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Team of Specialists on Innovation and Competitiveness Policies

Regional dimension of innovation policies

Note by the secretariat

I. Introduction

1. The regional dimension has played an increasing role in national innovation strategies. The economic dynamism of regions, which is based on their own set of assets and skills, is seen by national policymakers as making an important contribution to overall innovation performance. In addition, regional development policies, which are designed at a sub-national level, emphasise the importance of innovation in promoting growth and increasing the share of high value added activities in economic activity. In the current economic environment, policies that promise to generate new jobs and foster economic development have become even more relevant.

2. The degree of regional diversity differs significantly across countries and economic growth is regionally uneven. Some regions within each country account often for most of the observed expansion in output. Globally, a few selected hubs concentrate most innovation activity across the world. Innovation policies are being seen as a way to preserve the competitive advantage of the more advanced regions and contribute to exploit the underdeveloped potential of those that are lagging.

3. This document, which has been prepared in accordance with the Programme of Work of the Committee on Economic Cooperation and Integration for 2012 (ECE/CECI/2011/2), presents some key policy issues related to the regional dimension of innovation policies. It is based on the outcomes of the fifth session of the UNECE Team of Specialists on Innovation and Competitiveness Policies and its substantive segment "Building strategies for regions of innovation", which was held in Geneva from 12 to 13 April 2012 (ECE/CECI/ICP/2012/2).

4. The document is structured as follows. First, it discusses the importance of linkages in supporting regional innovation and the way in which collaboration between innovation stakeholders can be promoted. Second, it introduces a number of policy issues related to the elaboration of regional innovation strategies. Third, it presents different aspects concerning regional innovation governance and the policy instruments used at the regional level. Finally, it identifies a number of key policy messages and recommendations.

II. Collaboration and linkages in regional innovation policies

5. Innovation depends on the allocation of sufficient resources to scientific research but also on the extent and quality of the interaction between different innovation agents, which facilitates the development of successful commercial applications. Innovation is based on the collaboration between different types of stakeholders. The notion of linkages is inherent to the concept of innovation systems and an important dimension of their effectiveness.

6. Despite technological advances, distance remains a barrier to the transmission of knowledge, in particular tacit knowledge, which often relies on personal links. The possibilities for collaboration and the strengthening of linkages are closely associated to the proximity between agents, hence the importance of developing policies that seek to develop the potential of territorial linkages. Collaboration serves to overcome the disadvantages of geographical distance, including through the development of transnational contacts.

7. The diversity in the innovation potential of different regional innovation systems is related to the density of external and internal linkages. The mobilization of regional assets and the implementation of regional development strategies draw often on various forms of collaboration between innovation stakeholders, which have sometimes a cross-border dimension.

8. The efficiency of the innovation system depends on the collaboration between multiple agents. This is best encapsulated by the concept of “Quadruple Helix”, which refers to the interaction between four key agents of the innovation system, namely, knowledge institutions, enterprises, government and civil society.

9. The scope for innovation policy includes also support to social and cultural aspects that seek to develop collective capacities and networking strengths at the regional level. Thus, the traditional concept of clusters can be broadened into the wider notion of development coalitions, which provide impetus to an agenda of regional economic transformation.

10. The so-called extended innovation alliances have been promoted to overcome development challenges in backward regions. These alliances focus on the potential of trans-regional cooperation and collaboration between regions with different levels of development to foster innovation. While geographic proximity is not a necessary condition for success, a clear contractual set-up and pro-active management of these alliances is required.

11. Collaboration among different innovation stakeholders should be encouraged through appropriate institutional structures that define organized frameworks for cooperation. It is therefore important to create a space for the exchange of views and the coordination of investment decisions at the local/regional level.

12. Work on reinforcing regional linkages should be complemented with support to the development of national and international linkages in order to avoid the negative effect of excessively emphasising local ties. An inward orientation could lead to isolation and lack of connection with external actors. The assessment of the potential for collaboration should also include cross-sectoral and cross-regional aspects.

13. Local and regional actors should be supported in their efforts to gain access to global knowledge and resources as such linkages are a necessary condition to foster innovation. Partnerships between research and education organizations and business should be promoted at the regional, national and international levels.

14. Information and communication technologies have an important role in facilitating collaboration and knowledge-sharing among different actors, resulting in the emergence of virtual communities that provide an environment for the effective matchmaking of partners.

III. Regional innovation strategies

15. There are multiple strategies that can articulate a vision for regional innovation-based development. This diversity is partly a reflection of the variety of regional situations but also is an expression of different views regarding the direction of change and the ultimate goal that is being pursued. Regions with similar profiles may opt to pursue different strategic goals. As the private sector will have to play a key role in the implementation of any strategy, it is important that its views are also reflected in the design phase.

16. Regions can be understood as a system of complementary activities which have emerged in a particular historical setting. The local environment and the existing assets greatly influence the available options. Problems and bottlenecks are defined in a region-specific context. Regional strategies need to acknowledge the diversity of regional situations. Therefore, a departure point for successful outcomes is to build on existing strengths and capabilities, as identified by an assessment of regional resources.

17. Some regions are at the frontier of innovation. These knowledge-based regions are technology leaders where genuine innovation (i.e. new products or services that are new to the world) takes place. For many other regions, the policy emphasis is more on access to external knowledge and the absorption and diffusion of this knowledge.

18. The transfer of knowledge can take place through a variety of channels, including mobility of the labour force, formal technology transfer and activities initiated at the enterprise level such as joint research or ventures co-development.

19. Innovation is seen increasingly as a way to address the problems of backward regions. These innovation-based strategies rely not on the mere transfer of resources from more advanced regions but on the ability to promote development through the absorption of external knowledge and the imitation of products, technologies and business models existing in more advanced economies. This requires the creation of a basic infrastructure that increases the absorption capacity and facilitates collaboration and exchanges.

20. The ultimate aim of regional innovation strategies is to promote a change in the behaviour of innovation stakeholders through the use of different instruments, so they become more open and ready to work together for the transformation of region. A key factor contributing to this behavioural change is learning, so the development of human capital needs to be an important component of regional interventions.

21. Innovation strategies require the integration of multiple policy instruments targeting different areas to ensure the consistency of interventions. A proper understanding of the linkages between different types of interventions poses a challenge to policymakers, who have to deal with a portfolio of instruments which is a result of previous interventions.

22. The diversity of regional strategies and the policy experimentation that takes place at the subnational level represents a source of inspiration and fresh ideas that can be incorporated in the design national innovation strategies and be replicated in other regions, once factors that are intrinsic to the region are taken into account.

23. The competitiveness and resilience of clusters derives from the linkages between companies and sectors within a given region but also with the rest of the world. Cluster based strategies need to be aware of how the desired pattern of specialization fits with overall international trends, so as to seek synergies and avoid duplications. Thus, a global perspective should be retained to identify potential competitive advantages but also possibilities for cooperation. International openness is also important to have access to technological solutions and business processes, so to avoid investing resources in what is already available and can be sourced externally.

24. Regional innovation strategies should rely on the active involvement of the private sector, as government intervention cannot be the main driver of the necessary changes. The key objective of these strategies should be to improve the conditions for the development of innovative firms, facilitating their interaction and the access to external knowledge and providing services that complement their internal capabilities. Public investment in research and innovation plays an important role but its main focus should be stimulating private investment, not replacing it.

25. The rationale for the support to competitiveness poles and competence centres lies on the search for beneficial agglomeration effects and the resulting increased scope for knowledge exchange. A systemic approach emphasises the importance of the linkages between different types of innovation stakeholders and the environment in which they operate. The aim is to facilitate the cooperation between different firms in collaborative arrangements that bring together also research institutions. While competence centres have a clear regional focus, competitiveness poles have more global ambitions that seek to position them as part of complex value chains with an international dimension.

26. “Smart specialization” strategies include public support to a process of entrepreneurial discovery that capitalises on existing strengths and seeks to facilitate collaborative leadership of this process and provide necessary complementary inputs in the innovation process. Strategies should be evidence-based – hence the importance of needs assessment.

27. This entrepreneurial discovery process can take many different forms. It may concern the transformation of traditional sectors into new competitive areas. The introduction of new technologies may lead to new forms of specialization within existing sectors. Diversification on the basis of existing specialization is also possible. More radical changes, which are a departure from current comparative advantages, are also possible.

28. Critical dimensions of these “smart specialization” strategies are appropriate stakeholder involvement and the synergy between different sources of funding and instruments. The private sector should have a leading role in the identification of sectors with growth potential but it is also important that this process of entrepreneurial discovery is not captured by vested interests that block or distort change.

29. Action plans should result in policy packages that integrate different forms of support and targets, with appropriate funding provisions. The number of priorities should be limited, so to achieve critical mass and avoid a wasteful dispersion of resources.

30. The identification of the potential venues for economic specialization can be supported by a variety of methods used in combination, including foresight, consultation mechanisms, structured interviews or pilots. Business needs identified through this entrepreneurial discovery process should be matched with the provision of research and innovation capacities under the leadership of the public sector. Practical self-assessment tools can help regions to draft smart specialization strategies.

31. “Smart specialization” does not prescribe specialization in particular sectors but emphasises the policy process through which the identification of areas to be developed

emerges. The outcome of this process should result in distinctive areas of specialization, not on the imitation of existing ones. The focus should be not only technological but include also other forms of innovation, which are practice based. More than one sector can be targeted in the search of synergies.

IV. Innovation governance and policy instruments

32. Regions differ in the degree of autonomy they have to develop innovation policies, the extent of financial resources, regulatory means they can deploy and the capacity to formulate and deliver policy. The degree of control of regions over science and technology resources depends on the level of political and agency decentralization. In addition, there is a diversity of governance structures in regional innovation systems.

33. Institutions greatly influence the scope and efficiency of policies. Policy initiatives may be impeded by administrative boundaries which do not fit with the scope for policy intervention according to economic considerations. Actions with a limited regional focus miss out on the potential offered by collaboration between different regions, in a context in which the globalization of economic activity creates strong pressures for the outward orientation of policy initiatives.

34. The design of effective innovation strategies may require coordinated actions across different administrative divisions. This coordination facilitates the pooling of complementary assets, the emergence of larger networks and the achievement of a critical mass in key areas that increase external recognition. On the other hand, some policy areas may be inadequately covered because of existing gaps in the allocation of responsibilities across different levels of government.

35. A major challenge for the design of appropriate policies in complex institutional arrangements that involve different levels of government is the creation of appropriate mechanisms for sharing information. Regions have only control or influence over certain aspects relevant to innovation. It is therefore important that regional interventions take place within an overall national framework that ensures mutual consistency of the interventions carried out at lower territorial levels. The proliferation of programmes at different levels can be a source of potential inefficiencies.

36. There are different mechanisms to facilitate coordination and synergies between central and regional interventions. The alignment of national and regional policy objectives and planned interventions can be facilitated through a consultation process, in particular concerning the design of the overall national innovation strategy. A continued dialogue, underpinned by concrete institutional arrangements, can facilitate mutual knowledge of policy developments at different levels of government. Contractual arrangements can be established to finance specific projects with the involvement of both national and regional authorities.

37. Regional innovation agencies can be established to implement innovation policies at the regional level. Proximity to the groups targeted by policies is seen as beneficial, as these agencies are in a better position to collect the necessary information and react to the demands of their customers. However, there is no single model but a variety of practices that reflect different policy priorities and institutional settings. Regional innovation agencies can differ regarding the scope and target of intervention, funding model and sector focus. They may act as a central node in the system of regional agencies or be just another agency among others.

38. The perception of the role of regional innovation agencies has undergone a transformation in line with the emerging view which sees them not just a provider of resources but a critical actor in the regional innovation system who seeks to facilitate linkages and promote economic transformation. The emphasis is on strategic change

through a variety of policy instruments which rely on the mobilization and collaboration of multiple innovation stakeholders.

39. Regional differences in innovation capabilities demand different policy mixes. The starting point needs to be an analysis of the existing situation. While for knowledge and technology hubs, the main priority is to build on existing advantages, for less advanced regions, which are, for example, specialized in traditional manufactures or primary sectors with low technological content, the emphasis is on catching up.

40. There is a variety of instruments that can be used to promote innovation at the regional level, targeting the generation, diffusion or exploitation of existing knowledge. Most instruments are used at both the regional and national policy levels. This creates the need for a policy design that identifies clear roles for interventions at different territorial levels and seeks to exploit complementarities.

41. Overall framework conditions including a strong intellectual property regime, entrepreneur-friendly policies and social norms that encourage risk-taking and trust are important factors influencing innovation and the effectiveness of policy interventions. Some of these conditions can be shaped at the subnational level.

42. Different types of instruments are used at both the national and regional levels but the efficiency of innovation policy is increased when the interrelation and complementarity between these instruments are duly taken into account. Coordination mechanisms should be used to ensure alignment of objectives and synergies between national and regional interventions.

43. Instruments that are used at both the national and regional levels do not necessarily imply duplication, as these interventions may be complementary, sharing financing, targeting different groups and seeking different aims. Policy instruments should be used as part of policy packages that pay attention to the relations between different types of interventions and the dependencies between different instruments for successful implementation.

44. Traditional policy instruments, such as support to infrastructure development, science parks, technology transfer offices and incubators, are more often deployed at the regional level. Regional innovation policy focussed initially on the creation of an appropriate physical infrastructure and the transfer of resources but the emphasis has shifted towards the development of innovative enterprises and the provision of support services.

45. Science and technology parks were created initially in many countries to support the commercialization efforts of existing research organization, without particular concern for the implications for regional development. However, they have become important policy tools for regional innovation policies, which seek to capitalize on the existence of research institutions and the proximity to other innovation stakeholders. At the national level, science parks have been set up as part of overall technology development policies or in the search for large-scale foreign investment.

46. In addition to these traditional interventions, there are a number of more novel instruments that are becoming widespread, such as public-private partnerships for innovation, innovation vouchers and the benchmarking of innovation efforts. These emerging instruments are particularly relevant for less favoured regions, where there is a need to develop capacity for policy design and implementation and to identify latent demand for innovation in local SMEs.

47. Some experimental instruments that emphasise international aspects, such as a cross-border research centres, or which reflect the emerging paradigm of open innovation, are also being deployed at the regional level.

48. Regional instruments have been increasingly integrated into strategies that seek to coordinate a range of interventions on different areas, emphasizing the importance of linkages between firms and other innovation stakeholders. This approach is in line with the prevailing notion of regional innovation systems, which encompasses different types of organizations and public and private actors and the organizational and institutional arrangements that facilitate their interaction.

49. However, in backward regions, there is a lack of entrepreneurial culture favouring cooperation between firms. These regions are often specialized in traditional sectors and have poor links with international markets. Technological intermediaries and business services are poorly developed. The strengthening of linkages between different components of the regional innovation system faces particular challenges in these regions.

50. Some areas of intervention appear particularly suited to the regional level. For example, small and medium enterprise (SME) support policies can be more effective when implemented in close contact with entrepreneurs. Agencies working at the subnational level are more aware of the problems faced by local companies, which operate in a specific regional context, and may be able to provide more suitable advice, in particular regarding the possibilities for interfirm cooperation.

51. Policy focus should go well beyond research and development (R&D), which is too narrow to address the problems of the regions. Non-technological innovation has different dynamics and presents a potential that should be actively exploited by regional innovation policies. As these forms of innovation are not easily captured in traditional indicators, it is important that appropriate indicators are developed.

52. Policy design should pay attention to the possibilities for collaboration across sectors and technologies, leading to a more comprehensive view of the innovation potential, which should be associated with an emphasis on strategic planning and decision-making.

53. Evaluation plays an important role in effective policymaking. Quantitative and qualitative information on the outcomes of past initiatives helps to improve policy design and implementation. It is important that monitoring and evaluation mechanisms are tailored to reflect the particularities of specific programmes. Evaluation should be used also as a mechanism of reporting to stakeholders, not only to policymakers, so as to preserve ownership of the regional strategy.

54. The variety of experiences across regions also provides opportunities for policy learning. Pilot initiatives in some regions can be replicated, if successful in other regions, or become the basis to develop national policies. However, in order that these experiences are a useful source of knowledge for other regions, it is important to have a proper understanding of the different factors that contribute to the success or failure of a certain initiative, in particular, those that cannot be easily replicated elsewhere.

55. Evaluation should be concerned not only with the use of resources but, critically, with the impact and outcomes of the policies implemented. In particular, the ability of regional innovation policies to change the behaviour of innovation stakeholders is an important measure of their effectiveness. The evaluation of the outcomes of policies, which may include many different instruments, and the involvement of multiple agents, is a challenging task that requires a systematic approach.

56. Strategic intelligence, which collects and analyses information to support the development of an evidence-based regional innovation strategy, is complementary to evaluation efforts. Regional foresight projects are systematic attempts to look into future trends through a mixture of methods. Regional benchmarking is also a useful tool to inform strategic intelligence initiatives. The importance of the local context should not be forgotten

in order to avoid a mechanic interpretation of the results obtained in these benchmarking exercises.

V. Main conclusions and policy recommendations

57. Regions can make an important contribution to national innovation performance by mobilizing local assets and developing linkages which rely on the proximity of stakeholders. Supportive policies can enhance the potential of regions to innovate and increase the consistency of interventions at different territorial levels.

58. Policy actions aiming to promote regional innovation should consider the following principles and recommendations:

(a) The strengthening of linkages between innovation actors should be supported by institutional structures that facilitate cooperation. Social and cultural aspects are also important to develop networking capacities at the regional level.

(b) Besides the strengthening of local ties, policies should pay attention to the need to avoid regional isolation by fostering cross-regional and cross-border collaboration, so that regions can have access to global knowledge and exploit synergies and complementarities. International openness is an important success factor.

(c) Regional innovation strategies should be built on a realistic assessment of existing capacities, identify clear goals and involve the private sector in both design and implementation.

(d) The integration of different policy instruments in a consistent manner and the coordination of interventions at different territorial levels greatly increase the effectiveness of public interventions. These tasks present major challenges that can be addressed through well-established mechanisms for consultation and sharing of information.

(e) The public sector has a critical role in providing leadership to facilitate collaboration between different actors, supporting the entrepreneurial discovery of new comparative advantages and providing the necessary assets that facilitate changes in regional productive specialization.

(f) The focus of regional innovation policies should be well beyond R&D and technological aspects, as other forms of innovation have a significant potential to contribute to regional development and should not be neglected.

(g) Evaluation mechanisms should be developed to facilitate policy learning, both within and across regions. Communication with stakeholders on the outcomes of interventions contributes to the continued engagement of these actors, which is an essential factor in the implementation of regional innovation strategies.
