has a higher employment share than the EU27 average include Proximity & Social Economy, Mobility-Transport-Automotive, Energy Intensive Industries, Digital, Aerospace & Defence, Electronics, and Energy-Renewables. The strength of these industries is apparent in the sectoral and ecosystem agglomerations that are regionally relevant across most of the 16 German NUTS 1 regions ("Länder"), as shown in the section below.

Figure 1: Employment in the ecosystems



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

[2] see here for more information https://clustercollaboration.eu/in-focus/industrial-ecosystems (last access 30.11.2023).
[3] see European Commission (2022): Annual Single Market Report, SWD(2022).

2.3 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 a specialisation agglomeration, and if the activity accounts for at least 1 % of total employment in the region, it is considered regionally relevant.[4] The following tables shows the total number of regionally relevant specialisation agglomerations in each region 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 110 in the country, while the second table is based on the 14 ecosystems, which total 11 in the country.

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

Region	# of aggl.	Agglomeration 1	Agglomeration 2	Agglomeration 3	Agglomeration 4	Agglomeration 5
DE1: Baden-Württemberg	8	C28 - Manuf. of machinery & equipment	C29 - Manuf. of motor vehicles & trailers	C26 - Manuf. of electronic & optical products	C27 - Manuf. of electrical equipment	C32 - Other manufacturing
DE2: Bavaria	5	C26 - Manuf. of electronic & optical products	C29 - Manuf. of motor vehicles & trailers	C28 - Manuf. of machinery & equipment	C27 - Manuf. of electrical equipment	S94 - Membership organisations
DE3: Berlin	9	J63 - Information services	S94 - Membership organisations	M70 - Head offices	J62 - Computer programming, consultancy	S96 - Other personal service
DE4: Brandenburg	8	H53 - Postal and courier activities	H52-Warehousing & support for transportation	N82 - Business support activities	F42 - Civil engineering	Q88 - Social work activities without accommodation
DE5: Bremen	9	C30 - Manuf. of other transport equipment	H52-Warehousing & support for transportation	C29 - Manuf. of motor vehicles & trailers	S94 - Membership organisations	N81 - Services to buildings and landscaping
DE6: Hamburg	12	C30 - Manuf. of other transport equipment	M73 - Advertising & market research	H52-Warehousing & support for transportation	M70 - Head offices	K66 - Activities auxiliary to financial services
DE7: Hessen	8	K66 - Activities auxiliary to financial services	K65 - Insurance, reinsurance, pension funding	C20 - Manuf. of chemical products	H52-Warehousing & support for transportation	S94 - Membership organisations
DE8: Mecklenburg-Western Pomerania	5	I55 - Accommodation	N82 - Business support activities	Q88 - Social work activities without accommodation	H53 - Postal and courier activities	N81 - Services to buildings and landscaping
DE9: Lower Saxony	4	C29 - Manuf. of motor vehicles & trailers	S94 - Membership organisations	H53 - Postal and courier activities	Q88 - Social work activities without accommodation	-
DEA: North Rhine-Westphalia	5	C24 - Manuf. of basic metals	C20 - Manuf. of chemical products	S94 - Membership organisations	C28 - Manuf. of machinery & equipment	S96 - Other personal services
DEB: Rhineland-Palatinate	8	C20 - Manuf. of chemical products	S94 - Membership organisations	C23 – Manuf. of other non-metallic mineral products	H53 - Postal and courier activities	S96 - Other personal services

[4] for more information on the methodology please see the methodology note: https://clustercollaboration.eu/in-focus/policy-acceleration/country-factsheets-on-cluster-policies-and-programmes (last access 09.01.2024).

DEC: Saarland	6	C24 - Manuf. of basic metals	C29 - Manuf. of motor vehicles & trailers	C28 - Manuf. of machinery & equipment	S94 - Membership organisations	N81 - Services to buildings and landscaping
DED: Saxony	4	C26 - Manuf. of electronic & optical products	H53 - Postal and courier activities	C29 - Manuf. of motor vehicles & trailers	Q88 - Social work activities without accommodation	-
DEE: Saxony-Anhalt	7	C20 - Manuf. of chemical products	H53 - Postal and courier activities	C33 - Repair and installation of machinery	F42 - Civil engineering	Q88 - Social work activities without accommodation
DEF: Schleswig-Holstein	5	S94 - Membership organisations	S96 - Other personal services	Q88 - Social work activities without accommodation	I55 - Accommodation	N81 – Services to buildings & landscape act.
DEG: Thuringia	7	C26 - Manuf. of electronic & optical products	C22 – Manuf. of rubber and plastic products	C25 - Manuf. of fabricated metal products	C23 - Manuf. of other non-metal mineral products	C27 – Manuf. of electrical equipment

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 ecosystem agglomerations than the regionally relevant sectoral agglomerations by NACE sectors. These more concentrated agglomerations can at least partially be linked to the methodology of measurement of the 14 industrial ecosystems. The regions of Baden-Württemberg (DE1), Bavaria (DE2), Saxony (DED) and Thuringia (DEG) show relevant sectoral agglomerations in sectors, such as the manufacture of computer, electronics and optical products (C26), the manufacture of electrical equipment (C27) and the manufacture of machinery and equipment (C28). This specialisation is reflected in the industrial ecosystem "Electronics", for which each of these regions has a regionally relevant agglomeration.

However, not all sectoral agglomerations are necessarily reflected in the industrial ecosystem agglomerations. For instance, even though the manufacture of motor vehicles trailers (C29) is among the regionally relevant sectoral agglomerations of regions like Baden-Württemberg (DE1), Bavaria (DE2), Lower Saxony (DE9), Saarland (DEC) and Saxony (DED), neither of these regions exhibiting a regionally relevant agglomeration in the ecosystem "Mobility-Transport-Automotive". This discrepancy is likely to be a result from the methodology employed for computing the industrial ecosystems, where especially large diversified regional economies tend to show fewer ecosystem agglomerations. Nonetheless, the sectoral agglomerations further underline the relative strength of Germany in the industrial ecosystems outlined in Ch. 2.1. like "Mobility-Transport-Automotive" but also "Proximity & Social Economy" as reflected in the numerous mentions of the sectoral agglomeration in "Social work activities without accommodation".

Table 2: Regionally relevant ecosystem agglomerations

Region	Number of agglomerations	Agglomeration 1	Agglomeration 2
DE1: Baden-Württemberg	2	Electronics	Energy - Renewables
DE2: Bavaria	2	Electronics	Energy - Renewables
DE3: Berlin	1	Digital	-
DE4: Brandenburg	0	-	-
DE5: Bremen	2	Aerospace & Defense	Mobility-Transport-Automotive
DE6: Hamburg	1	Digital	-
DE7: Hessen	0	-	-
DE8: Mecklenburg-Western Pomerania	0	-	-
DE9: Lower Saxony	0	-	-

DEA: North Rhine-Westphalia	0	-	-
DEB: Rhineland-Palatinate	1	Energy-intensive industries	-
DEC: Saarland	0	-	-
DED: Saxony	1	Electronics	-
DEE: Saxony-Anhalt	0	-	-
DEF: Schleswig-Holstein	0	-	-
DEG: Thuringia	1	Electronics	-

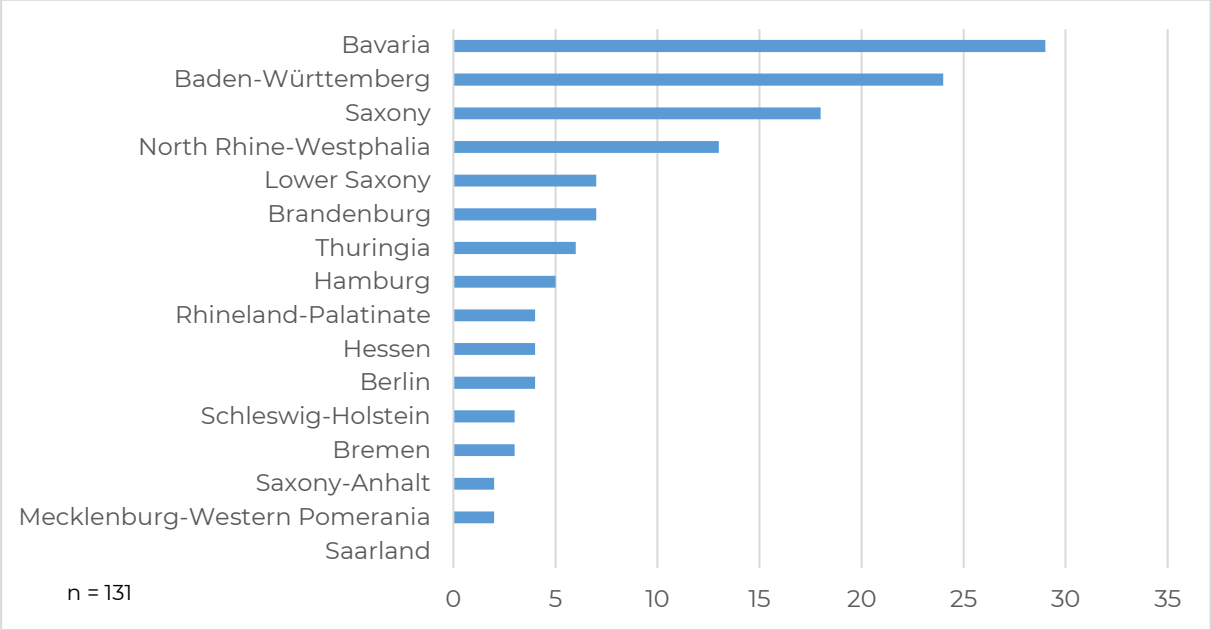
Source: ECCP (2023), own elaboration based on data from Eurostat.

2.3 Cluster organisations and interregional cooperation

Cluster organisations in the regions

There are 131 cluster organisations registered on the ECCP in the country, 29 of which are located in Bavaria. Baden-Württemberg (24 cluster organisations) followed by Saxony (18 cluster organisations) are also among the regions with the highest number of profiled cluster organisations. The German cluster platform[5] currently includes 472 cluster organisations which outlines the potential for more German cluster organisations to register on the ECCP. The following figure shows the presence of cluster organisations in the different regions.

Figure 2: Cluster organisations profiled on the ECCP



Source: ECCP (2023). Note: the data for the analysis was extracted on 21/12/2023.

The majority of member organisations of German cluster organisations with profiles on the ECCP are composed of SMEs (91%, EU: 83%), followed by large enterprises (4%, EU: 9%) and research organisations (5%, EU: 8%). From a thematic perspective, these German cluster organisations are operating in the following industrial ecosystems. Since not all cluster organisations on the ECCP provided this information and clusters can operate in multiple ecosystems, the number of cluster organisations with an allocated industrial ecosystem does not correspond to the overall number of cluster organisations in the country. The following list underlines that German strengths in terms of ecosystem employment (e.g., in Health, Mobility-Transport-Automotive, Digital; see Ch. 2.1) are largely reflected in the German ECCP-registered cluster organisations.

- Health (18 cluster organisations)
- Mobility-Transport-Automotive (15 cluster organisations)
- Digital (13 cluster organisations)
- Agri-food (11 cluster organisations)

[5] https://www.clusterplattform.de/SiteGlobals/CLUSTER/Forms/Suche/DE/Clustersuche_Formular.html?oneOfTheseWords=Suchbegriff+eingeben (last access 30.11.2023).

- Renewable Energy (11 cluster organisations)
- Electronics (8 cluster organisations
- Energy Intensive Industries (4 cluster organisation)
- Aerospace & Defence (3 cluster organisations)
- Textile (2 cluster organisations)
- Creative & Cultural Industries (1 cluster organisation)
- Proximity & Social Economy (1 cluster organisation)

This allocation of cluster organisations to industrial ecosystems reflects the relative employment strength of Germany in the ecosystems Health and Mobility-Transport-Automotive (see Figure 1) as well as the latter's prominence in the sectoral agglomerations of several Länder (see Table 1).

Interregional cooperation

In the 2014-2020 funding period[6], the European Cluster Partnerships have been launched by the European Commission to encourage clusters from Europe to intensify collaboration across regions and sectors.

German cluster organisations have been involved in 51 consortia of the European Strategic Cluster Partnerships, out of which 31 partnerships were focusing on internationalisation (ESCP-4i), 17 partnerships were on cluster management excellence (ESCP-4x) and three partnerships on thematic areas related to regional smart specialisation (ESCP-S3). 31 German cluster organisations participated in the INNOSUP-1 initiative.

Between 2012 and 2022, 288 cluster labels had been awarded to German cluster organisations out of which 198 were Bronze labels, 67 Silver labels and 23 Gold labels.

In the 2021-2027 funding period, the Single Market Programme supports clusters as part of the Joint Cluster Initiatives (Euroclusters) for Europe's recovery. Seven clusters from Germany are part of seven Euroclusters with partners from 15 countries (AT, BE, BG, CZ, DK, EE, ES, FI, FR, IT, NL, PL, PT, RO, SE). These Euroclusters are AIBC Eurocluster, BioMan4R2, FRIEND CCI, INGENIOUS, POLREC, SILICON Eurocluster and SocialTech4EU. Collectively, they cover ten industrial ecosystems, with "Electronics", "Energy Intensive Industries" and "Health", each covered by two Euroclusters. Other industrial ecosystems that are covered include "Cultural and Creative Industries", "Mobility – Transport - Automotive", "Energy-Renewables", "Construction", "Agri-Food", "Retail" and "Proximity, Social Economy and Civil Security", Some Euroclusters cover multiple ecosystems, such as AIBC Euroclusters (covering "Mobility-Transport-Automotive" and "Digital") and POLREC (covering "Mobility-Transport-Automotive", "Electronics", "Energy-Renewables", "Energy Intensive Industries, "Construction", "Agri-Food", "Health", "Retail").[7]

[6] 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.
[7] Assigned Euroclusters to each of the 14 industrial ecosystems is shown on: https://clustercollaboration.eu/euroclusters (last access 20.03.2023).

03

National cluster policy, programmes and initiatives

3. National cluster policy, programmes and initiatives

In this section we provide an overview of the existing cluster policies in Germany on a national as well as an example of the regional level cluster policy.

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 to fourth columns represent the variety of German national cluster policies, whilst the fifth represents an exemplary regional cluster policy. This factsheet showcases an example of a regional cluster policy in the region of Saxony. (All 16 Länder have cluster programmes. Saxony was selected as an example because of its twofold approach towards new and existing clusters.)

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 Germany.

Table 3: Overview of German cluster policy

Policy type:	National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
Policy name:	"go-cluster" programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
POLICY OBJECTIVES	**Supporting cluster excellence and professionalisation of cluster management** **Enhancing the visibility of clusters** **Strengthening the network of cluster organisations/cross-clustering** **Supporting the consolidation of existing cluster organisations**	**Strengthening cooperation between companies or industry and RTDI actors** **Fostering R&D activities, technology development and implementation** **Fostering innovation and strengthening innovation ecosystems**	**Supporting transformation towards sustainable mobility and digitization** **Fostering innovation and strengthening regional innovation ecosystems** **Increasing competitiveness and boosting scale up of SMEs**	**Strengthening cooperation between companies or industry and RTDI actors** **Increasing competitiveness and boosting scale up of SMEs** **Supporting internationalisation activities** **Enhancing the visibility of clusters**

Policy type:	National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
Policy name:	“go-cluster” programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
	Cluster analysis and support of policymaking		**Promoting employment and upgrading skills and competences** **Strengthening cooperation between companies or industry and RTDI actors** **Strengthening the collaboration of intermediaries and stakeholders** **Promoting resilience and sustainable economy;** **Increase supply chain resilience**	**Fostering R&D activities, technology development and implementation** **Fostering innovation and strengthening innovation ecosystems** **Supporting cluster excellence and professionalisation of cluster management** **Supporting the consolidation of existing cluster organisations** **Supporting the creation of new cluster organisations** **Strengthening the network of cluster organisations/cross-clustering**
	“go-cluster” was launched in 2012 to follow up on the previous programme ‘Competence networks Germany’. Already the previous programme focused on cluster excellence, based on the	The Zukunftscluster-Initiative (Clusters4Future) is a central cluster initiative launched in August 2019. Compared to previous measures, such as the Leading-Edge Cluster	The call "Transformation strategies for regions in the vehicle and supplier industry" of the Automotive Industry Future Fund focused on the medium and long-term challenges of	The Saxonian cluster policy is a ‘classic’ cluster policy that supports the establishment or further development of cluster organisations to promote the cooperation between cluster

Policy type:	National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
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	observation that just supporting the establishment of cluster organisations often leads to the creation of weak and non-sustainable organisations who cannot achieve the desired effects. "go-cluster" continues this approach and adds a focus on cross-clustering (by creating a German cluster platform), on increasing innovation and competitiveness and on improving services that cluster organisations offer to their members.	Competition, which was implemented from 2012 until 2017, it starts earlier in the innovation process and particularly addresses young, newly emerging research topics and technologies on the threshold of application. The next generation innovation networks are based on outstanding results of fundamental research. Their aim is to develop new and lasting value systems and to increase the velocity of bringing research to society.	regions in which economic and employment development is particularly dependent on successful transformation in the vehicle and supplier industry. 27 Regional Transformation Networks are funded with an overall amount of 136 M€. The first milestone of these networks is to develop a strategy for regional transformation with the relevant actors and to support their implementation by promoting regional transformation networks. The aim is to develop a future-oriented economic profile for the regions concerned, to improve their innovative capacity and to create long-term prospects for value creation and employment. Reskilling and upskilling of workforce is an important element to support the transformation.	actors. Since 2017, 6 *Innovation Clusters* and 11 *Cooperation Networks* have received support so far. In addition, there is a small number of clusters, which have been established in previous support programmes.

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Policy name:	"go-cluster" programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
			A second call addressed nationwide Transformation-Hubs on selected focus areas to support knowledge transfer to SME and define new RTD-topics. Eleven Transformation-Hubs are funded with 43 M€.	
POLICY FOCUS	**No specific focus**	**Cross-sectoral**	**Sectoral**	**Sectoral**
	The programme does not explicitly focus on any sectors, but rather on innovation, excellence and high prospects of success for the cluster organisations. In practice, participants in the programme are cluster initiatives from all major sectors of the German economy.	The focus is on research and innovation, and on creating new networks beyond existing disciplines, including new players and new ways of knowledge creation and transformation using the open innovation culture in clusters.	Automotive industry, respective suppliers, ICT in automotive	The policy follows the traditional approach of creating cluster organisations in sectors that are strong in the region.
RESPONSIBLE AUTHORITIES	**In charge of drafting** **Provides funding** **Oversees the implementation** **In charge of implementation**	**In charge of drafting** **Provides funding** **Oversees the implementation** **In charge of implementation**	**In charge of drafting** **Provides funding** **Oversees the implementation** **In charge of implementation**	**In charge of drafting** **Provides funding** **Oversees the implementation** **In charge of implementation**

Policy type:	National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
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	The cluster platform is the joint information portal of the Federal Ministry for Economic Affairs and Climate Action and the Federal Ministry of Education and Research. The programme is implemented by the third-party contractor VDI/VDE Innovation + Technik GmbH.	Developed, launched and coordinated by the Federal Ministry of Education and Research. Implemented by the third-party contractor Projektträger Jülich as part of the Research Center Jülich.	Developed, launched and coordinated by the Ministry of Economic Affairs and Climate Action. The cluster funding parts of the programme are implemented by the third-party contractor VDI/VDE Innovation + Technik GmbH.	Developed, launched and coordinated by the Saxonian Ministry of Economy, Labour and Transportation. Funding is channelled through the Sächsische Aufbaubank – Förderbank (SAB), the central development agency of the Free State of Saxony. The programme is implemented by the third-party contractor VDI/VDE Innovation + Technik GmbH.
BENEFICIARIES	**Cluster organisations** **Policymakers**	**Research organisations** **Academic institutions** **Technology centres** **NGOs** **Cluster organisations** **SMEs** **Large firms**	**Depending on module:** **Regional business developers** **Training providers** **Trade unions and employer associations** **Cluster organisations** **R&D organisations** **Start-ups**	**Cluster organisations**

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			SMEs **NGOs** **Technology centres**	
	The programme focusses on cluster excellence and cross-clustering, therefore the main target group are cluster organisations from Germany. Other target groups are cluster organisations and cluster policy programmes from other countries for international networking activities and transnational R&D projects. In addition, there are also programme activities for cluster policy representatives at national and federal state levels (e. g. data analysis and supporting the Federal Ministry for Economic Affairs and Climate Action in developing cluster policies).	In its six-months initial conceptualisation phase, the focus of the measure was clearly on research organisations. The funded participation of companies (e.g. SMEs) and other players in the next generation innovation networks is realised from the implementation phase onwards. There will be up to three three-year implementation phases with an increasing proximity to application.	“Automotive Industry Future Fund” addresses framework conditions, knowledge dissemination and regional transformation with a focus on the respective supplier industries.	The policy focuses on establishing and supporting cluster organisations.

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Policy name:		"go-cluster" programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
INSTRUMENTS	Financial	**Application to labelling schemes and similar initiatives** **Funding collaboration initiatives** (through internal funding calls for members (funding priorities e. g. development of new cluster services, initiation of cross-cluster cooperation, internationalisation, digitalisation, foresight processes))	**Funding collaboration initiatives** **Support to R&D&I projects, SMEs becoming cluster members, etc.** **Financing networking events** **Supporting market entry (e.g. testing, proof-of concept, prototyping, demonstration projects)**	**Funding collaboration initiatives,** **Subsidies to hire personnel,** **Subsidies for network infrastructure (e.g. offices, equipment),** **Financing networking events** **Development of reskilling and upskilling opportunities**	**Support to R&D&I projects, SMEs becoming cluster members, etc.** **Subsidies to hire personnel** **Subsidies for cluster infrastructure (etc. offices, equipment)** **Financing networking events**
	Technical assistance	**Support for soft skills development: coaching, management training, upskilling/reskilling** **Support for networking and partnership building (at national and/or international level)** **Marketing activities: advertising, communication, events, fairs** **Others**	**No non-financial instruments**	**Non-financial instrument towards industry players (services must be free of charge and open to every interested company, no services towards single companies)** **Marketing activities: communication, events, fairs, etc.**	**Support for strategy development: coaching, management training**

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	Explanation	The programme includes direct funding (e.g. support for ECEI labelling, internal funding calls for members) but focuses more on non-financial support (coaching, networking, internationalisation, running the German cluster platform, support for strategy development).	The programme funds a large variety of cluster activities. The focus is on the objective (innovation) and the potential of the applicant, not so much on the type of activity. It covers innovation-supporting measures such as the integration of education and training, innovative methods and instruments for the exchange and use of knowledge (e.g. open innovation and open source), the use of experimental spaces and participatory elements, and social innovations. However, the main focus is on joint R&D project funding.	Funding rates for the non-competitive projects of the „Automotive Industry Future Fund" are up to 100%.	Via the funding of cluster organisations, the programme funds a large variety of cluster activities (e.g. knowledge transfer, networking, partnership building, training, R&D-projects, cross-cluster-projects).
HISTORY	**Period**	**Limited period**	**Limited period**	**Limited period**	**Unlimited period**
	Ending year *(for policies with*	2025	Approximately 2032	Until mid-2025	-

Policy type:		National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
Policy name:		"go-cluster" programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
	limited period)				
	Starting year	2012	2019	2021	2017
	Explanation	In view of the type of programme, it is more likely that it is unlimited/undetermined.	Currently two competition rounds are ongoing; additional rounds are in discussion.	At the moment, the end of the funding period is planned for the end of 2024 (Regional innovation clusters) and mid-2025 (Automotive Industry Future Fund projects) respectively.	There are two tracks: *Innovation Clusters*: Four-year periods of the programme are followed by an evaluation. Evaluations form the basis for layout and funding of a subsequent period (max. 10 years). *Cooperation Networks*: Funding provided for 3 years
BUDGET	**Overall**	Not indicated in the sources	Up to EUR 630 million	EUR 2,5 billion (includes more and different modules with more funding calls, e.g. RTD projects)	Unlimited

Policy type:		National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
Policy name:		"go-cluster" programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
	Annual	EUR 1,21 million	Varying, depending on the implementation by the selected clusters	Varying, about EUR 600 million overall.	*Innovation Clusters*: up to EUR 5 million per cluster (up to 50 % of the eligible costs) *Cooperation Networks*: up to EUR 200,000 (up to 75 % of the eligible costs)
	Source of funding	Federal Government	Federal Government	Federal Government	State Government
POLICY EVALUATION	**Availability**	**in-itinere**	**in-itinere**	**ex-post**	**in-itinere**
	Results	An evaluation was carried out and published in 2016 for the first three years of the programme (2012-2015). The evaluation confirmed that the "go-cluster" programme makes a valuable contribution to promoting innovation through clusters and should be continued. The aim to develop cluster excellence is highly relevant and in line with the cluster policy at EU level. The programme complements well cluster initiatives that are already	The programme started in 2019. A monitoring approach is in implementation. Moreover, a first interim evaluation of the Zukunftscluster-Initiative (Clusters4Future) is in preparation.	The programme has been started in 2021. Most of the projects have been started in 2022. An accompanying monitoring (so-called progress dialogue) is implemented. An overall evaluation (covering also modules outside networks and clusters) is in preparation. The respective specification is drafted.	The cluster support programme has not yet been evaluated.

Policy type:	National cluster policy	National cluster policy	Sectoral policy	Regional cluster policy (example of Saxony)
Policy name:	“go-cluster” programme	Zukunftscluster-Initiative (Clusters4Future)	Zukunftsfonds Automobilindustrie (Automotive Industry Future Fund)	Cluster and Network Support Saxony
	undertaken at regional level. 60% of cluster organisations consulted for the evaluation stated that they were able to improve their know-how thanks to “go-cluster”. One main shortcoming of the programme was that the brand “go-cluster” was not well developed and that positive reputational effects, which were also expected from the European labels, had not materialised to the intended extent. In addition to this evaluation, an internal programme monitoring system has also been put in place and is carried out annually.			
POLICY ALIGNMENT WITH THE EU PRIORITIES	**Green Economy** **Digitalisation** **Resilience**	-	**Green Economy** **Digitalisation** **Resilience**	**Green Economy** **Digitalisation** **Resilience**

04

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

EUROPEAN CLUSTER COLLABORATION PLATFORM

Strengthening the European economy through collaboration

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 German 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 play of German cluster policy** for 2023.

Table 4: State of play

Germany	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 Germany.

Policy scope

Dedicated cluster policy started in the late 90s with the Kompetenznetze Deutschland programme and regional innovation initiatives. Since 2000, numerous cluster policy measures and support

programmes have been implemented at federal state level. In this context, many regions started to establish cluster organisations, and the national Leading Edge Cluster Competition was launched.

As a result, all of the federal states in Germany have individual cluster programmes. These programmes sometimes focus on different goals or support special/other clusters. Therefore, not all regionally supported clusters are also supported at the national level and vice versa.

Continuity

Both, national and state-level programmes, have been running since the late 90s or the mid-2000s – either continuously or, if they ended, a new programme followed these measures. Cluster programmes started as regional innovation initiatives. To date, all 16 Länder (federal states) have cluster initiatives in the context of their regional innovation strategies, which aim to support the development and excellence of cluster organisations. At the national level, primarily the Ministry for Economic Affairs and Climate Action and the Ministry of Education and Research have been running national programmes for more than 20 years that aim to connect clusters beyond the region, to increase the dynamics of innovation and boost the excellence of German clusters at EU and global level.

Evidence of performance

Cluster policy in Germany has on a regular base been evaluated. The Leading Edge Cluster Competition ("Spitzencluster-Wettbewerb") which preceded the current Clusters4Future programme was evaluated in 2014. The Kompetenznetze Deutschland programme was evaluated in 2009. The "go-cluster" programme was evaluated in 2016. The programme "Clusters - Networks – International" has been monitored by accompanying research projects.

Cluster support instruments

The current German national cluster policies employ a broad and varying set of financial and technical support instruments. The go-cluster programme includes direct funding but relies more on non-financial forms of support like coaching, networking, advice for internationalisation, and by running the German cluster platform. The Zukunftscluster initiative funds a large variety of cluster activities. In general, its support is less focused on certain instruments but on the objective of innovation and the type of applicant. It provides support for training, knowledge exchange, experimental and participatory spaces, and social innovations. Its mainstay, however, remains R&D project funding.

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 German 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 Germany[8] 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.

[8] European Commission (2023): Country report Germany. European Semester country reports 2023. Available at: https://economy-finance.ec.europa.eu/system/files/2023-05/DE_SWD_2023_605_en.pdf (last access 21.05.2024)

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

Policy area	Challenges	Cluster policy
INNOVATION 	• Stimulate investment in R&I, in particular in SMEs	Research has found that cluster policy can have an additional positive impact on R&D activity.[9] Both German national cluster policy programmes, and the Zukunftscluster initiative in particular, boast a strong focus on supporting innovation with, e.g., the go-clusters' focus on transnational R&D networks and the Zukunftscluster's next generation innovation networks supporting joint R&D projects. As an illustrative example, one can outline the activities of the cluster Silicon Saxony which is conducting several R&I projects targeted at SMEs.[10]
SKILLS 	• Labour supply • Skills for the green and digital transitions	Research underlines the role of clusters in developing the skills of the workforce and attracting skilled workers to a region.[11] While the general national cluster policies aiming first and foremost at innovation lack a specific focus on upskilling or reskilling, the Automotive Industry Future Fund includes a up- and reskilling as one of its core functions in order to assist the transformation of the automotive industry along the supply chain. As an illustrative example, one can mention the activities of the cluster automotiveland.nrw which is supporting the transformation of the automotive industry in its region and is thereby developing & testing skill development programmes.[12]
GREEN  TRANSITION	• Accelerate decarbonization • Strengthening the circular economy	Clusters can play a vital role in creating sustainable and circular industrial ecosystems.[13] German cluster policy generally includes a specific focus on the green economy. One of the quality criteria for cluster organisations to be part of the go-cluster programme is that they support cluster members in the transition to a green economy. Furthermore, initiatives like the Green Economy Network in North Rhine-Westphalia can lend additional impetus to clusters' ability to transition to circularity on the ground.[14]
DIGITAL  TRANSITION	• Lack of digitalisation among smaller firms, administration, education, health system • Need for targeted digital skill	Studies have shown the positive impact of clusters promoting practices of digitalisation among SMEs.[15] The national cluster programmes go-cluster and Zukunftscluster include general support for digitalisation measures. Clusters like More specific support for the digitalisation of SMEs is provided by the "go-digital" programme of the Federal Ministry of

[9] Ben Hassine and Mathieu (2020) ; Singh et al. (2023).
[10] see https://silicon-saxony.de/leistungen/projekte/mind4machines/ (last access 24.05.2024)
[11] Hsu et al. (2014).
[12] https://automotiveland.nrw/traiber-nrw-transformation-der-automotive-industrie-in-der-bergischen-region/ (last access 24.05.2024)
[13] Nielsen and Nielsen (2019); ECCP (2021);.Lis and Mackiewicz (2023).
[14] https://www.knuw.nrw/green-economy-network-nrw.html (last access 29.01.2024).
[15] Okuwhere et al. (2022).

Policy area	Challenges	Cluster policy
	development, research and investment in infrastructure	Economic Affairs and Climate Action.[16] Organisations like the cluster "ICT, Media & Creative Industries" are actively addressing these topics through the implementations of projects that target SMEs and the digital transformation of work processes.[17]
RESILIENCE AND ECONOMIC SECURITY	• Strengthening strategic supply chains • Shift to circular economy to ensure supply with critical components	Clusters in general and sectoral policies like Automotive Industry Future Fund in particular can assist a coordinated effort at supply chain monitoring, diversification and reshoring as well as the establishment of circular industry standards and recycling chains. The Automotive Industry Future Fund is structured around regional "transformation hubs" with the goal to restructure supply chains with an emphasis on regional SMEs and the circular economy.

Source: ECCP (2023)

[16] https://www.innovation-beratung-foerderung.de/INNO/Navigation/DE/go-digital/go-digital.html (last access 29.01.2024).
[17] https://www.digital-bb.de/erfolgsgeschichten/mr4b (last access 24.05.2024)

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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).