ANALYSIS OF EUROPEAN MODELS FOR THE DEVELOPMENT OF COMPETITIVE CLUSTERS AND VALUE CHAINS

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Abstract. *The examination of European methods for the creation of clusters and competitive value chains is the main subject of the article, with emphasis on adapting them to suit conditions of the Republic of Moldova.. The paper presents a comparative analysis of the cluster policies of six European Union member states-Poland, Germany, France, Lithuania, Italy, and Romania-with a focus on institutional support mechanisms, financing instruments, and monitoring systems for cluster initiatives. The authors analyze the main approaches to cluster development applied in European countries and assess their impact on innovative activity, regional development, and the integration of enterprises into international production networks. The main objective of the research is to identify effective European practices that can be applied to the formation of a sustainable cluster policy in the Republic of Moldova. To achieve this objective, the study analyzed European Union strategic documents, national cluster support programs, as well as statistical and analytical materials from international organizations. The results are presented in a comparative table that reflects the maturity level of cluster policies in the countries studied. The research confirms that the effectiveness of cluster models depends directly on the level of institutional support, sustainable funding, and the integration of participants into innovation and production networks.*

Key words: *cluster development, value chains, EU cluster policy, innovation ecosystems, regional competitiveness*

JEL: O18, R11, L14, O31, F15, R58.

Introduction

Against the backdrop of deepening European integration, the digital transformation of the economy, and intensifying global competition, the study of mechanisms for forming competitive clusters and sustainable value-added chains has taken on particular importance. In recent decades, the "European Union has actively used the cluster-based approach as a tool to stimulate innovation, increase business productivity, promote regional development, and integrate small and medium-sized enterprises into international production networks" (EU4Digital, 2023). Clusters are considered not only a territorial concentration of interconnected companies and institutions, but also a modern form of cooperation that ensures a synergistic effect between the business community, the scientific community, public authorities, and innovation infrastructure.

The relevance of this study stems from the need to enhance the competitiveness of the Moldovan economy in the context of European integration and the global transformation of markets. Of particular importance is the examination of European experience in developing clusters and value chains as an effective tool for stimulating innovation, regional development, and international cooperation. The article analyses successful models of cluster policy in European Union countries

that can be adapted to the national conditions of the Republic of Moldova. The practical significance of the research lies in the possibility of using the identified mechanisms to form a sustainable national policy in the field of clusters and to strengthen the country's innovation ecosystem. The research results can contribute to the development of effective tools to support businesses and to the integration of the Moldovan economy into European production networks.

The research problem lies in the need to identify and analyze effective European models for the development of clusters and competitive value chains, with a view to adapting them to the economic conditions in the Republic of Moldova. Particular attention is paid to institutional mechanisms for supporting clusters, financing instruments, and the integration of enterprises into international innovation and production networks aspects considered a key factor in enhancing the competitiveness of the national economy.

Modern European models of cluster development are based on the principles of innovation, digitalization, sustainable development, and cross-sectoral interaction. In European Union countries, innovative digital clusters have gained particular importance, focused on developing high-tech sectors, accelerating technology transfer, and supporting innovative ecosystems. According to studies by the EU4Digital program, effective cluster management requires sustainable partnerships, robust institutional support, efficient knowledge sharing, and the integration of participants into international value chains (EU4Digital, 2023).

European experience shows that the competitiveness of national economies is increasingly determined by the ability of businesses to integrate into global and regional value chains. In this context, the cluster-based approach becomes a tool for creating sustainable production links, boosting innovation, and expanding the export potential of regions. In EU countries, significant attention is being paid to the development of sectoral and cross-sectoral clusters in the fields of information technology, the agro-industrial complex, machine building, tourism, the creative industries, and the "green" economy (UNDP Moldova, 2024).

Basic content

The purpose of this article is to identify and analyze best practices from five EU member states regarding the development and support of economic clusters and the development of competitive value chains, including food value chains, to inform measures applicable in the context of the Republic of Moldova. Hence, to identify and analyze best practices in support of economic cluster development, five European Union member states were selected: Poland, Germany, France, Lithuania, Italy, and Romania which provide examples of policies and instruments adapted to different levels of maturity and types of industrial ecosystems. (European Commission, 2016; European Cluster Collaboration Platform, 2022).

Poland - a model of integrated support for cluster development

Poland is „a success story in terms of developing a coherent national cluster policy, characterized by institutional maturity, diversified support instruments, and a dual approach: national and regional". (European Commission, 2016)

Poland's cluster policy has developed progressively since the 2007-2013 period, being strengthened in the 2014-2020 period through the explicit inclusion of clusters in *the Operational Program for Smart Growth (POIR)* and in other national and regional programs. (European Cluster Collaboration Platform, 2022).

A central element of the Polish strategy is *the National Key Clusters (KKK)*-clusters officially recognized for their strategic, innovative, and internationalization potential. They benefit from priority access to funding and support programs and actively contribute to the digital and green transformation of the economy. (European Commission, 2020)

Responsible institutions:

- *Ministry of Economic Development, Labor, and Technology* - policy development and coordination;

- *Polish Agency for Enterprise Development (PARP)* - evaluation and implementation of support measures;
- *Regional authorities* - implementation of smart specialization (S3) strategies at the local level (e.g., the Mazowsze region).

Objectives of the national cluster policy:

- increasing the competitiveness of SMEs through network cooperation;
- supporting internationalization and access to foreign markets;
- developing research, innovation, and technology transfer capabilities;
- promoting collaboration between the business and academic communities;
- strengthening regional innovation ecosystems. (European Commission, 2021a; European Commission, 2021b).

Support measures and instruments:

- funding for support services (marketing, trade fair participation, international branding);
- support for cluster coordinators (salaries, training, ICT, infrastructure);
- grants for SMEs that are members of **clusters** (innovation, internationalization, digitalization);
- creation of regional meta-clusters and promotion of cross-border collaboration.
- periodic evaluations and clear performance criteria for access to funds:

1. *Economic representativeness of the cluster:*
   - Minimum number of members (usually ≥ 30 entities).
   - At least 50% SMEs.
   - Operating in a strategic sector of the economy.
2. *Professional governance and management:*
   - Presence of a coordinator with managerial experience.
   - Multi-year strategic plan.
   - Functional decision-making mechanisms and member involvement.
3. Demonstrable activity in innovation and R&D:
   - Joint research and innovation projects over the past 3 years.
   - Active partnerships with research institutions or universities.
   - Participation in funded projects (e.g., Horizon, Interreg, POIR).
4. *Internationalization:*
   - Participation in international trade fairs, exhibitions, and networks (e.g., ECCP).
   - Cross-border collaborations or joint EU projects.
   - Concrete plan for expansion into foreign markets.
5. *Economic impact and development potential:*
   - Increase in members' aggregate turnover.
   - Job creation.
   - Investments attracted to the region.
6. *Organizational sustainability:*
   - Diversified funding sources (not just public funds).
   - Financial contributions from members to the cluster's budget.
   - Stable administrative structures.

The cumulative budget for cluster-dedicated programs exceeded €33 million during the 2014-2020 period, with co-financing from national and European funds (Horizon 2020, Interreg, Digital Poland, Smart Growth, etc.). (European Cluster Collaboration Platform, 2022)

Germany-a model of excellence and federal coordination in cluster development

Germany, in authors' opinion has one of the most well-established cluster support policies in the European Union, characterized by coherence, continuity, and an integrated approach at the federal and regional levels (INNO Germany AG, 2010). Cluster policy is implemented both by the federal

government, through the relevant ministries, and by the 16 states, each with its own initiatives tailored to regional specifics. (European Commission, 2016a)

Institutional and Strategic Framework

The main institutions involved in defining and implementing cluster policies are:

- *Federal Ministry for Economic Affairs and Energy (BMWi);*
- *The Federal Ministry of Education and Research (BMBF);*
- *Regional authorities (e.g., the Bavarian Ministry of Economic Affairs).*

At the national level, there are a number of **complementary programs:**

1. "go-cluster" (2012-present): a program for the professionalization and certification of high-performing clusters, managed by VDI/VDE Innovation + Technik GmbH.
2. "Zukunftscluster - Clusters of the Future" (2019-present): a strategic program aimed at strengthening emerging clusters around cutting-edge research topics and technology transfer.
3. "Clusters - Networks - International" (2014-present): supports transnational cooperation and integration into international innovation networks.
4. Cluster Bavaria Initiative (2006-present): a regional example that has achieved a high degree of maturity and replicability.

Objectives of the clustering policy

- Promoting excellence and the professionalization of cluster governance structures;
- Supporting research, development, and innovation (R&D&I) projects;
- Supporting digitalization, internationalization, and cross-sectoral cooperation;
- Integrating clusters into global value chains and innovation ecosystems;
- Ensuring an active network of clusters with regional and national impact.

Support Measures and Instruments

German policies offer a wide range of financial and technical instruments, including:

- Direct funding for R&D&I projects, internationalization initiatives, and support services;
- Grants for management infrastructure and cluster coordinators' staff;
- Certification schemes (e.g., ESCA Gold Label);
- Support for skills development, management training, and strategic partnerships;
- Promotion of clusters in international networks (through ECCP, Interreg, Horizon, etc.).

Allocated budgets and financial impact

Germany is investing significantly in cluster development:

- The "Zukunftscluster-Initiative" has a total budget of up to €450 million, allocated for applied research and industry-science collaborations.
- "Clusters - Networks - International" has a budget of €80 million for internationalization and transnational collaboration.
- "Cluster Initiative Bavaria" received €16 million in funding for the period 2020-2023.
- "go-cluster" has an annual budget of approximately €1.21 million and provides valuable non-financial support through platforms, networks, and technical assistance.

Assessment and Maturity

German cluster policies are characterized by:

- continuity (programs active from the 1990s to the present);
- periodic evaluations (e.g., the 2016 "go-cluster" evaluation, "Cluster Initiative Bavaria" in 2008, 2010, 2014, 2018);
- alignment with EU priorities: green transition, digitalization, territorial cohesion;
- high maturity, with Germany achieving the maximum score in all four dimensions of the cluster policy maturity indicator: existence, consistency, evaluation, and instruments. (European Cluster Collaboration Platform, 2022).

France - Institutional Model for Supporting Competitiveness through "Pôles de compétitivité"

France, in authors' opinion is one of the earliest and most established European models in terms of national policies dedicated to cluster development, with over two decades of institutional experience. (European Commission, 2016a). French public policy in this area is based on the concept of *"Pôles de compétitivité"*-thematic cooperation clusters structured among firms, research institutes, and universities, supported financially and strategically by the French state and regional authorities.

Institutional Framework and Responsibilities

Cluster policy in France is designed and implemented by:

- The Ministry of Economy and Finance - the main actor responsible for developing, funding, and monitoring the national policy for "Pôles de compétitivité."
- Bpifrance - the French government's public investment bank, which provides co-financing for innovation and internationalization projects carried out by clusters and their members.
- ANR (Agence Nationale de la Recherche) - the national research agency that supports scientific projects within clusters through competitive funding.
- Caisse des Dépôts et Consignations - a public investment institution involved in financing infrastructure and regional development, including through support for clusters.
- France Clusters - a national organization supporting clusters, which offers training, strategic advice, support for internationalization, and forums for the exchange of best practices.

Evolution and Phases of the Policy

The "Pôles de compétitivité" policy was launched in 2004 and unfolded in four successive phases:

- Phase I (2005-2008): creation and formal recognition of clusters.
- Phase II (2009-2012): thematic and territorial expansion.
- Phase III (2013-2018): focus on innovation and economic results.
- Phase IV (2019-2022): consolidation of excellence, rigorous evaluation, introduction of a performance labeling system.

A complementary initiative, "Grappes d'entreprises," was launched in 2009 to support microenterprises and SMEs in low-tech sectors (e.g., textiles, agri-food, shipbuilding). It remained active until 2015.

Strategic Objectives

- Fostering collaboration between the private sector, research, and academic institutions to develop innovative products and processes;
- Strengthening the ability of SMEs to compete in international markets;
- Promoting excellence in cluster management and the development of support services;
- Connecting French clusters to European and international networks;
- Supporting the ecological and digital transition through specific financing instruments.

Intervention tools

I. **Financial:**

- Grants for R&D projects and innovative partnerships;
- Subsidies for cluster infrastructure (offices, equipment);
- Co-financing for hiring administrative and technical staff;
- Funding for international development, participation in trade fairs, and European labeling (e.g., ESCA labels).

II. **Technical and institutional:**

- Training in technology transfer, intellectual property, entrepreneurship, and management;
- Support in building partnership networks at the national and European levels;
- Assistance in developing strategic plans and accessing European funds (Horizon Europe, Interreg).

Budget and Impact

- Between 2004 and 2020, €2.7 billion from government and local sources was spent to support the "Pôles de compétitivité." (European Cluster Collaboration Platform, 2022).

- The "Grappes d'entreprises" program received a cumulative budget of €25.5 million between 2009 and 2015.
- In 2019, the annual state budget allocated to clusters was €68 million.
- Funding is supplemented by private and regional contributions.

Evaluation and Results

The evaluation of Phase III (2017) showed:

- A positive impact on employment and the self-financing capacity of R&D activities (a 3:1 ratio between private contributions and public funds);
- A modest economic impact on exports, turnover, and productivity-which is why a performance labeling system and competitive selection were introduced in Phase IV;
- Evaluations are conducted **ex-post** for each cycle and include qualitative and quantitative analyses of the results achieved by cluster members.

5. Lithuania - From Institutional Innovation to Smart Specialization: A Progressive Approach to Cluster Development

Lithuania - Smart Specialization - A Progressive Approach to Cluster Development

Lithuania's cluster support policy, in our consideration has evolved from a cross-cutting approach, integrated into innovation policies (2014-2020), toward a structured smart specialization strategy (2021-2027), in line with the European Union's cohesion and green transition policy priorities. Although Lithuania does not have a dedicated national policy for clusters, they are actively promoted through innovation, digitalization, and internationalization policies. (European Cluster Collaboration Platform, 2022).

Strategic Framework and Policy Governance

During the 2014-2020 period, the main instrument was *the Lithuanian Innovation Development Programme (LIDP)*-a strategic document managed by the Ministry of Economy and Innovation, which included clusters as means of support for technology transfer, network cooperation, and entrepreneurial development.

Starting in 2022, Lithuania adopted a *new Smart Specialization Strategy for 2021-2027*, focused on increasing added value, integration into global value chains, and the creation of sustainable innovation ecosystems.

This transition reflects institutional maturation, in which clusters are considered key components in strengthening the country's RDI (research-development-innovation) capabilities.

Institutional Framework and Responsibilities

1. *Ministry of Economy and Innovation* - formulation and coordination of public policies
2. *Agency for Science, Innovation, and Technology (MITA - Mokslo, Inovacijų ir Technologijų Agentūra)* - executive and technical role: manages innovation programs, R&D vouchers, and grants for SMEs; coordinates calls for proposals and evaluations for network cooperation projects; provides operational support to clusters through consulting and networking services.
3. *KlasterLT - Lithuanian National Cluster Association* - a network-type organization composed of cluster representatives:
4. *The National Innovation Council and the Smart Specialization Committee*-strategic governance bodies involved in: interministerial coordination of innovation policy; evaluating S3 progress and the implementation of thematic priorities; and proposing integrated policies, including those to support clusters.
5. *Regional Development Agencies and municipal administrations*-support clustering initiatives at the local level.

Strategic objectives relevant to clusters. Under the LIDP (2014-2020):

- Promoting cooperation between SMEs and research institutions;
- Supporting innovative start-ups and spin-offs;
- Internationalizing clusters and integrating them into global networks;

- Strengthening professional skills in knowledge-intensive sectors;
- Applied technology transfer and support for innovation at the regional level.

Under the S3 Strategy (2021-2027):

- *Prioritizing investments in 3 areas of specialization:*
- Health technologies, biotechnology, and food security;
- Advanced materials, energy efficiency, and smart manufacturing;
- Digital technologies, AI, cybersecurity, and creative media;
- *Developing clusters as drivers of excellence and internationalization in these sectors;*
- *Stimulating transnational collaboration and participation in Horizon Europe projects.*

Instruments and measures applicable to clusters

Lithuania has used a mixed range of instruments in both programming cycles:

1. Financial instruments:

- Grants for collaborative R&D and applied innovation projects;
- Innovation vouchers, subsidies for technology and equipment procurement;
- Co-financing for participation in trade fairs, economic missions, and international networks;
- Support for training and salaries of highly qualified personnel (e.g., PhDs).

2. Non-financial instruments:

- Technical assistance for developing management capacities in clusters;
- Mentoring, coaching, and networking services;
- Promotional activities in universities, the media, and business communities;
- International events to promote a culture of innovation and collaboration.

Funding and budgetary sources

- 2014-2020 - No specific budget was allocated exclusively for clusters. The measures were funded from the Ministry of Economy's budget and European funds (ERDF, ESF).
- 2021-2027 - Lithuania signed a Partnership Agreement with the European Commission, allocating €1.132 billion for business competitiveness. The funds are directed toward clusters within regional and national programs coordinated by the Ministry of Economy and Innovation.

Evaluation and Performance

- The LIDP 2014-2020 did not provide for a formal system for evaluating cluster policy.
- Individual programs and instruments were evaluated on a case-by-case basis:
- *Inno-vouchers LT* (2017): had positive effects on science-industry collaboration, but limited impact on productivity and exports.
- *Valley Programme* (evaluated by the OECD): revealed a structure overly focused on the academic sector, with low industry participation. (European Cluster Collaboration Platform, 2022).

Italy: A Structural Transformation in Cluster Policy

Italy has shifted from the traditional model of "industrial districts" to an approach based on *national technology clusters*, launched starting in 2012. (European Commission, 2016). Cluster policy is integrated into the National Smart Specialization Strategy (SNSI) and is aligned with regional strategies (RIS3), with no national program dedicated exclusively to clusters.

Institutional Framework

- Ministry of Education, Universities, and Research (MIUR**)** - initiator of the technology clusters.
- Ministry of Economic Development - coordinator of the SNSI.
- The regions - implementers of the S3 regional strategies, each of which has developed its own Regional Smart Specialization Strategy.

Programs and instruments

- 2012 - launch of 8 national clusters through a public call (e.g., aerospace, agri-food, green chemistry, health).
- Budget: 368 million EUR (328 million national + 40 million EU).
- 2016 - expansion with 4 additional clusters (e.g., cultural heritage, design, energy).

- Budget: 3 million EUR (national budget).
- The clusters operate as *consortia* composed of SMEs, universities, research centers, and public administrations.

Strategic objectives relevant to clusters

National policy and RIS3 regional strategies aim to:

- Creating innovative value chains between industry, research, and government;
- Promoting cross-sectoral and cross-regional cooperation;
- Developing high-value-added products and processes;
- Internationalization and integration into EU networks;
- Strengthening the administrative capacities of cluster coordinators;
- Professionalizing human resources in high-tech fields.

Types of support

- Competitive funding through calls for RDI projects.
- Co-financing for cluster management and support infrastructure.
- Eligible activities: Collaborative R&D, internationalization, technological development, branding, professional training.

Results and evaluation

- A 2.7% increase in the number of companies involved in the thematic areas of the SNSI between 2015 and 2017.
- 51% introduced new technologies; 43% introduced new products; 36% introduced new organizational methods.
- Geographic concentration: the Northwest and Northeast of the country (over 50% of active companies).
- The assessment is partial, conducted on an ad hoc basis, without a formal national monitoring system. (European Cluster Collaboration Platform, 2022).

Romania - Cluster Policy: Between Strategic Initiatives and Operational Fragmentation

Romania began developing economic clusters in the 2000s, in the context of European policies on regional competitiveness and innovation. (Coșniță et al., 2024). Although clusters are included in relevant national strategies, the lack of a dedicated and coherent public policy has led to uneven development, intermittent support, and limited institutional capacity for implementation and evaluation.

Institutional Framework and Responsibilities

- Ministry of Economy, Entrepreneurship, and Tourism - responsible for formulating industrial and competitiveness policy, including measures related to clusters.
- Ministry of Research, Innovation, and Digitalization - coordinates the National Smart Specialization Strategy (SNSI).
- Regional Development Agencies (RDAs) - administer Regional Operational Programs, which include calls for clusters.
- ClusteRo - a national cluster organization involved in representation, training, and the dissemination of best practices.
- Fragmented coordination - there is no national structure dedicated exclusively to coordinating cluster policy.

Existing policy and strategic framework

- Romania does not have a national policy dedicated exclusively to clusters.
- Clusters are addressed as an integral part of national and regional strategies:
- National Competitiveness Strategy 2021-2027 (NCS)
- National Strategy for Smart Specialization 2021-2027 (SNSI)
- RIS3 regional strategies coordinated by RDAs.

Strategic objectives:

- increasing cooperation between firms and R&D&I;
- strengthening innovation ecosystems;
- support for the professionalization of cluster management;
- internationalization, entrepreneurship, and employment.

Support instruments

Financial instruments:

- Grants for RDI projects (e.g., POS CCE 1.3.3, POC, POCIDIF);
- Infrastructure subsidies (equipment, facilities);
- Innovation vouchers, subsidies for hiring doctoral students;
- Support for organizing trade fairs, branding, and participation in international networks.

Non-financial instruments:

- Technical assistance for organizational development;
- Access to infrastructure (science parks, incubators);
- Professional training services, IP consulting, internationalization;
- Support provided by ClusteRo and international networks (e.g., ECCP).

Funding

- There is no single, dedicated national budget for clusters.
- Funding sources are diverse and fragmented:

➢ European funds: ERDF, POC, POCIDIF, POR, POS CCE;
➢ Local/regional co-financing;
➢ Programs managed by RDAs;
➢ The PNRR does not include a direct line for clusters, but offers indirect opportunities through RDI/digitalization components.

- Funding has been available only in isolated years (2012, 2013, 2015, 2018, 2020, 2021).

Evaluation and Results

- *There is no national system for* ex-ante/ex-post *evaluation* of cluster policy.
- Evaluations are conducted on an ad hoc basis, primarily by ClusteRo (e.g., 2020 report). (Coșniță et al., 2024).
- Findings:

➢ Lack of coherent and predictable support;
➢ Calls for proposals dedicated to clusters did not reflect actual needs;
➢ Despite these limitations, many clusters achieved significant results (e.g., 5 ESCA Gold Labels).

Table 1.1. Evaluation of cluster policies in 6 EU countries and the Republic of Moldova

Criterion	Poland	Germany	France	Lithuania	Italy	Romania	Moldova
Dedicated policy	Yes - An active, evaluated national policy with its own instruments (KKK)	Yes - National and regional policy, strong federal coordination	Yes - Coherent policy (Competitiveness Clusters + associated structures)	No - Clusters included only in LIDP and S3, without their own program	No - Clusters launched through calls for proposals, but without their own strategic framework	No - Clusters are addressed in the SNC and SNSI, but without a dedicated policy	No - No specific legal framework or national program
Funding	~€33 million (2014-2020), direct grants through KKK	~€450 million through Zukunftscluster + federal initiative grants	EUR 2.7 billion 2004-2020 (pôles) + complementary regional grants	Unspecified budget, multiple sources: national, municipal, and EU	€368 million (2012), €3 million (2016), MIUR calls	Fragmented: POSCCE, POCIDIF, POR (without dedicated budget)	Occasional: ODA, pilot projects, UNDP grants

Criterion	Poland	Germany	France	Lithuania	Italy	Romania	Moldova
Tools used	Grants, mentoring, internationalization, standardized assessments	Direct grants, competitive evaluation, coaching, platforms	R&D co-financing, mobility, training, access to foreign markets	Innovation vouchers, subsidies, training, internationalization	RDI calls, thematic networks, limited regional support	Indirect support: branding, IP, networking, training	Indirect support UNDP grants
Evaluation and monitoring	Yes - Formal system, clear criteria, recurring audit KKK)	Yes - Continuous federal and regional evaluation (ex-post & in-process)	Yes - Multi-level evaluation, linked to funding	Partial - Limited evaluations, no formal national framework	Partial - Occasional evaluation, without impact indicators	No - Ad hoc assessments by NGOs (e.g., ClusteRo)	No - Complete lack of a formalized system, no public data
Policy maturity (ECCP)	6.5 / 8	8 / 8	8 / 8	2 / 8	1 / 8	2 / 8	0.5 / 8

Sourse: elaborated by the authors based on an analysis of the legislation of the countries under review

In the authors opinion, and based on the results presented in the analysis above and in Table 1.1 there are significant differences in the level of development of cluster policy across European Union member states and the Republic of Moldova. The highest level of institutionalization of cluster initiatives is characteristic of Germany, France, and Poland, where cluster policy is integrated into national economic development strategies and supported by sustainable financing, coordination, and monitoring mechanisms. High cluster policy maturity indicators (6.5-8/8 according to the ECCP) confirm the effectiveness of a systemic approach in supporting innovative ecosystems and the development of competitive value chains.

Germany and France demonstrate complex cluster management models based on the interaction between the state, the business community, and scientific research institutions. Poland, in turn, successfully utilizes European funds and national support instruments for the development of regional and sectoral clusters. In these countries, the cluster approach serves as an important tool for boosting innovation, technological modernization, and the integration of enterprises into international markets. Lithuania, Italy, and Romania are characterized by a less systematic approach to cluster policy. Despite the existence of individual support programs and participation in European initiatives, these countries face limitations in terms of strategic coordination, effectiveness evaluation, and sustainable financing of clusters. This is particularly evident in Romania, where there is no clearly defined national strategy on clusters. The research demonstrated that the Republic of Moldova is in an early stage of cluster ecosystem development, first cluster appeared in 2018. We consider that the lack of a specialized state program, formalized monitoring mechanisms, and limited institutional support result in a low cluster policy maturity indicator (0.5/8 according to the ECCP). At the same time, support from international organizations and European programs creates the conditions for the further development of cluster initiatives.

Thus, the results of the comparative analysis confirm that the effectiveness of the cluster model is determined by the level of institutional support, the availability of sustainable funding, and the degree to which participants are integrated into innovation and production networks. For the Republic of Moldova, adapting European cluster development practices can become an important factor in increasing the competitiveness of the national economy and strengthening value chains.

Conclusions

The analysis confirms that the Republic of Moldova has real potential for developing clusters as a tool for economic growth, but is at an early stage, marked by regional, sectoral, and institutional imbalances. Most clusters are concentrated in the south of the country and in the agri-food sector,

reflecting the economy's traditional specialization, but also opportunities for development through exports and international branding. Tourism, manufacturing, and the renewable energy sector
Despite the support provided by international partners, Moldovan clusters face major obstacles: a lack of a culture of cooperation, legal uncertainties, labor migration, and a lack of shared infrastructure. All of this underscores the urgent need to develop a **National Program for Entrepreneurship Development** that provides for a clear legal definition, registration criteria, financing instruments, tax incentives, and well-defined institutional responsibilities.
Integrating this program into the national Growth Plan worth 1.8 billion EUR would enable an effective approach, ensuring compatibility with EU objectives regarding structural reforms, economic resilience, and European integration. Compared to European standards, Moldova is at a stage of partial alignment, and progress depends on institutionalizing clustering as a national priority. Only through a clear strategic framework and concrete support measures can clusters become drivers of The relevance of this study stems from the need to enhance the competitiveness of the Moldovan economy in the context of European integration and the global transformation of markets. Of particular importance is the examination of European experience in developing clusters and value chains as an effective tool for stimulating innovation, regional development, and international cooperation. The article analyzes successful models of cluster policy in European Union countries that can be adapted to the national conditions of the Republic of Moldova. The practical significance of the research lies in the possibility of using the identified mechanisms to form a sustainable national policy in the field of clusters and to strengthen the country's innovation ecosystem. The research results can contribute to the development of effective tools to support businesses and to the integration of the Moldovan economy into European production networks.

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