

RIS3 Guide

PART I: THE POLICY CONTEXT OF SMART SPECIALISATION

Europe is facing major economic challenges that require an ambitious economic policy for the twenty-first century. The EU has set out its vision for Europe's social market economy in the Europe 2020 strategy,^[1] which aims at confronting our structural weaknesses through progress in three mutually reinforcing priorities:

- smart growth, based on knowledge and innovation,
- sustainable growth, promoting a more resource efficient, greener and competitive economy,
- inclusive growth, fostering a high employment economy delivering economic, social and territorial cohesion.

Investing more in research, innovation and entrepreneurship is at the heart of Europe 2020 and a crucial part of Europe's response to the economic crisis. So is having a strategic and integrated approach to innovation that maximises European, national and regional research and innovation potential.

As José Manuel Barroso highlighted in his preface to the Europe 2020 strategy, 'Europe needs to get back on track. Then it must stay on track. That is the purpose of Europe 2020. It's about more jobs and better lives. It shows how Europe has the capability to deliver smart, sustainable and inclusive growth, to find the path to create new jobs and to offer a sense of direction to our societies'.^[2]

That is why as part of the Europe 2020 strategy, the Commission adopted the 'Innovation Union'^[3] flagship initiative. It sets out a comprehensive innovation strategy to enhance Europe's capacity to deliver smart, sustainable and inclusive growth and highlights the concept of smart specialisation as a way to achieve these goals. The 'Digital Agenda for Europe'^[4] flagship initiative is also part of Europe 2020 and aims to deliver sustainable economic growth and social benefits from Information and Communication Technologies (ICT). The Digital Agenda for Europe initiative is therefore relevant to all regions and cities, as it focuses on a key element for the design of smart specialisation strategies.

The concept of smart specialisation has also been promoted by the Communication 'Regional Policy contributing to smart growth in Europe 2020'.^[5] In this document the Commission encourages the design of national/regional research and innovation strategies for smart specialisation as a means to deliver a more targeted Structural Fund support and a strategic and integrated approach to harness the potential for smart growth and the knowledge economy in all regions.

Smart specialisation has also been strongly advocated by the Synergies Expert Group established by the Commission's Directorate-General for Research and Innovation. It argues that the concept is an important instrument for ensuring synergies between Horizon 2020^[6] and the Structural Funds in the interest of capacity building and providing a stairway to excellence.

In the context of Europe 2020, smart specialisation emerges therefore as a key element for place-based innovation policies, and can be defined as presented in Box 1 below. This definition will be further developed in the rest of this guide.

Box 1 – Definition of RIS3

National/regional research and innovation strategies for smart specialisation (RIS3) are integrated, place-based economic transformation agendas that do five important things:

1. They focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures.
2. They build on each country's/region's strengths, competitive advantages and potential for excellence.
3. They support technological as well as practice-based innovation and aim to stimulate private sector investment.
4. They get stakeholders fully involved and encourage innovation and experimentation.
5. They are evidence-based and include sound monitoring and evaluation systems.

The RIS3 approach is relevant to all three priorities of Europe 2020 i.e. smart, sustainable and inclusive growth. First of all, smart specialisation matters for the future of Europe because the development of an economy based on knowledge and innovation remains a fundamental challenge for the EU as a whole. Secondly, smart specialisation is relevant to achieve sustainable growth, as an important innovation effort and considerable investment is required to shift towards a resource-efficient and low carbon economy, offering opportunities in domestic and global markets. Finally, smart specialisation contributes to inclusive growth between and within regions by strengthening territorial cohesion and by managing structural change, creating economic opportunity and investing in skills development, better jobs and social innovation.

This embedded role of smart specialisation in the Europe 2020 policy framework has been highlighted by the Council of the EU in its conclusions on the Innovation Union. The Council underlined 'the concept of 'smart specialisation', with each region building on its own strengths, to guide priority-setting in national and regional innovation strategies, as well as cross-border cooperation where appropriate' and invited the Commission 'to advise Member States on possible improvement of the performance of their national innovation systems and with the implementation of smart specialisation strategies'.^[7]

The RIS3 approach is also consistent with the aims and tools of the EU cohesion policy, promoting growth and jobs across EU countries and regions.^[8] It suggests a strategy and a global role for every national and regional economy, including both leader and less advanced territories. It embraces a broader concept of innovation, not only investment in research or the manufacturing sector, but also building competitiveness through design and creative industries, social and service innovation, new business models and practice-based innovation. All regions have a role to play in the knowledge economy, provided that they can identify comparative advantages and potential and ambition for excellence in specific sectors or market niches.

The concept of smart specialisation is also consistent with and supports the main reform goals of the proposals for the EU Cohesion Policy 2014-2020, published in October 2011:^[9]

- delivering the Europe 2020 objectives of smart, sustainable and inclusive growth,
- reinforcing policy performance and focus on results,
- maximising the impact of EU funding through thematic concentration.

Indeed, smart specialisation has a strategic and central function within the new Cohesion Policy being a key vehicle for ensuring Cohesion Policy's contribution to the Europe 2020 jobs and growth agenda.

Within the new Cohesion Policy, smart specialisation has been proposed as an 'ex-ante conditionality'. This means that every Member States and region have to have such a well-developed strategy in place, before they can receive EU financial support through the Structural Funds for their planned innovation measures. This conditionality applies specifically for two of the 11 thematic objectives of the ERDF:^[10]

- strengthening research, technological development and innovation (R&I target),
- enhancing access to and use of quality of ICT (ICT target).

Likewise, the same conditionality applies to theme one ('Fostering knowledge transfer and innovation in agriculture, forestry and rural areas') of the European Agricultural Fund for Rural Development (EAFRD).^[11]

In this context it is of crucial importance to understand the strong process element of smart specialisation and the eminent role the various innovation stakeholder and entrepreneurs are asked to play within that process in each Member State and Region. Their knowledge and commitment is key to identifying those priority areas and knowledge-based investments that are most likely to deliver growth and jobs in the regions. And it is not only a reinforced stakeholder involvement and strong internal connectivity that counts but smart specialisation is also pointing regions towards more strategic cross-border and trans-regional cooperation to achieve more critical potential and related variety.

Last but not least, the importance of monitoring and evaluation within these strategies should be particularly highlighted, providing the link between smart specialisation and the goal of reinforcing results orientation of the Structural Funds in general. It is not accidentally that the smart specialisation conditionality refers explicitly to the need for RIS3 strategies to include a monitoring and review system.

To choose appropriate results indicators already at the level of the smart specialisation strategy is extremely important for the cohesion policy, as it is the one of the essential keys for ensuring that all stakeholder incentives and behavioural responses are correctly aligned and that the policy can be monitored accordingly and adjusted where necessary, creating a virtuous policy learning cycle.^[12] As the Fifth Cohesion Report states, 'the starting point for a result-oriented approach is the ex-ante setting of clear and measurable targets and outcome indicators'.

References part I:

[1] http://ec.europa.eu/europe2020/index_en.htm

[2] See previous footnote.

[3] http://ec.europa.eu/research/innovation-union/index_en.cfm

[4] http://ec.europa.eu/information_society/digital-agenda/

[5] http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/comm_en.htm

[6] http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020-documents

[7] Council Conclusions on Innovation Union for Europe, 3049th Competitiveness Council meeting, Brussels, 26 Nov. 2010.

[8] Article 174 of the Treaty on the Functioning of the European Union (TFEU) – Treaty of Lisbon.

[9] Brussels, 6.10.2011 COM(2011) 615 final 2011/0276 (COD)

See: http://ec.europa.eu/regional_policy/what/future/proposals_2014_2020_en.cfm

[10] Annex IV of the general SF draft regulation, COM (2011) 615.

[11] http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/com627/627_en.pdf

[12] Barca, F., and McCann, P., 2011, Methodological Note: Outcome Indicators and Targets – Towards a Performance Oriented EU Cohesion Policy and examples of such indicators are contained in the two complementary notes on outcome indicators for EU2020 entitled Meeting Climate Change and Energy Objectives and Improving the Conditions for Innovation, Research and Development.

See: http://ec.europa.eu/regional_policy/sources/docgener/evaluation/performance_en.htm

See also Barca, F., McCann, P. et. al., 2011, Outcome Indicators and Targets – Towards a New System of Monitoring and Evaluation in EU Cohesion. Available at:

http://ec.europa.eu/regional_policy/sources/docgener/evaluation/doc/performance/outcome_indicators_en.pdf

Other relevant documents on this issue can be found at:

<http://www.europarl.europa.eu/document/activities/cont/201203/20120301ATT39624/20120301ATT39624EN.pdf>

<http://www.europarl.europa.eu/document/activities/cont/201203/20120321ATT41418/20120321ATT41418EN.pdf>

PART II: THE RATIONALE OF SMART SPECIALISATION

What: Concentrating knowledge resources for economic specialisation

The underlying rationale behind the Smart Specialisation concept is that by concentrating knowledge resources and linking them to a limited number of priority economic activities, countries and regions can become - and remain - competitive in the global economy. This type of specialisation allows regions to take advantage of scale, scope and spillovers in knowledge production and use, which are important drivers of productivity.

Furthermore, strategies that combine innovation with specific strengths of the national/regional economy offer a much greater chance of success. Imitating other regions by trying to create 'miracle growth' in headline industries such as semiconductor or biotechnology not only lessens the chances for the imitating region to succeed, but also perpetuates patterns of market dominance with leaders and followers. In short, Smart Specialisation is about generating unique assets and capabilities based on the region's distinctive industry structures and knowledge bases.

Why: Learning lessons from the past

Previous regional innovation strategies have often suffered from one or more of the following weaknesses:^[1]

- They lack an international and trans-regional perspective, i.e. the regional innovation and economic system is often considered in isolation.
- They are not in tune with the industrial and economic fabric of the region; there is too much public involvement in R&D which is not sufficiently business driven.
- A sound analysis of the region's assets is missing.
- There is a 'picking winner's syndrome'.
- The best performing regions are copied without consideration of the local context.

As a result, regional innovation policies have often demonstrated a lack of efficiency in identifying priorities and forms of practical cooperation between regions. This issue is even more critical in the current economic crisis where public and private financial resources are scarce.

The smart specialisation concept therefore promotes efficient, effective and synergetic use of public investments and supports countries and regions in strengthening their innovation capacity, while focusing scarce human and financial resources in a few globally competitive areas in order to boost economic growth and prosperity.

Who: Putting entrepreneurial knowledge to work

Smart specialisation addresses the difficult problem of prioritisation and resource allocation decisions by allowing entrepreneurial actors to demonstrate the most promising areas for future regional development through what has been described as an 'entrepreneurial process of discovery.'^[2] This process can reveal what a country or region does best in terms of R&D and innovation because entrepreneurial actors are best placed to know or discover what they are good at producing. This typically happens through trial and error and experimentation in new activities. Regions therefore need to pro-actively involve entrepreneurial actors in strategy design and offer more incentives for risk taking.

Entrepreneurial knowledge involves much more than science and technology. Rather, it combines and relates this to knowledge of market growth potential, likely competitors and the entire set of input and services required for launching a new business activity. The synthesis and integration of this previously dispersed and fragmented knowledge should help to create a vision for opportunities in existing or new sectors. It is this type of knowledge that needs to be activated, mobilised and supported as the main ingredient in a process of smart specialisation. However, who has the entrepreneurial knowledge in the regional economy? It may be held by firms, which is often the case in 'advanced' regions rich in entrepreneurial experiments and discoveries. In this case, the process of smart specialisation is likely to be more evident. Yet in many other cases where industry structures and entrepreneurial capabilities are weak, it is crucial that knowledge is identified and activated elsewhere, such as in universities or public research institutes. Collaborative projects with local firms can help to reveal information about the future value of certain specialisations.

Entrepreneurial actors must therefore be understood in a broad sense to include inter alia firms, higher education institutions, public research institutes, independent innovators; whoever is best placed to discover the domains of R&D and innovation in which a region is likely to excel given its existing capabilities and productive assets. Given the importance of entrepreneurial experiments and discovery, there is no contradiction between a smart specialisation policy and one to encourage entrepreneurship. On the contrary, these two policies are mutually reinforcing; without strong

entrepreneurship, the strategy of smart specialisation will fail because of a deficit in the entrepreneurial knowledge needed to feed and nurture this strategy.

How: Setting in motion regional change

Smart specialisation strategies will usually require some sort of structural change, which could follow from one of the following not mutually-exclusive processes:

- Firstly, a transition from an existing sector to a new one based on cooperative institutions and processes, i.e. the collective R&D, engineering, and manufacturing capabilities that form the knowledge base for development of the new activity. For example, entrepreneurs in Austria discovered a transition path from fine mechanical and optical engineering to medical technologies; the initial set of inventions in medical technologies emerged from the industrial capabilities and competences which were already strong in mechanical engineering.
- Secondly, modernisation is the technological upgrading of an existing industry, involving the development of specific applications of a Key Enabling Technology (see Box 2 for more information) to improve efficiency and quality in an existing (perhaps traditional) sector. For example, the Finnish pulp and paper industry views nanotechnology as a promising source of valuable applications and its firms are taking steps to assess this potential. Some companies are responding to these opportunities by increasing their overall internal R&D investment, which is aimed not only at implementing available technologies but also at exploring recent advances in areas of nanotechnology and biotechnology.

<i>Box 2 - Key Enabling Technologies</i>
<p>The deployment of Key Enabling Technologies (KETs) can be an important component of a smart specialisation strategy because of their horizontal nature and transformative potential. Many future goods and services will be driven by KETs such as semiconductors, advanced materials, photonics and nanotechnology. Moreover, these goods and services will be crucial in addressing the 'grand societal challenges' facing the EU, including energy supply, public health, ageing and climate change. Whilst Europe has very good research and development capacities in some key enabling technology areas, it has not been as successful in translating research results into commercialised manufactured goods and services.</p> <p>Smart Specialisation strategies can help to address this gap between innovation and commercial application. Not all Member States and regions can be leaders in developing KETs, but they can benefit in different ways, including upstream and downstream links in value chains. An example of the successful use of KETs is the Slovenian automotive sector which has developed specialised products to supply the main European car manufacturers. This was achieved through the identification of niche areas in KET related fields and the development of strategic research agendas in priority technologies such as biosensors, hydrogen & lithium batteries, plastic materials and nuclear magnetic resonance studies.</p>

- Thirdly, diversification: In such cases the discovery concerns potential synergies (economies of scope and spillovers) which are likely to materialise between an existing activity and a new one. Such synergies make the move towards the new activity attractive and profitable. For example, the region of Toulouse exhibits smart specialisation in aeronautics (Airbus valley). This has led to an extension of entrepreneurial activities and higher education and research infrastructure to new areas such as satellites and GPS technologies.

- Finally, radical foundation of a new domain: The discovery here is that R&D and innovation in a certain field can make previously low growth activities suddenly become attractive. Such radical foundation involves the co-emergence of R&D / innovation and related entrepreneurial activity. For example, the development of IT applications for the management and maintenance of the archaeological and historical heritage in Italy (Florence) is a good example of the co-emergence of an R&D / innovation area and a niche market.

Smart specialisation is not about creating technology monoculture and uniformity; on the contrary, it is likely to promote greater diversity. Indeed, regions can sustain multiple lines of smart specialisations (priorities). Most of the above structural changes generated by smart specialisation strategies actually involve the creation of variety, such as the transition to new activities or the diversification of existing sectors.

In particular, strategies aimed at fostering cross-sectoral or cross-border cooperation have proven to be successful in generating ideas for new innovative applications and integrated solutions. Cross-sectoral links can provide a region with the degree of originality and specialisation to differentiate itself and provide a competitive advantage vis-à-vis other regions.

Where: A role for every region

The smart specialisation concept can be used in all regions, even though some are more advanced in terms of knowledge production. However, the application of the concept in a regional context has to be approached with care because the economic and institutional context varies considerably between and within European regions.

This means that a Smart Specialisation strategy needs to take into account several geographically specific characteristics to help generate growth in regions. In this respect the following points need to be considered when applying smart specialisation to the regional context,^[3] as explained also in Part III and Annex I of this document:

- The entrepreneurial process of discovery will work differently in every region: In some places the process will be quite evident due to the high density of innovators and entrepreneurs (usually core-cities). However, the process will be much harder in other regions characterised by low population, a small number of sectors and large dominant firms but with few external links. In this case, links between local universities and strong public-private partnerships are the types of strategies that may be essential for smart specialisation to work.

- Identifying sectors that can achieve critical mass should take into account the 'principles of regional embeddedness and relatedness'. The first principle of 'embeddedness' refers to the existence of industries that are in tune with the relevant socio-economic conditions and can rely on a trained local labour force and a history of cooperative relations with other regional actors. Evidence shows that without displaying these characteristics, industries are much more likely to be unsuccessful in the medium term. However, by concentrating only on embeddedness, a regional development strategy may risk increasing vulnerability to changing economic conditions. Therefore, it is crucial that the second principle of 'relatedness' is also taken into consideration. This principle describes the diversification of firms into related areas based on new innovative techniques or processes. In other words, it is a strategy of diversifying within a specialisation. This allows firms to build on the skills, assets and capabilities within a region while adapting and improving on them through innovation.

- Connectivity: Smart Specialisation should link emerging knowledge based industries to other actors within and outside the region, but it does not always lead to good outcomes so needs to be assessed. Firstly, we know that face to face interaction in particular places can be crucial in nurturing innovation

and there are many examples of regions that have used what can be described as social capital to create knowledge based growth. Nevertheless, local interaction can also be negative when it creates protectionism and rent seeking. Interaction is most beneficial between different groups and across classes and power structures. Secondly, connections to outside the region are only beneficial when ideas are internalised to the benefit of local firms. Being connected to the outside, both digitally (with ICTs) and physically (with transport infrastructure) may lead to a flow of human capital out of the region (in a process labelled 'brain-drain').

- Integration of policies at regional level: Sector-based policies alone do not address the need for links between different interventions. For example, increasing human capital through a programme to enhance skills should match the needs of emerging industries. Similarly, a strategy to increase the attractiveness of a place for investors has to take into account social, cultural and legal issues in addition to purely economic considerations. A successful strategy would therefore integrate policies that are formulated with demand side considerations, through approaches such as public-private partnerships.

Smart Specialisation as a tool for regional policy has to be carefully considered and must follow the 'place based approach' to economic development that has been promoted by both the European Commission and the OECD. The strategies on their own will not bring about change if they are not translated into delivery instruments considered in the Operational Programmes of Cohesion Policy.

In summary

The concept of Smart Specialisation is 'smart' for two main reasons:

- Firstly, it links research and innovation with economic development in novel ways such as the entrepreneurial process of discovery and the setting of priorities by policy makers in close cooperation with local actors.
- Secondly, this process is carried out with an eye on the outside world, forcing regions to be ambitious but realistic about what can be achieved while linking local assets and capabilities to external sources of knowledge and value chains.

However, while each regional or national strategy will share common features, the place based approach shows us that understanding the local context is crucial in their successful design.

The process of shaping and implementing a strategy is now considered in Part III and Annex I of this guide.

References part II:

[1] For more information about previous innovation activities funded by the EU, please see the Commission Working Document 'Innovative Strategies and Actions: Results from 15 Years of Regional Experimentation' which can be found here.

[2] This idea was introduced and is elaborated by Foray et al (2009) in 'Smart Specialisation – The Concept', a Policy Brief of the Knowledge for Growth Expert Group advising the then Commissioner for Research, Janez Potočnik.

[3] These points are based on a working paper by Phillip McCann and Raquel Ortega-Argilés (2001), 'Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy', Groningen University.

PART III: RIS3 DESIGN IN A NUTSHELL

Step 1 - Analysis of the regional context and potential for innovation

As highlighted in Part II, RIS3 needs to be based on a sound analysis of the regional economy, society, and innovation structure, aiming at assessing both existing assets and prospects for future development. The common principle that is central to such analyses is the adoption of a wide view of innovation that spans across economic activities and involves many sectors of the civic society.

The analysis should cover three main dimensions:

- regional assets, such as technological infrastructures,
- linkages with the rest of the world and the position of the region within the European and global economy, and
- dynamics of the entrepreneurial environment.

Regional assets: a strategy rooted in the regional specificities

First, it is necessary to focus on the regional specific context, assessing the existing assets, evaluating major regional strengths and weaknesses, identifying any bottlenecks of the innovation system and key challenges both for the economy and the society.

Economic differentiation is one of the central principles behind smart specialisation. The key to successful differentiation is to exploit related variety, which suggests that a regional economy can build its competitive advantage by diversifying its unique, localised know-how into new combinations and innovations which are close or adjacent to it. The key point is that these new combinations must be feasible or accessible given the existing assets, so as to exploit the experience accumulated by regional actors. Therefore, it is important to capture during the analysis phase any existing differentiation patterns, in particular by looking at those activities that are emerging at the interception of existing and well-established ones.

Tools suitable for this kind of analysis can include SWOT analysis, regional profiling studies, targeted surveys and expert assessments.

Example 1 - Analysis of the regional context — Skåne's innovation capacity

Skåne carried out a self-assessment in 2009 and has also performed a network analysis, a functional analysis and an international peer review. Together, these form the basis for action plans and ongoing work. The studies try to identify what the weaknesses and strengths of the industrial and innovation system of the region of Skåne are. The studies show that:

- relatively substantial resources are invested in the early stages to pick up ideas that have the potential to become new enterprises, but support structure for businesses is weak,
- structure for picking up service innovations is poor,
- access to risk capital is too limited,
- need for a systematic environmental and market analysis is great and is not satisfied.

The analysis also shows that better coordination of the efforts of the various players is needed, as well as increased internationalisation of the supporting bodies. These findings have been important for Skåne in developing the regional innovation strategy.

Looking beyond regional boundaries: the outward dimension of smart specialisation

An assessment of existing regional assets implies looking 'inside' the region; however, this might be insufficient for a smart specialisation strategy. A major novelty of the smart specialisation approach is that a region has to make its strategic decisions taking into account its position relative to other regions of Europe, which implies that the RIS3 approach requires looking beyond the regional administrative boundaries.

In other words, a region should be able to identify its competitive advantages through systematic comparisons with other regions, mapping the national and the international context in search of examples to learn from, or to mark a difference with, and performing effective benchmarking. Moreover, a region should be able to identify relevant linkages and flows of goods, services and knowledge revealing possible patterns of integration with partner regions. This is particularly important in the case of less developed regions that would often need to source know-how and technology from the rest of the world. The position of regional businesses within international value chains in this respect is a crucial element to be considered.

This type of analysis is important because the concept of smart specialisation warns against 'blind' duplication of investments in other European regions. Such blind duplication of efforts could lead to excessive fragmentation, loss of synergy potential, and ultimately could hamper the reach of the critical mass required for success. On the contrary, interregional collaboration should be pursued whenever similarities or complementarities with other regions are detected.

Tools suitable for this kind of analysis can include comparative studies, rounds of interviews with other regions and interregional work groups.

Example 2 - International benchmarking in a Top Technology Region – Provinces of Limburg in the Netherlands and Belgium, Noord-Brabant (Netherlands) and Vlaams-Brabant (Belgium), Province of Liège (Belgium) and parts of North Rhine Westphalia (Germany)

The public administrators of the Top Technology Region contracted the Swiss research firm BAK Basel to benchmark and map out their economic strengths. The research resulted in an analysis and international benchmark of the region's strengths and weaknesses. It indicates how the Top Technology Region relates on an international level playing field to similar regions such as Oberrhein and Øresund, and what development potential the cross-border region has.

The BAK-based study identified and confirmed a number of the region's strengths, as shown in the BAK Technology Competitive Index. The Index reveals the technological strength of a region based on the scale and growth of the relevant sector, the number of publications and the number of patents. The focus is on sectors (clusters) that are by their nature 'top technological'.

Entrepreneurial dynamics: prospects for a process of entrepreneurial discovery

Smart specialisation requires deep involvement of entrepreneurial actors in the strategy design process. Entrepreneurial actors are not only firms, but also any individuals and organisations who have some entrepreneurial knowledge. This analysis aims to build a systematic understanding of the areas in the economy and society that have the greatest potential for future development, and that are ready to be tapped (or need to be encouraged and extracted).

The analytical effort carried out in order to generate the basic information input for a RIS3 should have a special focus on the regional entrepreneurial environment, assessing whether it is lively and can generate a significant flow of experiments, innovation ideas, or entrepreneurial discoveries, or it is

poor in experiments and entrepreneurial proposals and hence such activities should be specifically supported.

Besides using and developing statistics on entrepreneurial activities, an effective appreciation of entrepreneurial dynamic can only be performed if entrepreneurial actors and management and governance bodies responsible of RIS3 engage in direct discussion. A RIS3 should hence provide for a set of consultation and auditing tools, as for instance technology auditing, interviews with cluster management and firms, mixed working groups, setting up of observatories and monitoring organisations.

Step 2 - Governance: Ensuring participation and ownership

The fact that RIS3 is based on a wide view of innovation automatically implies that stakeholders of different types and levels should participate extensively in its design. The perhaps most common, tripartite governance model based on the involvement of industry, education and research institutions, and government (the so-called Triple Helix model), is no longer enough in the context of smart specialisation.

Innovation users or groups representing demand-side perspectives and consumers, relevant non-profit organisations representing citizens and workers should all be taken on board of the design process of RIS3. In other words this means that the governance model includes both the market and the civic society. When it comes to the sensitive moment of deciding on strategic priorities, a truly inclusive RIS3 governance structure should be able to prevent capture by specific interest groups, powerful lobbies, or major regional stakeholders.

In order to secure that all stakeholders own and share the strategy, governance schemes should allow for 'collaborative leadership', meaning that hierarchies in decision-making should be flexible enough in order to let each actor to have a role and eventually take the lead in specific phases of RIS3 design, according to actors' characteristics, background, and capacities.

When actors are many and different, it might be very difficult for them to find their own way to collaborate and manage potential conflicts. In order to tackle this potential problem, RIS3 governance bodies should include 'boundary spanners', that is to say, people or organisations with interdisciplinary knowledge or proven experience in interaction with different actors, and who can hence help moderate the process.

The governance structure should have a dedicated Steering Group or a Management Team, a Knowledge Leadership Group or Mirror Group, and should also allow for thematic or project-specific working groups.

Example 3 - Public-private cooperation in West Midlands

The West Midlands Innovation Strategy project started in 1996, and aimed at fostering innovation by enabling stronger cooperative links between public sector and different elements of the private sector. After a detailed audit of regional capabilities the strategy prioritised the establishment of a team of network brokers aiming to build on the existing sector-based networks and to catalyse new ones. The establishment of three technology centres bridged the gap between science and industry and served the requirements of three to four sector-based networks. A sector-led system of designing and vetting business plans and loan applications was

established to close the gap between validation of technology and market assessment.

Step 3 - Elaboration of an overall vision for the future of the region

Analytical evidence should be used to depict a comprehensive scenario of the regional economy, society, and environment shared by all stakeholders. The scenario constitutes the basis for developing a vision about where the region would like to be in the future, what the main goals to achieve are, and why they are important.

Having a clear and shared vision of regional development is crucial in order to keep stakeholders engaged in the process, a task that is particularly challenging, given that a RIS3 is a long-term process.

An element closely intertwined to formulating an effective vision is RIS3 communication. Both during the RIS3 design process and all along the process of implementation of the strategy, it is crucial to have good communication. This is a way of spreading the vision, ultimately generating a positive tension in the regional society towards strategic goals, thus allowing to embark new stakeholders and keep the current ones engaged.

Example 4 - The vision of Flanders

By 2020 Flanders wants to rank among the top five knowledge-intensive regions in Europe. To reach this target, the region has taken steps towards a transformation policy approach. This focuses on value chains, economic clusters, open innovation and 'grand projects', which are selective investments in future-oriented domains with a high innovation and growth potential and large societal impact. The long-term vision about Flanders future development is contained in the plan 'Vlaanderen in Actie' (ViA), a broadly-based initiative consisting of several breakthroughs in the socio-economic domain. ViA conveys a vision that entails more than a moderated improvement or some growth percentage points. Namely, it points to an evolution that fundamentally alters the landscape and society of Flanders.

Step 4 - Identification of priorities

Priority setting in the context of RIS3 entails an effective match between a top-down process of identification of broad objectives aligned with EU policies and a bottom-up process of emergence of candidate niches for smart specialisation, areas of experimentation and future development stemming from the discovery activity of entrepreneurial actors.

It is of crucial importance that RIS3 governance bodies focus on a limited number of innovation and research priorities in line with the potential for smart specialisation detected in the analysis phase that is anchored in entrepreneurial discoveries. These priorities will be the areas where a region can realistically hope to excel.

As mentioned in Part II, in addition to specific technological or sectoral priorities, it is important to pay attention to defining horizontal-type priorities, referring to the diffusion and application of Key Enabling Technologies (KETs), as well as social and organisational innovations (see also Annexes I and II).

Example 5 - Focus on priorities in Berlin/Brandenburg

In 1998/99 a RITTS study laid the foundation for an active innovation policy in Berlin. In 2007 it was decided to bundle forces with the surrounding Brandenburg region. Five joint future Fields of Excellence were identified: Biotechnologies and Medical technologies and pharmacy, Energy technologies, ICT and new Media, Optical technologies, and Transport system technologies. These are underpinned by 4 cross-sectoral priorities: New materials, Production and automation technology, Cleantech, and Security. These fields present the regional strength in regional publicly funded R&D and industrial activity. Innovation support measures concentrate on strengthening private sector R&D and knowledge transfer, especially for SMEs.

Step 5 - Definition of coherent policy mix, roadmaps and action plan

The strategy should be implemented through a road map, with an effective action plan allowing for a degree of experimentation through pilot projects.

An action plan is a way of detailing and organising all the rules and tools a region needs in order to reach the prioritised goals, and it should provide for comprehensive and consistent information about strategic objectives, timeframes for implementation, identification of funding sources, tentative budget allocation.

Pilot projects constitute the main tools for policy experimentation and allow testing unprecedented mixes of policy measures at a small scale, before deciding on implementation at a larger and more expensive scale. In order to serve such a purpose effectively, pilot projects should be coupled with effective evaluation mechanisms leading to sound appraisal of success and feasibility as mainstream projects.

RIS3

Example 6 - OECD/European Commission guidance

Publications such as the joint 2011 OECD/European Commission book 'Regions and Innovation Policy' or the 2011 EC Communication 'Regional Policy for smart growth in Europe 2020' identify taxonomies of delivery instruments and/or offer a catalogue of possible innovation instruments and examples from regions that have successfully used them, which should act as an inspiration to regions to design smart and efficient policy mixes.

Step 6 - Integration of monitoring and evaluation mechanisms

Mechanisms for monitoring and evaluating should be integrated in the strategy and its different components from the very beginning.

Monitoring refers to the need to follow progress of implementation. Evaluation refers to assessing whether and how strategic objectives are met. In order to perform evaluation, it is essential that objectives are clearly defined in a RIS3 in measurable terms at each level of implementation, i.e. from the strategic overall objectives to the specific objectives of each of its actions. A central task of RIS3 design is to identify a parsimonious yet comprehensive set of output and results indicators and to establish baselines for the result indicators and target values for all of them.

The design effort a RIS3 implies does not come to an end when the strategy moves on to the implementation phase. A strategy for smart specialisation should evolve and adjust to changes in economic and framework conditions, as well as to emergence of new evidence during implementation through evaluation and monitoring activities.

Example 7 - Integrated monitoring and evaluation in Lower Austria

The Innovation Assessment Methodology Lower Austria is a comprehensive system of different monitoring and evaluation tools for Lower Austria's innovation policy. Its aim is to gain insight into the results of innovation support services with the aim of improving delivery instruments, justify amounts spent and promote its success.

One of the tools used is the Balanced Scorecard Methodology, a strategic performance management tool, developed and heavily used in the private sector. In Lower Austria it is used to define the objectives and target values for the 6 components of Lower Austria's economic strategy (including innovation) and to break them down at intermediary level as well as at programme level.

A particularly important source of information and indications on how to review a RIS3 is peer review, which is a comprehensive RIS3 examination carried out by peer regions. Engaging in this sort of exercises allows learning lessons from regions that might have already experienced some of the problems the peer-reviewed region is facing and/or establishing direct contact with potential partners for cooperation.

Example 8 - Fine-tuning RIS3 through peer review

Peer review can provide regional policy-makers with new and important insight into their RIS3 strategy by looking at it from other regions' perspective. As such, peer-review exercises are currently organised by the S3 Platform (IPTs) in order to allow regions to learn from other regions. In general, such a peer review exercise goes through three stages: preparation, assessment (a review by peer regions and experts) and post-review follow-up.

Stage 1: During the preparation stage, a region has to prepare a structured presentation of their RIS3 strategy following a report template, which addresses a number of areas defined in the RIS3 Guide. The template is provided by the S3 Platform. During this preparatory stage, the representatives of the region under review prepare a review of their region's RIS3 in consultation with the S3 Platform team and experts.

Stage 2: The actual review phase generally takes the form of an interactive workshop. During the workshop, the region under review presents its strategy and has an opportunity to engage in dialogue with peer regions, representatives of the European Commission and independent academic experts working in the field of smart specialisation. Following the peer review phase, the S3 Platform team prepares a summary report, which includes an outline of the peer review session, feedback from peer regions, as well as any conclusions and expert recommendations.

Stage 3: During the post-review follow-up stage, the S3 Platform team will then contact the reviewed region to monitor its progress based on the actions listed in the post-workshop report. The region will be asked to complete a follow-up questionnaire twice: three and six months after the peer review workshop.

