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Contribution of cluster strategies and inter-cluster cooperation for the competitive progress of the EU and LAC

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Contribution of cluster strategies and inter-cluster cooperation for the competitive progress of the EU and LAC

The experience of the “Polos” project of the EU-LAC Foundation

Summary:

The evolution of exchange and collaboration between the European Union (EU) and Latin America and the Caribbean (LAC) economies during the last 20 years is marked by significant growth in trade and investment, and by the increasing number of links between private companies and the public sector. In this context, the trend in recent years to strengthen cluster and RIS3 strategies in Europe and LAC poses the challenge of the possibilities of collaboration and convergence between both experiences in a common dynamic, that enhances learning, innovation and competition, while contributing to improved integration of value chains between both regions. This report addresses the real possibilities of transatlantic collaboration, based on the specific experience of the Competitiveness Clusters (*Polos*) Project, of the EU-LAC Foundation, by analysing the results of the completed first phase, while proposing a new framework for the second phase focusing on two areas of common interest for both blocks: the integration of clusters and smart specialisation strategies, as well as the formation of global EU-LAC value chains, within said integration.

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1. Introduction

In Europe, in the past two decades, clusters have become explanatory elements of regional development as well as a policy tool to promote it. More recently, the concept of smart specialisation comes from the reflection generated around the innovation "gap" between Europe and the U.S. (Pontikakis et al. 2009) as a result of lower economic and technological specialisation, and by the reduced ability to prioritise efforts on the matter at the regional level. This concept guides the reorientation of European Regional Policy in the context of the *Europe 2020* strategy, to the point of being included as part of two of the conditionalities for obtaining ERDF funds during the period 2014-2020.

In the context of new regional innovation strategies (RIS) promoted by the European Commission and focused on smart specialisation, it is thus not surprising that clusters play an important role, including the processes of definition, implementation and monitoring. Thus, it is important to analyse the implications of the new research and innovation smart specialisation strategies (RIS3) for clusters, and vice versa, as well as their role as policy instruments in Europe.

For their part, the countries of Latin America and the Caribbean (LAC) went through a period of sustained economic growth with increasing social inclusion between the early 2000s and the beginning of this decade, in a context of favourable trade terms resulting in more focused specialisation in natural resources for the economies of the region. As of 2013, largely as a result of the change in the international economic context as well as the commodity price cycle investment, this dynamism showed signs of depletion.

According to ECLAC (2016), resuming the path of sustainable growth with social inclusion will require a change in development style with an approach to structural change that facilitates an improved pattern of specialisation for these economies as well as implementation of more intensive productive activities based on knowledge acquisition.

In this sense, it seems relevant to review the recent experience of the LAC region with cluster policies, an important component of the productive and regional development

policies from the early 2000s, in order to reflect on continued validity, possible reformulations and potential contribution to the required structural change process.

The tendency of recent years to strengthen cluster and RIS3 strategies in Europe and LAC poses the challenge of promoting the collaboration and convergence between both experiences, in a common dynamic that enhances learning, innovation and competition while contributing to improved integration of value chains between both regions. Although decentralised cooperation in this area is on a path that cannot be ignored, recent initiatives seek to overcome the atomisation of past experiences and to enhance cooperation between clusters and competitive regions, based on complementary activities and suitable opportunities.

The first section of this report comprises a review of cluster policies implemented in the LAC region as well as a proposal for the systematisation of these experiences, aimed primarily at assessing potential contribution to the structural change process. The second section reviews the European experience with cluster policies, the changing context in which they are applied, as well as their potential to contribute to European innovative and competitive progress, while emphasising articulation with RIS3 strategies. Finally, the third section This report addresses the real possibilities of transatlantic collaboration, based on the specific experience of the Competitiveness Clusters (*Polos*) Project, of the EU-LAC Foundation, by analysing the results of the completed first phase, while proposing a new framework for the second phase focusing on two areas of common interest for both blocks: the integration of clusters and smart specialisation strategies, as well as the formation of global EU-LAC value chains, within said integration.¹

The European Union-Latin American and Caribbean Foundation (EU-LAC Foundation) was created by the Heads of State and Government of the EU, Latin America and Caribbean in 2010, with its headquarters in Hamburg. The Foundation, which is in the process of becoming an international organisation, is an instrument of dialogue between the societies and governments of both regions. The EU-LAC Foundation is financed through voluntary contributions from its 62 Members (the EU and CELAC Member States, and the EU itself), and in particular from the European Union and Germany.

The Foundation promoted the “Polos de Competitividad” project in order to identify and disseminate best practices and foster joint actions to enhance the competitiveness and internationalisation of competitive clusters in Latin America, the Caribbean and the European Union. The best practices, analyses and recommendations were captured in a report on the first phase, setting potential steps for further territory-to-territory cooperation.² The project sought to contribute to understand and bring into light the conditions would be for better integration of bi-regional value chains by focusing on specific territories, at the sub-national level. The goal of the first phase was to bringing together actors, practitioners, of competitiveness and internationalisation of territories to get

¹ The first phase of the “Polos de Competitividad” project was developed by the EU-LAC Foundation in 2014-15, with the financial support of the European Union, Germany and the Lombardy Region of Italy. The second phase (2017-18) is being carried out by the EU-LAC Foundation and SEGIB, with the financial support of the EU, Germany and Spain.

² The report of the first phase is available on the EU-LAC Foundation web site, <http://polos.eulacfoundation.org/>

a feedback on their experience and to engage in a joint reflection on how to move on in the set direction of further bi-regional economic integration. Further to favouring exchange of best practices, in order to accelerate the process of inclusion of new actors based on the best of practices and an already up and running network of organizations.

2. Latin America and the Caribbean: cluster strategies facing the challenge of structural change

From the beginning of the 2000s until the middle of this decade, a large number of LAC countries experienced sustained economic growth along with decreased inequality, due to the adoption of policies focused on expansion of domestic markets and redistribution of income, in a context of particularly favourable terms of trade for the region.

However, starting in 2013, the region experienced a sharp economic slowdown that tends to make the social progress achieved in the previous decade unsustainable. To a large extent, this decline is related to external constraints generated by the loss of dynamism in international trade after the 2008-2009 crisis and, in particular, the end of the boom of commodity prices as of 2014, which directly affected activity levels, especially in Mexico and in South American countries.

However, it is evident that the region also faces endogenous and structural limitations, which hinder sustainable progress for the economic and social achievements of the first decade of this century. The primary problems are persistent low levels of productivity and investment, limited incorporation of technical progress and a productive structure excessively centred on natural resources and goods with little or no added value as well as a deficit in the provision of public services. Among other typical problems of the region, the aforementioned issues are the result of high rates of informal labour, as well as excessive inequality, both in terms of regional differences and the distribution of income.

It is increasingly evident that without a radical change in the current pattern of production and international specialisation, it will be very difficult to close the gaps in productivity and generate increased and improved employment, with higher levels of formalisation, qualification and remuneration, which is one of the greatest challenges for the LAC region. The current digital revolution and the irruption of Industry 4.0 will only aggravate the picture described, since the region faces the prospect of a dramatic shift of the international technological frontier, loss of competitiveness of traditional industries, and a mass destruction of jobs.

Industrial and technological policies will be key to induce processes for transformation, diversification, and productive sophistication. This means, on the one hand, overcoming enormous deficiencies in productivity and structural heterogeneity of LAC economies through modernisation of traditional productive sectors and large Small and Medium Enterprise (SME) segments that typically operate with low efficiency. On the other, it requires a process of incorporating knowledge and new activities with high added value. It requires transitioning from production and export specialisation based on static advantages, to one based on dynamic advantages (ECLAC, 2016).

One significant recent component of productive and regional development policies in LAC has been cluster policies. While the emergence of these local specialised production systems is not a new phenomenon, policies to promote and empower clusters have spread and gained momentum more recently in this region.

The positive contribution of clusters to innovation, competitiveness and internationalisation for the companies in the region, particularly SMEs, has been widely documented in economic literature (Becattini, 2002, Porter, 1998, Pietrobelli and Rabellotti, 2007, Boscherini and Poma, 2000; Giuliani et al, 2016; Mattos et al, 2017). Phenomena such as the Marshallian externalities generated in industrial agglomerations, as well as collective efficiency as described by Schmitz and Nadvi (1999), as a result of cooperation and deliberate collective activity, both private and public, are mechanisms that foster knowledge and interaction between firms located in favourable environments, and in general access to goods that are "external" to companies, but "internal" within the cluster. This facilitates circumvention of restrictions typically faced by SMEs during their development: limited access to inputs and services for training, information, technology, financing and foreign markets.

Therefore, as proven instruments capable of enhancing cooperation, innovation and business competitiveness, particularly for SMEs, cluster policies offer significant contributions for the required structural change process for LAC. Also, to the extent that development of innovative and competitive clusters is facilitated, they enable greater and improved insertion of these specialised production systems into the international market and global value chains.

To this we must add the positive impact that the recent cluster policies have had on the region. On the one hand, it has contributed to the development of productive capacities and employment in productive centres of limited previous dynamism. On the other hand, LAC clusters in knowledge-intensive sectors have acquired relevance in Guadalajara and Querétaro, Mexico (ICT and aviation, respectively), Recife (Porto Digital, ICT) and Sao Jose dos Campos (Embraer, aviation). All of this seems to indicate that cluster strategies are becoming an important aspect of industrial policies aimed at the productive transformation of LAC economies.

In fact, particularly since the beginning of the 2000s, several LAC countries have implemented national cluster support policies (direct or indirect). Among the most ambitious and structured initiatives are those of Brazil (National policy on Local Productive Arrangements - LPAs), Colombia (Colombian Cluster Network), Argentina (Productive Agglomerates Program), Chile (National Cluster Program, and more recently, the smart specialisation strategic programmes), Uruguay (PACPYMES) and Mexico (State and regional agendas for innovation).

An understanding of the current state of experiences as well as lessons learned, with emphasis on the issues most related to structural change policies is provided through contributions of the participants of the Competitiveness Poles Project of the EU-LAC Foundation, launched in 2014, with the aim of strengthening the integration of bi-regional value chains (EU-LAC Foundation, 2015).

Two other sources of information are also considered: a) studies and evaluations carried out in recent years regarding the Brazilian experience, which is the most comprehensive and

sustained cluster policy implemented in the LAC region (Cravo et al, 2013; Lastres et al, 2012; Matos et al, 2015; Matos et al, 2017); and b) the evaluations and analyses regarding the performance of the Inter-American Development Bank (IDB), an institution providing support to cluster programs in several LAC countries in recent years (Casaburi et al, 2014, Pietrobelli, 2015, Maffioli et al, 2016).

Using this knowledge base, the following stylised synthesis of LAC experiences with cluster policies is proposed:

- Cluster policies have effectively fostered improved cooperation, innovation and business competitiveness in these productive ecosystems, and in particular have contributed to circumventing restrictions faced by regional SMEs in terms of growth and internationalisation.
- Additionally, these policies, through support for newer clusters and in less industrialised regions, have contributed to reducing productivity gaps and regional inequalities while achieving greater social inclusion through the creation of employment, all of which is also a key dimension of structural change.
- However, until now, cluster strategies have been effectively structured hierarchically in only a few LAC countries; in many cases implementation has been fragmentary and transitory, while others directly have not even been considered as regards applicable industrial policies.
- In most cases, cluster policies were developed in isolation, meaning without coordination or consistency with other national and regional policies, which are also relevant to the success of clusters, e.g.: industrial and sectoral, infrastructure, professional training, science, technology and innovation.

Among the primary lessons to be learned from cluster policies in LAC:

- It is necessary to prevent encapsulation of cluster strategies, which must be strongly linked to the more general context of national and regional development policies.
- Cluster strategies must be endowed with institutional frameworks (national, regional and local) as well as instruments consistent with the systemic nature of the intervention.
- Exclusive application of traditional instruments and incentives (access to credit, innovation, internationalisation, etc.) aimed at individual firms is less relevant or effective.
- Due to the great heterogeneity of regional productive structures and clusters, and to the diversity of stages of institutional / technological / productive maturation, cluster policies must be flexible and cannot be restricted to a singular model.
- Training of public and private stakeholders and the organisation of suitable governance, while also achieving tangible results for short-term collective projects, are key factors to ensuring success of the cluster, as well as sustainability of cluster promotion and management activities once public support is finalised.
- Formulation of effective internationalisation strategies for the most developed and competitive clusters.

- Promotion of productive links and technological transfers among related clusters (at regional, national and international levels), in order to unblock the potential for future diversification pursuant to the need to diversify the current specialisation pattern centred in raw materials into greater knowledge-intensive and value-added sectors.
- Support for development of strategic intelligence for clusters in the market segments in which they operate.
- Active promotion of alliances while eventually attracting foreign companies or large firms that have a favourable impact on the processes of maturation and internationalisation of clusters.

3. EU: Cluster strategies as components for competitive progress and RIS3

3.1. Smart specialisation, RIS3 and the renewed role of clusters

Recently, the importance of clusters has been mixed with the concept of smart specialisation, a territorial development model that seeks to increase the efficiency and effectiveness of economic systems. It can be defined as “*the establishment of priorities that at a regional level take place in a series of activities and / or technology domains, and that are potentially competitive and able to generate new business in a global context faced competition from other places*” (Del Castillo et al 2012).

This new model has been strongly incorporated within the new regional policy logic defined by the European Commission for the period 2014-2020, in the shape of the regional Smart Specialisation Strategies (RIS3).

The cluster theory is closely related to the theory of smart specialisation and could even be said that, to some extent, the latter is derived from the first (IPTS 2012), because they share many of their basic conceptual aspects. More specifically, the theory of the cluster can be understood as a specification (instrumental approach) within the theory of smart specialisation (Del Castillo et al 2013).

Synergy between smart specialisation and clusters

	CLUSTERS ELEMENTS LINKED TO SMART SPECIALISATION	ELEMENTS OF SMART SPECIALISATION ADDRESSED BY CLUSTERS
GLOBAL CONTEXT	<ul style="list-style-type: none"> • Progressive formation of Global Value Chains 	<ul style="list-style-type: none"> • Generation of internationally competitive advantages • Interregional networking under a business model
SPECIALISATION PATTERNS	<ul style="list-style-type: none"> • Social capital and intermediary between regional actors 	<ul style="list-style-type: none"> • Critical Mass (agglomeration economies) • Efficiency and effectiveness of public policies (leverage) • Systemic performance
RELATED VARIETY	<ul style="list-style-type: none"> • Dynamics of intercluster collaboration 	<ul style="list-style-type: none"> • Exploitation of related variety based on specific priorities • “Spill-over” effects and externalities

Source: authors from Del Castillo et al (2013)

The RIS3 process proposed by the Commission for the 2014-2020 period was not new but rather an updated and improved rethinking of the methodology used in the development of RIS in the previous period, where many cluster policies and cluster initiatives started to be launched. Within regional policy, the use of cluster policies has been linked to the idea of the ‘innovation paradox’ afflicting so-called lagging regions (Oughton et al. 2002). Currently we are facing a paradigm shift (Del Castillo et al 2012) that will affect both the orientation of the strategy and the instruments, and therefore the cluster approach will differ accordingly from those that were generated in the 1990s.

Why do clusters form part of RIS3?

- Due to their inherent ability to support cooperation between the different actors of innovation (triple / quadruple helix)
- Because of their huge potential for related diversification processes from existing specialisations.
- Because of their unique ability to promote intersectoral cooperation and facilitate technological hybridisation
- Because of their potential as a channel to facilitate internationalisation
- Due to their capillarity over the territory, they easily reach the business and have access to SMEs

Source: summarized from the RIS3 Guide (IPTS 2012)

The natural evolution of the cluster policies and cluster initiatives has resulted in a better position to respond to the challenges addressed by smart specialisation rationale. OECD (2007 and 2009) observes a trend from the traditional cluster approaches to an increasing focus on innovation, both in the orientation of policies and the prioritisation of innovation related instruments. In fact, as Asheim et al. (2007) highlight, recent approaches have also tended to adopt a more evolutionary view of clusters, suggesting the need to foster knowledge spillovers between related sectors (related variety and entrepreneurial discoveries).

On the other hand, cluster initiatives are often expected to mobilise additional matching funds from other public or private entities. In this case public investment acts as a leverage to attract large amounts of private investment in technological capabilities (Boekholt and Thuriaux, 1999). This will position cluster initiatives (and cluster policies) as key instruments for the objective of RIS3 strategies of combining the absorptive capacities of regions to involve more regional stakeholders in strategic and scale projects.

Del Castillo et al. (2013) include a reference for clusters when analysing smart specialisation governance. According to them, “*they are tools to facilitate relations between subsystems (science-business-administration-users), and regarding their focus and stage of development they deal with different stages of the innovation process, from the transfer of knowledge to the entrepreneurship and innovation in existing companies*”.

Besides, in the framework of smart specialisation, their role varies regarding the strategic approach of each territory and its specialisation. In any case it is clear the role of intermediation (transfer and collaboration) to facilitate entrepreneurial discovery through related diversity (IPTS 2012).

As stated in Del Castillo et al. (2012 and 2013), a strategic process should at least be divided into three phases: a first phase centred on the definition of the strategy, a second

phase of implementation, and a parallel one based on monitoring and evaluation. A RIS3 understood in these terms must integrate clusters (as well as other instruments and policies) in each of these three stages, though their role may vary across them.

Thus, as stated in Del Castillo et al. (2013) during the definition stage, cluster initiatives may facilitate the initial search of priorities regarding transnational comparison with similar clusters and identifying internal-external trends in the context of a participatory process.

During the implementation phase, cluster initiatives are probably the best-positioned intermediate infrastructures to contribute to technological hybridisation, identify entrepreneurial discoveries, and contribute to the absorption of European funds (especially regarding their relationships with the SMEs).

Finally, during the monitoring phase, due to the proximity to the businesses and their knowledge of international trends, clusters are also good tools to compare and report on the changing priorities and new initiatives of entrepreneurial discovery.

Synergy between smart specialisation and clusters

	CLUSTER ELEMENTS LINKED TO THE STRATEGIC PROCESS	RIS3 REQUIREMENTS COVERED BY THE CLUSTER INITIATIVE
DEFINITION	<ul style="list-style-type: none"> • Mapping the specialisation pattern • Benchmarking • Surveys, forums, working groups etc. • Entrepreneurial discoveries 	<ul style="list-style-type: none"> • SWOT analysis • Contrast the identification of potential priorities • Participatory definition
IMPLEMENTATION	<ul style="list-style-type: none"> • Collaborative platforms • Internationalisation • Joint European Projects • Identification and support for entrepreneurial discoveries 	<ul style="list-style-type: none"> • Exploitation of related variety • Scale and scope in the business (SMEs) • Linking capabilities: "down-stream" (regional) - "up-stream" (European)
MONITORING	<ul style="list-style-type: none"> • Sectoral observatories • Contrast on the implementation of the strategy, monitoring and improvement 	<ul style="list-style-type: none"> • Monitoring and participatory evaluation • Continuous improvement from internal and external trends

Source: Del Castillo et al 2013

3.2. Analysis of potential EU-LAC collaboration within the framework of smart specialisation and clusters

The RIS3 exercises in Europe allow us to identify economic and technological priorities to be shared between the EU and LAC through collaboration instruments such as clusters. In fact, as stated previously, in both EU and LAC the extension of cluster approaches as well as the concept of prioritisation in innovation niches³ will generate an opportunity to do so.

From the EU side, the database elaborated by the JRC-S3 Platform -the Eye@RIS3⁴ includes all the priorities considered in the RIS3 exercises carried out by most of European regions. These priorities have been broken down into two main categories: economic priorities (known as “market capacities”), and technological priorities.

³ In EU the prioritisation of innovation niches takes the form of RIS3 exercises, while in LAC it is a mixed process of old regional innovation strategies (RIS) and new smart specialisation approaches.

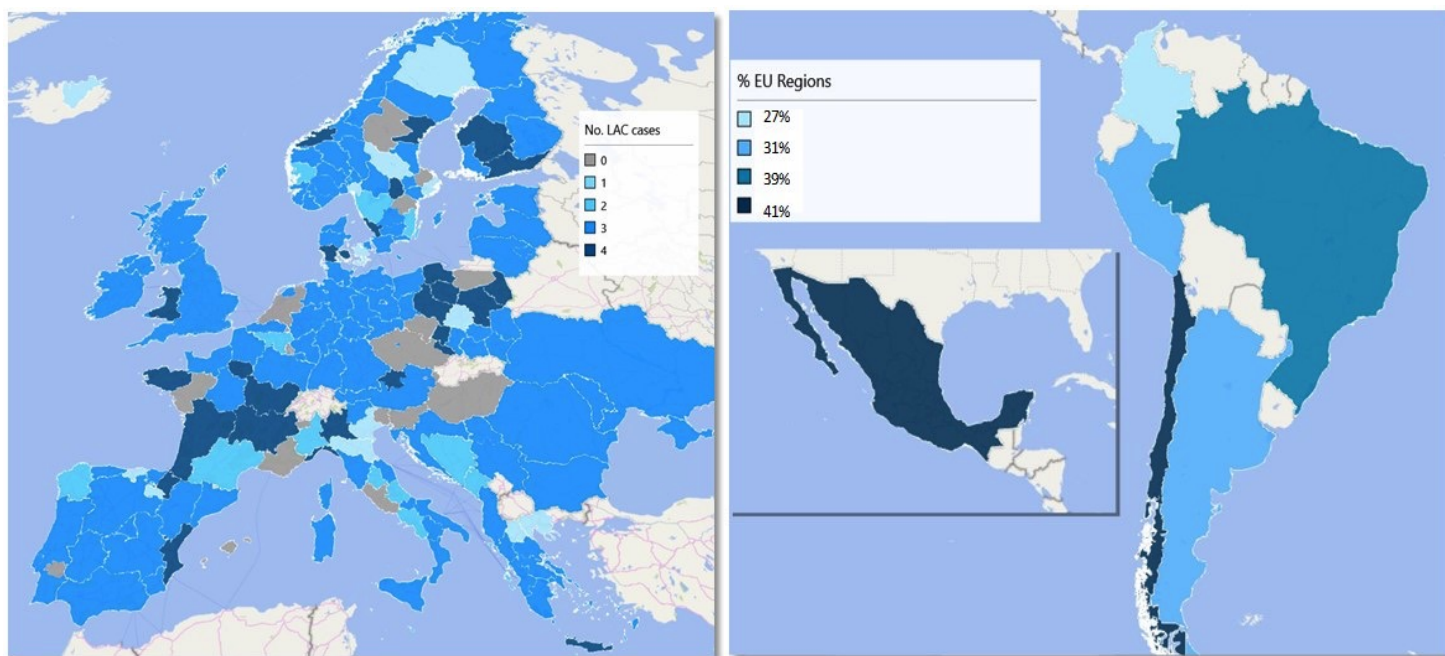
⁴ <http://s3platform.jrc.ec.europa.eu/eye-ris3>

From the LAC side, since there is no a systematic approach at a regional or at a national level, this pilot analysis has considered innovation and competitiveness frameworks⁵ of six national cases⁶.

The map below shows those European regions with priorities shared with LAC cases. In other words, it shows the number of countries in LAC with whom European regions and countries shared at least one priority. Thus, the figures show a high level of shared priorities between European regions and the six LAC countries: most European regions and countries account for more than three coincidences with the LAC cases: nearly 80% of European regions have defined priorities that are also considered in the LAC cases analysed. Only 0.5% of European regions in Eye@RIS3 database have no priorities aligned with any LAC cases studied.

On the other hand, considering the coincidences between LAC and European regions from a LAC perspective, as the map below shows, most of the countries account for more than 31% of European regions with one or more shared priorities: Mexico, Chile, Brazil, Argentina and Peru. Colombia accounts for the lower figure, with 27% of European regions with at least one similar priority.

LAC cases with similar market & technology priorities to those in EU regions (left) and % of EU regions with similar market & technology priorities to those in LAC cases (right)



Source: own elaboration from eye@RIS3 database:

⁵This analysis includes R&D and innovation Strategies at regional and national level, competitiveness strategies and plans, reports on regional and national innovations systems in LAC, and other references related to innovation and competitiveness in the country case studies considered.

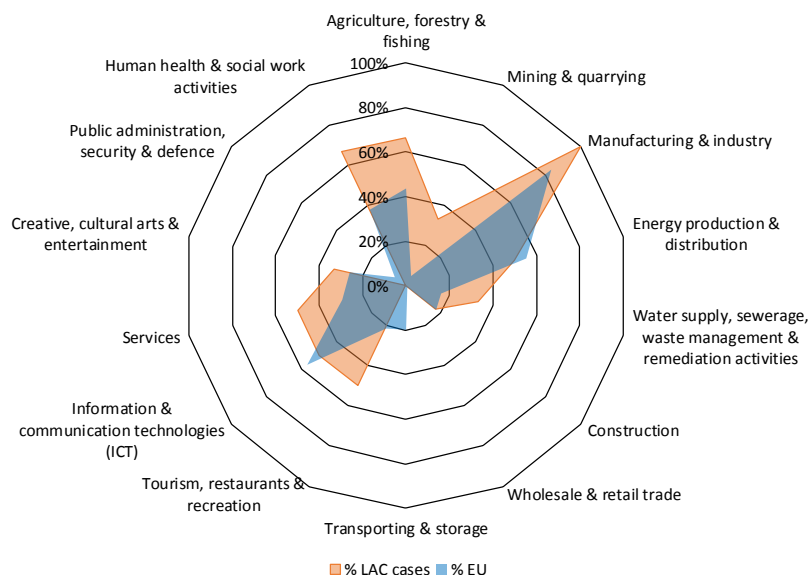
⁶Namely Argentina, Brazil, Chile, Colombia, Mexico and Peru. The objective of this preliminary exercise for the LAC is to obtain indicative orientations, not to include a systematic analysis.

It is interesting to analyse the similarities between market and technology priorities on both sides of the Atlantic. According to the figures obtained, in terms of market capacities both LAC cases and European regions seem to share a common distribution. Thus, manufacturing and industry, ICT sector and energy production and distribution show similar areas in the graph (but with slightly higher values for energy and ICT in Europe and lower for manufacturing and industry).

Agriculture, forestry and fishing as well as human health and social work activities are also important prioritised sectors, but LAC countries tend to emphasise these sectors more than their European counterparts.

In any case, the shaded areas in the graph explain a potential divergence in prioritisation exercises carried out in LAC and Europe. Even though the analysis in LAC has been done considering national priorities (with 6 countries in total) and in Europe regional priorities (this is 230 regions in Eye@RIS3)⁷, this situation may come from a couple of reasons, namely: first, less orthodoxic prioritisation criteria that lead to broad priorities (large market and technology domains that includes many subcategories); second, higher number of priorities included in the strategies in order to avoid leaving out sectors of domains where some “lobby” groups may exist.

% of LAC cases and EU regions by (market) capacity

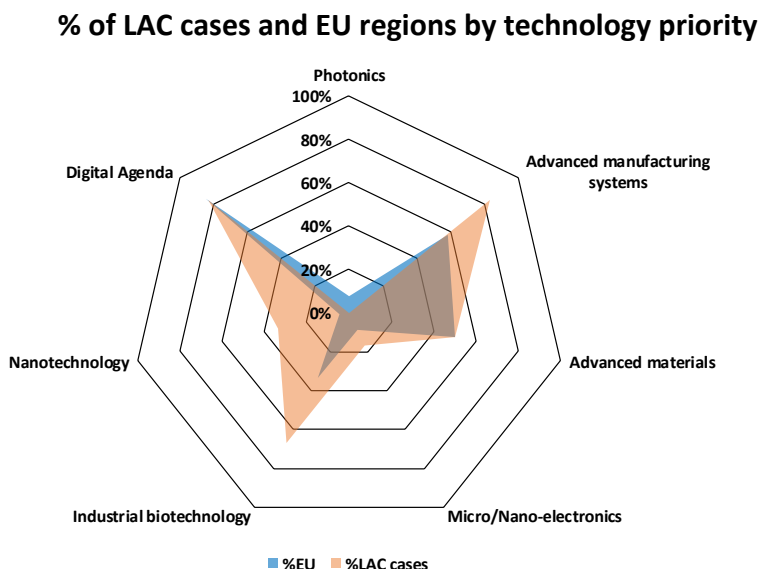


Source: own elaboration from eye@RIS3 database: <http://s3platform.jrc.ec.europa.eu/eye-ris3>

In term of technology priorities, again, both LAC cases and European regions seem to share a common distribution. To a certain extent, the distribution is even more similar than in the case of market capacities. This is relatively consistent with the fact that globalisation determines the most promising (and interesting) technology domains.

⁷ And therefore, some of the differences can be attributed to the differences in comparison levels.

Thus, ICT-Digital Agenda priorities are coincident in both LAC cases and European regions (nearly 70% on the cases in both sides of the Atlantic), followed by advanced manufacturing (70% in LAC and 50% in Europe) and advanced materials (40% in both).



Source: own elaboration from eye@RIS3 database: <http://s3platform.jrc.ec.europa.eu/eye-ris3>

Furthermore, the analysis done has considered (for both EU and LAC) also the relationship between economic and technological priorities, that is, the potential application recorded in the European RIS3 and the framework analysed in LAC cases. These “convergence” areas have been aggregated resulting in a matrix where EU and LAC coincidences are marked as high, medium, low or none (blank space). The matrix below can be understood as a tool to foresee economic and technological niches for transatlantic cooperation, and an initial roadmap on which areas clusters from both sides can start collaborating.

According to the matrix, there are a total of 21 areas with low correlation between LAC and the EU. These areas show domains and markets where even LAC and Europe differs in how they have emphasised them (but nevertheless they are relatively similar).

There are three areas with medium correlation between LAC and EU, that is areas where not only priorities are coincident and also the emphasis placed by LAC and European RIS3 is quite similar.

Correlation between EU and LAC cases fields of market-technology applications

	Digital Agenda	Adv. Manufact.	Advanced materials	Industrial biotech	Micro/ Nano-electr	Nanotech.	Photonics	TOTAL
Agriculture, forestry & fishing	Low	Low		Low				Low
Construction		Low	High					High
Culture, arts & entertainment	Low							Low
Energy production	Low	Low	Low					Low
Health & social work	High			Low				High
ICT technologies	Medium	Low	Low		Low			Medium
Manufacturing & industry	High	Medium	Medium	High	High	High	Low	High
Mining & quarrying		Low	Low					Low
Public administration	Low							Low
Services	Low	Low				Low	Low	Low
Tourism & recreation	Low							Low
Transporting & storage	Low							Low
Environmental activities	Low	Medium	Medium					Medium
Wholesale & retail trade	Low							Low
TOTAL	Medium	Medium	Medium	High	Low	High	Low	

Source: own elaboration from eye@RIS3 database: <http://s3platform.jrc.ec.europa.eu/eye-ris3>

The correlation values in the matrix must be understood as follows:

- Low correlation: market-technology convergence between LAC and EU exists, but there are significant differences between the prioritisation emphasis in each zone.
- Medium correlation: market-technology convergence between LAC and EU exists, with certain similarities between the prioritisation emphasis in each zone.
- High correlation: market-technology convergence between LAC and EU exists, and furthermore, the prioritisation emphasis is nearly the same in each zone.

Finally, there are six areas with high correlation between LAC and EU. These areas are the most promising ones in terms of establishing potential collaboration frameworks. They are the following:

- ICT-Digital Agenda with human health and social work activities
- ICT-Digital Agenda with manufacturing and industry (Industry 4.0)
- Advanced material and construction
- Industrial biotech with manufacturing and industry
- Micro/nano electronics with manufacturing and industry
- Nanotechnology with manufacturing and industry

In summary, it seems that in the short term, the collaboration potential lies in some clear areas such as advanced industry and ICT, advanced materials and micro-nano applications, in human health and application of biotech (with linkages with agroindustry), and sustainable construction (application from advanced materials domain).

However, though this initial exercise presents some interesting opportunities for operationalising inter-cluster collaboration between the EU and LAC, one of the main conclusions obtained from the analysis is that, when seeking concrete bilateral cooperation, a more detailed analysis will be needed. For that, the potential synergies must be defined considering a value chain logic, and this reinforces the role already highlighted with analysing the synergies between smart specialisation and clusters and international level. The “*Polos de Competitividad*” project specifically focused on this theme.

4. Asymmetries and opportunities for cooperation between clusters and innovative regions in the EU and LAC: lessons learned from the “Polos de Competitividad” Project

The following presents and analyses the preliminary results of the “*Polos de Competitividad*” Project, currently coordinated by the EU-LAC Foundation and the Ibero-American General Secretariat (SEGIB), and executed by INFYDE, which seeks to approximate clusters and innovative territories of the EU and LAC. It is one of the first initiatives to promote inter-cluster cooperation that seeks to involve not a singular region, but rather the whole of all EU and LAC countries.

The first phase of this project was carried out between 2014-15. Within this framework, a Working Group was organised to carry out various activities with the goals of exchange of experiences and cooperation agreements (virtual exchange platform, video conferences, Hamburg Workshop and business roundtables among clusters in Milan) ⁸.

At first, the objective was to identify, in each EU and LAC country, competitive clusters interested in increasing the level of internationalisation while expanding cooperation among complementary clusters from the other continent (EU or LAC). Each country or region then prepared profiles of competitiveness and internationalisation from their respective clusters, with the aim of implementing various actions in order to approximate the selected productive poles.

Altogether, the first phase of the “Polos” project of the EU-LAC Foundation involved some 40 professionals and close to 100 clusters from a first series of 10 countries in LAC and 9 EU regions and countries, into a working group that – over a year - shared experience and best practices on building competitiveness and international alliances in their territories. Their best practices, analyses and recommendations have been captured in a document setting potential steps for further territory-to-territory cooperation (EU-LAC Foundation, 2015). The analysis that follows is based to a large extent on that report.

The process developed during the “*Polos de Competitividad*” project allowed reaching a set of conclusions concerning the following areas, according to the document mentioned:

- a) Comparing cluster competitiveness in EU and LAC countries: first of all, the different stage of clusters maturity defines and explains the majority of competitiveness

⁸ The first phase of the “Polos” project was implemented by the EU-LAC Foundation with the Strategic Partner Lombardy Region and with the financial support of the European Union and Germany. It was implemented and in cooperation with the EC mechanisms for the support of clusters, amongst them the European Secretariat for Cluster Analysis (ESCA).

dissimilarities between clusters of both regions. In the EU, competitive advantages depend basically on cluster structure and its historical background; while in LAC the competitive advantages depend on external factors, such as raw materials availability, low costs, complementary productions according to season, etc.). Furthermore, governance stands out as a competitive factor for cluster. But while it is true for EU clusters, in LAC in general the cluster governance is still far from being effective.

- b) Comparing cluster international activities in EU and LAC countries: in first instance EU clusters are highly internationalised, while LAC cluster international activities are limited. Further, LAC clusters could better develop and exploit clustering advantages.
- c) Comparing cluster policies to foster internationalisation: the report of the first phase emphasises that the EU clusters need support policies in order to increase their presence in LAC countries (and for this reason they require support to have information, to map market opportunities and to have trustable contacts with LAC clusters). While LAC clusters, beyond needing support to access international markets, need policies support for technological upgrade, to build or/and improve their internal governance and to learn from the EU experiences.

In LAC countries a big problem is represented by the lack of a sustained strategic vision on the development of cluster/districts that integrates public policies' agendas. As a result, some countries have no policies that directly involve clusters/districts, in other countries the policies are weak or fragmented, and in others such initiatives are only spasmodic or ephemeral. This problem could help to identify one of the possible areas of cooperation between the two regions: the exchange of best practices on policies to promote clusters. On the other hand, LAC clusters have certain characteristics that differentiate them from their European peers:

- High structural heterogeneity: productivity gap hindering interactions between large and small businesses.
- Low level of specialisation and cooperation
- Low innovative performance.
- Limited strategic/international vision about their business.

This analysis can also give some clues about potential areas of cooperation between clusters of both regions: the contribution of technology and design capability and innovation that can be provided by European clusters, as well as their business strategic *know-how*, could be very useful for LAC clusters.

On the European side, clusters face increasing market competition and must be ready to look for new market opportunities. This implies a need for diversify their production and to seek new business opportunities and agreements to gain international competitiveness, among other challenges. At that level, a deepening of their linkages with LAC clusters can generate interesting opportunities. In the next table, always following the report mentioned above, we can observe the main asymmetries and cooperation opportunities between EU and LAC countries, concerning cluster competitiveness, internationalisation and policies.

Cluster competitiveness, internationalisation and policies: comparison and cooperation opportunities between EU and LAC countries.

	COMPARISON/ ASYMMETRIES	OPPORTUNITIES
Business environment and policies	<p>EU clusters need support policies in order to increase their presence in LAC countries.</p> <p>While LAC clusters, beyond needing support to access international markets, need policies support for technological upgrade, for improving competitiveness and business development and to learn from EU experiences.</p>	<p>Policies oriented to detect complementarity; to foster exchange of information about clusters, markets and opportunities may lead to stimulate collaborations among LAC and EU Clusters</p> <p>The need for technological upgrade of LAC firms/clusters could be an opportunity both for LAC and EU clusters</p> <p>In LAC, policies could be oriented to implement governance models drawing from EU experience, in order to build the proper conditions to foster internationalisation based on cooperation with EU clusters.</p>
Cluster interaction and governance (association among agents, trust relationships, etc.)	<p>Governance stands out as a competitive factor for clusters/districts. But while it is effective in most EU clusters, it is still lacking in many LAC clusters/districts.</p>	<p>Fostering internal clusters dynamics and cooperation between firms by defining specific governance schemes</p> <p>Interchange of best practice on governance could increase competitiveness of LAC clusters and collaboration with EU clusters</p>
Industrial Strategy and competitive performance	<p>The different stage of cluster/district maturity defines and explains most of the competitiveness dissimilarities between the cluster districts of the two continents. In the EU, competitive advantages are mostly the result of how the cluster is structured and of its historical background, while in LAC the competitive advantages depend on external factors, such as raw materials availability, low costs, complementary productions according to season, etc.)</p> <p>In both regions, there is a need to reinforce cooperation among firms in order to increase competitiveness and market share.</p>	<p>Policies and cooperation should be oriented to favour technological and product quality upgrades in LAC clusters, higher specialisation and diversification.</p>
International market access	<p>EU cluster are rather internationalised, while LAC clusters international activities are relatively limited.</p> <p>In contrast to EU clusters, LAC clusters are not yet making use of clustering advantages to go international.</p> <p>LAC clusters are interested into international markets and are often created for that purpose, but they first need policies to support technological upgrade, to build and improve their internal governance, and to learn from EU experiences.</p>	<p>EU clusters have rather stable organisations and production capacities, as well as some international experience, but their knowledge about LAC markets and opportunities is limited. This call for support policies in order to increase their presence in LAC countries.</p> <p>LAC Clusters are still rather incipient, with some exceptions, and need support to reinforce their structure, update their production capacities and internationalize.</p> <p>Cooperation, and policies to support it are seen as a potential helper to close this gap, to identify new opportunities for growth based on a better understanding of international trends and opportunities in their areas of activity.</p>

Source: EU-LAC Foundation, 2015.

The general objective of the second phase of the “Polos” Project –that is scheduled to continue until October 2018-, continues to be to contribute to the improvement of the international competitiveness of the EU and LAC, through greater economic cooperation between territories, basing such cooperation on the cluster / ecosystems and value chains approach. Currently, the project aims to achieve the following specific objectives:

- Reactivate and expand the bi-regional network of actors;
- Support the production and dissemination of knowledge on competitiveness and innovation;
- Training in cluster governance;

- To advance in the strengthening of the collaboration between the EU and LAC in this field.

More specifically, the activities include: animation of a virtual interactive work platform for the exchange of information and experiences, as well as practical debates regarding specific challenges faced by participating clusters and regions; promotion of training missions while seeking collaboration opportunities (in coordination with initiatives such as the European Cluster Collaboration Platform, the European Cluster Observatory or the S3 European Cluster Collaboration Platform); and organisation of a Workshop to promote cooperation among EU-LAC regions.

To date, LAC participants have highlighted the main areas of interest for cooperation with European peers as:

- Successful governance models in clusters
- Design, implementation and evaluation of cluster policies (measurement of results, monitoring and conflict resolution)
- Policies and instruments to support clusters
- Best practices for cluster innovation
- Cluster quality seals (with the objective of quality, standardisation and international certification)

Other activities of interest for LAC stakeholders within the project framework:

- Creation of training spaces, cooperative construction of projects and articulation of cluster networks.
- Facilitation and coordination of these spaces for the implementation of specified projects among two or more countries requires definition of: organisation of meetings, initial travel investment, a guide for the preparation of proposals, search for funding sources, search for silent partners, guidance and support in the negotiation processes.
- Articulation and generation of synergies using European support instruments as strong barriers to entry for Latin America (e.g., Horizon 2020).
- Identification and articulation of support instruments for clusters that foster: development of competitive capabilities of companies, promotion of business internationalisation, generation of support infrastructures, generation of R&D&I projects, and dissemination and adaptation of new technologies.

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