New technologies and regional policy

Towards the next cohesion policy framework
New technologies and regional policy: 
Towards the next cohesion policy framework

Study
July 2018

Abstract
This study reports from a workshop on 'New Technologies and Regional Policy: Towards the Next cohesion policy Framework'. The European Parliament's Science and Technology Options Assessment (STOA) Panel organised the workshop in Brussels on 16 October 2017. The objective was to provide input to the debate on the next EU cohesion policy, after 2020.

The workshop focused on the impact of new technologies at the European and regional levels, affecting EU cohesion policy and regional innovation-led growth. Members of the European Parliament, specialists from the European Commission, representatives of several regions, Member States and organisations made workshop contributions. See the Appendix for the workshop programme.

After the workshop, the author prepared this document as a discussion paper according to the major themes of the workshop, while taking into account the overall scope and the principal content of the workshop. Further inputs on the same and related topics were collected through interviews with EU representatives and other specialists. Policy reports and observations in the scientific literature provided facts and background. See the list of persons consulted and the source material used, detailed at the end of this report.

The text that follows relates mainly to EU cohesion policy and includes analyses of the territorial dimension of innovation-led economic growth and relevant policy issues. Particular focus is put on information and communications technologies (ICT) and digital platform economics, as well as on science and technology parks and urban innovation areas. This study also provides policy options for the legislator.
The STOA project 'New technologies and regional policy: Towards the next cohesion policy framework' was requested by the European Parliament's Science and Technology Options Assessment (STOA) Panel. It was carried out by Prof. Jan Annerstedt (Copenhagen Business School) and managed by the Scientific Foresight Unit (STOA) within the Directorate-General for Parliamentary Research Services (DG EPRS) of the European Parliament.

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<tr>
<td>COSME</td>
<td>Competitiveness of Enterprises and Small and Medium-Sized Enterprises</td>
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<td>CSF</td>
<td>Common strategic framework</td>
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<tr>
<td>DG AGRI</td>
<td>European Commission's Directorate-General for Agriculture and Rural Development</td>
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<tr>
<td>DG ECFIN</td>
<td>European Commission's Directorate-General for Economic and Financial Affairs</td>
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<tr>
<td>DG ENTR</td>
<td>European Commission's Directorate-General Enterprise and Industry</td>
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<td>DG GROW</td>
<td>European Commission’s Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs</td>
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<td>DG REGIO</td>
<td>European Commission's Directorate-General for Regional and Urban Policy</td>
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<td>DG RTD</td>
<td>European Commission's Directorate-General for Research and Innovation</td>
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<td>EARDF</td>
<td>European Agricultural Fund for Rural Development</td>
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<td>EFSI</td>
<td>European Fund for Strategic Investments</td>
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<tr>
<td>EIP-AGRI</td>
<td>Investment Fund European Innovation Partnership for Agricultural Productivity and Sustainability</td>
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<td>EIT</td>
<td>European Institute of Innovation and Technology</td>
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<td>ERDF</td>
<td>European Regional Development Fund</td>
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<td>ESF</td>
<td>European Social Fund</td>
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<tr>
<td>ESIF</td>
<td>European structural and investment (ESI) funds. (These include the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF).)</td>
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<td>EU</td>
<td>European Union</td>
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<td>FP7</td>
<td>7th Framework Programme</td>
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<td>FP8</td>
<td>Horizon 2020, H2020, 8th Framework Programme</td>
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<td>FP9</td>
<td>9th Framework Programme</td>
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<tr>
<td>GDP</td>
<td>Gross domestic product</td>
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<td>GVC</td>
<td>Global value chains</td>
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<td>H2020</td>
<td>Horizon 2020, 8th Framework Programme</td>
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<tr>
<td>ICT</td>
<td>Information and communication technologies</td>
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<td>IPL</td>
<td>Innovation policy labs</td>
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<td>JRC</td>
<td>European Commission's Joint Research Centre</td>
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<td>KET</td>
<td>Key enabling technologies</td>
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<td>KIC</td>
<td>EIT's knowledge and innovation communities</td>
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<tr>
<td>MFF</td>
<td>Multiannual financial framework (the latest is 2014-2020)</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and experimental development</td>
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<td>R&amp;I</td>
<td>Research and innovation</td>
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<td>RIS3</td>
<td>Research and innovation strategies for smart specialisation</td>
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<td>S3</td>
<td>Smart specialisation; smart specialisation strategy</td>
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<tr>
<td>SME</td>
<td>Small or medium-sized enterprise</td>
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Executive summary

Using cohesion policy and other policy instruments, the European Union assists Member States and their regions to foster productivity improvements, encourage business competitiveness, stimulate innovation-led growth, promote new skills and job creation and thereby pave the way for more sustainable development. In principle, cohesion funding works as a long-term investment policy open to all EU regions.

In practice, however, cohesion funding is heavily concentrated to the less developed EU regions. The aim is to reduce the economic, social and other disparities that remain between the advanced and the disadvantaged areas of the Union. Nonetheless, economic inequalities among Europe's regions have grown during the past two decades. There are winners and losers. While Member States tend to converge, regions diverge, in particular regions in the new Member States.

For its next cohesion policy framework, EU needs to address the growing regional differences in economic development more forcefully. Cohesion policy must be made more effective to maximise impact and deliver significant results. Here, new technology, including digital technology, is expected to play important roles. Innovation-led growth remains at the core of EU's regional economic policy. Cohesion policy could be made more flexible and adaptable to meet new challenges.

In this document, edited as a discussion paper, the issues raised put focus on the direction of cohesion policy, on priorities and on means for policy implementation to achieve regional economic strengths and, eventually, to enhance the confidence in EU's added value. The policy options listed were proposed at a Parliament workshop, during follow-up interviews and in recent research and policy evaluation reports.

Smart specialisation remains relevant for regional growth strategies

In cohesion policy, the EU promotes the mobilisation of public as well as private actors in a given region to the benefit of that region. The construction of a specialisation strategy is about identifying priority areas and mobilising relevant capabilities in order to achieve success. It is an inside-out perspective on economic development, sustained by already available resources in the region for achieving innovation, new business development and economic growth.

Smart specialisation, when launched nearly 10 years ago, represented a move towards more collaborative or distributed leadership of regional innovation-led growth. According to the EU handbooks, the preferred regional governance is based on public-private partnerships and the formation of consensus among selected regional stakeholders. The public sector plays roles as animator, catalyst and node in networking among the other regional actors, including business enterprises. Shared management by working groups, networks, partnership fora, etc. is still being practiced with the best of intentions: combining resources across sectors and boosting synergies among funding programmes, while accepting EU's overall regulatory requirements.

In their reflection paper on the future of EU finances (COM(2017) 358, 28 June 2017), Commissioners Günther Oettinger and Corina Creţu acknowledge that the results of cohesion policy are considered 'globally positive'. Yet, cohesion policy initiatives have become complex to manage, 'hampering implementation on the ground and creating delays. The layers of controls and bureaucratic complexity make it difficult for beneficiaries to access these funds and deliver projects quickly.' The Commissioners responsible underline that 'a much more radical approach to simplifying implementation and allowing for more agile and flexible programming is needed'. Cohesion policy could be made more effective and its impact greater by fast implementation, increased national and other EU co-financing and more professional operational leadership by local and regional authorities.
Market creation: bringing the regional authorities back in

Ideally, regional specialisation actions will maximise the economic impact of the EU resources made available to a region and ensure that actions meet the needs of business enterprises and other stakeholders involved. There must be a willingness among participating entrepreneurs and enterprises to cooperate and engage in R&D, engineering design and other innovation-related activities and, when being successful, to absorb the results in business and by modernising the regional economy. Without professional management capabilities, no regional innovation-oriented growth strategy will be translated effectively into action.

It is recommended that the public sector will retake more of its regional leadership roles. This requires a policy capacity and organisational culture open to experimentation and ready for risk-taking and potential failures. The regional authority must be ready to tackle uncertainties and to manage operations in a multi-level governance system. For example, organising for ‘market-creation’ will require an absorptive capacity among regional authorities to learn from experimental design, prototyping and testing – and to do this in small scale projects as well as by large undertakings during several years.

Going beyond smart specialisation strategy: mission-oriented policy

Mission-orientation implies setting directions of change. Rather than focusing on particular sectors, as in traditional regional policy, mission-oriented policy is designed to face particular challenges and address problems that could be solved by innovation. Since resources tend to be limited, choices must be made. Emphasis on societal problems such as healthcare for elderly and urban resilience creates more potential for synergies and greater spillover effects than what a sectoral approach to regional development might offer.

A mission-oriented and market-creating policy framework for innovation-led growth seems better for mobilising appropriate resources within in a regional eco-system of public, private and third sector actors. This requires strategic investments or public policies that aim at shaping emerging markets, rather than just ‘fixing market failures’. As a result, a market-creating policy framework could bring public authorities more firmly back in. In hindsight, if not before, it is easy to detect areas where public agencies were successfully involved in the creation of new technology markets such as for green energy and public transportation.

Dynamic positioning for achieving flexibility, synergies and fast-track activities

In such an open and accessible economic context, dynamic positioning by a regional public authority means persistent actions and coherent initiatives, backed up by analyses of how the regional economy could be advanced in the ever-changing regional economy. Dynamic positioning are code words for a pro-active policy approach to influence conditions of change in regional development and swiftly react to changes in the economic environment, while keeping the course (towards innovation-led growth) steadfast and unwavering. The attention is more on smart and effective delivery of relevant results than on strategy. Regional innovation-led growth is encouraged by active engagement of entrepreneurs, startups, SMEs and other business enterprises willing to invest or co-invest in new ventures in cooperation with the public sector. Advantages are gained by managing resource effectiveness according to fast-track procedures.

The term dynamic positioning signals that the region's decision-makers must remain alert, stay watchful and become pro-active, when confronted with new issues affecting the region's changing economic fortunes. At the same time, the decision-makers need always to consider the overall direction of development and be constantly concerned about the economic, technological and other forces that might cause radical change and challenge the competitiveness of the region and its enterprises.

Dynamic positioning requires not only quick actions, but also an up-dated diagnosis that defines and helps explain the region's major economic challenges. In this sense, dynamic positioning is clearly
evidence-based. Dynamic positioning depends on methodologies for identifying critical features of the region’s economy as well as new challenges facing the region and its surroundings. Consequently, there are elements of foresight studies, helping the region’s decision-makers to look for emerging trends.

By always finding new, effective ways to influence innovation-led regional growth, dynamic positioning implies uninterrupted implementation. The region’s decision-makers – in all sectors concerned – must practice openness and collaboration across sectors, if the region should succeed in growing. Moreover, the attention by the region’s decision-makers should include all EU’s policies and not only cohesion policy with a bearing on the region’s changing economic circumstances.

European structural and investment funds (ESIF) and other EU-funded instruments operate in diverse and sometimes complicated policy arenas, involving a variety of actors from all sectors in society. There are strong calls for harmonising regulations, guidelines and procedures to make the most of EU’s resource allocations and achieve synergy effects. Reports have repeated the message that synergies between cohesion policy, Horizon 2020 and other EU programmes are critical for the success of these programmes. Compliance with regulatory frameworks, procedures, time frames, eligibility rules etc. remains a priority, but regulations and good management should not be a constraint to synergies and hinder effective use of the EU resources.

Operational programmes, designed to become more effective

Smart specialisation and other regional growth strategies may look good on paper, but fail because the implementation process is inappropriate or ineffective and hampered by administrative hurdles and lack of professionals. Drawing from lessons from a variety of regional experiences, the transformation process from strategy to actions, results and impact will need further consideration in the design of the next cohesion policy framework. This must include operational programmes (OP), such as the detailed plans for how a Member State and its regions will spend money from the European structural and investment funds (ESIF) in an agreed period. Ideally, the OPs should be demand-driven. This could make a region’s multi-level leadership roles more complicated and demanding. Public and private organisations – when working closely together – might have to rethink their responsibilities and functions in the making of more effective regional policy.

Ten highlights among the policy options for further consideration:

1. **New technology and productivity improvements**: The fastest way to promote economic productivity is by adjusting the criteria now being used for the selection and implementation of EU-funded activities. The least competitive regions need to attain more of flexibility, when facing new challenges, and get more means to position their economies dynamically. In the next stage of cohesion policy, a new EU policy instrument could be considered for systematically promoting ‘excellence in innovation' in the regional economic context.

2. **Smart specialisation: knowledge for innovation-led growth**: Some regions report that the smart specialisation strategy process has been tested and that results are considered meagre due to lack of resources, potential partners, tech transfer support system, etc. The huge differences in the tangible and intangible resource-base among EU’s regions need careful consideration, when developing new cohesion policy initiatives that will be open to all types of regions. For the design of future cohesion policy initiatives, an ‘impact-focused’ approach is recommended to make innovation-led growth more relevant and achievable.

3. **Technology, big data and the opening of governance to society**: As in the business enterprise sector, digital technology provides a variety of opportunities to rethink public policy and the workings of democratic institutions at the regional and national levels and to make public authorities more effective and transparent to the benefit of citizens, firms and organisations. These opportunities are relevant for making the cohesion policy initiatives more effective and transparent.
4. **Bringing the regional authorities back in:** The 'shared management' model is not always working according to intention. This evidence stems from all types of regions. To speed up regional policymaking and achieve more and better results, regional authorities should consider retaking their leadership roles. Accordingly, cohesion policy should allow for a wider variety of management practices to make EU-funding of innovation-led growth successful in any type of region.

5. **Dynamic positioning as a fast and flexible approach:** When attempts have failed to 'smartly specialise' by the region's own resources, requests are made for cohesion policy funds with fewer strings attached. By contributions from the persons consulted, a dynamic strategy approach by the regional authorities is proposed: Dynamic positioning is achieved by (a) an on-going regional 'economic diagnosis', which defines and explains principal and practical challenges, and (b) a flexible guiding policy dealing with both obstacles and opportunities, and (c) a set of coherent actions needed to address the always-changing regional circumstances. Results are achieved by keeping the course steady towards innovation-led growth and by involving resourceful regional stakeholders.

6. **Regional innovation policy – revising the current framework:** Mission-oriented innovation policy could become an important complement to other development policies, especially in regions that lack the variety of resources needed to develop strategies by smart specialisation. Mission-orientation will typically respond to sector-specific needs and wider societal challenges. Mission-orientation could open for new markets – inside as well as outside the region.

7. **Shaping markets by mission-oriented investments:** By combining horizontal (sector-neutral) policies and vertical (direct) policies, some regional authorities are implementing more of 'market-creating' policy frameworks, e.g. by innovation-oriented public procurement. EU Cohesion policies need to consider and embrace the evolution towards more active public-sector involvement in innovation-led growth in various regions and promote conditions for evolving business ecosystems that generate growth – even when the private sector is hesitant due to initial risks.

8. **'Outside-in' approaches to innovation-led growth:** Some regions are implementing 'outside-in' policies to seize opportunities for acquiring up-to-date technology, know-how, and inventive solutions by actively inviting inward investments. Manufacturing as an advanced service for companies outside the region could drive local productivity enhancement. European and global production networks are considered potential assets for promoting innovation-led growth in a region. Companies representing global value chains serve as catalysts for advancing new industrial capabilities in the region.

9. **Science parks, areas of innovation and the importance of location:** Science and technology parks highlight the importance of local and regional clustering of competencies for invention and innovation. Professionally managed science parks are carriers of a culture that accepts risks while attempting to shape novel ideas into new products and services. Cohesion policy could support them for being effective nodes in networks that foster business development, particularly small, knowledge-intensive enterprises with growth potential. A new 'generation' of science parks is urbanised, thereby stimulating a wider constituency of entrepreneurs and businesses to innovate and grow.

10. **Technology, regions and the digital platform economy:** No region escapes the challenges posed by digital platform economics. Digital platforms easily attract new customers, clients and other users and drive scaling of small enterprises into large. Prospects for economic development by pan-European and worldwide market access by digital platforms seem to be immense - even for small businesses in remote regions. Cohesion policy must include the options for EU’s regional economies to capture value by the existing digital platforms and by building new platforms.
1. Regional economic performance: the growing diversity

Economic inequalities among EU's regions (NUTS 2) have grown sharply during the past two decades. Previously relatively prosperous regions have suffered job losses and declining per-capita income relative to national averages. In contrast, a limited number of large metropolitan areas are now among the most dynamic areas according to the same terms of income and employment. They are globally competitive economic hub-regions.

The overall picture of regional growth across Europe is that of growing diversity and increasing complexity. Yet, there are some signs of narrowing regional disparities, but it is too early to talk about a new trend. A 2017 study based on up-to-date statistical indicators groups all EU's regions into four categories or 'clubs' by GDP per capita: Very high income regions (150 % or more of EU's average GDP per head), high (120-149 %), medium (75-120 %) and low (less than 75 %). See the map (Figure 1) on the next page for their locations.

According to this study of EU's regions, only a few large metropolitan regions plus some other similar-sized regions (e.g. Rhine-Ruhr and Randstad Holland) dominate the 'very-high income' club. They specialise in high-quality goods and services. Most of them enjoy high productivity growth. The basic storyline, according to the analysis, is that these leading regions are generating much more than their share of Europe's economic prosperity. Their companies are able to compete in the global economy.

The second category of EU regions – 'high-income' regions – enjoys many or most characteristics with the 'very-high income' group. Their employment rates are also high and many of these regions show relatively high GDP growth per head. Southeast England, Benelux, Northern Italy and Catalonia are doing less well than the German regions, members of the same regional group.

The third grouping of EU regions represents the 'medium-income' regions (75-120 % of EU's average GDP per head). According to the study, there are several sub-groups within this club. The largest subgroup covers regions that have lost manufacturing jobs, reflected in stagnant or declining employment rates. Education levels – for example secondary and post-secondary education – are below those of the two first regional groupings. All in all, these regions are economically fragile because of declining manufacturing and levels of education and skills.

The 'low-income' club consists mainly of eastern and southern European regions. They share some common characteristics in terms of low employment rates, weak institutional capacities, low investment in R&D, etc. The human capital in Eastern and southern European regions tends to migrate across borders for seeking new job opportunities and overcoming barriers to entrepreneurship.

Similar patterns of growing diversity among EU regions appear, when looking at innovation capacities and innovation performance in relation to the regional economy. Based on recently reported indicators from across the EU, the authors of the Regional Innovation Scoreboard of 2017 conclude that there is an on-going process of divergence in regional innovation activity. The gaps in innovation performance among the Union's regions grow continuously. Despite their innovation strategies and despite

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1 NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU for the purpose of, e.g., socio-economic analyses of the regions. NUTS 2 is the basic classification of regions for the application of EU’s regional policies. Source: Eurostat.


contributions by the European Regional Development Fund (ERDF), 88 regions saw a decrease in their innovation performance between the 2011 and 2017 Scoreboard reports.

**Figure 1: European Union regions (NUTS 2), grouped into four categories (Economic Development Clubs), according to GDP per head**

Source: Iammarino, S., Rodríguez-Pose, A. & Storper, M.: Regional and Urban Policy: Why Regional Development matters for Europe's Economic Future, Brussels: European Commission DG Regional and Urban Policy (REGIO-B1-PAPERS 07) 2017. Here, EU’s regions (NUTS 2) are grouped into four categories ('Economic Development Clubs'), according to their regional GDP per head: Very High income regions (150 % or more of EU's average GDP per head), High (120-149 %), Medium (75-120 %) and Low (less than 75 %).
Regional Innovation Scoreboards (RIS) replicate the overall European Innovation Scoreboard methodology, applied at the national and international levels, in order to measure performance of 220 European regions. RIS 2017 uses the same measurement framework, but not all of the 27 indicators in the European Innovation Scoreboard are available for all EU regions. Year by year, the statistical manuals are being refined and more data is made available for Lifelong learning, International scientific co-publications, Design applications, Trademark applications etc.

To further improve evidence-based regional policy, the next stage in advancing statistical methodology is to measure much more systematically investments in intangible resources and capabilities.4 This is already being done at the level of business enterprises and industrial sectors, but not at the regional level.

Without proper indicators for innovation and other transformative action, the ability to determine the impact of investments is limited. This could lead to investments that are overly narrow in scope or directed into areas with little or no effect on productivity and regional growth. Therefore, it is crucial to develop better analytical methodologies and refine the indicators for measuring and evaluating ongoing EU funding, while it is still possible to reposition the actions and investments.5

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<td>There are requests for further improvements of innovation indicators at the regional level for making analyses more relevant and up-to-date for planning and decision-making purposes. The mission is, for example, to transform static metrics into dynamic ones in order to avoid the boundaries set by the prevailing techno-economic paradigm.</td>
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<tr>
<td>Initiatives for advancing statistical methodology should be considered by involving Eurostat as well as the OECD, national and regional statistical offices and the producers of data in the business enterprise sector.</td>
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Since differences in innovation performance among EU’s regions have increased, not decreased, there is an urgent policy issue that deserves more attention among policymakers at the regional level as well as at the national and EU levels.

The growing diversity among EU’s regions is identified in the literature by three stylised facts, which are highlighted in the 2017 edition of the Regional Innovation Scoreboard:

☑ Innovation is not uniformly distributed across Europe's regions,

☑ Innovation tends to be spatially concentrated over time, and

☑ Regions with similar innovation capacity have different economic growth patterns.

It is obvious that 'innovation' can never be uniformly distributed across Europe's regions. But lack of comprehensive, relevant data should not refrain us from developing analytical methods and finding new data sources that will be significant for explaining what seems to be a growing diversity among Europe's regions.

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In the meantime, stylised facts do offer methodological benefits. Currently with imperfect regional data on ‘innovation’ and ‘innovation-led growth’, EU analysts prefer using stylised facts to explore new methods and means to overcome data constraints for achieving more accurate insights and explanations. Stylised facts might resolve some of the difficulties in exploring plausible explanations that, later, could be scientifically tested, when relevant data become available.\(^6\)

According to the 2017 Regional Innovation Scoreboard, the most innovative regions in Europe are located within the most innovative countries. Hence, given the data available, there seems to be a positive correlation between innovative countries and innovative regions. Moreover: ‘There is a strong and positive link between regional innovation performance and regional competitiveness, as shown by

a comparison of the results in this report with those measuring regional competitiveness in the European Commission's Regional Competitiveness Index.\textsuperscript{7}

The fact that correlations are strong between innovation performance and regional competitiveness puts focus on another policy issue: How to foster better European cohesion, while addressing the growing gaps between innovation performances of the various regions.

The European Innovation Scoreboard classifies countries into groups according to their innovation performance. The Regional Innovation Scoreboard uses the same classification: Europe's regions are grouped into Innovation Leaders (53 regions), Strong Innovators (60 regions), Moderate Innovators (85 regions), and Modest Innovators (22 regions).

The 53 regional Innovation Leaders perform best on all available indicators, in particular on indicators measuring the performance of their research system (scientific publications) and business innovation (shares of innovative enterprises). The regional Innovation Leaders are located in countries also recognised as Innovation Leaders by the European Innovation Scoreboard.

The fact that indicators show strong linkages between regional innovation and regional competitiveness puts focus on a significant policy issue: how best to foster European cohesion, while addressing the growing gaps in innovation performance among the regions?

In short, the preservation of the Innovation Union as a world-class innovation environment rests on a relatively small number of regional Innovation Leaders.

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\textsuperscript{7} Regional Innovation Scoreboard 2017, Brussels: European Commission DG Internal Market, Industry, Entrepreneurship and SMEs, p. 4
2. Cohesion policy and regional innovation-led growth

Advancing Europe’s cohesion is a principal objective of the Union. For the period 2014-2020, almost a third of the total EU budget - €351.8 billion - is set aside for funding according to cohesion policy objectives. Cohesion funding works as a long-term investment policy that targets all EU regions in supporting job creation, business competitiveness, sustainable development and economic growth. Ultimately, the Cohesion funds aim at improving EU citizens’ quality of life across all Union territories. Yet, in practice, cohesion funding is heavily concentrated on the less developed EU regions to help them catching up and to reduce the economic, social and territorial disparities that might remain.

*Figure 3: Structural funds (ERDF and ESF) eligibility for the period 2014-2020*

*Source: European Commission’s DG Regional & Urban Policy.*
Cohesion policy investments in regions should help in promoting other EU policy objectives as well. For example, it complements EU policies dealing with education, employment, climate and energy, the environment, the single market, research and innovation. Cohesion policy adds value also to national initiatives in the same policy areas.

EU's cohesion policy, in the form of a general policy for regional development, aims at accomplishing the growth potential of each region in all Member States.

Principally, each and every region is to be considered a unique place-based entity with a distinct variety of resources and capabilities. For example, each region's resources and capabilities for research and innovation will vary in significance, depending on the region's business structure, recent economic history, available skills and other human resources, access to information and communication technology (ICT), etc.

In a recent Reflection Paper on EU's finances, the European Commission recognises the overall results of cohesion policy as 'globally positive'. However, there are a number of areas where reform is needed. For example, with increasing regional diversity and complexity in policy implementation, cohesion policy has become difficult to manage, hampering implementation on the ground and creating delays. The layers of controls and bureaucratic complexity make it difficult for beneficiaries to access these funds and deliver projects quickly. Therefore, the responsible Commissioner claims, 'a much more radical approach to simplifying implementation and allowing for more agile and flexible programming is needed for the future.'

Moreover, and this must be underlined, the general level of income and other similar macro-features in a region might have a general, overall influence which must be taken into consideration.

Policy options:

It is reported that cohesion policy funding is difficult to coordinate and manage at the regional and national levels and across levels.

By giving regional authorities a clearer mandate, funding and other procedures could speed up and become more simplified and transparent. Accountability for the use of funds and for evaluation of success will be easier to ensure.

2.1. Inside-out perspectives on innovation-led growth

Innovation-led growth is at the core of EU's regional economic policy. The Commission recognises the specific needs among less-developed regions in relation to their innovation capacities. In its cohesion policy, the Commission promotes the mobilisation of public as well as private actors at the regional level to create and foster new regional advantages. It is an 'inside-out' perspective on economic development, sustained by each region's available resources for innovation and business development.

According to prevailing EU regional policy recommendations (see the sections below on 'smart specialisation'), the high-impact recipe for regional growth begins by systematically identifying and exploring the special or exceptional resources for growth in a region, even the intangible assets that are not yet thoroughly explored for economic purposes. By such an exploratory exercise – ideally supported by some of the region's business enterprises and institutions – it should be possible to achieve a more accurate diagnosis of the region's economy as a basis for constructing, extending and enforcing the region's comparative advantages.

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Smart specialisation implies 'making smart choices' for regional development. In fact, smart specialisation is all about facilitating that choice, selecting the right priorities and channelling resources towards those investments that have the potentially highest impact on the regional economy.9

To succeed when getting ready for EU cohesion policy funding, the EU region is encouraged to differentiate itself by selecting a limited number of niches or 'strategic domains' for its future innovation-led growth. Clear choices are required by the smart specialisation approach, when 'rallying regional stakeholders and resources around an excellence-driven vision of their future.'10 The selection is by 'identification, through an endogenous process, of local potentials and local needs.'11 As a consequence, smart specialisation means that a regional government will endorse only some fields or domains for innovation-led growth and not others.

**Policy options:**

For regions with an abundance of in-region resources, it might be easy to make 'smart' choices in the search for new comparative advantages of its businesses and supporting institutions.

Regions that lack critical resources for achieving innovation-led growth by smart specialisation will have to look more for 'outside-in' prospects such as inward investments, manufacturing as a service and other cross-border economic linkages to compensate for weak endogenous innovation capabilities. The new cohesion policy should consider integrating the regional economies by inward investments and trade.

### 2.2. Strategic domains for innovation-led growth

Key economic actors in each region - from business enterprises to academic institutions - are encouraged by the Commission to jointly identify or invent a limited number of 'strategic domains'. A 'strategic domain' is outlined as a field of specialties, where the region's innovation capacities are likely to become particularly strong, or at least strong enough, to foster new business development and, perhaps also, to block easy replication or imitation by competitors in other regions. A 'strategic domain' should contain tentative answers to questions like: Which determinants of the region's competitive advantage should be considered? What's most needed for improving the region's mix of factors of production such as skilled labour, special expertise, supporting industries and business-related infrastructure?

The choice of 'strategic domains' for a region implies that coherent actions are taken not by government, but by a broad set of regional actors. The guiding policy for these actions specifies the mutual approach for constructing and enhancing the selected 'strategic domain'. Ideally, the guiding policy will indicate how to deal with the obstacles called out in the mapping of regional resources and the diagnosis that follows. By combined actions, coordination among regional actors and related resource commitments, the aim is to attain comprehensive regional development, stimulated by R&D or other innovation activities and by new business development.

The basis for choosing 'strategic domains' and for selecting among available potential specialities is the simple fact that each region is different due to geography, infrastructure, demographic conditions, socioeconomic history, previous specialisation, business environment, etc. Ideally, these and other

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differences should be combined into assets for regional growth, perhaps even transformed and turned into new competitive advantages.

According to the EU handbooks or guidelines for regional policymakers, the core of this type of regional strategy work should always be the same: a systematically organised 'entrepreneurial discovery process' (EDP) at the regional level: Discover the critical factors in a situation and design modes of coordination before taking dedicated, coherent actions to deal with those factors. To succeed, some regions pursue a Triple Helix (or the Quadruple Helix) approach to involve more systematically stakeholders from business, universities and government (and also from civil society). The functional links to universities and R&D centres seem to be particularly important for moving upwards along the economic value chains. Some smart specialisation strategies are constructed mainly to involve the universities in support of the desired regional innovation-led growth.

Policy options:

To succeed according to the smart specialisation guidebooks, it is not enough with good intentions to cooperate across sectors. Case studies tell us that operational leadership by local or regional authorities could be a relatively important precondition for making substantial economic achievements in the short- and medium-term perspectives.

For the next cohesion policy framework, the issues of governance and management in the design and implementation of policies for innovation-led growth needs special attention - and possible reform.

2.3. New technology and sources of innovation

Innovation-led growth is located at the very centre of EU’s regional economic policy. However, in the regions that receive most of the Cohesion funds, regional innovation policy cannot be reduced or limited to R&D-based and high-tech innovation policy. All sources of innovation and related modes of productivity growth must be considered parts of a region’s growth potential. Likewise, as already underlined, the focus areas for innovation activity will vary according to a wide spectrum of factors, such as the region’s economic structure, main types of available resources and level of income.

Successful results by innovation activity in the selected ‘strategic domains’ of a region are expected to evolve from a systematic pursuit of the preferred opportunities, rather than from single strikes of genius. Success requires careful analysis of the kinds of knowledge that are essential to make an innovation possible. In industry or in a sector of society, new ideas and opportunities could be identified by systematically addressing changes in needs and market demands. Careful analysis of capabilities, which seem to lack in a region to meet relevant needs, is also essential.

R&D-based or knowledge-intensive innovations tend to differ from others in the time they take, in their predictability and in their casualty rates – and by the challenges they pose to entrepreneurs, current business firms and supporting institutions. From the regional governance perspective, there might be a very long distance between the emergence of new knowledge and its refinement into usable technology for valid solutions.

R&D-based innovations tend to have great impact on the marketplace and the wider society, but it might take long before ideas are effectively translated into genuine products, processes and services. In

fact, they tend to have the longest lead-time of all types of innovations. Besides, if diligence, persistence and commitment are weak or lacking among the principal stakeholders, the entrepreneurs, companies and others involved in the innovation process are unlikely to succeed.\footnote{15}{Drucker, P.: The Discipline of Innovation, \textit{Harvard Business Review}, 63:3, 1985, pp. 67-72; Cf. also \textit{Harvard Business Review}, 80:8, 2002, pp. 95-100.}

\begin{figure}[h]
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\textbf{Policy options:} \\
\textit{The policy concept of Open Innovation processes is evolving across Europe, questioning the importance of 'linear processes' of innovation, which ultimately begins with basic research.} \\
\textit{By more Open Innovation, more knowledge could be shared in real time and become turned into new products and services.} \\
\textit{Regional authorities should consider promoting collaborative environments, science parks, Living Labs and other easily accessible innovation ecosystems, involving small and medium-sized enterprises, to foster cultures of entrepreneurship and new business development. EU is already funding such initiatives, but their extension among regions and their scale need to be improved.} \\
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\subsection*{2.4. New technology and productivity improvements}

Innovation-policies are broadly reviewed as policies that seek to enhance knowledge generation, diffusion and absorption into the economy (and the wider society) so as to generate innovation-led growth. It is about problem solving by facilitating new solutions, using new technology applications and thereby enhancing greater productivity and growth. By and large, and with important exceptions, EU regional policy has been focused on R&D-based innovation and does not systematically address alternative modes of innovation. However, design, prototyping and non-R&D-based innovation activity - such as 'Doing-Using-Interacting' - are considered important modes of innovation in the less developed regions. Yet, even in the more developed EU-regions, policy-makers tend to neglect traditional modes of innovation by straightforward ingenuity and problem solving.\footnote{16}{Foray, D., Morgan, K. & Radosevic, S.: “The Future of EU Research and Innovation Policy from a Regional Policy Perspective”, Draft paper (2017) to be published by European Commission DG Regional and Urban Policy as a REGIO-B1 Paper, 2018.}

In the short run, scientific research is not necessary for innovation to take place. Much more of creative designs, adaptive solutions and new business models are needed for fostering innovation and enhancing productivity growth. Yet, easy access to scientific knowledge by researchers, engineers and other experts from outside the region could be critical for any kind of invention to succeed. In the long run, scientific research results are perhaps the ultimate foundation for innovation also in Europe’s less developed regions.\footnote{17}{Ibid.}

Member states, having joined the EU after 2004 (plus Luxemburg and Portugal), can apply for so-called ERA Chairs, funded under Horizon 2020. The principal idea is that outstanding academics could be easily recruited to build local and regional R&D capacities, find high-level staff and raise standards that will unlock the potential for research and related innovation. The standards to be achieved by such pole-vaulting efforts should be at least the same as elsewhere in the European Research Area (ERA).

Research-based innovation or not, it must be emphasised that the various modes of innovation are not mutually exclusive. The modes of innovation complement each other, depending on the business setting and the region’s economic context. Frequently, ingenuity and incremental technical change trigger more
ambitious efforts, e.g. research-based innovation activity. Similarly, changes of business model might initiate more knowledge-intensive and science-based innovation.

These summaries originate from an enquiry into the last few years of EU’s regional policy design and implementation. Then, as now, policy emphasis is put on strategies for specialisation according to the selected ‘strategic domains’, mentioned in the previous sections of this document. In this period, productivity improvements in EU’s peripheral regions were driven by a wide variety of activities, most of which were not directly related to R&D. Examples of such activities are engineering improvements, general diffusion of new technology and enhancement of capabilities for manufacturing and assembly, new product designs, and new business models and related management practices.

Policy options:
Despite the range of funding programmes and initiatives promoting regional innovation-led growth, economic inequalities between EU’s regions remain. Gaps are even growing. The fastest way to promote economic productivity is by adjusting the criteria now being used for the selection and implementation of EU-funded activities.

The least competitive regions need to attain more of flexibility, when facing new challenges, and get more means to position their economies dynamically. In the next stage of cohesion policy a new EU policy instrument could be considered for systematically promoting ‘excellence in innovation’ in the economic context of cities and regions.

2.5. Regional innovation policy – revising the current framework

Regional innovation policy-making in the EU has been practiced for decades under different labels. Today, there are calls for the reframing of the various elements of EU’s cohesion policy. The argument is that new, inventive combinations of existing policies might lead to better synergies and more effective use of available resources, available at the regional level from EU, national and other sources, including private investors.

For now, the principal response by the EU to these and similar questions remains essentially the same: a general call for developing regional smart specialisation by using cohesion policy funding. Smart specialisation offers a clearly structured, linear methodology for advancing innovation in different regional contexts. Its toolkit for policymakers is assembled from standard literature on innovation, entrepreneurship and economic growth.

Smart specialisation remains a major driving force behind EU as an Innovation Union. It is generally promoted as a place-based approach to innovation-led growth. Originally, however, the smart specialisation concept was used for analyses mainly of sectors or sub-sectors for specialisation. Regions, cities and other localities were not in the centre of attention. Soon, however, smart specialisation was tuned in as a ‘place-based’ approach to regional and local development issues. Neither sectors, nor individual firms should be prioritised.

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18 Ibid.
At present, there are at least five principal varieties of innovation policy or policy areas that have a bearing on regional economic development:20

- **Cohesion policy** (or regional policy) in recent times has emphasised the growth potential of specific regions by innovation-related activities. It has been about the effective diffusion of technology and appropriate solutions that could trigger economic growth. The focal points of this innovation policy will advance, depending on the region's current and potential resources, including capabilities for innovation.

- **Innovation-oriented industrial policy** is centred on the economic impact of innovation activity in a specific industry context. Hence, its focus is on a variety of factors that generate productivity growth, competitiveness and employment by selected industries.

- **Mission-oriented innovation policies**: Goals and missions - for regions and other places - imply setting directions of change for research and innovation in order to favour certain types of change more than others. In principle, this EU innovation policy enables choices of missions at the regional level, broad enough to diffuse applications of technology across sub-sectors and involve more stakeholders for providing new solutions.21

- **Research and innovation (R&I) policy** focused on the generation of new technology and even frontier knowledge with a view to commercialise effectively research results and related knowledge. For the EU, its R&I policy should also promote science and technology-based innovation and growth in all its regions.

- **‘Outside-in’ policies for innovation**: On top of the four listed varieties of ‘inside-out’ innovation policy, there is an ‘outside-in’ regional innovation policy arena seizing opportunities for new knowledge, technology and inventive solutions from European trade links, investment networks and global value chains. This ‘outside-in’ policy is not new, since cross-regional trade and investments frequently carry new technology and related knowhow into a locality. Still, this policy restores confidence in finding solutions also by steadily seeking critical resources for innovation from outside the region, when not available inside. It is an important reminder that all EU regions can benefit more from being embedded in the wider European and global economy.

Understanding the potential and limitations of each of these policy areas and how they might mutually reinforce each other is not trivial. It has proved to be a real challenge to regional policymaking.

One challenge is the fact that each of the five varieties of policy represents relatively autonomous policy domains, each with their own criteria for assessment, a dedicated constituency of specialists offering support, and active stakeholders in the regions and Member States.

**Policy options:**

Cohesion policy could benefit more from a wider perspective on innovation that includes mission-oriented innovation policies. Mission-oriented innovation policy could become an important complement to other development policies, especially in regions that lack the resources needed to develop and launch ‘inside-out’ strategies towards smart specialisation.

Mission-orientation will typically respond to sector-specific needs and wider societal challenges. Mission-orientation tend to open for new markets – inside as well as well as outside the region.

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Setting more clear directions for regional change, and actively promoting that change by combining relevant policies and private sector initiatives, may prove critical for attracting ‘outside-in’ investments, cross-border trade and other trade, retaining talents and stimulating entrepreneurship in the region.
3. Smart specialisation: knowledge for innovation-led growth

For the European Union, ‘smart specialisation is about identifying the unique characteristics and assets of each country and region, highlighting each region’s competitive advantages, and rallying regional stakeholders and resources around an excellence-driven vision of their future. It is about promoting regional innovation-led growth by selecting and advancing well-prepared, distinctive specialisations.

Smart specialisation is presented as a ‘bottom-up approach’ in the sense that regional strategy making for research, innovation and growth is made by regional partnerships of stakeholders such as business firms, universities, and public authorities. The particular role of government in relation to regional stakeholders is to encourage relevant public as well as private actors to become actively involved in the discovery of the region’s ‘strategic domains’ and to foster a ‘discovery process’ coupled with necessary constructive assessments of the results from the process. Smart specialisation implies that a regional government will endorse only some fields or domains for innovation-led growth and not others.

The ‘discovery process’ for finding relevant priorities might trigger a relatively long period of reengineering and adjustments of the regional innovation ecosystems, rather than just setting priorities for public and other spending. Depending on the size of the region, available resources and cross-border linkages, a smart specialisation strategy can trigger structural changes and require formation of new local capabilities to drive these changes. For a small region with a limited ‘critical mass’ of relevant resources, smart specialisation might not be the best answer to questions on how to enhance innovation-led growth and generate economic resilience. For a large, resourceful region diversity by enhanced specialisation could be the right answer.

Policy options:
Some regions report that the smart specialisation strategy process has been tested and that results are considered meagre due to lack of resources, potential partners, tech transfer support system, etc. The huge differences in the tangible and intangible resource-base among EU’s regions need careful consideration, when developing new cohesion policy initiatives that will be open to all types of regions.

For the design of future cohesion policy initiatives, an ‘impact-focused’ approach is recommended to make innovation-led growth more relevant and achievable.

3.1. The entrepreneurial discovery process

The construction of a region’s smart specialisation strategy is about identifying priority areas and mobilising relevant capabilities in order to achieve success. The process needs to incorporate the transition all the way from the entrepreneurial discovery phase to the promotion of new activities.

The entrepreneurial discovery process should generate enough of information or intelligence for the government and for the other regional stakeholders involved in the process, so that they can determine, if will be worth the efforts to pursue smart specialisation. They need to select priorities for specialisation, and identify future opportunities, which are anchored in the region’s current economic conditions.

The entrepreneurial discovery process follows no simple recipe or standardised methodology. Still, there are a few principles to consider when following the stepwise procedure. These could be summed

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up from the literature as follows:

- **Potential & opportunities**: Analysis of regional assets potential for innovation-led growth. Focus on differentiation of the regional economy (sectoral productivity, capacity to compete, patent and industry specialisation,) and on contextual factors (insider expertise about facts and issues that are less visible in standard statistics).

- **Dialogues & interactions** between the government and the stakeholders to discover potential domains of specialisation. Elaboration of an overall vision for the future of the region. From this process, priority areas should emerge: a limited number of potential 'strategic domains' for specialisation.

- **Action plans & investments**: putting priorities into practice, ensuring participation and ownership. Action plans involve a coherent policy mix and investments in exploratory projects and platforms for combined actions among the stakeholders. Coordination mechanisms (platforms, networks, etc.) for projects to realise potential synergies and agglomeration effects.

- **Scaling & growth**: The government should support the emerging transformative activities that appear most promising in terms of innovations, spillovers, and potential to transform the existing economic structures.

- **Commitment & execution**: Ideally, the 'entrepreneurial discovery' process will lead to increasing commitments among the stakeholders involved to actually implement the specialised strategy agreed. On the other hand, the danger is that the incumbent firms and institutions already involved in the process will gain competitive advantages. New firms and startups might never even get a chance to become involved.

The smart specialisation process is different from that of mission-oriented programmes, which are usually designed by top-down decision-making. In the selection of priorities for smart specialisation, the stakeholders need to consider an overall perspective on available resources and on potential advantages. They should be willing to cooperate and work across sectors.

Determinants in a successful search for a region's smart specialisation are (a) sufficient scale of relevant resources for innovation-led growth and (b) matching regional agglomeration of resourceful actors.²⁵

### 3.2. Smart specialisation within cohesion policy

A smart specialisation strategy needs to be in place before a region receives financial support through the European Regional Development Fund (ERDF). It is an ex-ante conditionality for this kind of cohesion funding. The Commission's smart specialisation platform advises Member States and regional authorities since 2011 on the design and implementation of smart specialisation strategies.²⁶

Up to 2017, more than 120 smart specialisation strategies were formulated. If constructed according to the smart specialisation handbooks, the work was done by regionally based partnerships of business firms, universities, regional authorities, etc. Some regions were assisted by experts appointed by the European Commission (DG Regio). All partnerships were engaged in so-called 'bottom-up approaches' to regional strategy making for research, innovation and growth. By 2020, the Commission expects that a grand total of 170 EU regions and 18 EU national governments will have benefitted from smart specialisation initiatives.


For the period 2014-2020 more than €44 billion (about €66 billion including national co-financing) are allocated under the broad theme of 'research and innovation' for EU regions. Much of these resources are dedicated to smart specialisation efforts that include research, technological development and innovation. The EU budget sources are the European Regional Development Fund (ERDF) and European Agricultural Fund for Rural Development (EAFRD). In addition, €1.8 billion is programmed for funding under the European Social Fund (ESF) for strengthening human capital in research, technological development and innovation.

Overall, for the whole period of 2014-2020, support to research, innovation and entrepreneurship is expected to help 15 000 enterprises to introduce new products to market, to support 140 000 start-ups and to create 350 000 new jobs by the end of the programming period.27 These figures are questioned and debated. However, there is no question mark after the following Commission statement: By 2017, smart specialisation strategies were being implemented to foster innovation-led growth in about half of the EU Member States.28

### Policy options:

**Smart specialisation strategies are at the core of EU’s regional policy with major effects on policy development at the regional level. With increasing diversity among EU’s regions, it is appropriate to consider what remains to be achieved by more of smart specialisation and, also, to explore new, complementary routes for EU’s cohesion policy.**

3.3. **Smart specialisation – for any purpose?**

Since its launch as a policy toolkit, the interest among regional policymakers for smart specialisation has grown not only among EU’s regions, but also outside Europe. Smart specialisation has attained widespread interests in other countries and regions by the intermediation of the Organisation for Economic Co-operation and Development (OECD).29

The smart specialisation approach offers a step-by-step practical procedure for setting strategic priorities in regional and other policy-making focused on innovation-led growth. More than that, the great value of smart specialisation is the fact that its methodology puts the attention on advanced priority setting in regional policy that includes and goes beyond R&D-based and related high-tech innovation and business development.30

Originally, the smart specialisation concept ’emphasised the importance of R&D, and in particular R&D in high-technology sectors.’ However, after five years of policy briefs, the smart specialisation credo was ’based on the adoption, dissemination and adaptation of GPTs [General Purpose Technologies], primarily understood as ICTs [Information and Communication Technologies], across a wide range of sectors and activities. As such there was also an increasing emphasis on enhancing the linkages between

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27 As planned in the national or regional operational programmes for 2014-2020: https://cohesiondata.ec.europa.eu/themes.
knowledge-generation processes in all their forms (including R&D) and the promotion and dissemination of entrepreneurship and innovation across all sectors, activities and occupations.\textsuperscript{31}

Thus, smart specialisation is not considered an innovation policy in its own right, but rather an element in other policy frameworks, aimed at diffusion of technology and innovation for business development and economic growth. It has become a way of thinking about how to enhance locally available knowledge for innovation. It encourages decision-makers in different sectors to start thinking strategically on economic development, particularly on innovation-led growth. The smart specialisation toolkit contains flexible tools and a matching methodology with recommended work processes to explore regional capabilities for innovation and to design joint actions needed to succeed.

Of course, specialisation might generate lock-in effects, a policy monoculture and tendencies of uniformity and standards, which could reduce the number of options and opportunities for future regional development. Moreover, there is a risk of transforming the smart specialisation approach into an exercise of central planning, adapted to the authority and control by the regional government.\textsuperscript{32} East European countries, now members of the EU, have underlined these potential risks.

A remedy might be to emphasise specialised strategy making as a continuous activity, energised by monitoring the actual strategy implementation and by assessing the advancements and the setbacks while considering needs for adjustments. Another response is to consider alternatives to smart specialisation.


4. Dynamic positioning for more innovation-led growth

4.1. Shaping markets by mission-oriented investments

When introduced as a new approach to innovation-led growth, the smart specialisation concept was constructed on the recognition that Europe, as a whole, lagged behind the USA in terms of productivity. Traditional policies among EU’s Member States had failed to transform the economic structures of the European Union in a corresponding manner.33

At a general level, Foray and other proponents of the smart specialisation concept concluded that the principal policy issue was not the sectoral composition of the European economies (such as too few high-tech industries), but rather how the industrial sectors - high-tech or science-based as well as traditional sectors - could operate better and generate more innovation-led growth.34 The leading thought was and remains that such market failures should be corrected by specialisation. Regional governments and other public actors were told to cooperate and become more involved with business enterprises while promoting ‘smarter’ innovation-led growth and fixing market failures. By their involvement, the regional authorities could animate and curate the smart specialisation processes.

Mazzucato goes further, when comparing EU regions with the most successful US regions, such as Silicon Valley, claiming that EU policies for innovation-led growth must ‘be complemented with a more active market-creating framework.’ EU regions (and EU countries) have much to learn from a more strategic and mission-oriented approach, taken by US regions. ‘Missions imply setting directions of change – that is, tilting (rather than levelling) the playing field to favour certain types of change more than others.’ This requires long-run strategic investments and public policies that aim at creating and shaping markets, rather than just ‘fixing’ market failures.35

Market creation approaches by a pro-active public sector have led to mission-oriented investments in many areas such as green energy innovation and new technological solutions in public transportation. Public sector agencies have been actively involved in the creation of new path-breaking technological opportunities and thereby promoting new markets. ‘Dual use technology’ promotion, for example by simultaneously funding civil and military technology advancements, has been a strong force of radical change behind industrial development in Silicon Valley, the greater Boston area and other high-tech innovation areas across the USA.

Rather than focusing on particular sectors – as in traditional industrial policy – mission-oriented policy focuses on problem-specific societal and other challenges. An up-to-date example from Europe can be drawn from Sweden, an innovation leader both at the national and regional levels. For seven years, Vinnova, the government's innovation agency, operates a 'Challenge-Driven Innovation' programme, where government agencies partner with business and society in developing innovative solutions for major societal challenges in future 'competitive industries, information society, sustainable cities, and healthcare.' Actors joining partnerships are encouraged to work proactively to invent and deliver innovations for local and global markets.

The emphasis on societal and other major problems creates more potential for synergies and greater spillover effects than what a sectoral approach can offer. Mazzucato claims that a market-creating policy


**framework for innovation-led growth** is better to envision, mobilise appropriate resources, measure and assess public investments, while operating across the innovation chain within an eco-system of public, private and third sector actors. Focus is on the role of government or public authorities for creating or shaping markets. Since resources tend to be limited, choices must be made.\(^{36}\)

The criteria for making choices, when mobilising resources for innovation-led growth, cannot be location-blind. From a regional point of view, great results in terms of new innovation capabilities and new products and services should not become concentrated to only a small number of able places.

Within this policy framework there is need for the public and private sectors to share risks and rewards. New types of collaboration among public and private actors will be generated. The market-creating framework recognises, what is only implicit in the smart specialisation framework, that priority setting for public funds for investments in shifting domains are always political and must remain transparent to avoid risks for clientelism and corruption.

<table>
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<tr>
<th>Policy options:</th>
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<tbody>
<tr>
<td>By combining horizontal (sector-neutral) policies and vertical (direct) policies, some regional authorities consider retaking their roles and implementing more of 'market-creating' policy frameworks.</td>
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<tr>
<td>EU policies need to consider and embrace the evolution towards more active public-sector involvement in innovation-led growth in various regions and promote conditions for evolving business ecosystems that generate growth – even when the private sector is hesitant due to initial risks.</td>
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### 4.2. Bringing the regional authorities back in

Smart specialisation, when launched nearly ten years ago, represented a break with a government-centred policy approach to regional innovation policy, or at least a move from regional governmental leadership towards more collaborative or distributed leadership. According to the smart specialisation handbooks, the preferred regional governance is based on public-private partnerships, and the formation of consensus among selected regional stakeholders, with the public sector playing roles mainly as animator, catalyst and node in networking among relevant regional actors, including business enterprises. ESIF’s shared management model and the regional ‘soft governance’ by way of working groups, networks, partnership fora, etc. are practiced with the best of intentions: combining resources and boosting synergies among available EU and other funding programmes, while accepting the regulatory requirements.\(^{37}\)

Now, in similar policy design terms, the emerging ‘market-creating’ policy framework could bring public authorities more firmly back in. This will make the multi-level and multi-actor leadership roles, currently performed in many of EU’s regions along with ‘soft governance’, more challenging. Public and private organisations – still working closely together – will have to rethink their responsibilities and functions in the actual making of regional policy. Most importantly, according to EU rules and regulations, the managing authorities will need to implement the smart specialisation strategies by Operational Programmes (OPs).

Operational Programmes are detailed plans for how the Member State (and its regions) will spend the money from the European Structural and Investment Funds (ESIF) in an agreed period. Ideally, the OPs should be demand-driven. The managing authorities of cohesion policy funds in a region are expected

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to estimate and describe how they will achieve their aims, i.e. by which financial means, human and administrative capacities, and with which enterprise support services. This is not always the case. Smart specialisation strategies may look good on paper, but fail because the implementation process is inappropriate or ineffective and hampered by administrative hurdles and lack of professionals. 

In other words, there might be good reasons to require ‘stress tests’ of the implementation process in order to find potentially weak points. Latent gaps could be found between the smart specialisation strategy and planning and its execution, between theory and practice. The outcome of a ‘stress test’ might be additional, more clearly formulated and better anchored result targets with a presentation of the management methods to achieve these targets together with the initially agreed regional partners and stakeholders.

Without professional management capabilities, no smart specialisation strategy in a region will be translated effectively into action. Ideally, the specialisation actions should maximise the economic impact of the resources made available and ensure that the dedicated actions meet the real needs of enterprises in priority sectors. For this to happen, priorities cannot be too generic and just replicate political choices only.

The implementation of a smart specialisation strategy should end up with a clear willingness by participating entrepreneurs and enterprises to engage in R&D and innovation activities and, when successful, to absorb the results by modernising production processes and produce. Focusing upon the readiness and willingness of entrepreneurs to acquire support services and collaborate with the regional stakeholders are critical conditions for success. This readiness may depend on the region’s entrepreneurial history and culture, easy access to specialised knowledge and know-how in region’s innovation eco-system as well as the critical mass of private financial resources already directed to the funding of innovative enterprises or start-ups.

If the public sector will retake more of its regional leadership roles, which is recommended in this report, the ability by regional authorities to tackle uncertainties – and manage operations in a multi-level governance system – requires a policy capacity and organisational culture open to experimentation and ready for risk-taking and potential failures. For example, organising for ‘market-creation’ will require an absorptive capacity among regional authorities to learn from experimental design, prototyping and testing – and to do this in small scale projects as well as in large undertakings for several years.

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**Policy options:**

The ‘shared management’ model is not always working according to intentions. Evidence comes from different types of regions. To speed up regional policymaking and achieve more and better results, regional authorities should consider retaking their leadership roles. Accordingly, cohesion policy should allow for a wider variety of management practices to make EU-funding of innovation-led growth successful in all types of regions.

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Smart specialisation is about making choices with – possibly – far-reaching effects on the region’s economy. Smart specialisation is not about ‘picking winners’ on an industrial basis. It is about selecting cross-industrial ’strategic domains’ for future specialisation. In this sense, smart specialisation represents a (slightly restrained) discontinuity of the horizontal policies in EU’s regions, which have dominated regional policy making during many years.

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Regional authorities are advised (and even requested as an ex-ante condition for funding) to activate smart specialisation as a process of differentiation. They are encouraged to become selective and develop their particular ‘strategic domains’. Yet, many observers consider smart specialisation - in the format and with the intensity it is being practiced across EU’s regions - as a predominantly horizontal policy instrument.

4.3. Combining horizontal policies with vertical policies

Horizontal policy or sector-neutral policy promotes a broad-spectrum framework for regional innovation-led growth. Examples of horizontal policies are R&D tax credits, funding of tech transfer programmes, support to the region’s business incubators and science parks. Horizontal policy avoids preferential interventions. Horizontal policy makes funds available to all parties concerned by general means (for example through research facilities and related infrastructure) and, regardless of sector, addresses problems, which are the same or similar to most companies. However, horizontal policy seems to work best in EU regions that are richly endowed with companies of all sizes and with advanced scientific and technological infrastructures. In EU’s top-performing regions, the innovation capabilities are available through combinations of large and small companies, industrial associations, universities and public research organisations. Failures by horizontal policies appear in EU’s less advanced regions. In fact, most of EU’s less developed regions and transition regions failed to reduce the knowledge gap - relative to the more advanced regions.41

Regional innovation-led growth requires not only generally favourable framework conditions, but also specific capabilities and resources. In EU’s top-performing regions, innovation capabilities are available through a wide variety of large and small companies, resourceful industrial associations, entrepreneurial universities and collaborating public research organisations. SMEs and start-up companies can draw on these resources for their innovation activity, even if they have not contributed to their provision. In the less developed EU regions, such resources and capabilities might never have existed. In many cases, their regional business ecosystem has proved to be too weak to deliver these capabilities.42 Their ecosystems are not effective in delivering appropriate conditions for innovation-led growth. Reasons could include ‘soft factors’ such as lack of trust among regional decision-makers.

Current regional policies are no longer sufficiently effective in all of EU’s regions. Increasing concern about the unfavourable economic situation for some EU regions and with a better understanding of the challenges facing EU’s less developed regions, calls for more direct or vertical policies as well as for new combinations of horizontal and vertical policies. Increasingly different economic situations require different policy approaches. Vertical (or direct) policy interventions, better tailored for the variety of regions, might help advance business environments with better performing innovation ecosystems. More ‘place-sensitive’ approaches to economic development are already being suggested for the economically weak EU regions.43

Both types of innovation-led growth policies (vertical and horizontal) will influence different stages of the innovation chain. Public procurement and mission-oriented policies in a region can actively create new market demands that will raise expectations in the private sector for growth opportunities. One


aim could be to help generate profitable products and services, with public value, which benefit the region and beyond. Such ambitions probably require a mix of policies (vertical and horizontal) to create markets and promote conditions for ecosystems that generate growth even where the private sector is hesitant due to initial risks.

Now, several of Europe’s relatively deprived regions are considering policies that go beyond smart specialisation in order to position their economies more dynamically. They strive to create higher demand for already advantaged products and services, to broaden the scope of their current competitive advantages, and to deepen some advantages to meet requirements of inward investors. Some regions like to actively strengthen the ‘isolation mechanisms’ that block easy replication and imitation by competitors in Europe and the world for example in regional food products.

**Policy options:**

Considering going beyond the smart specialisation approach to include more of a ‘market-creating framework’ for innovation-led growth will not be a radical departure from the current mode of setting regional priorities. Yet, more emphasis will be put on responding better to market demands: local, European and perhaps also global.

Priority setting from ‘inside-out’ should be complemented by ‘outside-in’ approaches, recognising the importance of external resources, the potential for inward investments, cross-border production networks and trade, and improved connections to European and global value chains.

4.4. Beyond smart specialisation: dynamic positioning as a new approach

Despite the growing diversity among Europe’s regions, there is no such thing as a closed regional economic system. An EU region is never locked in as a self-contained economy by its own. Economically, the region should be seen as a constantly moving entity, open to businesses across borders, if any borders, and subject to manoeuvrability for attaining value creation by continuous adjustments. Nor do economic regions and their businesses respect administrative boundaries. From an economic viewpoint, any EU-region’s formal boundary should be considered easy to penetrate by trade, investments and most business activities.

In such an open and accessible economic context, dynamic positioning is a strategy-based approach for regional and other public policy-making that could become more effective by extending and moving beyond smart specialisation. Advantages are gained by applying direct (vertical) policies and by managing resource effectiveness and fast-track procedures. By definition, in the regional economic context, dynamic positioning is a proactive policy approach to influence conditions of change in regional development and swiftly react to changes in the economic environment, while keeping the course (towards innovation-led growth) steadfast and unwavering. The attention is more on smart and effective delivery of relevant results than on smart strategy and policy enhancing. Regional innovation-led growth is conditioned by the engagement of entrepreneurs, startups, SMEs and other business enterprises willing to invest and co-invest in new ventures.

Here, the notion dynamic positioning signals that the region’s decision-makers must remain alert, stay watchful and become pro-active, when confronted with issues affecting the region’s changing economic fortunes. Decision-makers need always to consider the overall direction of development and be constantly concerned about the economic, technological and other forces that might cause radical


change and challenge the competitiveness of the region and its enterprises. Moreover, the attention by the region's decision-makers should include all EU's policies and not only cohesion policy with a bearing on the region's changing economic circumstances.

As a regional strategy toolkit, dynamic positioning consists of three basic elements of change: (1) A diagnosis that defines and explains the region's principal challenges, (2) a guiding policy that specifies the approach for dealing with the obstacles and opportunities called for by the diagnosis, and (3) a set of coherent actions. The coherent actions should be flexible and include fast-track actions as well as medium-term resource commitments.

Dynamic positioning requires an always up-dated diagnosis that defines and helps explain the region's prime challenges. In this sense, it is a bottom-up approach, based on factual understandings. It is not a top-down vision-driven strategy. Dynamic positioning trails the smart specialisation's ambitions for evidence-based policy development. A good diagnosis helps regional decision-makers in delimiting and simplifying the sometime overwhelming complexity of economic reality. Dynamic positioning is a mode to identify critical features of the region's economy as well as up-coming principal challenges facing the region and its surroundings. Consequently, there are also elements of foresight studies, helping the region's decision-makers to look for emerging trends and try to situate the region and its business enterprises accordingly.

Dynamic positioning is the opposite of a vision statement or a grand plan for the region. As for a good business strategy, dynamic positioning by a regional public authority means coherent and persistent actions and initiatives, backed up by analyses of how the regional economy could be continually advanced in the ever-changing economy. Progress is needed in executing actions supporting regional economic advantages over time. Innovation and other improvements in a company, in an industry or in a region must be considered never-ending processes. Recognising that there is no such thing as a stable regional economy, competition at the firm level and at the regional level is always dynamic in character.

By finding ways to steer innovation-led regional growth, dynamic positioning implies uninterrupted strategy formulation and implementation. In this regional context, the term 'strategy' implies continuous and cohesive responses to high-stakes challenges, recognised for their potential economic significance by regional stakeholders. The complexity and the need for distinctive and cost-effective specialisation indicate that the region's decision-makers – in all sectors – must practice openness and collaboration across sectors, if they should succeed. Trust is a critical factor for success.

Good strategy making, according to Rumelt, is not just goal setting by trying to accommodate a wide spectrum of opposing demands or a multitude of conflicting interests. Good strategy is highly selective and does not ignore the power of choice and a steady focus on continuous problem solving. Good

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46 As a general metaphor for continuous change, dynamic positioning could be an advanced system or methodology for maintaining a production platform at sea alternatively for wisely positioning a ship at a favorable angle towards wind, waves and current. While staying on course, it is about intelligent maneuverability, avoiding hazards and gaining optimal positions according to the always-changing circumstances.


strategy work uncovers the critical factors for problem solving in the regional context and applies solutions unceasingly, where appropriate solutions will produce the change needed.

If a region's decision-makers try to shape new markets by mission-oriented investments, Mazzucato would claim that the mission should be broad enough to attract cross-sectoral investments. The mission should remain focused enough to involve industry and be set to achieve measurable results.51

By setting the direction for a solution, a regional mission does not have to specify how to achieve success. It is likely that a variety of different solutions to achieve the objectives will appear. Then there will be need for dynamic positioning to achieve results.

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**Policy options:**

Many EU regions have gained competitive advantages by discovering new domains for potential innovation-led growth. Yet, when results of smart specialisation are insufficient, or just come in slow, requests are made for cohesion policy funds with fewer strings attached.

Wanted: New opportunities by the regional public authorities to perform more effective, fast and direct management of EU-funds, blended with their own and other resources.

Dynamic positioning is a strategy-based approach to influence conditions of change in the regional economic environment, while keeping a steady course towards innovation-led growth. As the name indicates, dynamic positioning is about managing continuous, problem-solving actions. Dynamic positioning is achieved by (1) an on-going regional 'economic diagnosis', which defines and explains principal and practical challenges, and (2) a flexible guiding policy dealing with both obstacles and opportunities and (3) a set of coherent actions needed to address the always-changing regional circumstances.

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5. New technology and innovation-led growth

5.1. Outside-in perspectives on innovation-led growth

To promote economic growth and enhance technology upgrading, any EU region could benefit effectively from cross-border perspectives, exploring resources available from outside the region. Smart specialisation strategies are too often inward-oriented. Radosevic claims that the major tension today is between (a) place-based support activities and (b) global value chains (GVC) as levers of local and regional modernisation. For policymakers, it should be of critical importance to take the global ‘outside-in’ dimension more systematically on board, when dealing with smart specialisation, given the dominance of global value chains in the growth and modernisation of less developed regions.

As part of cohesion policy, smart specialisation is delivered as an implicit ‘systems approach’ to regional innovation-led growth. The EU region is urged to identify and build on its own strengths and to manage a priority-setting process in the context of regional research and innovation strategies. The standard smart specialisation toolkit for regional policy makers does not contain means and effective methods on how to pro-actively integrate the regional economy by operating across borders and bringing in outside investments as pockets of excellence. Yet, there is actually a requirement to provide evidence that the smart specialisation strategy is outward-looking.

Thematic smart specialisation partnerships across regional borders have become an extended mode of specialisation across Europe. In the last few years, regions have agreed to cooperate according to selected, targeted areas like energy, industrial modernisation and agri-food in order to accelerate their business development and help construct pan-European value chains. This type of interregional cooperation is expected to increase cross-border innovation investments. Moreover, the thematic partnerships are set to benefit from the complementarities of several regional funds for innovation.

Developing co-investment projects across regional borders might generate radically new designs of projects, combining effectively several regional development perspectives with a wider European approach. New budget architectures are on the agenda that include funding of smart specialisation, anchored in several regions, as well as broad EU support priorities. Regionally developed ecosystems, connected across Europe, could become developers of European value chains. The so-called Vanguard Initiative (now a non-profit association) was set up in 2013 to foster the alignment between regions and top-down European partnering initiatives.

In the long term, a more or less self-contained regional economic ‘system’ does not make sense, if the principal emphasis and the concentration of attention are on constructing local clusters, while these clusters are not incorporated with the rest of the EU or connected to even wider markets.

Among regional policymakers there are examples of mistrust of the ‘systems’ thinking in smart specialisation. Further calls are made for more cross-border regional cooperation and for ‘transnationalisation’ of smart specialisation, citing models such as the Irish National Linkages Programme (NLP) and CzechInvest, the strategic promotion agency behind the Czech industrial

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53 An example of such a methodology book, being used also in the EU regions: GIZ & UNIDO: Equip: Enhancing the Quality of Industrial Policies, Bonn: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Geneva: UNIDO, 2013.

54 http://www.s3vanguardinitiative.eu

restructuring. These two economies – and their regions – have benefitted from innovation-led policies generated from explicit ‘outside-in’ perspectives.

In general terms, Europe’s regional economic integration has advanced very far compared with other parts of the world. National and regional economic activities in the EU are increasingly linked across national jurisdictions and regional borderlines. Thus, it is sensible even more to combine the local and regional perspectives with the European and the wider global perspectives. Any region needs to position itself better to successfully mobilise tangible as well as intangible assets readily available from outside the region.

| Policy options: |
| Some regions are implementing ‘outside-in’ policy initiatives to seize more opportunities for acquiring new knowledge, up-to-date technology and inventive solutions by actively inviting inward investments and connecting better with global value chains. |
| This ‘outside-in’ policy serves as a reminder that the EU regions might benefit more from being embedded in the wider European and global economy. |

5.2. European production networks and global value chains

In business, enterprises engaged in global marketplaces tend to be the most economically potent: knowledge-intensive, innovative, fast growing. In recent years, much because of information and communications technology (ICT), the international trade and investment system has become dynamic and flexible. Technological change, design and innovation have led to operational and geographical unbundling of production. Distance is less of a hindrance for segmenting and relocating business processes.

Producing for European and global markets leads to new opportunities for economies of scale even in narrow segments, which never existed, when markets were mainly local, regional or national. This opens for opportunities for large enterprises as well as small and medium-sized companies to explore new niches and business segments, based on core competencies and regional competitive advantages in manufacturing as a service, open to other companies. Downstream, in the consumer market places, Internet retailing allows individual shoppers to access and purchase the products of sellers the world over.

European and global production networks make it possible to produce and assemble parts of goods and services even in distant locations. This phenomenon is not a simple fragmentation of existing industrial systems and marketplaces, but a more basic transformation of how buyers connect to sellers, how production and assembly are organised across boundaries, and how marketing, sales and distribution are coordinated in the era of swift digitisation.56

Such extensive production networks – understood as organisationally and geographically fragmented global business systems, typically coordinated by resourceful firms or carriers of well-known brands – are the foundation for European and global value chains (GVC).

The global value chain describes the full range of activities by many companies and supporting institutions, required to bring a product or service from conception through the different phases of production, delivery to the final consumers and disposal after use. This means that a value chain

includes research and experimental development (R&D), design and product improvements, support services, management, administration, IT and other services – regardless of sequencing.

While production becomes progressively unbundled across borders, regions become economically more integrated through the flows of investment, goods and final products. These resource flows might strongly influence productivity and the efficient allocation of inputs, the adoption of technology, the structure and demand for skills and, ultimately, the regional economy at large, including jobs and living standards.\(^ {57}\) Also, producers in Europe are facing increasing competition on final product markets, because of growing imports from other countries and other continents.\(^ {58}\)

Global value chains represent both opportunities and threats to the economic development of EU's regions. By making available ‘outside-in' resources, companies representing global value chains can serve as significant catalysts for growth and evolution of capabilities in any location by helping to fill in capability gaps that slow the growth of these locations.\(^ {59}\) However, potentially beneficial to all involved, global value chains tend to lead to gains that are unevenly distributed among regions and countries. Market failures, credit market imperfections and production networks externalities may interfere with the appropriation of overall gains.

Another risk factor, as seen from the region's vantage point, is the fact that investments might be made by multinational enterprises not specifically interested in becoming engaged with the local government and its ‘innovation-led growth' policy. The enterprise subsidiary in the region might be deeply embedded in a global corporate strategy and operate mainly by headquarter directives. Regional policy makers will be vulnerable to corporate plans that will include relocation of business activities, following considerations out of control of the regional government.\(^ {60}\) If low wage structures are the essential criteria for keeping the business operations in the region, innovation-led growth, based on advancing human capital, may cause companies to leave.\(^ {61}\)

Regardless of real and perceived risks, production networks and global value chains have given rise to a broader regional policy area, focused on ‘outside-in' flows of technology and related knowhow, innovation by trade and investments, and global value chains. The ‘outside-in' policy area is a manifestation of attempts at dynamic positioning by regional authorities and their stakeholders in business to consider partnerships across sectors and other means to address issues of open innovation and increased inter-regional dependence. It deals with policies for inward investments, intangible assets, research and innovation, industry, cohesion and does not avoid mission-oriented regional policies. By its emergence, this policy area is yet another reason to re-evaluate the raison d'être of smart specialisation and consider the limitations of the ‘inside-out' perspectives on innovation-led growth.

How can an EU region (or Member State) be positioned to cope with risks and gain advantages from global value chains, while aiming for innovation-led growth? Brennan and Rakhmatullin suggest a breakdown of the regional economic framework: from looking at whole industries to business tasks and


functions. Consequently, companies could develop capacities in particular segments of global value chains and in related service functions such as financial intermediation, R&D, logistics, and marketing.

By pinpointing functions and business tasks at different stages of a global value chain, the region could determine the extent to which it is feasible to benefit from ‘outside-in’ perspectives. Dynamic positioning should make it possible to combine and reinforce these tasks with smart specialisation approaches to regional economic development.

Thus, competitiveness is not measured in terms of a region’s capacity to develop an integrated industry, but by its capacity to identify and construct its premium positions in the appropriate European and global value chains and to engage in value chain upgrading.

Policy options:

European and global production networks should be considered as potential assets, when promoting innovation-led growth in a region. Manufacturing could be an advanced service function for companies outside the region and help drive local productivity enhancement.

By investing and making available resources by other means, companies representing global value chains could serve as catalysts for productivity enhancement, economic growth and the evolution of local and regional capabilities.

5.3. Technology, regions and the digital platform economy

For decades, the introduction of information and communications technology (ICT) into the economy and society has driven productivity gains and economic growth all over Europe. As general-purpose technologies, ICT continues to converge and blur boundaries between industries, thereby also altering the structure of regional economies and the ways in which society works.

Still, there is an uneven geography of the Internet, where some regional economies are much better equipped than other regions due to their ICT infrastructure and available computer power for the digital era. This digital divide is a reason for the EU and the Member States to invest heavily in digitising more broadly European industry communication and to support a pan-European network of Digital Innovation Hubs (DIHs). The DIHs can assist companies in testing digital technology applications and foster new innovations along their smart specialisation strategies.

First and foremost, the Digital Union ensures companies better access to advanced technologies and aims at enhancing their digital competences. €100 million are provided annually by the EU to support the DIHs and about ten times more come from the Member States with particular attention to SMEs. EU funding for digitisation is channelled through Cohesion programmes (ESIF), e.g. by supporting Digital Growth Strategies and regional smart specialisation.

Horizon 2020 represents another EU source for the digital industry transformation with about €M 200 in its work programme for 2016-2017 and €M 300 for the 2018-2020 work programme, called ‘Digitising and transforming European industry and services.’ It is now widely recognised that regional innovation-led economic growth will be hampered, unless world-class access is secured to the global

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Internet infrastructure, thereby enabling advanced services by interconnecting existing and new businesses with markets and customers.

**Policy options:**

Given their effectiveness in supporting the digitisation of enterprises, and the advanced services needed during this process, the Digital Innovation Hubs should be easily accessible by companies in all regions. They are already connected through a wider European network, but their local and regional presence is needed for serving the small and medium-sized enterprises.

Digitally based economic development has a variety of names and designations such as the ‘sharing economy’ involving online transactions and deriving its name from the perceived attributes. Here, we will use the label ‘digital platform economics’. Platform economics is not only about efficient technologies supporting communications and data processing, but also about the wider use in cloud computing and on server platforms as well as the commercial use of ‘big data’ and other ‘data analytics’, new algorithms for business purposes, etc.

Major effects of platform economics on Europe’s regional economies are already observed. Kenney and Zysman show that the computer software layer stretches across the economy. Increasingly, software layers cover manufacturing, which has given birth to the Internet of Things and the Industrial Internet. It is no exaggeration to say that ‘software was formerly embedded in things, but now things - services as well as physical objects - are woven into software-based network fabrics.’ For businesses, the software layer extends the availability and lowers the cost of access to digital tools. Moreover, costs drop through the use of open-source software, cloud storage and cloud computing. Among other consequences of technical change, this certainly lowers the cost of entry for newcomers.

Global enterprises, operating in EU’s regions, are already benefitting from digital platform economics. The significant algorithms have moved to the Cloud, where they are easily accessed. The Cloud facilitates the digital infrastructure by which the platform-based markets and the regional business ecosystems operate.

Driven by digital platform economics, Facebook, Google, Amazon, Airbnb, Spotify and Uber — to name only a handful of the global giants — have created online structures that enable a wide range of business activities in every EU region, competing with traditionally-operated companies. Platform enterprises have designed and developed new modes of creating economic value and business profits and thereby altered habits of work and socialising. Their impacts are distinct and recognizable as a player even in the local marketplace. Together they are provoking reorganisation of a wide variety of traditional markets and, ultimately, altering value creation for companies and for the regional economies.

However, the digital platforms are diverse in function and structure, Kenney and Zysman admit. Google and Facebook are digital platforms offering digital searches and providing social media. They also provide essential infrastructure on which other platforms are built. Amazon is a marketplace. Amazon Web Services provides digital infrastructure and tools by which others can build platforms. Airbnb and Uber use newly available Cloud tools to force radical changes in a wide variety of traditional businesses. Moreover, network externalities in sectors or industries involving digital platforms have led to growing concentration of markets. The dependency in Europe on platforms and intellectual

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property rules of multinationals has become a barrier for new innovators to develop independent solutions for local and regional needs and to create new European innovation pathways.67

Facebook, Uber, Airbnb and similar digital platform enterprises are not based on ‘sharing’. They monetise consumer assets and human efforts. Regardless of platform, all of them are based on mobilising human beings and companies to contribute to their value creation. These Internet giants, Mazzucato concludes, operate on ‘two-sided markets’ by developing the demand side as well as the supply side of a market and by being a connector or gatekeeper between the two sides. On one hand, they provide valuable service offerings to users. On the other hand, they are digital platforms by offering markets to other firms – from sales to advertising space and to information on users’ behaviour etc.68

For EU’s regions, their local stakeholders and potential inward investors, the critical questions are how to build similar platforms, attract users, benefit from digital network effects, instigate scale economics and capture the value expected from the innovation-led growth.69 Digital platforms are complicated mixtures of software, hardware, operations and networks. The key aspect is that they provide a set of shared techniques, technologies, and interfaces to a broad set of users who can build what they want on a stable substrate.70 A looser definition of a digital platform, easier adapted for commercial exploration by local and regional companies, is the kind of platform in which economic and other interactions are mediated online, for example by apps. This might open up for pathways to new market opportunities among regional firms, wanting to avoid dominance by the global giants.

Policy options:
No region escapes the challenges being posed by digital platform economics. Digital platforms attract new customers, clients and other users and drive scaling of small enterprises into large. Prospects for economic development by pan-European and worldwide market access by digital platforms seem to be immense - even for businesses in remote regions. Cohesion policy must include the options for EU’s regional economies to capture value by the existing digital platforms and by building new platforms.

5.4. Technology, big data and the opening of governance to society

Increased access to digitised data, including real-time massive data sets, might help transform not only the business enterprise sector, but also the public sector. By big data and open data, public policy can become more evidence-based and decision-making more transparent and perhaps also more participatory.71

Open data is publicly available data that can be universally and readily accessed, used and redistributed (preferably free of charge). Open data can be sourced from public as well as private sources. Ideally, open data should be easily structured for usability and computability. In fact, few forms of digitised open data possess all the attributes by this definition. In Europe, openness of data exists on a continuum

and may not be strictly open in the sense described. Still, open data could be shareable and usable, provided, of course, that Europe's language barriers are unblocked.72

Current advances in information and communications technology and data access offer new opportunities to redesign and reinvent management in public institutions. Connecting better with citizens would probably greatly increase the knowledge and expertise available to identify, analyse and solve societal problems. By supporting citizen-driven innovation activities, governments can learn from new ideas and approaches, while at the same time promoting trust and inclusiveness.73

Open information sharing is a precondition for more evidence-based decision-making.74 Examples of possible achievements by using open data for public purposes:75

- Increased situational awareness and response
- Greatly improved public service design and delivery
- Enhanced knowledge creation and transfer
- Cutting-edge prediction and forecasting
- More effective impact assessment and evaluation

These issues and trends could be summarised under the label Open Governance. As for Europe’s Open Science,76 Open Governance institutions share and leverage massive amounts of data, pursue collaborative problem solving, and partner with citizens, citizens groups and other stakeholders to make better decisions. At the same time, the institutions could gain trust and legitimacy. The current move in Europe from top-down, relatively closed government towards decentralised, relatively open and ‘smarter governance’ may evolve as a major societal innovation.

Critical policy issues for addressing the rise of big data are about ownership of the data and how big data is being governed. As already indicated, there is a risk that privatisation of data, big data, will lead to less transparency and therefore new inequalities in society.

Policy options:
As in the business enterprise sector, digital technology provides an increasing variety of opportunities to rethink business models, public policy and the workings of democratic institutions at the regional and national levels and to make public authorities more effective and transparent to the benefit of citizens, firms and organisations. These opportunities are relevant for making the cohesion policy initiatives more effective and transparent.

From a regional vantage point, there seems to be an infinite need for advanced digital infrastructure and for digital public services. Here, the code word being used in policymaking is ‘digitising’ the regional economy and society.

76 https://ec.europa.eu/research/openscience/index.cfm
A policy paper by the World Economic Forum (WEF) claims that more adequate government policies and actions are needed to manage the digital transformation and to protect digital infrastructure, services and data. This calls for a ‘multi-stakeholder digital governance models’ to address the complexities of the networked societies and their economies. Partnerships across sectors are essential to create enabling policy frameworks, according to the WEF, particularly for improving communications infrastructure and creating digital public services.\(^7\)

On this background, which are the policy options for a regional government open to experiments as a way to test digital solutions when constructing new services? An OECD study proposes four mutually enforcing approaches:\(^8\)

- Provide empowerment and space for innovation and experimentation: express innovation as a priority and accept calculated failures.
- Ensure that the system is flexible: Create an overarching governance framework for public sector activities that supports innovation.
- Build the institutional infrastructure to scale-up successes: Absence of infrastructure for innovation to develop and spread, once an invention is determined successful, diminishes the value of the time and resources spent.
- Consider ethics protocols for experimentation: To avoid ethical dilemmas, governments should consider protocols to help guide decisions around experiment design.

**Policy options:**

As an Innovation Union, the EU needs to support world-class innovation activities at the same level of excellence as its research activities. For example, there are proposals for an Innovation Council to coordinate and engage also with the private sector. Lessons learned from the current European Innovation Council pilot could trigger broad business engagements and attract cross-sectoral investments for early success.

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6. R&D, science parks and urban innovation environments

6.1. Excellence in science – excellence in innovation

Horizon 2020, EU 8th Framework Programme for Research and Innovation, was launched in 2014 to ‘drive economic growth and create jobs by coupling research and innovation.’ Horizon 2020 integrates for the first time research and innovation support into a single, integrated EU programme, designed also to tackle wider societal challenges.79

Excellence in science is the credo of Horizon 2020 to ensure that Europe performs world-class scientific research. More than that, Horizon 2020 funding and activities should remove barriers to innovation and make it easier for the public and private sectors to work together in providing industrial leadership, in supporting innovation and, ultimately, in delivering jobs and growth.

Today, Horizon 2020 is considered the most important financial instrument for implementing the Innovation Union, aimed at securing Europe’s global competitiveness by excellence in science as well as excellence in innovation.80 As EU’s largest ever programme for research and innovation, Horizon 2020 attracts cooperation by researchers and other specialists even from outside the Union. Since its beginning in 2014, the programme has funded or co-funded some 13 000 projects, involving specialists from 131 countries worldwide. €74.8 billion is set aside for Horizon 2020 projects in EU’s multiannual financial framework (MFF) for 2014-2020.81

However, there is considerable disparity among EU’s regions and Member States in terms of FP participation. To compensate for not winning funding for many FP/Horizon 2020 projects and for not gaining other support to research and innovation, EU provides some assistance (e.g. ‘Stairways to Excellence’) to the 13 Member States that joined the European Union in 2004 (and after) with the objective to close geographic funding gaps for research and innovation. The objective is to widen participation and ‘spread excellence’ by creating stronger R&D and innovation capabilities in current and potential centres of excellence in these countries (as well as in Luxemburg and Portugal). By ESIF/ERDF support measures, these countries are able to recruit renowned researchers, prevent brain drain and make their top R&D centres more resourceful.

Cohesion policy is open to support countries and regions, while Horizon 2020 and the other framework programmes are for universities, research centres, businesses and other end-users, not for countries.

Recently, Horizon 2020 began funding a programme through the European Innovation Council (EIC) Pilot that might create wide interest in all EU regions. Focus is on so-called high-potential innovation developed by small and medium-sized enterprises. Launched in October 2017, this SME Instrument offers Europe’s ‘brightest and boldest entrepreneurs’ funds for ‘breakthrough ideas with the potential to create entirely new markets or revolutionise existing ones’. It is part of the same ‘one-stop shop’ for funding of innovators and innovation in the EIC pilot as the Fast Track to Innovation (FTI) and other business acceleration services aimed at reducing time from idea to market. Provided with about € 1.6 billion in funding over the period 2018-2020, the SME Instrument is designed to support ‘ground-breaking innovative ideas for products, services or processes that are ready to conquer global markets’.

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81 However, in June 2017, the total Horizon 2020 budget was estimated at about €80 billion. Source: European Commission: Interim Evaluation of Horizon 2020, Brussels: European Commission (Commission Staff Working Document, SWD(2017) 221 final/2, June 13, 2017.
The means are grants for feasibility assessments and innovation project support, including free-of-charge business coaching.\(^{82}\)

In addition, the regulations for ESIF were adjusted to make it easier for using cohesion policy funds to build regional and national research and innovation capacities. By doing so, the two major funding sources (ESIF and Horizon 2020) are prearranged to complement each another in research and innovation.

**Policy options:**

Reducing the innovation gap between Member States and between EU regions remains a critical policy issue that the Framework Programmes and other EU programmes need to address in a more effective manner.

There is no contradiction between striving for excellence in research and striving for excellence in innovation, while the scope for and inputs to the two processes could be different.

The FPs were all designed to strengthen the research systems and programmes of the Member States and their regions. They were set to provide European added value (EAV) and complement national and regional efforts across the Union to achieve world-class science and related innovation. EAV has justified investments in large-scale transnational projects, in scientific and technological infrastructure and in research meeting societal challenges beyond geographic borders.

The EU subsidiarity principle provides a conceptual framework for more coherence of research and innovation policies at the EU and Member State levels and new tools for relevant coordination of Member States’ programmes.

‘Framework Programmes for Research and Innovation’ – the official FP name – could be misleading. Initially, the FPs were focused on pre-competitive research. Gradually, however, the FPs have widened their scope to include more and more elements of innovation processes. While research is an activity of knowledge creation, conducted or led by research professionals, innovation is about the novel use and diffusion of knowledge as an adaptive process, requiring many practical skills and activities. An innovation process may or may not require research results as critical inputs.

Nonetheless, by 2002, the FPs had become the top financial instrument to implement EU policy on research and innovation, including the European Research Area (ERA) policy (FP6 and FP7) and the Innovation Union flagship initiative (Horizon 2020 or FP8).

As this document is being written, the policy options for the next multiannual budget framework are open for debate. There is currently no clear EU policy for innovation that would provide a framework for the definition of the next FP. The 3 O’s policy (Open innovation, Open science and Open to the world) focuses on some aspects of ERA and the Innovation Union, but this policy does not encompass all aspects of innovation in Europe.\(^{83}\)


Figure 4: The regional distribution of expenditure (Euro/capita) under the EU Research and Innovation (R&I) Framework Programme 7 (FP7)

6.2. Potential synergies among funding programmes: what’s to be done?

Horizon 2020 and the cohesion policy both seek a more extensive alignment with the objectives of the Europe 2020 strategy. Despite years of policy concerns and initiatives to address the need for synergies among EU funding programmes, efforts remain to combine more effectively funding from the FP7 and the ESIF in support of innovation and R&D-related projects. For example, the search for more synergies could be pursued by combining funding from the Horizon 2020 and ERDF (as well as funding from national and other sources).

More than €40 billion is dedicated to research and innovation through EU’s cohesion policy within the 2014-2020 Multiannual Financial Framework. For example, regional funding for research and innovation is a substantial budget item in the European Regional Development Fund (ERDF). ERDF is part of the European Structural and Investment Funds (ESIF), which could be used to strengthen local, regional and Member State research and innovation capabilities. For example, ESIF could fund ‘upstream’ capacity building for science and innovation in a region. Horizon 2020 projects could then be performed by using these capacities, provided that the projects have been evaluated and won approval for such EU-funding. If EU-funding of a project is not enough, despite having been positively evaluated, ESIF could support the project.

In principle, the ‘thematic objectives’ of the ESIF are aligned with the guiding policies of Horizon 2020, including excellence in science. In practice, however, Cohesion funding (such as ERDF), managed mainly at regional level, follows different rules on how funds can be used.

The Framework Programmes (Horizon 2020 and the new FP9) must consider how best to accommodate two relatively separate guiding policies.

- On the one hand the FPs must keep Europe at the forefront of global scientific research. This calls for excellence in science. The FPs have never included geographical juste retour mechanisms from their funding.
- On the other hand, the FPs must continue to support the regions and the Member States in fostering competitive innovation ecosystems. This calls for excellence in innovation. To achieve, this implies more resources for the instruments dedicated to ‘spreading excellence’ and ‘widen participation’ (currently less than 2 % of the Horizon 2020 budget).

There are coordination lessons to be learned from the EIT (European Institute of Innovation and Technology), where excellence in research and excellence in innovation (as well as in higher education) are set to be achieved. EIT benefits from networks of institutions, companies and individuals in regions all over Europe. Within and between its thematic Knowledge and Innovation Communities (KIC), EIT tries to achieve results from its co-location centres in designated city-regions. EIT makes use of a variety of co-funding techniques to engage universities and other R&D institutions as well as business enterprises, including SMEs and start-up companies.

Potential and real synergies across EU’s funding schemes could be identified simply by systematically exploring project complementarities, by sharing critical information at the levels of the EU, the member states and the regions in order to coordinate actions, and by creating coherence and consistency when applying multiple programme efforts within an overall guiding policy towards regional innovation-led growth.84

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Policy options:
Adopting, simply, the definition of innovation as a process will ease the discussions about the structure and objectives of the Framework Programmes (FP) and how they match cohesion policy funding for research and innovation. This helps define what activities within an innovation process should be supported by the FPs (research being one such innovation activity) and what should be supported by cohesion policy funding and activities.

These and similar policy issues raised today are not new. The Lisbon Agenda at the beginning of the 2000s recognised the need to reinforce synergies between EU Structural Funds and other EU policies, particularly in the field of innovation policy. 85

Many reports have reiterated that synergies between cohesion policy, Horizon 2020 and other EU programmes are ‘critical’ for the success of these programmes.

Here, the general recommendations for creating the much-wanted synergies are grouped under four headings: 86

- **Harmonise regulations**: EU’s budgetary instruments are institutionalised over many years due to a variety of regulatory frameworks, procedures, strategic goals, time frames, eligibility rules etc. Compliance with regulations is a fundamental priority, but regulations and good management should not be a constraint to synergies and hinder effective use of resources.

- **Integrate governance**: Flexible mechanisms for policy-making are needed to involve better the regional interests. Tensions between geographical levels need to be addressed and conflicts of interest avoided regarding priority setting, selection of projects, funding streams etc.

- **Align planning and implementation**: Setting priorities implies that policy aims are specified and priorities made clear – also in the event of incompatibilities among EU funding activities. Lessons must be learned from the current multiannual financial framework (MFF) to achieve a more integrated strategic approach to complementarities among EU Structural Funds, Horizon 2020, COSME (Competitiveness of Enterprises and Small and Medium-Sized Enterprises) etc. 87

- **Coordinate implementation**: Effectiveness in achieving synergy outcomes is about managing implementation. Examples are many from timing and alignment of projects under different EU instruments, inclusion of aims of other instruments in programme priorities, harmonisation of project selection criteria, and joint monitoring of the impact of different instruments.

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6.3. Science parks, areas of innovation and the importance of location

By operating together, manufacturing firms can benefit a lot by simply locating their production closer to each other. They save time, effort and other resources by interacting more functionally. This is called agglomeration economics. The more firms are clustering their related activities, the lower the costs, the higher the speed, and the greater the learning effects. Moreover, it is expected that even informal networking among talents in a city will increase general productivity and the competitiveness among firms. Consequently, given the expected value creation by agglomeration economics, regions are acknowledged as an appropriate level for implementing innovation policies.88

Cluster theories and related place-based policies come in various shapes and forms, but a common denominator is the assumption that spatial concentration of business and human resources will - almost automatically - cause positive 'knowledge spillovers', which facilitate innovation by business firms in a region. Empirical evidence points in different directions and the debate on the benefit of clusters among academic and business specialists is ongoing.89

The 2016 smart specialisation handbook90 highlights the important roles played by innovation actors in the regional economic context. Science and technology parks, tech transfer institutions, business incubators and similar organisations are considered vital innovation facilitators in the regional economy. Their different functions for achieving innovation-led growth are important, perhaps even critical for success among start-up companies and other businesses. In several EU regions, strategic partnerships between academic institutions, local and regional governments and the private sector are seen as particularly instrumental for furthering innovation-led growth.

For sixty years, science parks have been an institutional solution to the problem of technology transfer and knowledge sharing between R&D institutions, business companies and markets. A Science Park is the generic term for 'an organisation, managed by specialised professionals, whose main aim is to increase the wealth of its community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions.'91 Research Park, Technology Park or just a professionally managed innovation environment, anchored in a local or regional context, may replace the term 'Science Park' in this definition.

The most resourceful science parks in Europe are ready to provide entrepreneurs and business firms with an assortment of value-adding services together with high-quality labs, office spaces and other facilities. According to the membership criteria of the IASP (International Association of Science Parks and Innovation Areas), a science park should facilitate the creation and growth of innovation-based

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Policy options:

ESIF and other EU-funded instruments operate in diverse and sometimes complicated policy arenas, involving a variety of actors from all sectors in society. There are strong calls for harmonising regulations, guidelines and procedures to make the most of EU's resource allocations and achieve synergy effects. Flexible mechanisms for policy-making and implementation as well as integrated governance are needed for involving more the regional interests.

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91 This broad definition of a science and technology park is from the International Association of Science Parks and Areas of Innovation (IASP). www.iasp.ws.
companies, for example through incubation or spin-off processes among existing firms, but also to assist in the creation of entirely new business ideas and enterprises. Typically, a science park is a property-based venture, a place designed for research, transfer of knowledge and experimental development as well as for design, commercialisation and wider use.

In 2017, there were some 400 science parks in Europe that meet the standards of the IASP. About 40 000 companies reside in these parks to benefit from park services. 59 % of these companies are so-called micro-firms, essentially start-up ventures. 39 % are small and medium-sized enterprises (SME) while only 2 % are large companies with facilities in the science park. EU has invested heavily in some of the parks by providing ERDF funds for buildings and equipment: an estimated total of €1.6 billion for the period 2000-2012.\(^2\)

Science parks and other professionally managed innovation environments are perceived as integrated parts of urban clusters of competencies and not only as relatively separate entities, relatively detached from a city’s urban fabric.

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**Policy options:**

Science and technology parks highlight the importance of local and regional clustering of competencies for invention and innovation among firms and supporting institutions. Proximity and networking tend to stimulate entrepreneurship and amplify innovation activities. It is called agglomeration economics. Professionally managed science parks are carriers of a culture that accepts risks while attempting to shape novel ideas into new products and services as well as new business models. Cohesion policy should support them as nodes in networks that foster innovation.

In recent years, some science parks are being urbanised to become part of a city district or constitute a professionally managed urban innovation environment, thereby stimulating a wider constituency of businesses to innovate and grow. Cohesion policy needs to consider this kind of place making an instrument for support to local and regional innovation-led growth.

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### 6.4. Three generations of science parks and urban innovation-led growth

A recent trend in Europe and elsewhere is for some science and technology parks to 'go urban' and become more of 'science districts' or 'science city areas'. Science parks are moving parts of their activities from green park locations outside a city or from a suburban city area. Some of them are re-locating facilities to the very centre of a city to operate in several places with different types of services to entrepreneurs and business firms.

The science park - or part of the park’s activities - becomes embedded in the city. Whether these entities are new or just the re-location of old facilities, they are called Third Generation Science Parks.\(^3\) They are urbanised 'parks' or innovation areas. The borders have become blurred between the park and the city's other innovation capabilities. At the same time, the whole resource base of the park's ecosystem for innovation is becoming broader and deeper by integrating with the urban economic environment.

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Towards the next generation Science Park is transforming spaces in that it remains a fact that this generation is shifting to separate professions and disciplines without difficulty adjusting towards innovation environments more science park.

Innovation Spaces: The New Design of Work, is a project that aims to create dynamic 'live-work-play environments' aimed at attracting and retaining highly skilled young professionals in a city and its region.

For some urban planners, the Third Generation Science Park is projected as the quintessence of science-industry-government relations, increasingly functional and specialised in line with its participation in local and regional innovation activities. At the same time, this science park generation is becoming a contradiction in terms, when its management is aiming for a park deeply embedded in the urban spatial context.

The trend towards urbanisation forces old generations of science parks to adjust and extend their resource base better to the city and to the region. From a policy point of view, more science park efforts are being put on shaping innovation environments that benefit from the resources already available in the wider urban and regional economic fabric. In this way, as professionally managed promoters of innovation, science parks are becoming more significant for regional economic efforts, based on talents. They appear as new modes of place development and city branding, being signature developments for attracting and retaining highly skilled young professionals in a city and its region.

In Europe, the very First Generation Science Parks were founded already in the early 1960s, inspired by Stanford University and other US universities that made it trouble-free for academics to become entrepreneurs. A First Generation Science Park is an extension of a university into a dedicated neighbouring area that includes incubating facilities for start-up firms, related business services and, as importantly, pathways into new, research-based technology (and know-how) for potential investors and other business persons. If possible, it should operate as a science-based technology zone.

The innovation philosophy of a First Generation Science Park is 'science push'. The many new ideas stemming from research and experimental development (R&D) should be channelled without difficulty to new firms established in or aggregated around the science park. It remains a fact that this generation of science parks rely, to a very high degree, on the continuous flow of results from basic research and excellence in science (in specific fields or topics) as the most important success factors – and as a basis for the region's smart specialisation. There are many examples of very successful science parks in Europe operating on this basis.

The Second Generation Science Parks are somewhat more recent institutions. A Second Generation Science Park or technopole remains an extension of a university (or other major R&D facility) into a dedicated high-tech zone. However, the drive and the decisive energy come from entrepreneurs and


businesspersons, interested in the creation and growth of innovation-based companies. Managers of Second Generation Science Parks respond to such business needs by making available a mix of high-quality facilities in the Park, by streamlining the flow of technology and related knowledge, and by advancing and combining value-adding business services - from early incubation of newborn firms to a variety of spin-off and spin-on processes of technological significance to already established firms.

The innovation philosophy of a Second Generation Science Park is 'demand pull'. It is market-driven to a higher degree than the First Generation Science Park. A Second Generation Science Park is less concerned with the early exploitation of scientific results and capabilities, than with the final stages of the innovation process. Research results and techno-scientific findings are regarded as 'raw materials' for the innovating firms.97

It should be underlined that the overwhelming majority of science parks in Europe are first and second generation parks. Many remain very effective in their location and in their key activity: to enable and facilitate the flow of ideas and concepts, technology and inventions, business models and know-how among universities and other R&D institutions and businesses.98

An obvious restriction for these science parks to urbanise is the very fact that it is difficult to move specialised labs, clean room spaces etc. because of costs, but also due to certification and accreditation processes such as Good Laboratory Practice (GLP) and Good Manufacturing Practice (GMP). There is definitely no one-size-fits-all to optimal locations of science parks, particularly when searching for cost-effective solutions in downtown areas open to future spatial growth. Varieties of science park performance and experience were assessed across Europe in a relatively recent comparative study.99

Policy options:

Regardless of Science Park 'generation', the park is an important component of Europe's current infrastructure for integrating research, technology transfer, design and ingenuity in support of local and regional innovation-led growth. Other components of a region's innovation infrastructure are business incubators, centres for design; prototyping and testing; intellectual property rights agencies; university tech transfer offices; living labs; etc.

Successful cohesion policy should secure and further advance the innovation infrastructure to promote the flows of knowledge and know-how to entrepreneurship, innovation and related business activities.

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98 This and the following points were underlined by André Domin in his workshop presentation.

7. Policy options: a summary

Cohesion policy and regional innovation-led growth

It is reported that cohesion policy funding is difficult to coordinate and manage at the regional and national levels and across levels.

By giving regional authorities a clearer mandate, funding and other procedures could speed up and become more simplified and transparent. Accountability for the use of funds and for evaluation of success will be easier to ensure.

There are requests for further improvements of innovation indicators at the regional level for making analyses more relevant and up-to-date for planning and decision-making purposes. The mission is, for example, to transform static metrics into dynamic ones in order to avoid the boundaries set by the prevailing techno-economic paradigm.

Initiatives for advancing statistical methodology should be considered by involving Eurostat as well as the OECD, national and regional statistical offices and the producers of data in the business enterprise sector.

'Inside-out' perspectives on innovation-led growth

For regions with an abundance of in-region resources, it might be easy to make 'smart' choices in the search for new comparative advantages of its businesses and supporting institutions.

Regions that lack critical resources for achieving innovation-led growth by smart specialisation will have to look more for 'outside-in' prospects such as inward investments, manufacturing as a service and other cross-border economic linkages to compensate for weak endogenous innovation capabilities. The new cohesion policy should consider integrating the regional economies by inward investments and trade.

Strategic domains for innovation-led growth

To succeed according to the smart specialisation guidebooks, it is not enough with good intentions to cooperate across sectors. Case studies tell us that operational leadership by local or regional authorities could be a relatively important precondition for making substantial economic achievements in the short- and medium-term perspectives.

For the next cohesion policy framework, the issues of governance and management in the design and implementation of policies for innovation-led growth needs special attention - and possible reform.

New technology and sources of innovation

The policy concept of Open Innovation processes is evolving across Europe, questioning the importance of 'linear processes' of innovation, which ultimately begins with basic research.

By more Open Innovation, more knowledge could be shared in real time and become turned into new products and services.

Regional authorities should consider promoting collaborative environments, science parks, Living Labs and other easily accessible innovation ecosystems, involving small and medium-size enterprises, to foster cultures of entrepreneurship and new business development. EU is already funding such initiatives, but their extension among regions and their scale need to be improved.

New technology and productivity improvements

Despite the range of funding programmes and initiatives promoting regional innovation-led growth, economic inequalities between EU's regions remain. Gaps are even growing. The fastest
way to promote economic productivity is by adjusting the criteria now being used for the selection and implementation of EU-funded activities.

The least competitive regions need to attain more of flexibility, when facing new challenges, and get more means to position their economies dynamically. In the next stage of cohesion policy a new EU policy instrument could be considered for systematically promoting ‘excellence in innovation’ in the economic context of cities and regions.

**Regional innovation policy – revising the current framework**

Cohesion policy could benefit more from a wider perspective on innovation that includes mission-oriented innovation policies. Mission-oriented innovation policy could become an important complement to other development policies, especially in regions that lack the resources needed to develop and launch ‘inside-out’ strategies towards smart specialisation.

Mission-orientation will typically respond to sector-specific needs and wider societal challenges. Mission-orientation tend to open for new markets – inside as well as well as outside the region.

Setting more clear directions for regional change, and actively promoting that change by combining relevant policies and private sector initiatives, may prove critical for attracting ‘outside-in’ investments, cross-border trade and other trade, retaining talents and stimulating entrepreneurship in the region.

**Smart specialisation: knowledge for innovation-led growth**

Some regions report that the smart specialisation strategy process has been tested and that results are considered meagre due to lack of resources, potential partners, tech transfer support system, etc. The huge differences in the tangible and intangible resource-base among EU’s regions need careful consideration, when developing new cohesion policy initiatives that will be open to all types of regions.

For the design of future cohesion policy initiatives, an ‘impact-focused’ approach is recommended to make innovation-led growth more relevant and achievable.

**Smart specialisation within cohesion policy**

Smart specialisation strategies are at the core of EU’s regional policy with major effects on policy development at the regional level. With increasing diversity among EU’s regions, it is appropriate to consider what remains to be achieved by more of smart specialisation and, also, to explore new, complementary routes for EU’s cohesion policy.

**Shaping markets by mission-oriented investments**

By combining horizontal (sector-neutral) policies and vertical (direct) policies, some regional authorities consider retaking their roles and implementing more of ‘market-creating’ policy frameworks.

EU policies need to consider and embrace the evolution towards more active public-sector involvement in innovation-led growth in various regions and promote conditions for evolving business ecosystems that generate growth – even when the private sector is hesitant due to initial risks.

**Bringing the regional authorities back in**

The ‘shared management’ model is not always working according to intentions. Evidence comes from different types of regions. To speed up regional policymaking and achieve more and better results, regional authorities should consider retaking their leadership roles. Accordingly, cohesion policy should allow for a wider variety of management practices to make EU-funding of innovation-led growth successful in all types of regions.
Combining horizontal policies with vertical policies

Considering going beyond the smart specialisation approach to include more of a ‘market-creating framework’ for innovation-led growth will not be a radical departure from the current mode of setting regional priorities. Yet, more emphasis will be put on responding better to market demands: local, European and perhaps also global.

Priority setting from ‘inside-out’ should be complemented by ‘outside-in’ approaches, recognising the importance of external resources, the potential for inward investments, cross-border production networks and trade, and improved connections to European and global value chains.

Beyond smart specialisation: Dynamic Positioning as a new approach

Many EU regions have gained competitive advantages by discovering new domains for potential innovation-led growth. Yet, when results of smart specialisation are insufficient, or just come in slow, requests are made for cohesion policy funds with fewer strings attached.

Wanted: New opportunities by the regional public authorities to perform more effective, fast and direct management of EU-funds, blended with their own and other resources.

Dynamic positioning is a strategy-based approach to influence conditions of change in the regional economic environment, while keeping a steady course towards innovation-led growth. As the name indicates, dynamic positioning is about managing continuous, problem-solving actions. Dynamic positioning is achieved by (1) an on-going regional ‘economic diagnosis’, which defines and explains principal and practical challenges, and (2) a flexible guiding policy dealing with both obstacles and opportunities and (3) a set of coherent actions needed to address the always-changing regional circumstances.

‘Outside-in’ perspectives on innovation-led growth

Some regions are implementing ‘outside-in’ policy initiatives to seize more opportunities for acquiring new knowledge, up-to-date technology and inventive solutions by actively inviting inward investments and connecting better with global value chains.

This ‘outside-in’ policy serves as a reminder that the EU regions might benefit more from being embedded in the wider European and global economy.

European production networks and global value chains

European and global production networks should be considered as potential assets, when promoting innovation-led growth in a region. Manufacturing could be an advanced service for companies outside the region and help drive local productivity enhancement. By investing and making available resources by other means, companies representing global value chains could serve as catalysts for productivity enhancement, economic growth and the evolution of local and regional capabilities.

Technology, regions and the digital platform economy

Given their effectiveness in supporting the digitisation of enterprises, and the advanced services needed during this process, the Digital Innovation Hubs should be easily accessible by companies in all regions. They are already connected through a wider European network, but their local and regional presence is needed for serving the small and medium-sized enterprises.

No region escapes the challenges being posed by digital platform economics. Digital platforms attract new customers, clients and other users and drive scaling of small enterprises into large. Prospects for economic development by pan-European and worldwide market access by digital platforms seem to be immense - even for businesses in remote regions.
Cohesion policy must include the options for EU’s regional economies to capture value by the existing digital platforms and by building new platforms.

**Technology, big data and the opening of governance to society**

As in the business enterprise sector, digital technology provides an increasing variety of opportunities to rethink business models, public policy and the workings of democratic institutions at the regional and national levels and to make regional authorities more effective and transparent to the benefit of citizens, firms and organisations.

These opportunities are relevant for making the cohesion policy initiatives more effective and transparent.

As an Innovation Union, the EU needs to support world-class innovation activities at the same level of excellence as its research activities. For example, there are proposals for an Innovation Council to coordinate and engage also with the private sector. Lessons learned from the European Innovation Council current could trigger broad business engagements and attract cross-sectoral investments for early success.

**Excellence in science – Excellence in innovation**

Reducing the innovation gap between Member States and between EU regions remains a critical policy issue that the Framework Programmes and other EU programmes need to address in a more effective manner.

There is no contradiction between striving for excellence in research and striving for excellence in innovation, while the scope for and inputs to the two processes could be different.

**Potential synergies among funding programmes: What’s to be done?**

Adopting, simply, the definition of innovation as a process will ease the discussions about the structure and objectives of the framework programmes (FP) and how they match cohesion policy funding for research and innovation. This helps define what activities within an innovation process should be supported by the FPs (research being one such innovation activity) and what should be supported by cohesion policy funding and activities.

ESIF and other EU-funded instruments operate in diverse and sometimes complicated policy arenas, involving a variety of actors from all sectors in society.

There are strong calls for harmonising regulations, guidelines and procedures to make the most of EU’s resource allocations and achieve synergy effects.

Flexible mechanisms for policy-making and implementation as well as integrated governance are needed for involving more the regional interests.

**Science parks, areas of innovation and the importance of location**

Science and technology parks highlight the importance of local and regional clustering of competencies for invention and innovation among firms and supporting institutions. Proximity and networking tend to stimulate entrepreneurship and amplify innovation activities. It is called agglomeration economics.

Professionally managed science parks are carriers of a culture that accepts risks while attempting to shape novel ideas into new products and services as well as new business models. Cohesion policy should support them as nodes in networks that foster innovation.

In recent years, some science parks are being urbanised to become part of a city district or constitute a professionally managed urban innovation environment, thereby stimulating a wider constituency of businesses to innovate and grow. Cohesion policy needs to consider this kind of place making an instrument for support to local and regional innovation-led growth.
Three generations of science parks and urban innovation-led growth

Regardless of Science Park ‘generation’, the park is an important component of Europe's current infrastructure for integrating research, technology transfer, design and ingenuity in support of local and regional innovation-led growth. Other components of a region's innovation infrastructure are business incubators; centres for design, prototyping and testing; intellectual property rights agencies; university tech transfer offices; Living Labs; etc.

Successful cohesion policy should secure and further advance the innovation infrastructure to promote the flows of knowledge and know-how to entrepreneurship, innovation and related business activities.
8. References and source material

8.1. Books and articles


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Sörvik, J. et al. How Outward-looking is Smart Specialisation? Seville: European Commission Joint Research Centre (S3 Policy Brief Series No. 16), 2016.


### 8.2. European Parliament

#### 8.2.1 Policy Department A: Policy Department for Economic, Scientific and Quality of Life Policies

European Leadership in 5G / In-depth analysis by Policy Department A: Economy and Scientific Policy, December 2016, 35 p.

'Abstract: Prepared by Policy Department A at the request of the European Parliament's Committee on Industry, Research and Energy (ITRE), this report examines the concept for 5G, how it might fit in the future telecommunications landscape, the state of play in R&D in the EU and globally, the possible business models and the role of standards and spectrum policy, to assess the EU's strategic position.'
Digital Union / Briefing by Frédéric Gouardères, Policy Department A: Economy and Scientific Policy, February 2016, 4 p.

'This leaflet provides abstracts of a compilation of papers prepared by the European Parliament's Policy Department A: Economic and Scientific Policy at the request of the ITRE Committee in relation to the Digital policies.'

Industry 4.0 / At a Glance Study in focus by Policy Department A: Economy and Scientific Policy, 2016, 2 p.

Industry 4.0: study / Policy Department A: Economy and Scientific Policy, February 2016, 94 p.

'Abstract: This study, prepared by Policy Department A at the request of the ITRE committee, analyses the Industry 4.0 Initiative which encompasses the digitalisation of production processes based on devices autonomously communicating with each other along the value chain. It considers the potential of the initiative and business paradigm changes and impacts of this transformation. The study assesses the rationale for public intervention and outlines measures that could be adopted to increase the gains and limit the threats from Industry 4.0.'


'Abstract: This in-depth analysis provided by Policy Department A at the request of the ITRE committee, focuses on the European Parliament's key priorities for the Horizon 2020 programme. It assesses the extent to which the EP's key priorities have been implemented in the programme. It identifies measures, programmes and policy actions addressing these priorities, as well as bottlenecks in the implementation processes. It provides policy recommendations to improve the implementation of existing measures.'


'Abstract: This study, provided by Policy Department A at the request of the ITRE committee, aims to shed light on the potential applicability of data acquired from the EU Galileo and Copernicus satellite systems in both the public and private sector, and on the reasons why such potential still remains largely underutilised. The regulatory framework, market characteristics and policy actions that are being taken to make use of space data, are comprehensively analysed. The study also addresses recommendations for different policy levels.'

Open innovation in industry, including 3D printing / At a Glance Study in focus by Policy Department A: Economy and Scientific Policy, 2015, 2 p.

Open innovation in industry, including 3D printing: study / Policy Department A: Economy and Scientific Policy, 2015, 86 p.

'Abstract: New technologies and innovation concepts are important pathways for growth and competitiveness. Open innovation can strengthen innovation ecosystems. 3D printing has the potential to significantly impact the way production and innovation takes place. It is still hard to predict where and how exactly 3D printing will transform our economy and society. This study, provided by Policy Department A at the request of the ITRE committee, describes the mutual reinforcement of open innovation and additive manufacturing and addresses recommendations for different policy levels.'


'Abstract: Following disregard in the 1980s, industrial policy has recently attracted policy attention at EU level. The objective of this study provided by Policy Department A at the request of the ITRE Committee, is to establish the state of the art of a coordinated and integrated EU industrial policy. It assesses current initiatives, policies and arrangements and proposes an overview of stakeholders'}
positions at EU and national levels in order to feed into the debate on how to improve competitiveness and growth in Europe.'

8.2.2 Policy Department B: Structural and Cohesion Policies


'Abstract: The reform of the EU budget and policy priorities in the post-2020 MFF comes at a difficult time for the EU with major internal and external challenges. The challenges for economic, social and territorial cohesion remain profound. However, there are also competing pressures on the EU budget, such as keeping net payers' contributions within acceptable limits and striking the right balance between overarching EU goals and new challenges. Once again, Cohesion Policy is under pressure to justify its value in relation to EU political objectives. This study discusses the main themes relating to post-2020 Cohesion Policy, the rationale and overall framework of the policy, current and future challenges, and the post-2020 delivery system.'


'Abstract: This study provides a comprehensive and systematic analysis of the existing scope for synergies between ESIF and other EU instruments contributing to Europe 2020 goals. It identifies different arenas for the pursuit of synergies (regulatory settings, governance arrangements, strategic frameworks and implementation approaches), noting achievement thus far, and, looking towards 2020, assessing the potential for maximising synergies.'

E-Cohesion: study / Policy Department B: Structural and Cohesion Policies, April 2016, 72 p.

'Abstract: E-Cohesion requirements as outlined in Article 122(3) of the draft Common Provisions Regulation for the 2014-2020 European Structural and Investment Funds programme period aim at reducing the administrative burden for beneficiaries of Cohesion Policy. This study looks at the e-Cohesion options presented in the Partnership Agreements and the state of play of their implementation. Most Member States developed functioning IT systems in the previous programming period and these are now being further developed and adapted to improve interoperability and to be fully compatible with the System for Fund Management (SFC).'

Mid-term review of the MFF and Cohesion Policy / Briefing by Diána Haase, Policy Department B: Structural and Cohesion Policies, 2016, 10 p.

The Cohesion Policy dimension of the implementation of the Europe 2020 strategy: study / Policy Department B: Structural and Cohesion Policies, June 2015, 42 p.

'Abstract: This analysis provides input to the own-initiative report on 'Cohesion policy and the review of the Europe 2020 strategy'. The analysis focuses on three key themes: the (reciprocal) relationship between Cohesion Policy and the Europe 2020 strategy in the present and the previous programming period, the governance aspects (ownership and responsibility) and the territorial dimension of the strategy.'

8.2.3 European Parliament: EPRS publications


Smart specialisation: The concept and its application to EU cohesion policy / Briefing by Vivienne Halleux, October 2016, 10 p.


EU Framework Programmes for Research and Innovation: Evolution and Key Data from FP1 to Horizon 2020 in View of FP9: In-Depth Analysis by Vincent Reillon: EPRS members' Research Service, September 2017:


Articles from EStIF - the European Structural and Investment Funds Journal

Special Issue on Smart Specialisation / EStIF - the European Structural and Investment Funds Journal, vol. 5 issue 1/17, 2017


Further reading

Access, Terminals, Transmission and Multiplexing (ATTM); Key Performance Indicators for Sustainable Digital Multiservice Cities: technical specifications / ETSI - the European Telecommunications Standards Institute, TS 103 463 V1.1.1 (2017-07), 2017.

8.3. European Commission


Strengthening Innovation in Europe's regions - Strategies for resilient, inclusive and sustainable growth, COM(2017) 376 final, 18 July 2017 (Also available the infographic on Smart Regions: Empowering Regions to harness globalisation)

Europe's next leaders: the Start-up and Scale-up Initiative, COM/2016/0733 final, 22 November 2016

Enabling synergies between European Structural and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programmes: Guidance for policy-makers and implementing bodies / European Commission, 2014
New technologies and regional policy: Towards the next cohesion policy framework


The EU Regional Competitiveness Index 2016 / European Commission, 2016

Thematic Smart Specialisation - Interregional cooperation to increase innovation investment across EU borders / European Commission, May 2015

'Smart Specialisation Thematic Platforms are instruments to support bottom-up collaboration between businesses and researchers along value chains across the EU. They promote complementarity of regional funding for innovation in specific Smart Specialisation areas. They target key political priorities in order to facilitate the emergence of transnational projects to modernise EU industry, to support the objectives of the Energy Union, the Circular Economy Package, the Digital Single Market, and to deliver solutions for transformation challenges.'

'The platforms provide an opportunity for policy makers at EU, national and regional level to pool experience and combine instruments to address these priorities in a regional context, where change is felt most.'

'Since June 2016 there are three Thematic Smart Specialisation Platforms: for Energy; for Industrial Modernisation and for Agri-Food. In each thematic platform, interregional partnerships on specific topics leading to concrete projects are created. At the end of May 2017 there are 18 partnerships. More than 80 regions are involved.'

Workshop on the Role of Science/Technology Parks and Incubators in Innovation Ecosystems - Promoting Technology Transfer and Innovation / European Commission, 23-24 May 2017 (Presentations available here)

Setting up, managing and evaluating EU science and technology parks: An advice and guidance report on good practice / DG Regional and Urban Policy, 2013, 211 p.

8.3.1 Other publications

Smart Stories, Implementing Smart Specialisation across Europe / Joint Research Centre, European Commission, 2016, 54 p.

'Abstract: The insight that this booklet provides - thanks to the precious contribution of national and regional authorities - shows that Smart Specialisation has gone far beyond the mere fulfilment of the ex-ante conditionality criteria linked to Cohesion policy allocations. It has triggered a change in the way innovation-driven regional development policies are dealt with across Europe, confirming the outcome of a number of surveys recently run on this topic. These 'Smart Stories' will drive the reader through the features of Smart Specialisation as it has been applied in a number of EU countries and regions, with a view to stimulating to further explore the concept and its policy implications, to identify complementarities and potential for mutual learning and collaboration. The period of strategy development has in one sense finished; however, the process of implementing and monitoring S3 will hopefully lead to many more 'Smart Stories' to be shared across all territories of the European Union.'

Smart Specialisation at City Level: In Focus Baseline Report / Urbact, 2016, 163 p.

'This baseline report presents the results of the IN Focus transnational exercise. It looks at RIS3 method and the smart specialisation concept 'from the city perspective and pursuing a double aim. First, re-inovigating the urban agenda on business led economic development by means of smart specialisation as overarching approach. That is, testing how the concept of smart specialisation may foster and refine the work cities and their stakeholders are doing (or can do) in four key areas, namely: cluster
development, entrepreneurship, workspace provision and investment attraction. Secondly and at the same time, making a bridge with the existing RIS3 at regional level, since it is commonly recognised the role of core and main cities in the processes that have led to the different RIS3 formulations across the EU, has been rather superficial, roughly speaking. Now, at the time of implementation, those core and main cities feel they have much to contribute in moving RIS3’s visions and roadmaps forward. It is not only a matter of alignment, it is also about the need to rise the status of some innovative main cities in industrial and innovation policy-making.’

The need for synergies and complementarities between EU funds for research and innovation has been increasingly highlighted at political level, including through Council Conclusions and by the European Parliament:


8.4. Committee of the Regions

Opinion on Boosting start-ups and scale-ups in Europe: regional and local perspective, ECON-VI/021, adopted in the 124th plenary session, 12-13 July 2017

8.5. Eurocities – the network of major European cities


In this statement on smart cities, Eurocities share its vision for smarter cities that are led by city needs and that effectively engage citizens.


‘This paper makes the case for the role broadband can play in supporting cities to drive a European economy that is sustainable, inclusive and globally competitive.’


‘For our cities the completion of the Digital Single Market in Europe is vital in order to increase competitiveness, ensure citizens are digitally enabled and to support the development of new and trustworthy public e-services and eGovernment that are accessible to all.’

8.6. European Economic and Social Committee

Provision and development of skills, including digital skills, in the context of new forms of work: new policies and changing roles and responsibilities, SOC/562-EESC, Ongoing

Digital healthcare / health insurance, INT/816-EESC, Ongoing
New technologies and regional policy: Towards the next cohesion policy framework

EESC opinion: Implications of the digitalisation and robotisation of transport on EU policy-making, TEN/632-EESC-2017, July 2017

EESC opinion: Artificial intelligence, INT/806-EESC-2016-05369-00-00-AC-TRA,

EESC opinion: European Gigabit Society, TEN/611-EESC-2016, January 2017

EESC opinion: Internet connectivity in local communities, TEN/614-EESC-2016, January 2017

Industry 4.0 and digital transformation: Where to go, CCMI/141-EESC-0000

Mid-term evaluation of the Connecting Europe Facility (formerly Smart Islands), TEN/607-EESC-2016, February 2017

Mid-term evaluation of the Connecting Europe Facility (formerly Smart Cities), TEN/606-EESC-2016, February 2017

Horizon 2020 (evaluation), INT/807-EESC-2016-5513, December 2016
9. **Persons consulted**

Peter Berkowitz, Directorate-General Regional & Urban Policy, European Commission  

Magda de Carli, Directorate-General for Research & Innovation, European Commission  

Dimitri Corpakis, ex-Head of Unit, Directorate-General for Research & Innovation, European Commission  

André Domin, Technologiepark Heidelberg (Germany)  

Dana Eleftheriadou, Directorate-General for Internal Market, Industry, Entrepreneurship & SMEs, European Commission  

David Henry Fenner, Region Sachsen-Anhalt (Germany)  

Pär Johansson, Luleå University of Technology (Sweden)  

Nikos Kastrinos, Directorate-General for Research & Innovation, European Commission  

Constanze Krehl, Member of the European Parliament, Committee on Regional Development  

Mikel Landabaso, Strategy and Corporate Communication, Directorate-General for Communication, European Commission  

Pia Laurila, Directorate-General for Research & Innovation, European Commission  

Ebba Lund, International Association of Science Parks & Areas of Innovation (IASP)  

Vasileios Margaras, Directorate-General for Parliamentary Research Services, European Parliament  

Lambert van Nistelrooij, Member of the European Parliament, Committee on Regional Development  

Anders Olsson, Region Värmland (Sweden)  

Georgi Pirinski, Member of the European Parliament, STOA Panel  

Silvia Polidori, Directorate-General for Parliamentary Research Services, European Parliament  

Slavo Radosavic, University College London (United Kingdom)  

Vincent Reillon, Directorate-General for Parliamentary Research Services, European Parliament  

Katja Reppel, Directorate-General Regional & Urban Policy, European Commission  

Luís Sans, International Association of Science Parks & Areas of Innovation (IASP)  

Anne-Marie Sassen, Directorate-General Communications Networks, Content & Technology, European Commission  

Christian Saublens, European Association of Development Agencies (EURADA)  

Richard Tuffs, European Regions Research & Innovation Network (ERRIN)  

Ramón Luis Valcárcel Siso, Vice-President of the European Parliament responsible for STOA
10. Annex: 'New technologies and regional policy' workshop

STOA Workshop at the European Parliament, Brussels
New technologies and regional policy
Towards the next cohesion policy framework
Monday 16 October 2017, 14:30-18:30
Programme

14:30 - 14:40 Welcome by the Science and Technology Options Assessment Panel of the European Parliament (STOA)
Ramón Luis Valcárcel Siso, Vice-President of the European Parliament responsible for STOA

14:40 - 15:00 Keynote speeches
Mikel Irujo Amezaga, Member of the European Committee of the Regions
Antonio Longo, President of Permanent Study Group on Digital Agenda, European Economic and Social Committee

15:00 - 16:30 1st Session - Presentations
Technologies and Regional Policy: the various perspectives
Chair: Lambert Van Nistelrooij, Member of the European Parliament - Committee on Regional Development (REGI)

15:00 - 15:15 Cohesion policy and its role in encouraging innovation and industrial transition (EU Commission perspective)
Marek Przeor, Team Leader, Directorate-General Regional and Urban Policy, European Commission

15:15 - 15:30 European research policy and its relation with cohesion policy (EU Commission perspective)
Magda De Carli, Head of Unit, Directorate-General for Research & Innovation, European Commission

15:30 - 15:45 Industrial policy and investments for growth (EU Commission perspective)
Dana Eleftheriadou, Policy coordinator for Digital Transformation, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, European Commission

15:45 - 16:00 The role of Digital Innovation Hubs to support the digital transformation of industry in all European regions (EU Commission perspective)
Anne-Marie Sassen, Deputy Head of Unit, Directorate-General Communications Networks, Content & Technology, European Commission

16:00 - 16:15 Science and technology (S&T) parks: a comparative view (Expert perspective)
André Domin, President of the European Division of the International Association of Science Parks and Areas of Innovation (IASP) and CEO of Technologiepark Heidelberg GmbH

16:15 - 16:30 Summary by the Chair
Lambert Van Nistelrooij, Member of the European Parliament - REGI Committee

16:30- 18:00 2nd Session – Debate (open to questions from the audience)
The next cohesion policy framework: opportunities, barriers and policy options

Chair: Constanze Krehl, Member of the European Parliament - REGI Committee
Moderated by Richard Tuffs, Senior Advisor at ERRIN Network *

16:30-17:00 Cohesion policy: ICT and S&T parks. Implementation, impact on growth, smart specialisation strategies (Local/Regional and National Government perspectives)

Short introduction by the panellists

EU regions:
- Abruzzo (Italy): Elena Sico, Head of the Service 'Authority of ERDF/ESF centralised management', Directorate of the Presidency and relations with the EU, Abruzzo region
- Murcia (Spain): Joaquín Gómez Gómez, Director of Murcia Regional Agency for Development
- Slavonia and Baranja (Croatia): Nataša Drvenkar, Assistant Professor and Vice-Dean for External Cooperation, International Relations and Projects, University of J. J. Strossmayer, Faculty of Economics in Osijek
- South Moravia (Czech Republic): David Marek, Regional Innovation Strategy Manager, JIC (South Moravian Innovation Centre)
- Värmland (Sweden): Anders Olsson, Manager of Research and Innovation, Värmland region

EU member state:
- Latvia: Edgars Šadris, Director of EU Funds Strategy department, Ministry of Finance

17:00-17:45 Open debate on the current cohesion policy framework and policy options for the next one, with a particular focus on ICT and S&T parks

17:45-18:00 Summary by the Chair
Constanze Krehl, Member of the European Parliament - REGI Committee

18:00-18:20 Conclusions
Richard Tuffs, Senior Advisor at ERRIN Network (Workshop Moderator)

18:20 - 18:30 Closing remarks
Georgi Pirinski, Member of the European Parliament - STOA Panel
This study aims at highlighting the importance of the territorial dimension and structures for economic growth at European level. It focuses on the role and potential of existing cohesion policy funding with regard to planning and implementing information and communications technology infrastructure in the regions, and accompanying efforts to digitalise Europe’s economy and society. In the same context, the study also highlights the role and potential of cohesion policy funding when it comes to planning and implementing integrated science and technology parks.

The policy options listed in this document focus on the direction of cohesion policy after 2020, on priorities, and on ways for policy implementation to enhance regional economic strengths and, eventually, to build confidence in the EU’s added value. These policy options stem from a workshop organised by the European Parliament Science and Technology Options Assessment (STOA) Panel, from follow-up interviews, and from recent research and policy evaluation reports.