

1. Key elements of Smart Specialisation Strategies

A strategy for smart specialisation should be designed around the following key principles:

- Smart specialisation is a place-based approach, meaning that it builds on the assets and resources available to regions and Member States and on their specific socio-economic challenges in order to identify unique opportunities for development and growth;
- To have a strategy means to make choices for investment. Member States and regions ought to support only a limited number of well-identified priorities for knowledge-based investments and/or clusters. Specialisation means focusing on competitive strengths and realistic growth potentials supported by a critical mass of activity and entrepreneurial resources;
- Setting priorities should not be a top-down, picking-the-winner process. It should be an inclusive process of stakeholders' involvement centred on "entrepreneurial discovery" that is an interactive process in which market forces and the private sector are discovering and producing information about new activities, and the government assesses the outcomes and empowers those actors most capable of realizing this potential;
- The strategy should embrace a broad view of innovation, supporting technological as well as practice-based and social innovation. This would allow each region and Member State to shape policy choices according to their unique socio-economic conditions;
- Finally, a good strategy must include a sound monitoring and evaluation system as well as a revision mechanism for updating the strategic choices.

These elements should be clearly reflected in the S3 documents and exhaustively explained.

Strategy developers should also bear in mind that the reason why S3 became an ex-ante conditionality for the ERDF investments in research and innovation was to ensure that the ERDF funds:

- Fit into the overall research and innovation policy (as outlined in the Innovation Union flagship's "Features of well performing national and regional research and innovation systems");
- Complement the existing national or regional funding and governance and legal measures that form part of their policy mix;
- Support effective and efficient measures that provide incentives to private Research & Innovation investments.

2. Defining priorities in a S3

A S3 should prioritise domains, areas and economic activities where regions or countries have a competitive advantage or have the potential to generate knowledge-driven growth and to bring about the economic transformation needed to tackle the major and most urgent challenges for the society and the natural and built environment. The number and nature of these priorities will vary from region to region. Note however, that although a first set of priorities should be identified when

the S3 is designed, they can be changed or modified when new information/developments make it advisable.

Priorities could be framed in terms of knowledge fields or activities (not only science-based, but also social, cultural and creative ones), sub-systems within a sector or cutting across sectors and corresponding to specific market niches, clusters, technologies, or ranges of application of technologies to specific societal and environmental challenges or health and security of citizens (e.g. ICT for active ageing, mobility solutions to reduce traffic congestion, innovative material solutions for eco-construction, etc.). While some regions or countries may prioritize one or more Key Enabling Technologies (KETs), others will focus on applications of such technologies to specific purposes or defined fields.

Social, organisational, market and service innovation, or practice-based innovation, play an important role in S3 as technological innovation based on scientific research. This is especially relevant for regions with comparatively weaker technological and science basis. S3 involves not only radical innovation but also exploiting niches by innovating in traditional fields, through developing and applying new business or organizational models, and adapting/exploiting innovations deriving from tacit knowledge and experience in these areas.

Most often, prioritised choices of domains, areas or specific economic activities will be complemented by horizontal measures. These aim at realizing adequate framework conditions for entrepreneurship, supporting the operation of all types of firms both in domestic and international markets, and for developing inter-firm, inter-cluster, and cross-border collaborations.

3. Understanding 'niche' and 'domain' of specialisation

The expressions niche and domain in the context of smart specialisation are closely linked. To put it in a nutshell, a promising niche in a business environment is the counterpart of a promising domain in the pursuit of knowledge and innovative ideas. This relationship is so close that the two expressions are often used as synonyms.

In other words, the word niche refers to market, while domain refers to human knowledge (scientific, technological, practice-based, etc.). A market niche is a portion of user or consumer market that can be addressed by specific products or services. It is usually defined in terms of the profile of potential customers and their needs; meeting these needs is the goal of the firm identifying/occupying the corresponding niche.

The word niche carries implicitly the connotation of a small, haven-like part of the market, whereby the firm serving specific customers' needs through targeted, differentiated products, can be less exposed to low-cost, global competition. Of course, as all markets, also such niches are subject to change and require sustained innovation and business efforts by firms operating in them. A specialisation domain is an R&D or innovation area characterized by distinctive knowledge. It can be defined either in terms of capabilities or technology or product functionality. The existence of a specialisation domain is often a precondition for having the capacity to develop innovative products or services for specific market niches.

A smart specialisation field/area is about being able to effectively match knowledge domains with market potentials, possibly in view of a niche market. Knowledge alone does not necessarily generate per se economic value of the sort reflected in GDP or total welfare estimates. On the other hand, products with little knowledge content, usually cannot defend their niches for long, if at all, and fall back to the diminishing returns competition typical of undifferentiated, so-called 'homogeneous' goods. Smart specialisation fields are therefore often at the cross-section of different sectors, technologies or knowledge domains.

4. Conceiving and structuring S3

Priorities should be identified based on two fundamental processes:

- An EDP utilizing entrepreneurial knowledge existing in a region or country and taking an entrepreneurial approach in the sense of focusing on market opportunities, differentiating from others, taking (and managing) risks and seeking alliances to optimise the access to and use of resources (physical, financial, intellectual, market knowledge, etc.). This means that policy-makers should involve all types of innovation actors (e.g. businesses, technology and competence centres, universities and public agencies, science and business parks, business angels and venture capitalists, civil society, etc.) in an entrepreneurial process for the design of S3, and assess their proposals for future development and investment. Simple surveys among these actors are not sufficient. The essence of the EDP lies in its interactive nature that brings the different actors together in a participatory leadership process to carve out jointly the smart specialisation fields and develop a suitable policy mix to implement them;
- An objective analysis of the region/country current situation in terms of research, innovation (incl. existing infrastructures), industrial structures (incl. clusters, position in value chains), skills and human capital (academic and other), demand (incl. public and societal demand), public and private budgets for research and innovation, framework conditions, functioning of the innovation eco-systems (see annex 1 of the Innovation Union flagship initiative). The analysis should take into account the economic context with a place-based focus complemented by an outward-looking dimension. It should also examine the gaps, barriers and potentials for future economic development in a knowledge-intensive perspective, including potentials that will require cooperation with innovation actors in other countries and regions. This means the use of evidence to show what type of activities have the highest chances of success in a particular region or country, based on local assets and an examination of comparative advantages and complementarities with other European and global competitors.

Above all, priority setting cannot be regarded as a straightforward process whose outcome can be decided once and for all. Priority setting requires a certain degree of experimentation with new policy tools, ideally through pilot projects during the process of elaboration and modification of the S3. This in turn requires a strong governance system with sufficient political backing, in order to take risks and allow for failures from which lessons can be learned.

A key feature of S3 is its reliance on collaborative leadership. This means that no single institution (not even the World Bank and certainly not consultants) alone is able to write such a strategy: S3 is

about partnership and should be developed with the active involvement of many different types of actors, including firms, science and business parks, universities and other research institutions, civil society organisations as well as national, regional and local authorities. The exact nature of this partnership will vary according to the national and regional institutional structures.

The involvement of entrepreneurs, broadly defined, is especially important to developing S3, and to the, aptly called, Entrepreneurial Discovery Process, because they are best placed to know what is likely to work in a particular place and with whom abroad cooperation can be helpful. This type of institutional capacity-building cannot happen overnight and should be reinforced as the strategy is developed and implemented. Likewise, the EDP can also be described as a 'journey' with no start or end. This is why the governance aspects of S3 should be constantly monitored and evaluated, and modified if necessary.

5. Risk, success and failure in the context of S3

The risk of failure is inherent to innovation and this is fully accepted by the European Commission — but how risk is managed can influence the success of S3. Before defining what is meant by success or failure, it is useful to distinguish between innovation activities of firms, and innovative measures of support providers, including public bodies. Business innovation has by definition a higher risk than non-innovative activities, but when successful is likely to render higher returns for investment, jobs and growth. This is why innovation is a core issue for the Europe2020 strategy. The use of innovative support measures also entails a certain level of risk, but likewise has the potential for achieving better results.

Both types of innovation should be accompanied by appropriate risk mitigation or management. For example, with regard to the possible failure of business innovation projects, the Commission recommends coherent policy-mixes, such as the combination of advisory services with networking and clustering, as well as direct financial support. The Commission also promotes the increased use of financial instruments that enhance risk-sharing. As for mitigating the risk of failure of public support mechanisms, the Commission encourages experimentation. This can include pilot interventions that can subsequently be abandoned or modified; this approach applies not only to the innovative actions for sustainable urban development, but to all innovation-related investments.

To determine whether there is success or failure at the level of operations, it is of utmost importance to set meaningful indicators, for instance those that include a realistic time-perspective. In this example, employment growth due to business innovation may not materialise within the programming period, and to use this as an indicator may be counterproductive.

On the other hand, the development and testing of a prototype, new forms of co-operation along the value chain or increased collaboration with research institutes may materialise in time, and hence may be aptly used as indicators. The setting and quantification of indicators should also take into account the level of risk and innovativeness of the measures to be supported by the proposed investment.

6. Including actions or policies not linked to EU funds in a S3

This will be even necessary in most cases. For instance, the regulatory and administrative environment, including the financing of universities, fiscal incentives and R&I support structures, not to mention the overall governance arrangements, may be crucial to the success of S3.

However, these complementary measures and governance structures will depend on the particular policy and institutional context of each Member State.

7. Appropriate administrative/geographical level for national or regional S3

The answer to this question depends on each Member State's institutional and territorial architecture, as well as on the administrative level responsible for the competences on R&D and innovation. It is up to the Member States to decide what suits them best, in light of their governance structures. As far as national S3 are concerned, it is worth recalling that if a country plans to have a national S3, this is supposed to be the national research and innovation strategy and not a separate/parallel plan in addition to the national R&I strategy.

If a country opts for a national S3 in addition to regional strategies, national and regional S3 have to be coherent and complementary. This will call for a consolidation of strategies and there will certainly be a need for governance structures for monitoring the implementation at both levels.

The Commission's remit here corresponds specifically to exploring issues related to the quality and effectiveness of the parts implemented by the OPs. It is strongly recommended that authorities at the most relevant territorial level (NUTS I, II or III) with respect to the decision-making process of both drafting innovation strategies and managing EU Structural Funds register as members of the S3 Platform. Any specific queries on this subject can be addressed to the S3 Platform's mailbox:

jrc-ipts-s3platform@ec.europa.eu

8. The role of science and business parks in S3

The RIS3 Guide highlights the important role to be played by all innovation actors in the S3 process. Science, technology and business parks are essential stakeholders to be included in the S3 governance framework, and their input for the prioritisation stage should be considered a key element in the process.

In addition, these parks contribute to other dimensions of the smart specialisation paradigm: their management bodies have experience in stimulating and managing flows of knowledge and information between companies, universities, entrepreneurs and technicians, and provide an environment that enhances a culture of innovation, creativity and quality. They facilitate the creation of new businesses via incubation and spin-off mechanisms, and accelerate the growth of small and medium size companies, and work in a global network that gathers many thousands of innovative companies and research institutions throughout the world, facilitating the internationalisation of their resident companies.

In addition, companies located in parks are specialized in very specific activities of several different sectors. This is why so many times, when these companies collaborate with others, appear

new products, services or technologies produced through the combination of different activities and different sectors. This process of cross-fertilization of activities and sectors (related diversity) is also one of the activities on the daily agenda of the managing bodies of the parks and they can provide many examples of how they develop.

9. Implementing S3: the need for information on the policy mix

A S3 needs to outline the policy mix (EU funded and other) that will be used for its implementation; mere political visions and objectives are not enough. The outlined measures should in particular be fit to stimulate private research and innovation investment, i.e. it is recommended to involve entrepreneurs in the design of individual support tools and in the concept of the overall innovation support system (which should contain not only direct financial support to specific R&I projects, but also cooperation platforms, support services, infrastructures, etc.).