SMARTSPEC

SMART SPECIALISATION FOR REGIONAL INNOVATION

Underpinning Effective Strategy Design

Research Working Paper: Work Package 4

Nauwelaers, C., Blazek, J., Magro, E., McCann, P., Morgan, K., Ortega-Argiles, R. and Wilson, J.

January 2015

FP7 SmartSpec

Smart Specialisation for Regional Innovation

WP4: Underpinning S3 effective strategy design

D4.2 Research Working Paper

27 January 2015

1. Objective of WP4

The objective of WP4 of SMARTSPEC is to investigate ways and means to *operationalize* the S3 concept into a strategic policy process. This WP has a focus on the role of *policy-makers* in the quadruple helix that stands behind S3 design and implementation. It aims at clarifying methods, pitfalls and rules for designing, implementing and assessing S3 within a *full policy cycle* approach. It aims at producing a *comprehensive*, policy-friendly, action-oriented analysis of S3 policy process. WP4 addresses this objective for all policy aspects of the smart specialisation strategy process: Policy design, Policy implementation, Policy Assessment (covering monitoring and evaluation).

This WP4 contributes directly to two of the six overall objectives of SMARTSPEC, namely;

- Objective 5. Supporting the production of better metrics, evaluation and monitoring of smart specialisation strategies and the design of an asset-based multi-sectoral policy mix;
- Objective 6. Development of processes of peer review assessment of strategies.

2. D4.2 WP4 Research Paper: summary

The WP4 Research Paper takes the form of five articles, written by seven individuals from five partner organisations of the SMARTSPEC project. These papers deal with the three themes of S3 strategy (design, implementation and assessment).

Authors	Title	Status
S3 DESIGN		
Blazek, J. and K. Morgan	Institutional weaknesses and smart specialisation – day and night ? (chalk and cheese?)	SMARTSPEC Working paper
S3 IMPLEMENTATION		
Magro, E. and C. Nauwelaers	Implementing territorial strategy: Smart competitiveness policies	Accepted for publication as a chapter in Routledge Book "Territorial Strategies"
S3 ASSESSMENT		
Magro, E. and J. Wilson	Evaluating Territorial Strategies	Accepted for publication as a chapter in Routledge Book "Territorial Strategies"
McCann, P. and R. Ortega-Argiles	Smart Specialisation: Results-Oriented Policies and the Use of Results Indicators	To be submitted for publication in Small Business Economics Journal
Nauwelaers,	The contribution of Peer Reviews to	SMARTSPEC Working paper

C.	Smart Specialisation Strategies	

Blazek and Morgan reflect on the first theme – **S3 design** - and confront the very high expectations set to smart specialization strategies as "the crisis exist strategy", with the reality of institutions in less developed regions. They argue that the S3 concept presupposes an advanced level of institutional development and question the institutional readiness of many regions to embark in such demanding exercises. As the important role of institutions for regional development is now more generally accepted, the uneven quality of regional governance, as evidenced by recent studies, is seen as a challenge for S3. Looking at many specific features of institutional set up in regions with less developed research and innovating systems, and in particular the disjunction between private sector and public sector spheres, and the deep cleavage and mistrust between entrepreneurs and academics, combined with the unfavourable characteristics of their economies, Blazek and Morgan argue that institutionally weak regions need a specific approach to S3 and to the entrepreneurial discovery process concept. This involves two adjustments. First, the setting up of horizontal priorities, in addition to vertical priorities, aiming at reinforcing the institutional environment and fixing bottlenecks in the innovation system. Second, the establishment of suitable triple-helix innovation platforms (including national and regional authorities) as an intermediary step, a vehicle to kick off an entrepreneurial discovery process, before defining "smart specialisation domains".

The next paper by *Magro and Nauwelaers* addresses the theme of **S3 implementation**. The paper aims to shed light on two concepts that both literature and practice have been using in parallel: territorial strategy and competitiveness policies. It analyses the link between them and discusses how a possible disconnection might lead to problems in territorial strategy implementation. This implementation should not be considered a stage in a linear model, but an interactive space in which dialogue takes place among different actors. The chapter aims to deepen the understanding of competitiveness policies and their complexity. The analysis highlights the wide policy and instrument portfolio that current policy-makers have to deal with, and its implications for instrument choice. A key argument is that the missing link between strategies and policies consists in "goal-oriented" policy mixes, i.e. sets of interacting instruments which together are able to influence conditions and actors in a territory, to reach the goal of the strategy. Policy complexity leads to challenges for territorial strategy implementation as there is no optimum recipe and policy-mix for each territory. Taking a policy mix approach implies combining different types of policies, covering horizontal and vertical priorities, involving several levels and layers of government and following different theoretical rationales. In addition, policy path dependency and inertia make the change in instruments difficult and leads to greater challenges to manage policy mixes associated to specific strategic goals. The chapter concludes that policy mixes have to be adapted and aligned to strategic goals, which pleads for policy intelligence, coordination and coherence. The chapter ends in pointing to the importance of including evaluation tools and exercises in the design and implementation of strategies and policies as they help to assess the complementary effects of all types of policies and provide policy intelligence into the process, a theme that is taken up in the next paper.

The last three papers address the third theme - **assessment of RIS3**.

Magro and Wilson warn that, while there is a strong relationship between policy evaluation and strategy evaluation, they are not the same thing. This paper bridges the gap between the acknowledgement that evaluation should play an important strategic intelligence role in territorial strategy processes, and the practice that policy evaluations tend to remain isolated and not well-linked to the strategy process at territorial level. It presents an analysis of current state-of-the-art in competitiveness policy evaluation to reflect on the evaluation requirements of the 'what for', 'what' and 'how' questions that a territorial strategy

should answer. This leads to a proposed 'territorial strategy evaluation framework' that is learning centred. The framework makes a clear distinction between evaluation at different levels (strategy and policy) and emphasizes the powerful learning possibilities that lie between the two levels. The framework emphasizes the need to understand on the one hand how well the policy mix is aligned with both the content and the objectives of the strategy; and on the other hand how this policy mix interacts with the evolution of the content and objectives of the strategy over time. As such it constitutes the central arena for learning in the territorial evaluation sphere. A change in paradigm is required such that evaluations cease to be static pieces of information about individual policies' effectiveness, and become integrated, dynamic learning processes which tie together competitiveness policies and territorial strategies.

McCan and Ortega-Argiles discuss the fundamental issue of monitoring and evaluation of S3. Starting from the recognition that all policies arise from a complex bargaining process between different stakeholders, different parties, different interest groups and different constituencies, they emphasize the necessity for an encompassing vision and a translation of this vision into clear objectives. Uncovering policy intentions and making them explicit is necessary both in order to ensure that the policy is designed as well as possible and also to allow for the policy to be evaluated: the use of outcome/results indicators allied with monitoring and evaluation exercises are essential for assessing the impacts of innovation-related policies. However, in practice, many policy interventions even in advanced economies have little explicitly-measurable objectives in-built in their design and very few are therefore amenable to comprehensive monitoring and evaluation exercises. The paper goes in discussing the application of properties of outcome and results indicators, along with the features of good evaluation and monitoring exercises, to the smart specialisation agenda. A key discussion in the paper relates to the idea that S3, as a particular type of results oriented policy, would require an explicit theory of change to be articulated ex ante. Such new policy initiatives though, take place in a context of a certain degree of ex ante uncertainty, and therefore require experimentation and 'self discovery'; they also tend to be based on partial, indirectly-related or incomplete data. Therefore, that kind of policy is not readily translated in tightly-specified analytical model ex ante and instead proceeds is a more iterative manner, assembling knowledge and evidence as it arises. This that new data must be constructed during the life of the policy in order for the policy to be evaluated ex post, and that these data must closely relate to the theory of expected change put forward as the basis for the policy. Smart specialisation is critical in articulating this theory of expected change. In order to commence the policy prioritization process, smart specialisation requires a detailed analysis of the current regional economic and industrial structure on the basis of the best available evidence currently available, i.e. baseline or profiling indicators. The results/outcomes indicators are designed to capture the changes in the intended results/outcomes, and the impact of the policy is the change in the results/outcome indicator which can credibly be ascribed to the policy intervention. The paper concludes that the logic of intervention, the theory of expected change, the indicators to be employed during the life of the policy, the data to be constructed, and the design of the policy, are all closely interrelated issues which cannot be divorced from each other. These results-orientation and policy monitoring and evaluation aspects have to be built into the policy design right from the beginning.

Despite these perspectives to evolve towards much more robust, systematic and codified, monitoring and evaluation systems for S3, based on enhanced use of result indicators, the need for system-wide evaluations also leaves room for other, complementary approaches. The experimental character of smart specialization strategies reinforces the need for reliable and detailed assessments, addressing design and implementation issues. The paper by *Nauwelaers* argues that peer review methods, when used appropriately, can provide valuable contributions to support S3. These methods include elements that address the need for these strategies to be: open, well-informed, integrated, differentiated, shared and impact – oriented. Peer reviews are seen as effective mechanisms to lift policy learning, relying on a user-driven approach. Comparing the

peer review experiences run by the OECD and the European Commission, the paper identifies success conditions such as: strong political endorsement, wide stakeholders participation, quality of peer review panel composed of a balanced mix of peers and experts, attention to all stages in the three-step/six stages peer review process. The analysis underlines the specific value of this technique, that combines tacit and codified knowledge in a purpose-oriented exercise ending up in applicable and realistic policy recommendations. The conclusion underlines the potential, but also the limits of peer reviews to help this new wave of policies reaching their ambitious goal. It suggests a model for peer review which is adapted to the emerging needs of S3 in the near future.

Institutional weaknesses and smart specialisation – day and night? (chalk and cheese?)

Jiri Blazek and Kevin Morgan

Introduction: The mission of RIS3 – the plea for a change

The context for invoking and employing smart specialization strategy (RIS3) in the EU is well known and, therefore, can be at this place just briefly summarized in three main points. First, there are challenges stemming from profound impacts of the global economic crisis (e.g. unprecedented level of unemployment among the youth, esp. in southern Europe). Second, there is a general dissatisfaction with the effects achieved via Structural Funds, so far (for a recent example, see Special Report of European Court of Auditors on effectiveness of business incubators, European Court of Auditors, No.7, 2014). Third, Europe is underperforming in long-term horizon on a global scale and is facing increasing competition esp. from Asian countries.

Consequently, very high expectations are linked with RIS3, which can be illustrated by the following quotes: „Smart specialisation is the Crisis exit strategy" (H. van Rompuy, November 7, 2013, Brussels) or "Concept of smart specialisation should re-define innovation policy" (J. Hahn, November 7, 2013, Brussels). High ambitions connected with putting the RIS3 concept into practice are reflected also by setting-up of a special vehicle by the EC in the form of the Joint Research Centre in Seville pursuing an extensive peer-review process of emerging smart specialisation strategies of individual countries and regions in order to help to stakeholders to design and subsequently implement sound and ambitious RIS3 strategies.

The aim of RIS3 has been defined by its proponents **as** a change of a sectoral structure of European economy towards branches with higher added value and lowering of unemployment rate (see e.g. Foray, Rainoldi, 2013). This should be achieved first of all by a new policy process deeply involving entrepreneurs aiming at discovering new business opportunities and by a set of other elements such as avoiding fragmentation of resources on R&D and better alignment of R&D institutions with the needs of the economy. However, surprisingly, the concept of smart specialisation seems to underplay the role of institutions, which role in promoting regional development has been considered as crucial, recently (Gertler, 2010, Rodríguez-Pose, 2013). In particular, the concept of smart specialisation, which is based on a genuine bottom-up entrepreneurial discovery process that should involve not only entrepreneurs but also other stakeholders such as researchers and representatives of public administration implicitly expects a sort of maturity of formal institutions as well as of key stakeholders (e.g. well-developed collaboration culture, elimination of actors with mere rent-seeking strategy, etc.). In contrast, in regions with less developed research and innovation system, which would particularly need a fresh impetus to enhancing their research and innovation system via RIS3, the question of quality of institutional framework has been so far addressed empirically rather infrequently (for exceptions see esp. Charron et al, 2012, or Blažek et al, 2013). Consequently, the question of institutional readiness for application of the smart specialisation concept presupposing advanced level of institutional development comes to the fore.

Therefore, this paper tries to contribute to fill this gap by the examination of institutional context for steering the change as envisaged by smart specialisation concept in European regions with less developed research and innovation systems where the institutional bottlenecks are likely to be of largest scale. Secondly, on the basis of analysis of institutional weakness in these regions, some implications for design of entrepreneurial discovery process lying at the heart of smart specialisation strategy will be derived.

The role of institutions in regional development

It has been recently persuasively argued that "the link between institutions and economic development had been fundamentally overlooked by mainstream economic theory, in general, and growth theory, in particular" (Rodríguez-Pose, 2013, p.1035). Consequently, according to the same author, a traditional recipe foresees that the economic development will be spurred by investment in infrastructure, education and training, innovation and industrial activities orchestrated from the national level, therefore disregarding the local institutional context. Such an approach has - *inter alia* – resulted in replication of development strategies among different regions curtailing their effects even further (cfr. Tödtling, Trippl, 2005). In contrast, in regional research, concern with institutions and governance and with their relation to economic development has been central to institutional turn recorded in geography already in 1990´s (Wood, Valler, 2001). Nevertheless, the role of institutions has been recently more acknowledged even within the mainstream economic literature, which, however, brought about several important questions, namely, what do we mean by institutions, what sort of institutions matters for development and (how) can we intervene in institutions? (Rodríguez-Pose, 2013). All these questions gained paramount importance by recently developed concept of smart specialisation, which revolves very much around its central concept – the entrepreneurial discovery process.

Concerning the first question on the definition of institutions, there seems to be only a wide agreement in the literature that there is no single generally accepted definition of institution (e.g. Jessop, 2001, Rodríguez-Pose, 2013). Instead, several conflicting alternative definitions were formulated. Especially dissonant proved to be the relation between institutions and organizations. While, on the one hand, there is stream of reasoning, which, due to influence of economics and sociology of organization regard institutions as organizations or bodies that exercise a distinctive influence upon wider society, on the other hand, other authors see institutions as "defining the rules and resources of social action, as defining opportunity structures and constraints on behaviour, as shaping the way things are to be done if they are to be done, as path-dependent path-defining complexes of social relations, …." (Jessop, 2001, p. 1217). Consequently, this second approach to definition of institutions accords closely with that of D. C. North:

"Institutions are humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). Throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange." (North, 1991, p. 97).

In the same stream of reasoning, Morgan (1997) succeeded in coining a brief definition of institutions as "recurrent patterns of behaviour – habits, conventions and routines" (p. 493). Nevertheless, keeping in mind the challenges related to application of the smart specialisation concept in policy practice, it seems reasonable to deal not only with the formal and informal institutions, but with organizational fabric as well. The relevance of the later (such as of intermediate institutions like trade association, chambers, professional associations etc) for regional development has been underlined by Morgan (1997) and endorsed in particular by the theory of regional innovation systems (Cooke et al, 1997, Cooke et al, 2004).

Second question, what type of institutions matters most for regional development is a truly intriguing one. Relatively less controversial is a contribution of formal institutions such as rule of law to economic growth. Rodríguez-Pose (2013) insists that numerous studies come to fairly robust conclusion "that an absence of basic formal institutions has a detrimental effect on economic development." (p. 1038). According to the same author, unsurprisingly, given their vagueness and intangibility, there is much less solid evidence on the merits of informal institutions, nevertheless, by lowering uncertainty and information costs, informal institutions improve conditions for economic activity (ibid.). Fundamentally, D. North argues that both types of institutions "provide the incentive structure of an economy" (North, 1991, p. 97), which contribute to establish a suitable balance between coordination and competition mechanisms among economic actors thus

facilitating learning process (Rodríguez-Pose, 2013). The question of a quality of regional governance has been recently for the first time addressed on a pan-European scale by a valuable research by Charron et al. (2012). The research by these authors showed not only a stunning scale of West-East gradient in quality of governance as perceived by local population, but also distinctive patterns of polarisation of quality of governance within countries with traditional large scale of regional disparities (esp. Italy). Unsurprisingly, Charron at al (2012) plea for a vigorous effort to improve the quality of governance in regions identified in their study as under-performers in order to stimulate economic development in those regions.

This plea brings us to the third question, (how can we intervene in institutions?), which is a crucial one with regard to smart specialisation concept. Therefore, this question will be addressed in section "What sort of policy recommendation for institutionally weak regions?". However, before that, to provide a suitable framework for answering this policy-relevant question, the key specific institutional features of the regions with less developed research and innovation systems, particularly those with post- state-socialism heritage will be elaborated.   The term regions with less developed research and innovation systems is used throughout this text instead of more established term less developed regions to stress that some regions can be according to conventional indicators such as GDP per capita considered as developed or even highly developed but still they suffer from severe bottlenecks in their institutional framework, which prevents them to realize their full potential (a prime example of regions of this type are metropolitan regions of some capital cities in new member states such as Prague – see Blažek, Uhlíř, 2007).

Specific features of institutional set-up in regions with less developed research and innovation system

State-of-the-art regional development theories emphasise an important role of informal institutional factors such as trust, responsibility, professionalism, partnership and shared leadership for regional development (see e.g. Sotarauta, 2010). This contrasts sharply with under-developed institutional framework in regions with less developed research and innovation system, which can be in case of public domain described as over-bureaucratic, over-politicised, unprofessional, unstable, non-responsive, non-transparent, lacking strategic vision, and, first of all, as a system that is short of trust (Blažek et al, 2014). Moreover, within all levels of public administration is highly embedded "play it safe" mentality, which limits the space for manoeuvre and flexibility in decision-making and other processes significantly.

In addition, among public servants working in regions with less developed research and innovation system is highly embedded persuasion that activities of public sector on the one hand, and of private firms and academics on the other, are mutually "disjunctive". This observation accords well with the concept of "disconnected region" (Foray et al, 2012). Consequently, regional authorities frequently lack any unit (department), which would be responsible for liaison with local businesses and/or academics and disposed knowledge about the needs and challenges of these crucial stakeholders. Therefore, in many cases, the cooperation among business, academic and public sector as envisaged by triple helix (and stretched by RIS3 even further by its emphasis upon the quadruple helix encompassing civic society and users as well) have to start literally from a scratch.

Accordingly, among private firms is a widespread rent-seeking behaviour and unrestrained individualism (see, for example, Blažek, Kuncová, 2011 for the anatomy of cumbersome process of setting-up and evolution of clusters in Czechia, which establishment had to be parachuted by the initiative of the national level). Therefore, in these regions is common individualistic behaviour among the key regional development actors (entrepreneurs, knowledge and even intermediary institutions) and existing platforms and networks are considered and used as a *prima facie* vehicle for lobbying for external support, instead of functioning as endogenous drivers of development as envisaged by the state-of-the-art theories.

Moreover, in these regions frequently exists a cleavage of mistrust and misunderstanding between entrepreneurs and academics as different value systems evolved among them. This was aptly expressed by one entrepreneur at the meeting facilitated by intermediate organisation in one of the Czech regions: „We (firm) would cooperate with universities provided the sphere is *not* vital to our competitiveness". In addition, there is wide-spread dissatisfaction of entrepreneurs with academics as they are often uninterested in collaboration with businesses and the system of financing of academic institutions rewarding predominately academic publications widens this gap even further. Even in case that academics are willing to engage with businesses they are often unable to respect the time-span for the joint research effort and, moreover, academics are frequently not concerned with the price of the technological solution which they proposed within their contractual research. Given this context (disregarding the internal weaknesses of many of these mid-range universities - see Ptáček, Gál, 2011) it is unlikely that even the leading academics would have sufficient credit and respect among other stakeholders not only to perform a function of a leader or boundary spanner in line with smart specialisation concept, but even to be considered and accepted as serious partners within the entrepreneurial discovery process – the very heart of RIS3.

In several NMSs, this tension between business and academic sphere has been recently even exacerbated by application of a supply-side solution to the lack of innovation, i.e. by construction of the top R&D facilities, which are (or are likely to be) massively under-utilised by local firms exactly as has been warned nearly two decades ago (Morgan, 1997). As an alternative Morgan argued that in the first place should be addressed the lack of innovation demand (ibid). Consequently, some of these facilities are - instead of becoming the drivers for regional economies - facing serious challenges concerning their sustainability requiring vast amount of public funding in time of severe austerity measures, which fuels the antagonism towards academics among entrepreneurs even further.

In addition to above described weaknesses in formal institutions, in regions with less developed research and innovation system exist also significant bottlenecks given by imperfections of the formal institutions. First, the competence over R&D&I policy is frequently scattered among several national institutions, which hinders application of truly systemic measures that would enhance the overall R&D&I system and not just its partial components. In contrast, regional authorities in many of these countries lack any competence in the sphere of R&D&I, which represents a significant barrier for a more pro-active bottom-up approaches towards improving the overall R&D&I system. Another example of failures within the formal institutional framework is unstable and/or inadequate system of financing of R&D&I sphere, for example, one-sided stress on rewarding easily countable results such as the number of scientific articles without sufficient recognition of other forms of outputs of R&D&I institutions. Yet another example of imperfection of formal institutions is poorly designed system of protection of IPRs.

Moreover, while there is a general dissatisfaction with bureaucratic load across various countries, this is especially true for post- state-socialism countries. Excessive bureaucratic load in these countries can be attributed at least to two specific factors. First, it is a fluid nature of legislation given by a need to change (in many cases fundamentally) the principles upon which these societies and economies functioned under the command economy. Even though it is now about 25 years since the state-socialism collapsed in these countries, the process of transformation of previous legislative framework is still far from being accomplished. Second, in some of these countries, there is a tendency to solve identified problems with application of legislation in practice by a more and more detailed legal specification of what is considered as legal and what sort of behavior is not. Therefore, some basic pieces of legislation, such as the business law, or the public tendering act are being amended several times a year in some of these countries.

In addition to weaknesses in both formal and informal institutions, there are several specific features within economic structure of regions with less developed research and innovation system, which impinge directly

upon character of their R&D&I systems. Three of these specific features are well-known: i) branch-plant character of these economies, ii) local firms are often locked-in within the lowest tiers of GPNs/GVCs, iii) generally weak endogenous sector of SMEs. Importantly, all these factors imply limited innovation demand (for more, see e.g. Blažek et al, 2014).

However, in regions with less developed research and innovation systems, there is at least one more fundamental factor, which has to be taken into account when designing RIS3 and esp. the entrepreneurial discovery process itself. The theoretical basis for RIS3 seems to assign quite high expectations with the recently developed concept of related variety, which is in principle based on argument that mutual learning among companies in the region is enhanced in cases when their production is technologically related (Frenken et al, 2007, Boschma, 2013). While this concept proved to be powerful in explaining economic development of regions with advanced research and innovation systems as their competitiveness is often based on knowledge that is mutually related (Boschma et al, 2009), the economies in regions with less developed research and innovation systems are less knowledge intensive and, even more importantly, frequently technologically *unrelated*. This sort of "unrelatedness" is especially typical in regions with post-state-socialism heritage as their economies have been for decades moulded by the command economy. Under the command economy, the location decisions were frequently based on overstating of the role factors such as natural resources while disregarding softer factors, such as local traditions, as it was primarily quantity and not the quality what mattered most under the state-socialism.

Moreover, when these economies were after the collapse of state-socialism in the late 1980´s opened to foreign competition, their economic structure has been transformed fundamentally once more, this time upon the low-cost basis. Therefore, a vast number of foreign direct investments were motivated by reaping low-cost advantages, once again disregarding assets of softer nature such as local tradition or know-how. In consequence, the economic structure in many of these regions have become disconnected with local traditions, which resulted in development of a relatively broad spectrum of companies in unrelated industrial branches. Significantly, production of these companies is frequently focused on production of low value-added components produced for export. Consequently, the "common denominator" among companies in these regions is unusually small and hinders significantly a potential for application of the concept of related variety as envisaged by the EC RIS3 Guide (Foray et al, 2012).

In addition, the continuing tradition of confinement of basic research in Academies of Sciences built according to the Soviet model on the one hand, and privatisation of the former institutions of applied research, which frequently resulted in their closure, created a vast gap between businesses and research. As a result, economic specialisation of these regions - even if discernible - is barely reflected by existing R&D institutions. Therefore, all these factors limit the potential for application of the concept of related variety in this type of regions, and, consequently, these factors have to be considered carefully within the process of designing and implementing RIS3.

To sum-up, the regions with less developed research and innovation systems are facing not only the challenge stemming from internal weakness of all pillars of triple/quadruple helix (i.e. low innovation capability of local business, under-performance and non-transparency of public administration, weak production of internationally recognized outputs of academic institutions, underdeveloped and in the best case just emerging fabric of civic society organizations), but, even more seriously, also deep cleavages among these pillars. Importantly, these cleavages exists not only due to low quality of informal as well as formal institutions, but also due to structural weaknesses of these regional economies such as low innovation demand given by branch-plant character of these regions (see Table 1). These limitations are even multiplied by a weakness of intermediate organisations (such as regional development agencies, innovation centres,

chambers of commerce etc.) that are frequently struggling just with their own live-on, which curtails severely their capability to enhance the research and innovation system in their regions.

Consequently, countries and regions with less developed research and innovation system can be described as "low trust high red-tape societies". Therefore, the distance between the "ideal" situation and the everyday practice is - at least in case of some of these regions - of such a scale that is not stimulating but could lead rather to passivity or even to a hostile attitude towards "imported" concepts such as RIS3. Even though cases of highly positive approach towards RIS3 do exist in this type of regions as well, this unfavourable institutional context has to be taken into account in an effort to put the concept of smart specialisation into policy practice in such regions.

Table 1: Key weaknesses in regions with less developed research and innovation system

	Deficiencies of a „broad" innovation system	Deficiencies of a „narrow" innovation system
Formal institutions	- unclear or fragmented competence over R&D&I policy at the national level - missing competence of regional authorities in the sphere of business support and R&D - one-sided evaluation of R&D&I institutions (dominant stress on academic publications providing disincentives to cooperation with businesses) - improper or unstable legislative framework - high red-tape societies	- instability of the model of financing of R&D institutions - academic institutions frequently lack the internal rules for cooperation with business sector or design of these rules is improper forcing academics to cooperate with business as a physical persons giving rise to a "grey zone" of university – business cooperation. - Insufficient quality of education system (not only the deficiencies in tertiary education but, the overall system should be enhanced to spark the various talents of pupils and students) - the need to better align the education system with the needs of economy
Informal institutions	- low trust societies - non-professionalism, instability or even unpredictability in decision-making of public sector - Individualism (reaction to forced collectivism under communism), missing leadership - Employees culture" not „entrepreneurial culture" among	- Deficiencies within the innovation system (e.g. „Berlin wall" between academic and business spheres - different values, expectations, time-horizons etc.) - Cooperation with businesses is considered by some academics as a betrayal of academic values and "stealing" of academic know-how. - Envy among academics who do and

	university graduates (preference for employment in TNCs) - Disregard for strategies – theses are often considered either as a kind of reincarnation of central planning or as a formal requirement without any practical relevance	do not cooperate with business
Organisational fabric	- lack of strategic vision within public administration - high fluctuation of staff within public sector	- missing or weak intermediate organisations, - universities often lack experienced staff for provision of support services for academics who seek to commercialize results of their research.
Key structural weaknesses	- Local firms are often locked-in within the lowest tiers of GPN/GVC; - branch plant economy syndrome (both these factors imply limited innovation demand). - low knowledge intensity and unrelatedness within the regional economies	- Significant mismatch between research focus of R&D institutions and the needs of the economy.

Source: own elaboration

Towards policy implications for regions with less developed research and innovation system

In this section, it will be argued, that as a consequence of immaturity of institutional set-up as well as due to specifics of economic structure in many of these regions and countries, a specific approach to RIS3 and, in particular, to key RIS3 driver – to entrepreneurial discovery process – is needed. While the RIS3 concept foresees the entrepreneurial discovery process as a key mechanism for identification and economic exploitation of new business opportunities (Getting started with the RIS3 KEY, 2012), in case of countries and regions with less developed research and innovation systems such an approach would be hardly feasible or even possible as it presumes a high quality of formal and esp. of informal institutions such as trust, collaborative culture, reciprocity and leadership. Thus, given the above described low level of quality of both formal and informal institutions as well as due to the specific features of economic structure of these regions, launching the entrepreneurial discovery process according to the lines drafted by the EC Guide to RIS3 might easily miss its main objectives or even fail.

Importantly, the below proposed specific approach forwarded for regions with less developed research and innovation systems should not be considered as an alternative to overall process of building RIS3 outlined by its architects in six steps, but merely as a more detailed specification of the entrepreneurial discovery process, which represents a new form of policy process introduced by RIS 3 concept (Foray et al, 2012).

Consequently, given the above outlined specifics of regions with less developed research and innovation system, it can be suggested that the entrepreneurial discovery process should not start straight on with an effort to discover new business opportunities by stakeholders, which mutual trust is minimal (in some cases, entrepreneurs would meet with their colleagues for the first time ever), but rather with building of a mutual understanding among entrepreneurs (and if possible also academics) what are the key bottlenecks that hinder local business most. Therefore, an effort to identify, which of these bottlenecks could be addressed in cooperation with other regional stakeholders (public administration, educational and knowledge institutions etc.) should be exerted. This would not only raise the level of common understanding among entrepreneurs, but especially among entrepreneurs and representatives of regional administration and other relevant stakeholders such as educational institutions. This is an important phase as our experience shows that in case of some regions, entrepreneurs would meet with the representatives of their regional authority and educational institutions for the first time. Moreover, this phase could be relatively inclusive as the participation would not be restrained by a targeted focus on particular industrial branch. Thus, the quality of informal institutions could be enhanced significantly by such an approach. Nevertheless, such relatively broadly conceived policy platform can represent a basis, upon which in due time more thematically/sectorally focused platforms could emerge. Therefore, before launching entrepreneurial discovery process as envisaged by the EC Guide for RIS3 (Foray et al, 2012), such an approach might help to form at least a basic form of partnership, which existence in all regions is far from pre-given, should not be skipped.

Consequently, from a more conceptual point of view, in case of regions with less developed research and innovation system, two adjustments of RIS3 approach should be made. First, in addition to priorities, that are representing "tough" or "smart" choices made on the basis of bottom-up process reflecting availability of critical size and other factors as required by the EC RIS3 Guide, a special form of "horizontal" priorities should be introduced as well. Second, it will be argued below that the "vertical priorities" should be distinguished from "domains of possible economic specialisation" offering market niches with high value-added as envisaged by Foray et al (2012).

Let first turn to the horizontal priorities. While the EC Guide conceptualises horizontal priorities primarily as "the diffusion and/or application of Key Enabling Technologies" and only subsequently as "aspects related to social innovation, or the financing of the growth of newly established companies…" (Foray et al, 2012, p.51) we argue for a different definition of these priorities for the sake of regions with less developed research and innovation systems.

In our view, in case of regions with less developed research and innovation systems, horizontal priorities should be conceptualised as cross-cutting priorities aiming at strengthening the overall institutional environment and innovation system (at either national or regional level or both). Thus the role of horizontal priorities would rest in fixing of at least the main bottlenecks in formal and informal institutional framework in both narrow and broad innovation system (for examples of these, see Table 1). It can be reasonable to expect, that without addressing at least the most important of these cross-cutting issues, the evolutionary trajectory of these regions would be hardly altered. Clearly, identification and reaching of an agreement upon the key bottlenecks hindering business activities in the region and, subsequently, discerning a suitable solution as well as finding "owner" of this task that would eliminate or mitigate these bottlenecks would represent a huge step forward compared to current situation in many of those regions. In particular, such an approach would demonstrate esp. to entrepreneurs that the commitment of involved stakeholders by far exceeds one-off exercise, which was so far common during the preparation of various strategic documents in these regions. Thus, such an approach might stimulate active involvement of entrepreneurs even in cases of regions where entrepreneurs are frustrated by underperformance of various public sector institutions and by

a chronic lack of practical relevance of various strategic documents (due to their poor strategic vision and esp. due to their meagre implementation in practice). Therefore, the quality of informal and perhaps even of some formal institutions could be improved by such an approach. However, to deliver such ambitions, also the composition of stakeholders for these early phases of entrepreneurial discovery process should be considered carefully. This issue will be addressed in a section upon the design of policy platforms.

Concerning the priorities of perspective economic specialisation, it should be emphasized that there is a fundamental difference between relatively broad "vertical" priorities, which were in many countries and regions with less developed research and innovation systems so far selected for the sake of fulfilment of RIS3 ex-ante conditionality and the new domains of perspective specialisation as foreseen in relevant RIS3 literature (see e.g. Foray et al, 2011, Foray et al, 2012, McCann, Ortega-Argilés, 2011). While the "vertical" priorities were in principle selected by responsible national authorities on the basis of predominately quantitative analysis of various statistical data on the level of relatively broad sectors (such as production of transport means encompassing automotive and aircraft industries) and them submitted for consultation process to businesses, the genuine entrepreneurial discovery process should in principle deal with much more fine-grained level of the economy. Consequently, one can argue that even though in most countries and regions vertical priorities have been already selected this should be considered rather as a point of departure for a much more focused entrepreneurial discovery process than as a final result. In consequence, in this type of regions, "vertical" priorities and "domains of perspective economic specialisation" should be distinguished carefully and not used interchangeably. Therefore, the main argument here is that the challenging process of searching for new domains of specialisation with high value-added cannot start from a scratch, but before such an advanced level of sophistication is reached, the effort should focus on identification and addressing of at least major deficiencies of systemic nature via horizontal priorities. Importantly, this approach would also help to create at least certain level of mutual awareness and of trust among stakeholders, i.e. would also enhance the quality of informal institutions.

Design of policy platforms and of entrepreneurial discovery process in regions with less developed research and innovation systems

From the above described arguments follows a need to propose a more detailed outline for building sound entrepreneurial discovery process, including careful selection of stakeholders to ensure truly participatory process, which would be really novel for most of the regions with less developed research and innovation systems.

To start with, to facilitate the understanding of policy platforms (or working groups), which might be conceived as a prime vehicle for entrepreneurial discovery process, as broader platforms, and not as exclusive and narrowly focused groups of entrepreneurs, contemplating a suitable name for these policy platforms could be proposed. For example, these platforms might be called "Innovation platforms", which would invoke clearly their mission to all relevant stakeholders and would open the space for interested academics as well. In order to facilitate mutual understanding among entrepreneurs, academics, educational institutions and public administration and esp. to guarantee "ownership" of identified problems of cross-cutting nature, such as imperfections of educational system or a need for a more pro-active approach of regional government, it is indispensable that the membership of innovation platforms include representatives of these spheres as well. Moreover, given the immaturity of cooperative culture in such regions, it seems likely that despite all its weaknesses it will be upon the public administration (perhaps with some external support from consultants) to initiate setting-up and moderating these innovation platforms at least at the early phases of this process. This approach would provide valuable feedbacks to representatives of public administration and of educational institutions from the perspective of local entrepreneurs and would exert a considerable pressure upon them to deliver what is needed. Thus, there are strong arguments to involve not

only entrepreneurs and researchers, but representatives of public administration and education institutions as well. It should be underlined, that we are explicitly using the term "educational institutions" instead of "higher education institutions" as – according to our experience – among the most pressing problems hindering business activities in this type of regions is the lack of qualified labour force not only with tertiary education background, but more often with the secondary level education (i.e. qualified workers).

Consequently, the following sequence of steps towards genuine entrepreneurial discovery process might be forwarded for consideration in those regions. First, the effort of stakeholders should focus upon identification of key bottlenecks for business and innovation activities (i.e. identification of horizontal priorities), agreeing the method for their elimination and assigning the responsibility for accomplishing this task. Importantly, this phase should not only result in creation of a common perception of key cross-cutting challenges in research and innovation system, but also enhance the mutual knowledge and understanding among stakeholders, i.e. informal institutions. Crucially, given the generally poor pace of implementation of innovation strategies in these regions, representatives of public sector should guarantee to entrepreneurs and academics that this time their inputs would be taken seriously. Therefore, the representatives of public sector have to prove that at least some progress in fixing of identified bottlenecks such as adjustment of some of formal institutions or improved mode of cooperation between businesses and educational institutions is achieved soon.

Secondly, as one of the key principles driving the preparations of RIS3 strategies should be a thorough examination of comparative advantages of individual regions and full acknowledgement of the fact that "one size does not fit all" (McCann and Ortega-Argilés, 2011, Tödtling, Trippl, 2005), a search for comparative advantages of the region should be undertaken. Identification of comparative advantages should built-up the quality of informal institutions further and would also create a basis for the third step.

Third, authentic entrepreneurial discovery process should be launched with the envisaged aim to identify new market opportunities offering high value-added (i.e. selection and economic exploitation of new market niches within broadly conceived vertical priorities that were often selected already at the beginning of the RIS3 process by a top-down method). Within this phase, an option of branching of original relatively broadly conceived innovation platforms into several more focused ones might be considered. Importantly, suitable mix of instruments (hopefully including also novel instruments to avoid "one size fits all" trap in case of instruments) should be contemplated and implemented to make maximum use of comparative advantages and of discovered market niches. Finally, and fully in line with RIS 3 Guide, this sequence of steps should be embedded within adequate monitoring and evaluation systems, which has nowadays became a standard requirement, which is, however, rarely delivered properly, at least in this type of regions and countries. Therefore, at the moments when particular solutions are being agreed within the innovation platforms, suitable milestones or targets should be defined as well.

Importantly, in countries, which opted for a regional approach towards RIS3 design and implementation or a combination of regional and national RIS3 strategies, this policy process should be supported by a suitable design of interface among the key stakeholders within the multi-level governance to ensure that at least the most fundamental bottlenecks identified by regional innovation platforms, but hindering the business activities from the national level will be addressed by the relevant national authority. For example, such an interface can take the form of the National Coordination Board for RIS3, which membership could *inter alia* consist of representative(s) of regional innovation platforms. Thus, the voice from the regional level would gain a hearing at the national level among representatives of relevant national authorities.

Fundamentally, if such a process is to succeed under immature institutional conditions existing in region with less developed research and innovation system, question of leadership of RIS3 and of innovation

platforms comes to the fore. In recognition of the fact that public administration suffers from many weaknesses and *inter alia* has, esp. at the regional level, limited or even no competence over businesses in many of these regions, it seems desirable to use a pragmatic approach towards the management of the RIS3 process. Namely, while the public administration has a sort of authority to set-up innovation platforms and provide needed organizational backing of the process, it might be reasonable to let a representative of the business sector to lead the process as soon as such suitable personality is identified and engaged. Finding such a suitable and committed personality that would enjoy respect among key stakeholders is another challenge connected with entrepreneurial discovery process.

Conclusions and future research challenges

The main argument of this paper rests in assertion that a genuine entrepreneurial discovery process, which lies at the heart of RIS3 process, requires a high level of development of both formal and informal institutions, while the regions with less developed research and innovation system are typical *inter alia* by underdevelopment of these institutions. Consequently, to mitigate this evident contradiction, an attempt to outline a method of building entrepreneurial discovery process in this type of regions has been made.

In a more conceptual sense, first, it has been argued that in the regions with less developed research and innovation system, in addition to R&D&I priorities, the horizontal priorities should be identified as well. In these regions, horizontal priorities should be conceived as cross-cutting priorities focused on elimination of key bottlenecks within the emerging innovation systems of these regions (i.e. low level of mutual knowledge and of mutual understanding among key stakeholders, inadequate educational system, improper legal framework etc.). Consequently, it has been argued that one-sided stress upon "smart choices" without enhancing the overall research and innovation system by horizontal priorities is not likely to deliver the foreseen benefits of RIS3 process, i.e. opening of new opportunities with high value-added and creation of better jobs.

Second, given the frequently broadly conceived "vertical" priorities that have been selected so far in many of these regions and countries, these "vertical" priorities should be carefully distinguished from "domains of perspective specialisation" which should offer high value-added in newly discovered market niches (Foray et al, 2012). The "vertical" priorities were in principle selected by responsible national authorities on the basis of predominately quantitative analysis of various statistical data often at the level of broad sectors. In contrast, the genuine entrepreneurial discovery process should in principle deal with much more fine-grained level of the economy. Therefore, vertical priorities that have been already selected within the RIS3 process should be considered rather as a point of departure for a more focused entrepreneurial discovery process than as a sort of final result.

Therefore, in practical terms, and with special regard to imperfections within both formal and informal institutions in this type of regions, the process of building of entrepreneurial discovery process has been elaborated. To start with, given limited level of mutual understanding among key stakeholders or even contradictions and cleavages among them, it has been proposed to avoid conception of policy platform (or better innovation platforms) not as exclusive and narrowly focused groups of entrepreneurs searching primarily for new market niches, but as broader platforms encompassing also academics and, crucially, representatives of public administration, who might often be in charge of fixing various imperfections, esp. within formal institutions.

In reflection to specific institutional features, but also with regard to specifics in economic structure of these regions, the following sequence of steps towards authentic entrepreneurial discovery process has been proposed: i) identification of key bottlenecks for business and innovation activity (i.e. identification of

horizontal priorities) and agreeing the method for their elimination and assigning the responsibility for accomplishing this task, ii) searching for comparative advantages of the region, iii) launching entrepreneurial discovery process with the envisaged aim to identify new market opportunities offering high value-added (i.e. selection and economic exploitation of new market niches within broadly conceived vertical priorities that were often selected already at the beginning of the RIS3 process).

Finally, two points for a possible future research agenda could be suggested. First, while it has been widely acknowledged that different types of imperfect regional innovation systems exist (see Tödtling, Trippl, 2005), little effort has been devoted to designing novel specific instruments and their particular mixes to address these special challenges more adequately. Consequently, while the concept "one size does not fit all" has been widely accepted in the sphere of design of regional and innovation strategies, the evolution of particular instruments addressing specific needs lags behind significantly. In consequence, even though nowadays the strategic focus of various documents does differ already, similar set of instruments is being used to deliver these differing objectives across various regions and countries. Therefore, there seems to be a strong case for development of new policy instruments that would be able to address specific issues. One of possible vehicles for such a mission can be a properly designed and managed entrepreneurial discovery process, which could help to identify real roots of the problems and, consequently, could forward suitable novel solution(s) and instruments.

Second, within the regional research, an important gap exists, namely, the detailed understanding of the role of various types of institutions in regional development is missing. Moreover, even the methodology for a suitable form of institutional analysis seems to be lacking. Therefore, much deeper understanding on the role of both formal and informal institutions as well as of organizational set-up in regional development is needed. Consequently, addressing these questions becomes an urgent research agenda for the future.

References
Blažek, J., Uhlíř, D: (2007): Regional Innovation Policies in the Czech Republic and the case of Prague: An emerging role of a regional level? European Planning Studies, Vol. 15, No. 7, p. 871-888.

Blažek, J., Žížalová, P., Rumpel, P., Skokan, K., Chládek, P. (2013): Emerging regional innovation strategies in Central Europe: institutions and regional leadership in generating strategic outcomes. European Urban and Regional Studies. Vol. 20.2.**,** pp. 275-294,

doi:10.1177/0969776411428651

Blažek, J., Healy, A., Wilson, J., Magro, E., Trippl, M., Grillitsch, M., Hansen, T., Goddard, J., Vallance, P. (2014): Smart specialisation for regional innovation, Regions with Less Developed Research and Innovation Systems, Reflection Paper for Work Package 3, FP7 project, Smart specialisation for regional innovation.

Blažek, J., Kuncová, I. (2011): Klastry - módní pojem nebo skutečný zdroj konkurenceschopnosti? Ekonomický časopis, Vol. 59.3, pp. 225-241.

Boschma R., Eriksson R., Lindgren U. (2009): How does labour mobility affect the performance of plants? The importance of relatedness and geographical proximity.Journal of Economic Geography, Vol. 9.2, pp. 169–190.

Boschma, R. (2013): Related variety and smart specialisation. Key note lecture at the kick-off conference of SMARTSPEC project, Brussels, November 6th, 2013.

Charron, N., Lapuente, V. and Dijkstra, L. (2012). 'Regional governance matters: A study on regional variation in quality of government within the EU', *Regional Policy Working Papers WP01/2012*, Brussels: European Commission.

Cooke, P., Gomez Uranga, M. and Etxebarria, G. (1997). 'Regional systems of innovation: Institutions and organisational dimensions', *Research Policy*, 26(4-5), 475-91.

Cooke, P., Heidenreich, M., Braczyk, H. J. (2004): Regional Innovation Systems. The Role of Governance in a Globalized World, Routledge, London, 2nd edition, 442 p.

European Commission. (2012) *Connecting Universities to Regional Growth: A Practical Guide*, CEC, Brussels.

EUROPEAN COURT OF AUDITORS (2014) Has the ERDF successfully supported the development of business incubators? Special Report NO.7., EUROPEAN COURT OF AUDITORS, EU Publication Office, Luxembourg, 52 p.

Foray, D., David, P.A. and Hall, B. (2011). 'Smart Specialisation: From academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation', *Management of Technology and Entrepreneurship Institute Working Paper 2011-001*, Lausanne.

Foray, D., Goddard, J., Goenaga, X., Landabaso, M., McCann P., Morgan, K., Nauwelaers, C., Ortega-Argilés, R. (2012): Guide to Research and Innovation Strategies for Smart Specialisations (RIS3), European Commission, Luxembourg, 121 p.

Frenkenen K., Van Oort F.G., Verburg T. (2007): Related variety, unrelated variety and regional economic growth, Regional Studies, Vol. 41.5, pp. 685-697.

Gál, Z., Ptáček, P. (2011): The role of mid-range universities in knowledge transfer in non-metropolitan regions in Central Eastern Europe, European Planning Studies, 19.9, 1669-1690.

Gertler, M. (2010) Rules of the game: The place of institutions in regional economic change, Regional Studies, 44.1., pp. 1-15.

Getting started with the RIS3 KEY (2012), S3 – Smart Specialisation Strategies, Joanneum Research, Austrian Federal Ministry of Science and Research, Graz and Vienna, 11 p. .

McCann, P. and Ortega-Argilés, R. (2011). 'Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy', *Economic Geography Working Paper* 2011, Faculty of Spatial Sciences, University of Groningen.

Morgan, K. (1997) The learning region: institutions, innovation and regional renewal, Regional Studies, 31, 491-503.

North, D.C. (1991) Institutions, Journal of Economic Perspectives, Vol.5.1, p. 97-112.

Plawgo, B., Klimczak, T., Czyż, T., Boguszewski, R., Kowalczyk, A. (2013): Regionalne systemy innowacji w Polsce – Raport z badań, Polska Agencja Rozwoju Przedsibiorczości, Warszawa, 152 p.

Rodríguez-Pose, A. (2013) Do institutions matter for regional development? Regional Studies, 47.7, 1034-1047.

Tödtling F. and Trippl M. (2005) One size fits all? Towards a differentiated regional innovation policy approach. Research Policy 34(8), 1203-1219.

Reconciling territorial strategies goals and means: towards smart competitiveness policies

Edurne Magro and Claire Nauwelaers

Abstract: This chapter aims to shed light on two concepts that both literature and practice have been using in parallel: territorial strategy and competitiveness policies. We analyse the link between them and how a possible disconnection might lead to problems in territorial strategy implementation. This implementation should not be considered a stage in a linear model, but an interactive space in which dialogue takes place among different actors. The chapter aims to deepen understanding of competitiveness policies and their complexity. The analysis highlights the wide policy and instrument portfolio that current policy-makers have to deal with, and its implications for instrument choice. Policy complexity leads to challenges for territorial strategy implementation as there is not an optimum recipe and policy-mix for each territory. The policy mix has to be adapted and aligned to strategic goals, which pleads for policy intelligence, coordination and coherence.

Introduction

Faced with the lasting impacts of the financial crisis, adding to pre-existing structural weaknesses, European economies, and regions in particular, face the need to deploy new policies to enhance their competitiveness. In this perspective, new strategies and new policies are being designed across the European Union, notably within the context of EU Cohesion policy which is currently placing a greater emphasis on growth-oriented strategies.

However, while a lot of efforts are being devoted to draw strategies including new visions and goals, many policies are not yet delivering the intended results. This chapter investigates a problem that lies behind this challenge: the disconnection between strategy and policy in general, and between territorial strategy and competitiveness policy in particular. As has been highlighted in Chapters 2 and 3, strategy is about setting goals and directions. Public policy on the other hand is about deploying public means to serve the strategy, and the risk is that the latter is not thought and implemented in line with the former. This chapter discusses how to ensure that such a link is effective. For doing so, it is structured as follows.

Section 1 discusses differences and convergence between the concepts of strategy and policy and their application to territorial strategy. In essence, policy, deployed by governments, should serve strategy, which is the product of stakeholders' interactions. Effective implementation requires an alignment between strategic goals and policy means. When it comes to territorial strategies a wide range of "competitiveness policies" are relevant.

Section 2 investigates the rationales and components of policies for territorial strategy. Policies serving territorial strategies are place-based, focused on innovation and founded on a mix of "market and systems failure" rationales, with a greater emphasis on the latter. They are complex policies and the paper analyses several dimensions of complexity, due to: the widening and deepening of innovation policy; the multi-level and multi-layer dimensions of policy; and the diversity of policy instruments. We introduce the policy mix idea that calls for balance and synergies between individual policy instruments. Policy typologies are proposed to provide a broader picture of all policy instruments at play, something that is not easy in a fragmented policy environment. The discussion highlights the diversity in policy responses to strategies.

The conclusions focus on policy learning: this is needed to create the "missing link" between strategy and policy. There is no optimal policy mix but only one that is adapted to the strategic goals: the design of this mix needs to be based on robust evidence and requires enhanced capacities for policy-makers.

What is the link between territorial strategy and competitiveness policy?

Over the last years there has increasingly been an adoption of the notion of strategy as a substitute for the policy concept. Evidence for this can be found in European Commission documents and policies, such as the Europe 2020 growth strategy or the recent work on Regional Innovation Strategies, which goes from the initial innovation strategies (RIS) to the concept of research and innovation for smart specialisation strategies (RIS3). However, a clear understanding of the differences between strategy at any territorial level and public policy is still missing, both in the literature and in practice. Indeed, smart specialisation strategies have been understood by a wide range of scholars and policy-makers as a new generation of innovation policies which aim at affecting not only the intensity of innovation but also the direction of innovation efforts. That means that regions should focus not only on increasing R&D or innovation rates generally, but also prioritise the areas with the largest potential for innovation. We argue in this chapter that strategy and policies are different concepts but should be interlinked for an effective strategy-making process.

Similarities and differences between territorial strategy and public policy

Territorial strategy has borrowed concepts from the business field (Aranguren *et al*., 2012; Navarro *et al*., 2014; and see also the three preceding chapters in this book), where the concept of policies refers to the guidelines and limits that help align the organization to reach strategic goals and objectives (Mintzberg and Quinn, 1991). Policies provide top-down guidance about how things should be done and facilitate strategy implementation (Thompson *et al.,* 2008). Thus in both business and public policy fields, policies are there to serve a strategy.

Public policy has been traditionally defined as the actions that governments take to reach certain goals (Howlett *et al*., 2009). From this definition differences and convergences between public policy and territorial strategy can be discussed. It will be shown that while the two concepts are different in theory, they tend to converge in practice.

First of all, public policy has government as a key actor while territorial strategies involve a wider set of actors. Although there is a clear recognition of the importance of involving other actors in the different phases of the policy-making cycle, decisions on public policy are made by government (state, regional, local government) (Howlett *et al.*, 2009). On the other hand, territorial strategy includes government strategy or positioning but also includes other intended and realized strategies embedded in the territory (i.e. individual firms' strategies, knowledge infrastructures strategies', etc.) (Mintzberg, 2000; Aranguren *et al*., 2012). In some specific strategies such as the smart specialisation strategies, government is seen as a facilitator or orchestrator of territorial strategies (Foray *et al*., 2012), and has a key role in the strategic process. The wider recognition in the policy literature of the role of other stakeholders in policy-making processes brings the two concepts of policy and strategy closer to each other. In fact, policy actors, policy systems or policy universes are terms used that broaden participation in the policy-making process beyond government (Howlett *et al*., 2009; Flanagan *et al*., 2011). This gives complexity to implementation due to lack of communication between actors involved in strategy and actors involved in policy.

Secondly, both concepts include an agenda or goals setting phase, but their orientation can be interpreted differently. Whereas public policy goals have traditionally focused on a problem-solving framework (associated either to market or systemic failures or problems) (Howlett *et al*., 2009) and therefore respond to

certain rationales, strategic goals can be understood as the translation of the territorial vision, based on territorial assets. Therefore, territorial strategies might put more emphasis on reinforcing strengths and less on solving problems: this implies a proactive role for the government as it acts as catalyser of a vision, and not only reacts when a problem is already visible. However, these two approaches converge in practice as policy could also both target problems and strengthen assets of a territory.

Another key characteristic in which territorial strategy differs from public policy in principle is the importance given to specific place or context. Whereas territorial strategy is place- and context-specific, we can distinguish between two types of public policy: the ones that are neutral from a territorial point of view - *spatially blind policies* - and those that take into account the territory in which they act - *place-based policies* (Barca, 2011; Rodriguez-Pose, 2011; Mc-Cann and Ortega-Argilés, 2013). These last types of policies are therefore closer to territorial strategy, as they consider that places really matter for regional growth and development (Mc-Cann and Ortega-Argilés, 2013). There is a consensus in the innovation systems literature that territory or place matters: public policy has to be context specific, i.e. there is not a single policy recipe *(one size doesn't fit all)* for all territories (even at the same level, such as regions). The place-based policy approach has similarities to territorial strategies, leading to blurred boundaries between strategy and policy. The whole generation of regional innovation policies and strategies that both the literature and EU and OECD have been promoting belong to these last types of policies.

Another difference between the two concepts is that strategy defines goals while policy defines means. According to Porter (1996) and Navarro *et al.*, (2014), strategy is mainly a prioritization issue. It implies a basis on territorial assets but also taking into consideration weaknesses or problems. Policy is also related to choices or options, but these relate to the instruments or tools that could contribute to solve a specific policy problem and/or reach a specific goal (Howlett *et al.*, 2009). But here too there is convergence between the two concepts: instruments are related to choices because public policy should be aligned to territorial strategy (Aranguren *et al.*, 2012) and deploy means to serve it. Indeed, public policy can be understood as one of the possible means or instruments employed for implementing and operationalising territorial strategy. However, these are only one of the possible means that a territory has, and it is directly related to the role of government in territorial strategy, which is not the sole role that can be identified within a territorial strategy, as mentioned before. Other means could also include actions realized by private actors – or "private policies" – within a territory, which also constitute an important part of the strategy and need to be collectively articulated. Thus territorial strategies can be seen as the articulation of aims and objectives from a variety of private and public actors (Sugden and Wilson, 2002) where public policies are government's means to implement these strategies.

In the public policy case the main means are policy instruments or tools that are usually defined as "*(T)he actual means and or devices governments have at their disposal for implementing policies, and among which they must select in formulating a policy*" (Howlett *et al.*, 2009), but also as the *"techniques of governance that, one way of another, involve the utilization of state authority or its conscious limitation"* (Howlett, 2005). While the former definition shows a more instrumental way of understanding tools, the latter demonstrates that instruments and tools could be broadly understood and incorporates governance elements in them.

To conclude, territorial strategy and public policy can be understood differently but they show overlaps or similarities that blur the boundaries between the two concepts (Table 5.1). Moreover, when territorial strategy refers to government strategy and does not include other actors' strategies the overlaps are even bigger and therefore, strategy could be considered as a new generation of public policy and some of the key characteristics and elements would be therefore common to both strategy and policy. Strategy could be defined as "a guiding pattern for the everflowing stream of single actions" (Sotarauta, 2004: 16) and

therefore is considered as an "umbrella" while policy often refers to delivering concrete actions or programmes.

<TABLE 5.1 HERE>

Territorial strategy and public policy: the implementation question

The above discussion makes clear that public policy and territorial strategy are not the same concepts and that, in fact, policies are one, and maybe the most important means for operationalising territorial strategy. From this, it is important to understand what is meant by implementation in both concepts and which the main challenges are that both face with regard to implementation.

It is common to divide territorial strategy into several phases in the public policy cycle. These phases go from strategy design to implementation and evaluation, as in public policy literature. However, we argue that it is inaccurate to consider strategy or policy as linear processes: they should rather be seen as continuous or evolving processes in which some elements are continuously reconsidered.

The linear conceptualisation of strategy is usually linked to the classical approach of strategy (Mintzberg, 2000). According to Whittington (2001) this approach is rooted in planning and therefore several phases could be defined. First of all, there is a formulation stage, result from a conscious planning process. Action is not taking during this phase, and it is assumed that action and implementation will follow when the strategy is formulated (Mintzberg, 2000). There is no specific interest on how this implementation is carried out as theoretically this approach considers that implementation will succeed if planning or strategy formulation is well done. However, territorial strategy implementation is not an easy task, as it is not only a government duty but implies involvement of several actors of the territory (Sotarauta, 2004). Strategy implementation following the classical approach may fail as it is difficult to operationalise strategic thinking into concrete or operative actions as a consequence of the separation of these two stages and the lack of communication between people involved in these two tasks (Mintzberg, 2000; Sotarauta, 2004). Within this approach, evaluation and monitoring is not stressed out as an important phase.

In the non-linear view in contrast, strategy is seen as a "*communicative process, in which different aims and strategies of many actors are reconciled and various interests balanced and touching-points and concreted means between many objectives are constantly looked for and coordinated (...)* (Sotarauta, 2004).

Here design and implementation are not separated. The linear approach offers analytical tools to strategy but lacks continuous communication spaces (beyond the planning phase) in which different actors can reflect, negotiate and enter in dialogue within the strategic process (see Chapter 4). In order to reduce the implementation gap, learning and communicative processes should take place in a continuous strategic process. Therefore a more effective approach to strategy combines analytical tools from the classical school and communication spaces (Aranguren *et al*., 2012). In this interactive approach, there is no clear distinction between strategic phases so that the implementation gap in the classical approach is reduced.

In line with strategy literature, policy theory also considered the implementation phase unproblematic until the 1970's (Howlett *el al*., 2009). Subsequently there has been a huge debate around two policy implementation approaches: top-down and bottom-up approaches. The top-down approach assumes that implementation is effective when the implementation mechanisms are defined from the design stage, while the bottom-up approach defends that implementation will be more effective when it takes into account the view of the agents that are affected by it. In addition, as Howlett *et al*. (2009) point out, implementation implies decisions dealing with instrument choice, which are intrinsically related to policy design. Policy

science literature has evolved and criticised the stages model of policy-making. Therefore, in policy science there is also recognition that design and implementation are not separated and that policy-making is an interactive process. However, stages models help to simplify the complex reality in which policy-making processes are embedded and are a useful tool for policy learning processes (John, 1998). In these models, the evaluation stage completes the design and implementation phases and it is recognised as a critical phase for policy-learning purposes (Raines, 2002).

While in strategy development the communicative approach has arisen in opposition to the linear one, in policy sciences too there is an increasing recognition of the importance of stakeholders' involvement in policy-making processes. This is especially visible in the design and evaluation phases with the use of more participatory approaches in both cases. However, policy implementation still lacks communication spaces and is considered in many territories as a mechanical issue in which only officials and policy-makers are involved.

Summarising, implementation in both strategy and policy-making needs to be more connected to design and should involve communication, dialogue and participation of actors in the territory. The role of government is crucial as it could act as an orchestrator and catalyser of actors' dialogue in strategy. There is a consensus among scholars that strategy and policy-making are not linear processes, which lead to blurred boundaries between phases. It is therefore preferable not to see implementation as a separate phase. In this chapter, we consider implementation as a concept that refers to the operationalisation of strategy (government-led) and leads to policy and policy instruments, and how these are chosen and delivered. In this sense, taking into account that strategy and policy are interlinked, we focus on how strategic goals and policy means are reconciled.

Policies for territorial strategy: Policy complexity and policy-mixes

Given that policy is intrinsically related to territorial strategy when this is led or facilitated by government, it is necessary to understand the main policy concepts, which means answering among others the following questions: how should policies be articulated to be in line with strategic goals and vision? Which policy domains are important for territorial strategy? What are the rationales behind these policies that justify their use? What types of policy instruments are the key elements for territorial competitiveness?

Territorial competitiveness is linked to firms' behaviour and the political and institutional environment in which these firms are embedded, according to evolutionary theory (Nelson and Winter, 1982). This theory has contributed to literature and policy practices stressing the importance of knowledge and innovation for territorial competitiveness. Innovation constitutes therefore a key element that has been articulated through different theories, such as the innovation systems theories (national/ regional) (Lundvall, 1992; Nelson, 1993) that have been widely adopted in practice among policy-makers. These have led to the emergence of innovation policies at many territorial levels, including at regional level, especially among the European Union countries (OECD, 2011).

Innovation policy is not a new concept. The origins of science, technology and innovation policy could be found in the Second World War, when some countries such as the United States decided to foster certain science fields as a national duty, such as defence or aerospace. The main policy aim was to fast develop science and the focus was mainly on scientific infrastructures. This stage of policy evolution, which was called policy for science, was followed in the 70's by a *science in policy* stage (Gibbons *et al.*, 1994), focused on the development of key technologies, taking advantage of the previously established research infrastructures. In the 80's innovation policy came onto the scene along with the theoretical contributions of innovation systems theories (Edquist, 2001), and a new interactive conception of innovation. In the last

decade, innovation policy has experimented a process of widening and deepening (Borrás, 2009), which can be seen both in theory and in practice. Innovation policy widening is reflected by the fact that innovation policy is spread over several policy domains and not only confined to science, technology and innovation, whereas deepening refers to the sophistication of policy instruments, such as new forms of collaborations, partnerships, demand side instruments, etc.. This widening and deepening of innovation policy is at the core of the strategies adopted by international organisations, namely the European Union and the OECD (European Commission, 2010; and OECD, 2010a). This phenomenon has led to a higher complexity in the design of innovation policies, which is also reflected in higher complexity in their implementation. But other trends are at play that contribute to the complexity of policy.

Policy complexity: four dimensions

Four dimensions of policy complexity can be identified (Borrás, 2009; Flanagan *et al*., 2011; Magro and Wilson, 2013; Magro *et al*., 2014): a) the widening and deepening of certain policy domains, such as innovation; b) multi-level governance, c) multi-layer context and d) policy-mix concept. These four elements are present in competitiveness policies and impact on territorial strategy.

Other policy domains beyond innovation policies *stricto sensu* are related to territorial competitiveness: e.g. internationalisation, cluster and entrepreneurship policy. Given the widening and deepening of innovation policies, most of them, and especially cluster and entrepreneurship policies, could be considered (and are in practice) included or closely related to innovation policy.

Both innovation policy and cluster policy are policies that share the common objectives of enhancing productivity and innovation-driven strategies for competitiveness and fostering regional development (Ketels *et al*., 2013). Although there is a broad literature stream that focuses on the specificities of clusters and cluster policy (Nauwelaers and Wintjes, 2008; Uyarra and Ramlogan, 2012; Ketels, 2013; Aranguren and Wilson, 2013), it is also acknowledged that cluster policy could be considered as a demand side tool for fostering an interactive and systemic type of innovation (Georghiou *et al*., 2003; Edler and Georghiou, 2007).

Entrepreneurship policy is another policy domain that could be individually analysed or either included in a broader concept of innovation, if we consider that corporate entrepreneurship is one of the possible innovation outputs within firms, as well as being part of context conditions for innovation. Therefore, while recognising its specificities, entrepreneurship policy shares innovation policy groundings.

Although it might seem that internationalisation and innovation in firms are disconnected issues, some studies have demonstrated that innovative firms have a greater internationalisation activity, while the contrary effect does not seem to happen. That is to say, innovation and exports activities in firms are related but only in one direction as firms do not experiment a *learning-by exporting* that leads to innovations (Monreal-Pérez *et al.*, 2012). This implies that exports do not lead to a learning process and innovation but innovative firms tend to export more. Other studies have put in evidence a correlation between internationalisation and the type of innovation profile of firms: high-profile science- and research-based innovators tend to display higher internationalisation rates than low profile innovators (Peeters *et al*., 2004).

Summarising, innovation policy, understood in a broad and wide sense is the key policy area for territorial competitiveness, but due to this broadness it brings complexity to the policy-making process.

The second dimension that gives complexity to policy is multi-level governance. This is a key issue especially for regions or sub-national units, as it refers to the situation in which, due to processes of both

decentralisation and devolution, a given territory could be impacted by policies administered at different levels (Magro and Wilson, 2013; OECD, 2011). This gives complexity to policy-making processes and poses challenges to government and policy-makers that should set their own strategy and policies taking into account the ones that are also being put in place by other territorial levels. This leads to greater challenges in policy coordination (Magro *et al.,* 2014).

The third dimension that gives complexity to policy-making processes is the existence, at each territorial level, of different policy layers (OECD, 1991; Boekholt *et al*., 2002; Lindner, 2012): political, administrative and operative. According to Magro *et al.* (2014), the political layer (governmental bodies) is in charge of policy definition and priority setting; the administrative layer is in charge of policy implementation and management of programs and instruments (research councils, public agencies, etc…); and the operational layer includes 'performing' actors involved in the translation of policy priorities into concrete action (firms, knowledge infrastructures, investors, etc.). This distribution of actors in different layers in a given territory or policy system does not facilitate the connectedness and dialogue among all the actors in view of reaching a communicative strategic and policy-making process. This poses, once again, challenges to strategic and policy coordination, in order to avoid misalignment between strategic goals and policy means.

Finally, probably the most important dimension of complexity relates to the policy mix concept. Policy mix has become a fashionable concept in the innovation policy debate in the last years (Nauwelaers *et al*., 2009; OECD; 2010b; Flanagan *et al*., 2011; Borrás and Edquist, 2013; Magro and Wilson, 2013). However, it is a concept that was already used and applied to other policy fields and policy studies in general. Its origin could be dated in Mundell's (1962) contributions on the relationship between monetary and fiscal policy and it is also a term that can be found in public policy literature (Howlett *et al*., 2009).

The policy mix concept reflects the complexity of instrument choice in public policy. Policy mix refers to the combination of instruments a government implements to respond to a specific problem or rationale. It is a useful concept to understand innovation policy complexity as it reflects both processes of widening and deepening referred to before and their implications for implementation.

A useful definition of policy mix is the one provided in Nauwelaers *et al*., (2009) referring to policy-mix for R&D, which defines the term as *the combination of policy instruments, which interact to influence the quantity and quality of R&D investments in public and private sectors*. Taking into account that policies for competitiveness might include other non-innovation related domains and instruments, such as infrastructures and taxation, we could define the policy mix for competitiveness as the combination of instruments that might alter the competitiveness conditions and/or performance of a territory. Most of them will target innovation but others belong to other policy domains and impact on territorial competitiveness.

The policy mix concept embodies the idea of interactions between different instruments from different policies. These interactions might bring positive, negative or neutral effects but in any case these have to be taken into account in the policy-making process, leading to higher complexity. These interactions come from the combination of different instruments, corresponding to different types of policies responding to different rationales. These elements and their implications for policy implementation in territorial strategy are further explained below.

Rationales for competitiveness policies

Rationales in economic theory are defined as the theoretical justification for government intervention. Two approaches are commonly used to justify policy intervention: neoclassical and evolutionary-systemic theory.

They often appear as contradictory and mutually exclusive arguments but in practice those rationales coexist in policy mixes or combination of instruments (Flanagan *et al*., 2011; Magro and Wilson, 2013).

In a neoclassical approach policy intervention can only be justified when market failures appear. Neoclassical theory assumes that markets are perfect, and any imperfections are labelled as market failures. These market failures could be a justification for innovation policy as well as for other policies important for territorial competitiveness. The most common market failures are information asymmetries, externalities and appropriability, indivisibilities (Arrow, 1962; Stiglitz, 1989). Other failures corresponding to this approach include more strategic questions and link to "infant industry" justifications: strategic trade, competition policy and national missions (Niosi, 2010; Dasgupta , 1987).

Market failure arguments underpin some policy interventions in the policy fields related to territorial competitiveness, such as Science, Technology and Innovation policy, internationalisation or cluster policy. In the first case, technology and innovation are made of knowledge and therefore uncertainty and appropriability failures might appear as an inherent result of such innovation process. Internationalization policy might rely on information asymmetries and the uncertainty derived from those asymmetries as well as indivisibilities associated to the size needed to start internationalization activities. In addition, other policies important for territorial competitiveness, such as cluster policy also might respond to market failures such as externalities, and appropriability justifies government's intervention towards the promotion of firm agglomerations or clusters.

The neoclassical approach has been the main theory for justifying government intervention until the last decades, especially since the 90s, when evolutionary and systemic approaches came into scene. In evolutionary theory learning plays a key role and therefore this approach pays attention to learning processes that take place within different types of actors: public and private.

In the evolutionary approach the key idea is that innovation is a collective action and the focus lies on the cognitive capabilities of the actors and on the key role of institutions in promoting interactions among actors in a system in order to facilitate collective learning. The systemic approach thus breaks with the linearity of neoclassical approaches and recognizes the importance of (national and regional) territorial systems for innovation (Lundvall, 1992, Nelson, 1993). The regional approach for innovation is widely referred to by policy makers in Europe. It acknowledges that the firm cannot have all the knowledge needed to innovate in-house, and maintains that therefore connections with other agents, such as knowledge actors, should be promoted. In the same line, other SME-related policies, such as internationalization or cluster policies are based on these systemic rationales, especially those instruments associated to the promotion of firm agglomerations or alliances for certain activities such as internationalization, diversification or training. Within this approach, proximity gains relevance as partnerships and agglomeration effects might be more effective in geographical proximity and therefore regional policy plays a key role in these policy fields.

There are several classifications of systemic failures for innovation policy and some of them specifically directed to regional policy (Smith, 2000; Edquist, 2001; Laranja *et al*., 2008; Chaminade *et al*., 2009; Malerba, 2010), but there is not a general consensus about which are the main systemic failures. Chaminade *et al.* (2009) distinguish between failures regarding the components of the system (lack of or failures of components) such as knowledge infrastructures or firms, and failures regarding inter-linkages among these components. The most common failures that justify government intervention under this approach are network problems, institutional problems, transition or lock-in problems and learning problems.

In spite of the acceptance of theoretical rationales that justify policy intervention, in public policy literature this is considered as a deductive approach (Howlett, 2005), which has been rejected by policy scientists.

These argue that theory rationales are not based on what policy-makers and politicians really do. Practitioners base their decisions on multiple factors, including political factors, context related factors, and decisions taken in the past. That leads to a situation where policy rationales (inductive approach) do not fit with theory rationales (Mytelka and Smith, 2002; Flanagan et al., 2011). This would lead to challenges in policy implementation due to the different interpretation of rationales and policy goals from different policy actors and therefore strategic alignment would be affected.

Competitiveness policy typology

Several typologies of policies for competitiveness can be established that are useful to understand their contribution to strategy according to different criteria.

The first criterion is related to policy rationales. We distinguish between policies responding to market or systemic failures. Traditionally we can find in the literature the distinction made by Ergas (1987) between mission-oriented policies and diffusion-oriented policies. The former are characterised by high R&D investments in a few key technologies in an early development of the sector life-cycle, whereas the latter give emphasis to promoting cooperation among actors within a scientific and technology system. At first sight, mission-oriented policies could seem closer to neoclassical approaches and diffusion oriented policies to evolutionary-systemic approaches (Cartner and Pyka, 2001; Bach and Matt, 2002). However, both types of policies are also recognised by the evolutionary theory (Niosi, 2010). Mission-oriented policies do not only respond to neoclassical failures as its fundamentals are also based on looking for international strategic leadership (Ergas, 1987). Additionally, although these policies are focused on a few technologies, these could constitute the basis for developing cognitive capabilities and knowledge in firms, which is closer to an evolutionary framework (Bach and Matt, 2002).

Both mission-oriented and diffusion-oriented policies target the two different types of priorities set out in Chapter 2: thematic priorities and structural/functional priorities (Gassler *et al*., 2004; Navarro *et al*., 2014). The former refers to S&T areas, activities or industries that are crucial for territorial development and competitiveness, whereas the latter are related to the systemic failures or problems the policy wants to overcome. In a strategy it is important to have a combination of both thematic (vertical) and functional (horizontal) policy as they have different aims. In the regional innovation systems approach, there was a prioritisation of horizontal policies, which are useful for "building the system" but the lack of vertical priorities has been one of the weaknesses that smart specialisation strategies are trying to overcome. Smart specialisation strategies give emphasis to the combination of types of policies, assuring that it is not only important to affect the innovation climate (for example by promoting R&D investment), but also to alter the direction of innovation (i.e. subsidising research centres oriented to biosciences) in a certain region or territory.

For example, in a less-developed territory in which there is lack of knowledge infrastructures, policies directed to build the innovation system would have to be stressed over policies oriented towards certain activities, such as cluster policies or mission-oriented policies. This is the option taken for example in the Czech Republic smart specialisation strategy, which combines horizontal priorities to support the innovation system as a whole with vertical priorities that are domains with growth potential and specific assets in the country. Examples of policies in the first group include the introduction of pro-innovation support schemes to strengthen cooperation between research organizations and the corporate sector (innovation vouchers, mobility support schemes between the triple-helix spheres, technology transfer) and human capital enhancement and accumulation specifically in technical fields. Examples of supported domains in the second group include transport, engineering industries, ICT and automation and health care instrumentation. In contrast, in a more advanced region such as Flanders, the focus of the smart specialisation strategy is

more heavily on vertical themes, such as "nanotechnology for health" and "sustainable chemistry", as the infrastructure is already well developed.

Some authors (Gassler *et al*., 2008; Edquist and Zabala-Iturriagagoitia, 2012) have been referring to this phenomenon as a return to the so called mission-oriented policies, the "new mission oriented policies". However, more than new mission oriented policies, these policies do not deny inputs from previous streams and combine them into a new approach. In smart specialisation strategies, for example, it is common to find references to selecting and promoting activities in a region (vertical/thematic priorities), which are related to mission-oriented policies, but also towards capacity building (horizontal/functional priorities), which are closer to evolutionary-systemic approaches.

Another interesting classification of policies is the ones that follow the narrower view of "one policy - one domain" or that takes into consideration that one policy might be influenced by several domains (broader view). If we take the innovation policy case, the narrower view would consider Science, Technology and Innovation policy domains (Lundvall and Borrás, 2005) as the only relevant ones for policy intervention in these areas. The broader view considers that innovation policy is a systemic and holistic policy framework that might affect and be affected by interventions that traditionally "belong" to other policy domains, which was called "third generation innovation policy" (Remoe, 2008). In this case it implies recognising that a huge range of policy fields in a certain territory influence the direction of innovation and therefore territorial competitiveness. This not only happens in the innovation field, as it has been characterised by some authors such as Nauwelaers *et al.* (2009), but it is something that it is also applicable to other policies which are highly relevant for territorial competitiveness, such as education policies, environmental policies or internationalisation policies.

This broader view gives complexity to the strategic process at all stages, but especially at implementation and evaluation stages. Practitioners acknowledge the need for an integrated and holistic view for setting a strategic vision or objectives and even for policy design, according to the settled strategic objectives. Governments have started to include all departments or ministries in their agenda setting and even other actors and stakeholders from the territory are included in this task. However, one of the most common mistakes is to leave implementation (and also evaluation) in each of the ministries' or departments' duties, assuming that it is a straightforward task. Therefore it is common to find situations in which strategies and policies are defined and discussed following a broad and holistic view but then, the actions and policy implementation is left to officials from different domains, without putting in place the corresponding coordination mechanisms needed across the different layers (political and administrative) and domains. In the following table there is an attempt to classify key policies for territorial competitiveness directed towards thematic or functional priorities in different policy domains.

<TABLE 5.2 HERE>

In addition to these distinctions, policies can be categorised according to their target group. Here, we can distinguish among *framework policies, mixed policies* or *blanket policies* (Lipsey and Carlaw, 1998). Framework policies are horizontal policies with no specific target group, mixed policies are directed to a certain technology or industry and blanket policies are a hybrid type from the previous types and are directed to a specific group of firms.

Types of instruments for competitiveness policy

Several taxonomies of policy instruments have been proposed, either from the public policies perspective or specific for innovation policies.

Some of the most known approaches in public policy literature differentiate between regulatory, economic or financial instruments and soft instruments (Bemelmans-Videc *et al*., 2003, Borrás 2009). Regulatory instruments refer to law and binding regulations such as the regulation of intellectual property rights or competition policy, etc. Economic and financial instruments are the most commonly implemented in some policy arenas such as Science, Technology and Innovation Policy (Borrás; 2009). Examples of those instruments are tax incentives, grants, loans, etc. In addition to these, soft instruments are characterised by being voluntary and non-coercive measures and provide information, recommendations and offer contractual agreements: the most commonly used are the international or national standards, partnership agreements, public communications, etc..

Another useful classification is the one provided by Howlett (2005), who classifies policy tools into two types. The first is composed of the substantive instruments, which are those that affect the nature, types, quantities and distribution of goods and services (loans, grants, regulation, etc.) and the second is procedural instruments (treaties and political agreements). The most interesting assumption in this approach is that these two types do not constitute a dichotomy of policy instruments but tend to be implemented together (Howlett, 2005). Several policy tools classifications are adapted to the specific policy arenas of Science, Technology and Innovation (STI) policy or to specific policy levels (i.e. regional level). In the STI policy field Georghiou *et al*. (2003) and Edler and Georghiou (2007) provide a taxonomy, which differentiates between supply side instruments (grants for R&D; tax incentives, support to research infrastructures) and demand side instruments such as innovative public procurement. In fact, this is a simplistic picture as there are some instruments, such as cluster policies, that can work on both the supply and demand side, which have been called in the literature as systemic instruments (Edler and Georghiou, 2007). A more extended typology is the one provided by the European Commission (2013), which gives an exhaustive list of policy instruments according to different policy objectives. Additionally, we can mention the categories provided by the OECD (2011) and Foray *et al*. (2012) referring to STI policy or strategy field at regional level. These include traditional (i.e. R&D grants), emerging (i.e. vouchers) and experimental instruments (i.e. cross border research centres).

The distinction between policies oriented to firms or policies oriented to the system made by Nauwelaers and Wintjes (2002) is also useful. It is important, first, to have a clear view on the target group of the policy in order to choose the relevant policy instruments and second to assess whether there is a gap in terms of instruments and policies as it would be necessary to include both types of measures for implementing a territorial strategy. This typology can be combined with one that distinguishes orientations as focusing either on thematic or vertical priorities, on the one hand or on horizontal or functional priorities, on the other hand, as mentioned in the previous section (see Table 5.3).

<TABLE 5.3 HERE>

Policy mix composition and instruments choice

A lot of documents and guides are available, that provide insights on menus of instruments governments can choose from for designing policy mixes (OECD, 2011; European Commission, 2012, European Commission, 2013). However, these do not solve the issue of instrument choice, i.e. which combination of instruments might be most effective for solving certain problems or rationales.

One reason for this is that instrument choice is context specific and therefore it is impossible to give a recipe applicable for all territories (one size does not fit all). For example, establishing technology centres in less developed regions including only firms with little absorptive capacity for new technology might result in "cathedrals in the desert" rather than in the creation of growth poles. Likewise, the creation of hubs for

creative entrepreneurs in e-mobile business is a good instrument in Estonia which is booming with such new entrepreneurs and provides a favourable demand context for such innovations, but such hubs might remain empty houses in more traditional environments which lack such dynamisms and openness to new ICT applications.

Another reason is that one instrument might be responding to different failures. For example, the creation of cluster associations in order to promote cooperation within a sector responds to both market and systemic failures as its aim is to overcome networking failures or problems but also externalities failures. The same would happen with R&D subsidies to collaborative projects that respond both to market failures (indivisibilities, uncertainties and externalities) and system failures (networking failures). Therefore, it is not possible to assign one instrument to a specific type of failure or problem. This goes in line with the argument that alternative instruments could be employed to achieve the same objective (Landry and Varone, 2005; Nauwelaers and Wintjes, 2003). However, we can also find some instruments that try to overcome only one type of failures, as for example tax incentives to R&D, which are only related to market failures.

There may be a good understanding on the functioning of individual policy instruments from a technical point of view, but it is often forgotten that instrument choice takes place in a certain political context and therefore, the best technical solution might not be the optimum from a political point of view (Peters, 2005). For example, cross-border applied research centres are being established between Flanders and the neighbouring Dutch region, but such an initiative is much more difficult to implement between Belgian regions, where the political context does not favour such cooperation.

In addition to this, there are other important factors that affect instrument choice. Path dependence is one of them, and it refers to the importance of past decisions in the present ones. Path dependence affects public policy processes in general, and instrument choice in particular, as it is a source of continuity of some policy instruments whatever the goals of public policy of strategy are. However, path dependency can also be a source of change in institutional context, as Martin (2010) and Valdaliso *et al.* (2014) argue. In this literature, path dependence is seen as a source of change, especially through three different mechanisms: layering (creation of new rules, instruments or actors, which are added to the old ones), conversion (reorientation of an existing institution towards new roles) and recombination (new institutions and organizations are introduced while old ones are removed from the system). The first two are responsible of incremental changes in a system, while the last one is more related to radical breakthrough. These three mechanisms are applicable also to instrument choice.

Another important factor that Peters (2005) highlights is legitimacy. Some instruments are more legitimate in some territories than in others, which is also a sign of how much context matters and how this affects instrument choice. An example of this can be seen in Europe where vouchers or innovative public procurement are instruments more commonly accepted in Northern and Central than in Southern countries. Other dimensions important for instrument choice might include economic factors (for example, in budget constraint situations or financial crises, financial instruments might be restricted), administrative or even ethical dimensions (Peters, 2005).

Given the complexity of policy systems a combination of instruments needs to be designed to form a policy mix. There is no best instrument for each situation, problem and context but a search for an effective combination of instruments (Peters, 2005). Hence, it is not only difficult to provide guidelines for individual instrument choice, but also almost impossible to provide recipes for policy mix choice (Nauwelaers et al., 2014). In fact in a recent study made by the European Commission (2013), there is recognition that there is not an optimum policy mix model.

Conclusions

Territorial strategy and public policy are different concepts that are often mixed and used interchangeably, both in literature and practice. Even if their definition and conceptual backgrounds differ, in practice the boundaries between the two concepts are sometimes fuzzy. In a nutshell, public policy is there to serve strategy and therefore is one of the possible means to reach the strategic goals and vision set for a territory.

Territorial strategy relies on individual strategies of a range of actors. If these are disconnected there is no "territorial strategy": a strategy exists when the various agendas/strategies are put in synergy. Working towards such synergies is a key role of the public actor as orchestrator, not top-down organizer. In addition, public policies are to provide the right incentives and correct the market and systemic failures that act as barriers to the achievement of a territorial strategy once it is emerging.

Most of the literature and documents studying strategy have a stronger focus on their design, assuming that a good design will lead to a straightforward implementation and therefore, policies defined and implemented to reach the strategic goals will be perfectly aligned with them. This is not the reality due to several reasons and challenges, which we have tried to identify alongside this chapter, all of them related to complexity.

Competitiveness policies (the ones more influential to territorial competitiveness and strategy) are complex, both in their definition (rationales, domains and instruments) and in their governance. In this last issue, complexity is seen, not only in the different levels under which policies are administered, but what it is more important for strategic purpose's, policies are designed and implemented by different and usually disconnected policy actors (at different layers). Therefore, one of the main challenges that governments have to face is how to establish communication spaces to better align public policy and strategy.

The missing link between strategies and policies consists in "goal-oriented" policy mixes, i.e. sets of interacting instruments which together are able to influence conditions and actors in a territory, to reach the goal of the strategy.

Taking a policy mix approach implies combining different types of policies, covering horizontal and vertical priorities, involving several levels and layers of government, following different theoretical rationales, which might be seen by some practitioners and academics as contradictory. In addition, policy path dependency and inertia make the change in instruments difficult and leads to greater challenges to manage policy mixes associated to specific strategic goals. Hence it is important to include evaluation tools and exercises in the design and implementation of strategies and policies as they will help to assess the complementary effects of all types of policies and will provide policy intelligence into the process, a theme that is taken up in the next chapter.

Government capacities and capabilities to overcome these challenges is the key issue for providing policy and strategy coherence. In addition, it is also necessary to see implementation and policies not at stages following policy design but as integral components of the whole strategic process.

In conclusion, to tackle the implementation gap between strategy and policy, there is a need for more communication, more coherence and more coordination.

Acknowledgements

References

Aranguren, M.J., and Wilson, J. R. (2013) What can experience with clusters teach us about fostering regional smart specialisation? E*konomiaz*, 83, pp. 126-145.

Aranguren, M.J., Magro, E., Navarro, M., and Valdaliso, J.M. (2012) *Estrategias para la construcción de ventajas competitivas regionales. El caso del País Vasco*. Madrid: Marcial Pons.

Arrow, K. (1962) The Economic Implications of Learning-by-Doing. *Review of Economic Studies* XXIX (June), pp. 155-173.

Bach, L., and M. Matt (2002) Rationale for Science & Technology Policy. In *Assesing the Socio-economic Impacts of the Framework Programme*. L. Georghiou, J. Rigby and H. Cameron, PREST, University of Manchester.

Barca, F. (2011) Alternative Approaches to Development Policy: Intersections and Divergences. In: Seminar on *Territorial Dimension of Development Policies, papers and proceedings*. 18-19 July 2011, Ostróda, Poland. (pp. 45-50). (Available in: http://www.mrr.gov.pl/english/Presidency/Main/event_shedule/Documents/Seminar_%20Papers_and_Proceedings.pdf

Bemelmans-Videc, M.-L., R. C. Rist, et al., Eds. (2003) *Carrots, sticks & sermons: policy instruments & their evaluation*. London: Transaction.

Boekholt, P., Arnold, E., Deiaco, E., McKibbin, S., Simmons, P., Stroyan, J. & Mothe, J. (2002) The Governance of Research and Innovation. An international comparative study. Synthesis Report.

Borrás, S. (2009) The widening and deepening of innovation policy: What conditions provide for effective governance? *CIRCLE Electronic Working Paper Series*, No. 2009/02, University of Lund.

Borrás, S., and Edquist, C. (2013) The choice of innovation policy instruments. *Technological Forecasting and Social Change*, 80(8), pp. 1513–1522.

Cartner, U. and A. Pyka (2001) Classifying Technology Policy from an Evolutionary Perspective. *Research Policy* 30(5): 759.

Chaminade, C., Lundvall, B.-Å., Van, J., and Joseph, K.J. (2009) Designing innovation policies for development: towards a systemic experimentation-based approach. In: Lundvall, B-Å., Joseph, K. J. et al. (eds.) *Handbook on Innovation Systems and Developing Countries: Building Domestic Capabilities in a Global Setting*. Cheltenham: Edward Elgar.

Dasgupta, P. (1987) The economic theory of technology policy: an introduction. In: Dasgupta, P., and Stoneman, P. (eds.), *Economic Policy and technological performance*. Cambridge: Cambridge University Press.

Edler, J., and Georghiou, L. (2007) Public procurement and innovation – Resurrecting the demand side. *Research Policy*, 36, pp. 949-963.

Edquist, C. (2001) Innovation Policy – A Systemic Approach. In: Archibugi, D., and Lundvall, B.A., *The Globalizing Learning Economy.* Oxford: Oxford University Press.

Edquist C., and Zabala-Iturriagagoitia, J. M. (2012) Public Procurement for Innovation as Mission-oriented Public Policy. *Research Policy*, 41(10), pp. 1757-1769.

Ergas, H. (1987) The importance of technology policy. In Dasgupta, P., and Stoneman, P. (eds.), *Economic Policy and Technological Performance*. Cambridge: Cambridge Univ. Press.

European Commission (2010). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM(2010) 553 final. Regional Policy Contributing to smart growth in Europe 2020.

European Commission (2012) Guide to Research and Innovation Strategies for Smart Specialisation (RIS3). March, Smart Specialisation Platform, EU Regional Policy Series.

European Commission (2013) Lessons from a Decade of Innovation Policy. Inno-Trendchart report.

Flanagan, K., Uyarra, E. and Laranja, M. (2011) Reconceptualising the `policy mix' for innovation. *Research Policy* 40 (5), pp. 702-713.

Foray, D., Goddard, J., Goenaga, X., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C., and Ortega-Argilés, R. (2012) *Guide to Research and Innovation Strategies for Smart Specialisations (RIS 3),* European Commission.

Gassler, H., Plot, W., Schindler, J., Weber, M., Mahroum, S., Kubeczko, K., Keenan, M. (2004) *Priorities in Science & Technology Policy – An International Comparison.* Project Nr. RTW.2003.AF.014-01.

Gassler, H., Polt, W., and Rammer, C. (2008) Priority setting in technology policy: historial development and recent trends. In: C. Nauwelaers and R. Wintjes. *Innovation Policy in Europe: Measurement and Strategy.* Northampton: Edward Elgar Publishing.

Georghiou, L., et al. (2003) *Raising EU R&D Intensity: Improving the Effectiveness of Public Support Mechanisms for Private Sector Research and Development: Direct Measures*, EUR 20716.

Gibbons, M., C. Limoges, Nowotny, H. Schwartzman, S., Scott, P., Trow, M. (Eds.) (1994) *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. London: Sage Publications.

Howlett, M. (2005) What is a policy instrument? Policy tools, policy mixes, and policy-implementation styles. In: Eliadis, P., Hill, M., and Howlett, M. (eds.) *Designing Government: From Instruments to Governance*. Montreal: McGill-Queens University Press.

Howlett, M., Ramesh, M., and Perl, A. (2009) *Studying Public Policy. Policy Cycles &Policy Subsystems*. Third edition. Oxford University Press.

John, P. (1998) *Analysing Public Policy*. London: Pinter.

Ketels, K. (2013) Recent research on competitiveness and clusters: what are the implications for regional policy? *Cambridge Journal of Regions, Economy and Society*, 6(2), pp. 269-284.

Ketels, C. (Chair), Nauwelaers, C. (Rapporteur), J. Harper, G., B. Lubicka and F. Peck (2013) *The Role of Clusters in Smart Specialisation Strategies*, Expert Group report for DG Research, European Commission.

Landry, R., and Varone, F. (2005) Choice of Policy Instruments: Confronting the Deductive and the Interactive Approaches. In Eliadis, P., Hill, M. and Howlett, M. *Designing Government: From Instruments to Governance.* Montreal: McGill Queens University Press.

Laranja, M., Uyarra, E., and Flanagan, K. (2008) Policies for science, technology and innovation: Translating rationales into regional policies in a multi-level setting. *Research Policy* **37**(5), pp. 823-835

Lindner, R. (2012) Cross-sectoral coordination of STI-policies: governance principles to bridge policy-fragmentation. In: Fraunhofer ISI (Ed.), *Innovation Systems Revisited: Experiences from 40 years of Fraunhofer ISI Research* (pp. 275-287). Stuttgart: Fraunhofer Information.

Lipsey, R., and Carlaw, K. (1998) Technology Policies in Neoclassical and Structuralist-Evolutionary Models. *Science, Technology and Industrial Review* 22, pp. 31-73.

Lundvall, B-A. (1992) *National Systems of Innovation. Towards a Theory of Innovation and Interactive Learning.* London: Pinter.

Lundvall, B. A., and S. Borrás (2005) Science, Technology, Innovation and Knowledge Policy. In: J. Fagerberg, D. Mowery and R. Nelson, *The Oxford Handbook of Innovation*. Oxford: Oxford University Press.

Malerba, F. (2010) Increase learning, break knowledge, lock-ins and foster dynamic complementarities: evolutionary and system perspectives on technology policy in industrial dynamics. In: Foray, D. (ed.), *The new economics of technology policy*. Cheltenham: Edward Elgar.

Magro, E., and Wilson, J.R. (2013) Complex Innovation Policy Systems: Towards an Evaluation Mix. *Research Policy*, 42 (9), pp. 1647-1656.

Magro, E., Navarro, M., and Zabala-Iturriagagoitia, J. M. (2014). 'Coordination-mix: The hidden face of STI policy', *Review of Policy Research*, 31(5), pp. 367-389.

Martin, R. (2010) Rethinking Regional Path Dependence: Beyond Lock-In to Evolution, *Economic Geography*, 86, 1, pp. 1-27.

McCann, P., and Ortega-Argilés, R. (2013) Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy. *Regional Studies.* DOI: 10.1080/00343404.2013.799769.

Mintzberg, H. (2000) *The rise and the fall of strategic planning*. Prentice Hall.

Mintzberg, H., and Quinn, J. B. (1991) *The strategy process: Concepts, contexts, cases*. Prentice Hall.

Monreal-Pérez, J., Aragón-Sánchez, A., and Sánchez-Marín, G. (2012) A longitudinal study of the relationship between export activity and innovation in the Spanish firm: The moderating role of productivity, *International Business Review*, 21, pp. 862-877.

Mundell, R. (1962) The appropriate use of monetary and fiscal policy for internal and external stability, *IMF Staff Papers*, March 1962, 70-77.

Mytelka, L. & Smith, K. (2002) Policy learning and innovation theory: an interactive and co-evolving process. *Research Policy*, 31, pp. 1467–1479.

Navarro, M., Valdaliso, J.M., Aranguren, M. J., and Magro, E. (2014) A holistic approach to regional strategies: The case of the Basque Country, *Science and Public Policy*, 41(4): 532-547.

Nauwelaers, C., and Wintjes, R. (2002) Innovating SMEs and Regions: The Need for Policy Intelligence and Interactive Policies. *Technology Analysis & Strategic Management*, 14(2), pp. 201-215.

Nauwelaers, C., and R. Wintjes (2003) Towards a new paradigm for innovation policies? In: B. Asheim, A. Isaksen, C. Nauwelaers and F. Totdling (eds.), *Regional innovation policy for small-medium enterprises*. Cheltenham: Edward Elgar.

Nauwelaers, C., and Wintjes, R. (2008) Innovation Policy, Innovation in Policy: Policy Learning Within and Across Systems and Clusters. In: Nauwelaers, C. and Wintjes, R. (Eds.), *Innovation Policy In Europe: Measurement and Strategy*. Cheltenham: Edward Elgar.

Nauwelaers, C., Perianez-Forte, I., and Mitkandal, I. (2014) RIS3 Implementation and Policy Mixes, *JRC Policy Briefs*, forthcoming.

Nauwelaers, C., Boekholt, P., Mostert, B., Cunningham, P., Guy, K., Hofer, R., Rammer, C. (2009) *Policy Mixes for R&D Europe*. E. C. –Directorate-General, UNU-Merit.

Nelson, R. (ed.) (1993). *National Systems of Innovation: A Comparative Study*. Oxford: Oxford University Press.

Nelson, R. R., and Winter S. G. (1982) *An Evolutionary Theory of Economic Change*. Cambridge Mass.: Harvard University Press.

Niosi, J. (2010) *Building National and Regional Innovation Systems. Institutions for Economic Development.* Cheltenham: Edward Elgar.

OECD (1991) *Choosing priorities in Science and Technology*. Paris: OECD Publishing.

OECD (2010a) *OECD Innovation strategy*, Paris: OECD publishing.

OECD (2010b) *OECD Science, Technology and Industry Outlook 2010*. Paris: OECD Publishing.

OECD (2011). *Regions and Innovation policy*. Paris: OECD publishing.

Peeters, L., G. Swinnen and M. Thiri (2004) Patterns of Innovation in the Flemish Business Sector A multivariate Analysis of CIS-3 firm-level Data*, IWT Studies*, 47.

Peters, B.G. (2005) The future of instruments research. In Eliadis, F. P., et al. (2005), *Designing government: from instruments to governance*. Montreal: McGill Queens University Press.

Porter, M.E. (1996) What is Strategy. *Harvard Business Review*, Nov/Dec 1996: 61-78.

Raines, P. (2002) The Challenge of Evaluating Cluster Behaviour in Economic Development Policy. *International RSA Conference: Evaluation and EU regional policy: New questions and challenges*, European Policies Research Centre. University of Strathclyde.

Remoe, S. O. (2008) Innovation governance in dynamic economies: lessons from the OECD MONIT project. In: C. Nauwelaers and R. Wintjes, *Innovation Policy in Europe: Measurement and Strategy.* Northampton: Edwar Elgar.

Rodríguez-Pose, A. (2011) Spatially-blind strategies as place-based development strategies. In *Seminar on Territorial Dimension of Development Policies, papers and proceedings*. 18-19 July 2011, Ostróda, Poland. (pp. 85-89). (Available in: http://www.mrr.gov.pl/english/Presidency/Main/event_shedule/Documents/Seminar_%20Papers_and_Proceedings.pdf

Smith, K. (2000) Innovation as a Systemic Phenomenon: Rethinking the Role of Policy. *Enterprise & Innovation Management Studies* **1**(1), pp. 73-102.

Sotarauta, M. (2004) *Strategy Development in Learning Cities. From Classical Rhetoric towards Dynamic Capabilities*, Research Unit for Urban and Regional Development Studies, Sente Working Papers 8/2004.

Stiglitz, J. E. (1989) Markets, Market Failures, and Development. *The American Economic Review*, 79, 2.

Sugden, R, and J. Wilson (2002) Economic Development in the Shadow of the Consensus: A Strategic Decision-Making Approach. In: Sugden, R., and Wilson, J., *Contributions to Political Economy*, Oxford University Press.

Thompson, A.A., Stricland, A.J., and Gamble, J.E. (2008) *Crafting and Executing Strategy. The Quest for Competitive Advantage* (16th ed.). McGraw-Hill.

Uyarra E., and Ramlogan, R. (2012) *The effects of cluster policy on innovation: compendium of evidence on the effectiveness of innovation policy intervention.* Report for the National Endowment for Science, Technology and the Arts (NESTA).

Valdaliso, J. M., Magro, E., Navarro, M., Aranguren, M. J., and Wilson, J. R. (2014) Path dependence in policies supporting smart specialization: Insights from the Basque case. *European Journal of Innovation Management*, 17(4).

Whittington, R., (2001) *What is strategy-And Does it Matter.* Cengage Learning EMEA.

Table 5.1. Main elements in territorial strategy and public policy

Territorial strategy	Public policy
Strategic goals based on territorial assets and problem-solving	Goals oriented towards problem-solving and assets exploitation
Government as one of the actors	Government as the main actor
Territory oriented	It can be place-blind
Based on strategic choices	Based on policy options
Policies as one of the possible means	Instruments as means

Source: Own elaboration

Table 5.2. Policy domains and instruments for territorial strategy

Policy domains	Thematic priorities	Functional priorities
Innovation Domain	Sectoral innovation policies Strategic Innovation Arenas	General innovation policies (direct business innovation support, innovation vouchers schemes, etc..)
Science and Technology domain	Sectoral and GPT based policies, including support to certain sectoral oriented research centres, such as competence centres.	Human resources policies related to science Science and Technology policy (funding of basic science and technology infrastructures (science and technology parks, etc..)
Industrial domain	Cluster policies	Human resources policies related to industry Internationalisation policies

| Financial domain | Macroeconomic policies |
| | Fiscal policies |

Source: Own elaboration based on Nauwelaers et al. (2009).

Table 5.3. Examples of policy instruments according priorities and level of support

Target of support	Thematic priorities	Functional priorities
Firm oriented	R&D grants for firms in specific sectors	Training and mobility programmes
	Investment in sectoral-based knowledge infrastructures	Science parks
		Incubators
	Public procurement for innovation focused on specific sectors	Innovation Vouchers
System oriented	Cooperative schemes research-industry	Training and mobility programmes between industry and academia
	Cluster policies	
	Network policies	

Source: Own elaboration based on Nauwelaers and Wintjes (2002).

Evaluating territorial strategies

Edurne Magro and James R. Wilson

Abstract: While there is a strong relationship between policy evaluation and strategy evaluation, they are not the same thing. This chapter bridges the gap between the acknowledgement that evaluation should play an important strategic intelligence role in territorial strategy processes, and the practice that policy evaluations tend to remain isolated and not well-linked to the strategy process at territorial level. It brings analysis of current state-of-the-art in competitiveness policy evaluation to reflect on the evaluation requirements of the 'what for', 'what' and 'how' questions that a territorial strategy should answer. This leads to a proposed 'territorial strategy evaluation framework' that is learning centred. The framework makes a clear distinction between evaluation at different levels (strategy and policy) and emphasizes the powerful learning possibilities that lie between the two levels. A change in paradigm is required such that evaluations cease to be static pieces of information about individual policies' effectiveness, and become integrated, dynamic learning processes which tie together competitiveness policies and territorial strategies.

Introduction

The monitoring and evaluation of public policies has garnered increasing attention over recent years for two fundamentally different reasons. Most obviously, the scarcity of public resources characterizing many economies since the 1997 financial crisis has provided a strong stimulus for public administrations to ask more searching questions around their policies. As such, policy-makers increasingly need to justify the impacts or 'return on investment' of the policies that they implement to ensure future funding in an era of austerity. Alongside these concrete pressures, however, there has been a second less obvious force at work in pushing forward the evaluation agenda. This concerns the centrality of evaluation for processes of policy learning. While the two are of course related – evaluation for accountability purposes can also help us learn about policy – a policy learning imperative takes us in a different direction. In particular, in the systemic context in which today's public policies are designed and implemented the boundaries between policy-makers and policy-recipients are increasingly fuzzy.[i] Thus in referring to policy learning it is not only the so-called policy-makers who are the focus of this learning, but rather the whole collective of stakeholders in the policy process (Bennett and Howlett, 1992; Nauwelaers and Wintjes, 2008). In this context it is widely recognized that monitoring and evaluation can play a critical role in fostering learning as an integral and ongoing part of the policy process (Sanderson, 2002; Howlett *et al.*, 2009; Aranguren *et al.*, 2013; Aragón *et al.*, 2014).

Unsurprisingly there is also strong acknowledgement that evaluation should play an important role in territorial strategies for shaping competitiveness. In the European context, for example, the European Regional Development Fund has played a role in spreading monitoring practices among the regions, and the combination of 'monitoring and evaluation' are explicitly recognized by Foray *et al.* (2012) as the 'sixth step' in developing *Research and Innovation Strategies for Smart Specialisation (RIS3).* Despite this, it remains the case that evaluation is something that is spoken about a lot, and with great agreement on its importance, but actually done very little. Combining this with the rapid translation into practice of the smart specialization concept, we shouldn't be surprised that there is very little research on how territorial strategies should be evaluated in practice. While it is logical to argue that a core part of any strategy should be the mechanisms that enable evaluation of its success (or not) and facilitate learning to generate improvements,

we need to understand more about the type of monitoring and evaluation that is most appropriate for territorial strategies. Indeed, as highlighted in previous chapters in this book, much of the novelty in the current focus on territorial strategy is based on the underlying processes of entrepreneurial discovery that might lead to better ways of prioritizing certain activities over others. This would suggest *a priori* an evaluation focus that is dynamic rather than static, that is learning-focused, and that can therefore contribute to and help shape these underlying processes.

While there is a strong relationship between policy evaluation and strategy evaluation, they are not the same thing. As suggested by Magro and Nauwelaers in the previous Chapter, territorial competitiveness strategy can be seen as a framework for guiding overall direction, within which policies and policy mixes are designed and implemented to give impetus to that direction. In the European context, therefore, the key relationship is between research and innovation strategies at territorial level (RIS3) and the mix of science, technology and innovation policies that are implemented within the territory (the 'policy mix' step in Foray *et al.*, 2012). It is this relationship that is our focus in this Chapter. In particular, we aim to bridge the gap between acknowledgements that evaluation should play an important strategic intelligence role in territorial strategy processes, and the practice that policy evaluations tend to remain isolated and not well-linked to the strategy process at territorial level. Building on analysis of the 'what', 'what for' and 'how' of territorial strategy in previous chapters, and in particular on the policy complexity issues raised in the preceding chapter, we bring together perspectives on competitiveness policy evaluation, policy learning and competitiveness benchmarking. This leads to a learning-centred framework that makes a clear distinction between evaluation at different levels (strategy and policy) and emphasizes the powerful learning possibilities that can be uncovered through effectively linking these two levels.

The chapter is structured as follows. In the next Section we explore the current state-of-art in competitiveness policy evaluation, which we argue is characterized today by the need to deal with increasing policy complexity and to be learning focused. This leads us in the following Section to explore the differences between competitiveness policy evaluation and territorial strategy evaluation with reference to the 'what for', 'what' and 'how' questions that should be answered by a territorial strategy. Building from these reflections, we propose an evaluation framework that articulates the relationships between the evaluation of territorial strategy and the evaluation of the competitiveness policies designed to give that strategy impetus. In the final section we make some concluding comments, highlighting the likely challenges in moving towards a coherent and learning-focused evaluation of territorial strategy.

Competitiveness Policy Evaluation: Complexity and Dynamism

Public policy in the economic sphere has traditionally been strongly related to the concept of market failure. Mainstream economics analysis builds on the seminal work of Arrow and Debreu (1954) in taking as a starting assumption the existence of a complete set of perfect markets that will deliver an efficient allocation of resources to different activities within the economy. As such, market failure was first defined as "the failure of a more or less idealized system of price-market institutions to sustain "desirable" activities or to stop "undesirable" activities" (Bator, 1958: 351). Under this still-dominant perspective government intervention in the economy is seen to be justified only in cases where markets fail to provide an optimal outcome, which they may do for a number of reasons including the existence of externalities, public goods, indivisibilities, information asymmetries and market (or monopoly) power (Arrow, 1962; Greenwald and Stiglitz, 1986; Tirole, 1988). Furthermore, the notion that governments also fail is widely accepted, especially but by no means exclusively in the context of less developed countries (Datta-Chaudhuri, 1990; Krueger, 1991). This provides a further caveat to the mainstream view of policy intervention: it should only take place when the market fails *and* the government is capable of improving the situation.[ii]

Unsurprisingly this dominant perspective on the case for government intervention in the economy has marked the practice of evaluating public policies for competitiveness. The mainstream focus on 'failure' to provide an 'optimal' outcome has given birth to the neoclassical concept of 'additionality', whereby public policy interventions are judged on their 'additional' effect (in input and/or output) over that which would have occurred without the intervention. This approach generally takes place *ex-post* and with the aim of evaluating past interventions in terms of their correction (or not) of a market failure, hence providing accountability and supporting long term decision-making around future interventions. Moreover, this focus understandably puts a premium on the quantifiable impacts of policy in order to demonstrate additionality, and as such evaluations are usually carried out at the level of individual programmes. It commonly results, for example, in much-demanded (by politicians) and easy-to-interpret 'return on investment' statistics of the type: "for each € invested in policy intervention X, the additional impact on Y is …".

To give an example from one key area of competitiveness policy, the typical neoclassical rationale for innovation policy intervention is rooted in markets failing to provide for optimal knowledge creation given externalities and appropriability concerns. Essentially, firms invest less than is optimal for society in R&D because they can't capture all of the societal benefits from their investments, and therefore the associated innovation outputs are sub-optimal for society. A common public policy response, therefore, is to intervene to correct this failure by boosting firm-level investment in R&D inputs, using instruments such as R&D subsidies or tax credits for firms that conduct R&D. This leads to an evaluation of such subsidy or tax credit programmes that seek to determine: (i) whether firms have in fact invested more in R&D than they would have done without the intervention or whether government spending has in fact 'crowded out' existing firm spending (input additionality); and (ii) the extent to which the intervention has had an impact on the desired innovation outcomes, however these might be measured (output additionality).[iii]

While these types of programme-based evaluations remain commonplace, there are two important trends that have been changing how we approach the evaluation of competitiveness policy: (i) the emergence of evolutionary alternatives to the linear, market failure rationales of neoclassical analysis; and (ii) a large increase in policy complexity such that competitiveness policies increasingly overlap in rationales, domains, space and time. These trends are inter-related, and in combination they provoke challenging technical questions for competitiveness policy evaluation as well as suggesting a more fundamental need for evaluation to be much more learning focused.

The rise of evolutionary rationales is closely associated with policy interventions that respond to 'system problems' inhibiting the creation and transfer of knowledge within 'innovation systems' (Metcalfe, 1995; Smith, 2000; Edquist, 2001; Laranja *et al.*, 2008).[iv] This trend has strong relevance for the whole range of competitiveness policies given the acknowledged centrality of knowledge and innovation to competitiveness and following a broad conception of the innovation system.[v] Most importantly, however, these rationales represent a marked difference from the linearity of neoclassical rationales for policy intervention in that they are not concerned with reaching an 'optimum state' in terms of an input and/or output. Rather they are based on the centrality of system relationships for innovation and economic development, and the possibility that there are barriers to the flourishing of such relationships that justify policy support. As such they don't replace neoclassical rationales based on market failure, but have emerged alongside them in a 'policy mix' (Flanagan *et al.*, 2011). Indeed, the policy complexity highlighted by Magro and Nauwelaers in the previous chapter is a result of this process, combined with others such as the increasing significance of multiple geographical scales of policy governance and multiple operational layers of policy decision-making (Magro and Wilson, 2013; Magro *et al.*, 2014).

In terms of implications for the evaluation of competitiveness policies, the emergence of new policy rationales has necessitated the application of different techniques. While traditional quantitative evaluation

tools easily fit rationales that are relatively linear, they are more difficult to apply to systemic innovation policies due to the difficulty of capturing complex cause-effect relationships and intangible benefits. As a consequence 'softer' policies such as networking or cluster policies have tended to be approached using qualitative, case-based analysis (Aranguren *et al.*, 2008; Borras and Tsagdis, 2008; Konstantynova and Wilson, 2014; Pitelis *et al.*, 2006).

There have also been more fundamental changes in approach to evaluation associated with the emergence of new concepts. In particular, different approximations of additionality have emerged to reflect the changes in behaviour among agents in a system that policies under evolutionary rationales are trying to provoke. Commonly grouped together under the broad concept of 'behavioural additionality' (Buisseret *et al.*, 1995), several different interpretations have been employed, ranging from an extension of input additionality to cover scale, scope, acceleration and the like, to changes in the general conduct of the firm (Gok and Edler, 2012). While the growing use of this concept, particularly in the innovation policy field, demonstrates the importance being attached to understanding and measuring the changes in behaviour sought by today's competitiveness policies, Gok and Edler (2012) maintain that it remains a fuzzy concept with both theoretical and methodological shortcomings. In particular, their analysis of its use in a large number of innovation policy evaluations finds that "the methods used are not appropriate and the multiple dimensions of behaviour and the cascade effects of changes in behaviour on innovation performance and management more generally are not conceptualised" (*ibid.*: 315).

This fuzziness and these methodological challenges are unsurprising given that when policy seeks explicitly to change certain types of behaviour in a systemic context, the necessary engagement between the policy and the agents of the system fundamentally blurs the line between policy and its evaluation. As Arnold (2004: 14) suggests, "evaluation, like the policy-making process, becomes increasingly *evolutionary*, no longer seeking an overall optimum" and "in a certain sense less rigorous (because it is less complete) as we move to higher levels".

Today's evaluation challenges are also accentuated by the fact that policy systems typically include both neoclassical and systemic instruments targeted at the same group of agents; for example, targeted R&D subsidies alongside generic networking or cluster policies. Thus an overall understanding of the functioning of the policy system requires the integration of different approaches to additionality (input, output and behavioural). This implies both an underlying approach that appreciates the systemic context of innovation policy, alongside a triangulation of the evaluation methods appropriate for different elements of the policy mix (Diez, 2002; Magro, 2012; Aranguren *et al.*, 2014). In this regard there is emerging consensus on the need for better understanding of policy interactions and their impacts, through for example systemic evaluations (Arnold, 2004; Molas-Gallart and Davies, 2006; Edler *et al.*, 2008). Magro and Wilson (2013), for example, propose an evaluation mix protocol as a series of steps designed to take on board the different elements of complexity in arriving at a connected set of evaluations.

In summary, we find ourselves at an interesting juncture in the evaluation of competitiveness policies. Increasing demand for evaluation is emerging at a time when there is also increasing policy complexity that makes evaluation more challenging. In this context evaluations are evolving from being static pieces of information about individual policies' effectiveness towards being integrated, dynamic learning processes which themselves interact with policy-making practices.[vi] In the next Section we turn to consider how this scenario relates to the challenges of evaluating territorial strategies.

From Policy Evaluation to Strategy Evaluation: Exploring the Differences

As argued in the previous chapter of this book, strategy and policy are not the same. While strategy concerns the goals and vision of a territory, public policy is an important means to support that strategy and arrive at

those goals. There should therefore be a strong link between them, although in practice there is often either a disconnection or an unconscious assumption that both concepts are the same. When thinking about the evaluation of territorial strategy, therefore, we should expect differences with respect to the evaluation of competitiveness policy, but we should also expect them to be interconnected. To understand this relationship it is useful to turn to the general framework introduced and deepened in the preceding chapters, which conceives territorial strategy with respect to three core questions: 'what for'; 'what'; and 'how'. We can ask ourselves how evaluation relates to each of these questions, with the aim of drawing a picture of the relevance of evaluation to territorial strategy as a whole.

Evaluating the 'what for'

The first of these questions, the 'what for', must be at the core of territorial strategy evaluation because it represents the ultimate goals of the strategy. If a territory is not progressing towards these ultimate goals, then what value does the strategy have? In Chapter 2 Ketels talks about the *ambition* of the region as akin to the ambition of the firm in the business strategy literature. In the regional context he associates this with creating an environment in which citizens can be prosperous and companies can successfully compete, and he suggests that this should be context-specific, not simply reflecting an average European ambition, for example. We would strongly echo this. The 'what for' of a territorial strategy must be context specific because it should reflect the underlying socioeconomic development objectives of the people within a territory; if not then resulting processes and activities will move the territory in an erroneous direction, generating socially inefficient outcomes (Sugden and Wilson, 2002; Bailey *et al.*, 2006). These objectives are likely to be multiple and to be slowly evolving over time, and while they will have many common elements it is impossible to imagine that they will be the same across different territories. In this sense the very notion of the 'prosperity' or 'type of competitiveness' sought will differ from place to place (Branston *et al.*, 2006; Wilson, 2008).

Given the balance of different objectives likely to characterise the desired development of a territory, evaluating the 'what for' of the strategy is very much related to the concept of competitiveness benchmarking, which typically takes on board a range of different elements (Niosi, 2002; Iurcovich *et al.*, 2006). In this sense there are essentially three benchmarking approaches that could be followed by a territory seeking to evaluate how well it is progressing towards the objectives of its strategy (Edquist, 2008; Navarro *et al.*, 2014). First of all, the territory can be compared to itself over time, tracking the evolution of a set of indicators that reflect the 'what for' of the strategy. Secondly, the performance of the territory in this set of indicators can be compared with a set of specific targets that the strategy establishes as part of its ambition. Finally, progress in this set of indicators can be compared against other territories.

The latter of these approaches is problematic given the difficulty of finding territories for which it makes sense to make such a comparison; i.e. territories that share similar characteristics *and* that share similar strategic goals. Nevertheless, if such comparisons are carried out intelligently, with a careful selection of reference regions, then they can offer learning opportunities in terms of identification of competitive advantages, mapping of international context, search for examples to learn from or mark a difference from, and setting the basis for policy benchmarking (Navarro *et al.*, 2014; Iurcovich *et al.*, 2006). The most powerful benchmarking approach for evaluating the 'what for' of territorial strategy, however, is likely to be a combination of the first two options: a benchmarking of the territory itself over time in indicators that reflect defined objectives of the strategy, combined with evaluating the achievement of desired targets within the evolution of those indicators.

Although not linked to an explicit territorial strategy, one of the most striking examples of a self-benchmarking exercise in areas that explicitly reflect the underlying development aims of a territory can be

found in the Canadian Index of Wellbeing (Michalos *et al.*, 2011). This composite index – itself a set of composite indices in different domains – was first published in 2011 following over a decade of discussions, interaction and research into what really matters to Canadians for their wellbeing.[vii] It is built around eight domains of life (community vitality, democratic engagement, education, environment, healthy populations, leisure & culture, living standards and time use), each of which is the subject of detailed analysis resulting in a composite indicator that is tracked over time. It purports to 'measure what matters' to Canadians and to provide evidence to steer Canada in the right direction, and we would suggest that much can be learned for territories that are seeking to evaluate progress towards the objectives that mark the 'what for' of their territorial strategy.

Evaluating the 'what'

While achieving the 'what for' of a strategy must be linked to the overall objectives that a territory seeks to move towards, progress in the 'what' is fundamentally linked to the policy choices that are made to support the priorities (or content) identified and being pursued in that strategy (see Chapters 1 and 4). It must be the case therefore, that evaluating the 'what' is closely related to ongoing practices of policy evaluation. However, one thing is evaluating policies for their own effectiveness, and another is evaluating them in terms of their alignment to the content of the strategy that they are supporting (and ultimately linking this to the benchmarking of objectives reflected in the 'what for' of that strategy). In particular, we need to question what the evaluation of policies and their constituent programmes tell us about the ability to support the priorities identified in the strategy. How well are they aligned? How can we adjust this alignment? How might these policies be interacting with the strategic process, leading to changes in the strategy over time?

In this sense while evaluating the 'what for' is about evaluating (or benchmarking) *desired strategy outcomes*, evaluating the 'what' is about evaluating *desired policy outcomes*, where these policy outcomes are linked to the content of the strategy itself. One of the main failures that might occur in strategy evaluation is to assume that policies have to be evaluated in terms of their own effectiveness, and forget their evaluation in terms of their contribution to the prioritizations identified in the strategy. It is important to do both to get a true understanding of whether policies are actually supporting what is set out in the strategy. Moreover these two questions should also link back to the evaluation/benchmarking of the 'what for', because the achievement of desired policy outcomes must ultimately contribute to desired strategy outcomes, which themselves may be slowly evolving with the interactions between agents that are part of the strategy and policy processes. This complex scenario poses challenges to policy evaluation in two ways. First of all, how to evaluate effectiveness alongside alignment, and in an evolving context? Secondly, and maybe most challenging, how to ensure that the results of this evaluation feed into the strategic process and provide intelligence for the ongoing evolution of the strategy?

As argued in the previous section, policy evaluation has traditionally taken place for accountability purposes, with a strong emphasis on effectiveness and on demonstrating the existence of different types of additionality. Without denying that much of this evaluation, such as impact evaluation, might be useful for strategic purposes, it is clear that it is not the most adequate for evaluating policy in a dynamic context. In particular, to conduct a good impact evaluation it is normally important to consider a time lag between the policies implemented and the analysis of the results, especially in areas such as innovation in which results take time to flourish. This time lag makes it difficult for impact evaluations to play a role in a strategy that is 'alive' and constantly evolving. While it is not valid to discard such impact evaluations from our considerations of how to evaluate territorial strategy – we know that they can provide results that support learning both in policy and potentially in strategy – this limitation does mean that we have to be careful in how we interpret the results of impact evaluations for a fundamentally dynamic context. In line with our arguments in the preceding section, it also suggests that quantitative impact-type evaluations should be

complemented with other more qualitative approaches that are more useful in changing contexts. A triangulation of evaluation techniques – bringing in case-based analysis and participatory approaches – can help to better understand the reasons behind the impacts and to capture the more intangible elements present in the policy-strategy interface.

Participatory approaches are likely to be particularly important in strategy evaluation because they rely on the involvement of different stakeholders and as such respond directly to the challenges associated both with the alignment of policy to strategy content and with the dynamism of strategic processes. They might be applied in a continuous way, and alongside more traditional impact evaluations, in order to conduct a continuous policy evaluation that could monitor alignment and feed intelligence on what is working and how into the strategy process. This would be a break from much traditional practice, where policy evaluation is tended to be seen as a process or a task that involves external experts and programme managers as opposed to the whole collective of agents implicated in the policy. As highlighted in Chapter 4 the separation between policy-makers and programme managers, for example, might generate an implementation gap, and one that is likely to be exacerbated in the case of evaluation given its common association with accountability. Participatory approaches can help to reduce this gap by establishing policy evaluation as a tool for both policy- but also for strategy- learning, and most importantly as a route to understanding the links between them.

Evaluating the 'how'

Evaluation of the 'how', like the 'what', is also strongly linked to policy, given that policy seeks to impact on 'how' the strategy is developed and articulated as well as the actual substance of the strategy. Most critically, and as we have argued when addressing evaluation of the 'what', evaluation cannot itself be separated from the strategy process. The entrepreneurial discovery process that is at the core a territorial strategy is an alive and evolving process involving a wide range of stakeholders from the so-called 'quadruple helix' of business, government, research and civil society. Through this process the activities that form the content of the strategy are first identified, then explored/developed, and then likely altered as new knowledge emerges from ongoing interactions. In Chapter 3 of this book Aranguren and Larrea highlight three dynamic capabilities that appear critical for this process of developing territorial strategy: capability to learn and innovate; capability to generate networks and relationships; and strategic capability for vision generation and leadership. This focus in the 'how' on learning and relationships (and the vision and leadership associated with these) is strongly consistent with the changes in policy evaluation practice that we have suggested is starting to take place. As evaluations evolve from being static pieces of information about individual policies' effectiveness towards being integrated, dynamic learning processes which themselves interact with policy-making practices, they become more consistent with what is required for the 'how' of territorial strategy.

In other words, the question is not really how we should evaluate the 'how' of territorial strategy, but rather about seeing evaluation as an integral part of that 'how'. Territorial strategy is not a linear process and in consequence evaluation cannot be an after-thought. It has to be integrated in a continuous process that feeds the strategy, and in which learning becomes the core element of the evaluation task. But learning about what? In the last subsection, we mentioned that learning was important for evaluating the 'what' of territorial strategy, and mainly we were referring to learning about what has worked and what has not worked, in terms of effectiveness, and in terms of the alignment of policy to priorities. This is most closely associated with the concepts of input and output additionality. But learning about processes, learning about the 'how', means going beyond inputs and results, and puts the focus on what happens throughout the strategic process in terms of changes in behaviour. It thus implies a greater focus on the concept of behavioural additionality, and recourse to qualitative evaluation methods and tools that help us to capture the more intangible effects of the strategy process.

Seeing evaluation as an integral part of 'how' a territorial strategy takes place also implies a continuous evaluation of the involvement of different agents in the strategy process. This is a very complicated task. Even employing the participatory evaluation techniques suggested in the previous sub-section it is almost impossible and very time- and cost- inefficient to constantly involve all of the key strategic stakeholders in such processes. Moreover, overkill and/or badly organised processes can stifle participation. The key, therefore, is in finding the right balance; understanding when and how to involve different agents in evaluation exercises; and above all knowing how to combine evaluation with other strategic processes core to entrepreneurial discovery so that they fit together in ways that create benefits for participants without taking too much time. In this way evaluating the 'how' will complement and support the evaluation of the 'what for' and the 'what' in a seamless fashion. All of this implies that the best evaluation is not a single one, but a combination of evaluating the three elements, which will actively contribute to strategic learning processes.

A Learning-Centred Territorial Strategy Evaluation Framework

In the previous section we have argued some principles around the evaluation of the different questions of a territorial strategy – the 'what', the 'what for' and the 'how' – and suggested the need to integrate these in a comprehensive and balanced way. In this section we bring these arguments together in a *territorial strategy evaluation framework* that we propose as useful for understanding the links between the different evaluation elements and therefore as a guide for the evaluation of territorial strategies in practice. It is important to stress that following the well-accepted principle of territorial policy that "one size does not fit all" (Tödling and Trippl, 2005), there is no unique valid recipe for evaluating territorial strategy. What we propose here is designed as a guideline for territorial strategy evaluation to be adapted to the specificities of different contexts.

In order to establish a sound evaluation framework that can be adapted to different specific territorial realities, it is important to first make some assumptions about the hierarchy of elements that exist within a territorial strategy. As illustrated in Figure 5.1 there are four levels that are likely to be important when considering how to evaluate territorial strategy.

[FIGURE 5.1 HERE]

The top two levels make a subtle distinction between a *general strategy* and more *specific strategies*. A general strategy is built around the overall ambition of the territory and the corresponding strategic goals. As such it reflects what we have talked about above in terms of the 'what for' question, the answer to which must be in line with the underlying socioeconomic development objectives of the people that live in the territory. There is a sense in which this is quite an abstract concept, and in many cases it will be easier to see territorial strategy come alive in more specific strategies that focus on certain domains. In the European regional context, for example, this is clear in the development of 'research and innovation strategies for smart specialisation' (RIS3) as promoted by the European Commission, and we can also imagine other domains where more specific strategies might be developed (environment, energy or health, for example). These specific strategies make concrete the general ambition of the region and corresponding strategic goals in certain domains, thus presenting a more focused response to the 'what for' question.

The bottom two levels move into the concrete operational aspects of the territorial strategy process; into the 'what' and the 'how' questions. Sitting below the specific strategies are the priorities that are established within each strategy; the priorities established within a RIS3, for example. Following Navarro's analysis in Chapter 1, here we can distinguish between *vertical priorities* (the main economic, technological and scientific activities to be prioritised) and *horizontal priorities* (the capabilities of the territorial system as a whole to be prioritised). In both cases, these priorities are related to the 'what' question; they refer to the content of the strategy. In turn, and following the analysis of Chapter 4, these priorities are normally articulated through policy instruments and programmes. We refer to the concrete policy measures that support the content of the strategy as the *policy-mix*. This mix of instruments can be related to both the 'what' and the 'how' questions of the territorial strategy. The policy mix must be oriented towards the priorities identified in the strategy and therefore aligned with the 'what'; and the way in which the policy mix works in pushing the territories towards these priorities is a core element of the 'how'.[viii]

Having established this hierarchy of elements we can draw a clearer picture of how the different evaluation principles discussed above might fit together in working towards a holistic evaluation of a territorial strategy. Figure 5.2 sets out our proposed framework. Following from the discussion of the previous sections the central concept is learning. In particular we distinguish two types of learning: learning at the strategy level, or *strategy learning*; and learning at the policy level, or *policy learning*. Each of these types of learning is closely linked with a certain type of evaluation (*strategy evaluation* and *policy evaluation*),

although the most critical element of the framework concerns the links between these two levels of evaluation and learning.

[FIGURE 5.2 HERE]

The strategy evaluation at the top of the framework refers essentially to the 'what for' of the strategy; to understanding whether the territory is moving towards its underlying socioeconomic development objectives. The policy evaluation at the bottom of the framework refers both to the 'what' and the 'how' of the strategy; to understanding the workings of the policy mix that is being employed to give impetus to the direction of the strategy. As such, strategy evaluation relies on the benchmarking techniques discussed in the previous section; on identifying a set of indicators that best reflect the underlying objectives of the general strategy and/or of the specific strategies, and benchmarking these over time (and potentially also in comparison with others where relevant comparators can be found). In contrast, policy evaluation relies on the triangulation of techniques identified as important in previous sections; on weaving together quantitative studies geared at evaluating different types of additionality (input, output, behavioural), with other methods (case-based, participatory, meta-evaluations) better suited to understanding certain more intangible elements and/or capable of bringing a more systemic and dynamic perspective to understanding the policy mix.

The key contribution of this framework, however, is to emphasize the link between these two levels of evaluation, in what we have termed *adequacy evaluation*. This refers to the need to understand on the one hand how well the policy mix is aligned with both the content and the objectives of the strategy; and on the other hand how this policy mix interacts with the evolution of the content and objectives of the strategy over time. As such it brings together the 'what for', the 'what' and the 'how' and constitutes the central arena for learning in the territorial evaluation sphere.

While strategy evaluation in isolation can lead to some strategy learning, this will be limited to learning around whether or not the territory is progressing towards its objectives; not how this is happening. Likewise, while policy evaluation in isolation can lead to some policy learning, this will be limited to understanding the policies in their own right and at most how different policies interact among themselves; not how they are contributing to the strategy of the territory, and how the evolving strategy in turn shapes them. Bringing the two together unlocks a powerful new level of both strategy and policy learning. Based fundamentally on participative stakeholder processes that are built around inputs from policy and strategy evaluation (with the potential to also inject external knowledge through, for example, peer-review processes), adequacy evaluation brings dynamism in evaluation to what we have argued is a fundamentally dynamic territorial strategy process. As such it boosts our understanding of the interactions between the policy mix (the 'how), the development of the content of the strategy (the 'what') and progress towards the underlying aims of the strategy (the 'what for'). Indeed, we suggest that recognising the need for processes that support such adequacy evaluation, and experimenting with them so as to tie together strategy learning and policy learning, represents the key challenge for evaluating territorial strategies.

Concluding Remarks

In this chapter we have sought to bridge the gap between the acknowledgement that evaluation should play an important strategic intelligence role in the territorial strategy processes that are so *en vogue* today, and the practice that policy evaluations tend to remain isolated and not well-linked to the strategy process at territorial level. Policy evaluation in the innovation field, for example, typically focuses on the evaluation of specific policies *per se*, or at most their combination in a policy mix. Evaluating territorial strategies, however, implies more than the evaluation of the effectiveness of policy portfolios; these are just one part of the territorial strategy process and must fit together with the content of the strategy and the objectives of the strategy, both of which are evolving over time.

Rooted in an analysis of the state-of-the-art in competitiveness policy evaluation, our proposed framework has identified what we call *adequacy evaluation* as a critical gap between the fairly prevalent practices of competitiveness policy evaluation and strategy benchmarking. Most territories already evaluate some of the policies that are put in place to boost competitiveness, and most also carry out some form of benchmarking of their progress with respect to a set of core socioeconomic outcomes. On the one hand we are suggesting here that improvements are necessary in each of these to make them more suitable for serving the dynamic, evolving, stakeholder-centred discovery processes that are at the core of a territorial strategy. But most critically we are suggesting that they need to be woven together in order to unleash a new set of learning possibilities in the context of the territorial strategy process.

In making these arguments, however, it is important to recognise the limitations of evaluation, which apply equally to strategy as they do to policy or to any other process. In particular, often the desire for a perfect answer is simply unrealistic. Rigorously carrying out a full range of impact evaluations or establishing an ideal set of socioeconomic indicators that reflect the objectives of the territory require large amounts of resources, and in many cases a partial coverage or imperfect analysis is the best that can be hoped for. Likewise, the processes that we have highlighted in this chapter as critical for linking together policy and strategy evaluation and generating powerful new learning opportunities require the ongoing involvement and time of many stakeholders.

Just as prioritisation is a core principle of territorial strategy, therefore, evaluation of territorial strategy also requires prioritisation. It is impossible to do everything. In this sense we suggest that our territorial strategy evaluation framework, and the arguments contained in this chapter, can help in supporting this prioritisation and finding an appropriate balance in each specific case. It is important to understand when and how to involve different agents in evaluation exercises and here many synergies are possible with other strategic processes that are core to territorial entrepreneurial discovery processes. The key is in seeing evaluation as an integral part of the strategic process at the territorial level. Rather than putting all of our evaluation focus on impact studies or on benchmarking, for example, this means prioritising elements of adequacy evaluation alongside these often existing elements.

Acknowledgements

References

Aragón, C., Aranguren, M-J., Iturrioz, C. and Wilson, J. R. (2014). 'A Social Capital Approach for Network Policy Learning: The Case of an Established Cluster Initiative', *European Urban and Regional Studies*, 21(1): 128-145.

Aranguren, M-J., De La Maza, X., Parrilli, M. D. and Wilson, J. R. (2014). 'Nested Methodological Approaches for Cluster Policy Evaluation: An Application to the Basque Country', *Regional Studies*, forthcoming: DOI:10.1080/00343404.2012.750423.

Aranguren, M-J., Iturrioz, C. and Wilson, J. R. (2008) *Networks, Governance and Economic Development*. Cheltenham: Edward Elgar.
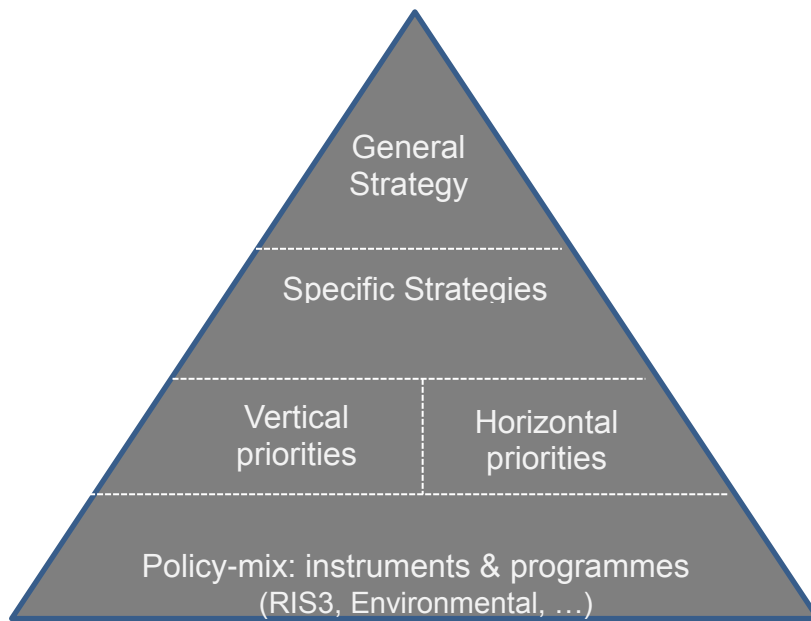
Aranguren, M-J., Magro, E., and Wilson, J. R. (2013). 'La evaluación como herramienta para transformar las políticas de competitividad', *Economía Industrial*, 387: 159-168.

Arnold, E. (2004). 'Evaluating research and innovation policy: A systems world needs systems evaluations', *Research Evaluation*, 13(1): 3-17.

Arrow, K. (1962). 'The Economic Implications of Learning-by-Doing.', *Review of Economic Studies*, XXIX(June): 155-173.

Arrow, K. J., and Debreu, G. (1954). 'Existence of an equilibrium for a competitive economy', *Econometrica*, 22(3): 265-290.

Bach, L., and Matt, M. (2002). 'Rationale for science & technology policy', in L. Georghiou, J. Rigby & and H. Cameron (Eds.) *Assessing the Socio-Economic Impacts of the Framework Programme (ASIF)*, Report to European Commission DG Research.

Bailey, D., De Propris, L., Sugden, R., and Wilson, J. R. (2006). 'Public policy for economic competitiveness: An analytical framework and a research agenda', *International Review of Applied Economics*, 20(5): 555-572.

Bator, F. M. (1958). 'The anatomy of market failure', The Quarterly Journal of Economics, 72(3): 351-379.

Bennett, C. J., and Howlett, M. (1992). 'The lessons of learning: Reconciling theories of policy learning and policy change', *Policy Sciences*, 25(3): 275-294.

Borrás, S., and Tsagdis, D. (2008). *Cluster Policies in Europe: Firms, institutions and governance*. Cheltenham: Edward Elgar.

Branston, J. R., Tomlinson, P. R., and Wilson, J. R. (2012). '"Strategic Failure" in the Financial Sector: A Policy View', International Journal of the Economics of Business, 19(2): 233-25.

Branston, J. R., Rubini, L., Sugden, R., and Wilson, J. R. (2006). 'The Healthy Development of Economies: A Strategic Framework for Competitiveness in the Health Industry', *Review of Social Economy*, LXIV: 3, 301-329.

Buisseret, T. J., Cameron, H. M., and Georghiou, L. (1995). 'What difference does it make - Additionality in the public support of R&D in large firms', *International Journal of Technology Management*, 10: 587–600.

Cerulli, G. and Potí, B. (2008). 'Evaluating the effect of public subsidies on firm R&D activity: An application to Italy using the Community Innovation Survey', *CERIS-CNR Working Paper No. 9 / 2008*, Rome: CERIS-CNR.

Chen, H-T. (1990). *Theory-Driven Evaluations*. Thousand Oaks, CA: Sage.

Chen, H-T. and Rossi, P. H. (1983). 'Evaluating with sense: The theory-driven approach', *Evaluation Review*, 7(3): 283-302.

Datta-Chaudhuri, M. (1990). 'Market failure and government failure', *Journal of Economic Perspectives*, 4(3): 25-39.

Edler, J., Ebersberger, B., and Lo, V. (2008) 'Improving policy understanding by means of secondary analyses of policy evaluation', *Research Evaluation*, 17(3): 175-186.

Edquist, C. (2001). 'Innovation policy – a systemic approach', in D. Archibugi and A. A. Lundvall (Eds.) *The Globalizing Learning Economy*, Oxford: Oxford University Press.

Edquist, C. (2008). 'Design of Innovation Policy through Diagnostic Analysis: Identification of Systemic Problems (or Failures)', *CIRCLE Electronic Working Paper 2008/06*. Lund: Lund University.

Flanagan, K., Uyarra, E., and Laranja, M. (2011). 'Reconceptualising the 'policy mix' for innovation', *Research Policy*, 40: 702-713.

Foray, D., Goddard, J., Goenaga Beldarrain, X., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C., and Ortega-Argilés, R. (2012). *Guide to Research and Innovation Strategies for Smart Specialisation*, Brussels: European Commission.

Gok, A., and Edler, J. (2012). 'The use of behavioural additionality in innovation policy making', *Research Evaluation*, 21(4): 306-318.

Greenwald, B., and Stiglitz, J. (1986). 'Externalities in economies with imperfect information and incomplete markets', *The Quarterly Journal of Economics*, 101(2): 229-264.

Howlett, M., Ramesh, M., and Perl, A. (2009). *Studying Public Policy: Policy Cycles & Policy Subsystems*, Oxford: Oxford University Press (third edition).

Iurcovich, L., Komninos, N., Reid, A., Heydebreck, P., and Pierrakis, Y. (2006). *Blueprint for Regional Innovation Benchmarking*. Mutual Learning Platform. Regional Benchmarking Report.

Klette, T. J., Moen, J., and Griliches, Z. (2000). 'Do subsidies to commercial R&D reduce market failures? Microeconomic evaluation studies', *Research Policy*, 29: 471-495.

Konstantynova, A., and Wilson, J. R. (2014). 'Comparing cluster policies: An analytical framework', *Orkestra Working Paper No. 2014-R01*, San Sebastian: Orkestra.

Krueger, A. O. (1991). 'Government failures in development', *NBER Working Paper No. 3340*, Cambridge, Massachusetts: NBER.

Laranja, M., Uyarra, E., and Flanagan, K. (2008). 'Policies for science, technology and innovation: Translating rationales into regional policies in a multi-level setting', *Research Policy*, 37(5): 823-835.

Lundvall, B-A. (2007). 'Innovation system research: Where it came from and where it might go', *Globelics Working Paper Series*, No. 2007-01, www.globelics.org.

Magro, E. (2012). *Evaluation in a systemic world: The role of regional science and technology policy*. PhD thesis, University of Deusto.

Magro, E., Navarro, M., and Zabala-Iturriagagoitia, J. M. (2014). 'Coordination-mix: The hidden face of STI policy', *Review of Policy Research*, 31(5), pp. 367-389.

Magro, E., and Wilson, J. R. (2013). 'Complex innovation policy systems: Towards an evaluation mix', *Research Policy*, 42: 1647-1656.

Metcalfe, J. S. (1995). 'Technology systems and technology policy in an evolutionary framework', *Cambridge Journal of Economics*, 19(1): 25–46.

Michalos, A.C., Smale, B., Labonté, R., Muharjarine, N., Scott, K., Moore, K., Swystun, L., Holden, B., Bernardin, H., Dunning, B., Graham, P., Guhn, M., Gadermann, A.M., Zumbo, B.D., Morgan, A., Brooker, A.S., and Hyman, I. (2011). *The Canadian Index of Wellbeing. Technical Report 1.0.*, Waterloo, Ontario: Canadian Index of Wellbeing and University of Waterloo.

Molas-Gallart, J., and Davies, A. (2006) 'Toward theory-led evaluation: The experience of European science, technology and innovation policies', *American Journal of Evaluation*, 27(1), 64-82.

Nauwelaers, C., and Wintjes, R. (2008). 'Innovation policy, innovation in policy: policy learning within and across systems and clusters', in C. Nauwelaers, and R. Wintjes (eds.), *Innovation policy in Europe: Measurement and strategy*. Edward Elgar: Cheltenham.

Navarro, M., Gibaja, J., Franco, S., Murciego, A., Gianelle, C., Hegyi, F. B., and Kleibrink, A. (2014). 'Regional benchmarking in the smart specialization process: Identification of reference regions based on structural similarity', *S3 Working Paper Series No. 03/2014*, Seville: European Commission, Joint Research Centre.

Niosi, J. (2002). 'National Systems of innovations are "x-efficient" (and x-efective). Why some are slow learners'. *Research Policy* 31: 291-302.

Pawson, R., and Tilley, N. (1997). *Realistic Evaluation*. London: Sage.

Pitelis, C., Sugden, R., and Wilson, J. R. (2006). *Clusters and globalisation: The development of urban and regional economies*. Cheltenham: Edward Elgar.

Sanderson, I. (2002). 'Evaluation, policy learning and evidence-based policy making', *Public Administration*, 80(1): 1-22.

Smith, K. (2000). 'Innovation as a systemic phenomenon: Rethinking the role of policy', *Enterprise and Innovation Management Studies*, 1(1): 73-102.
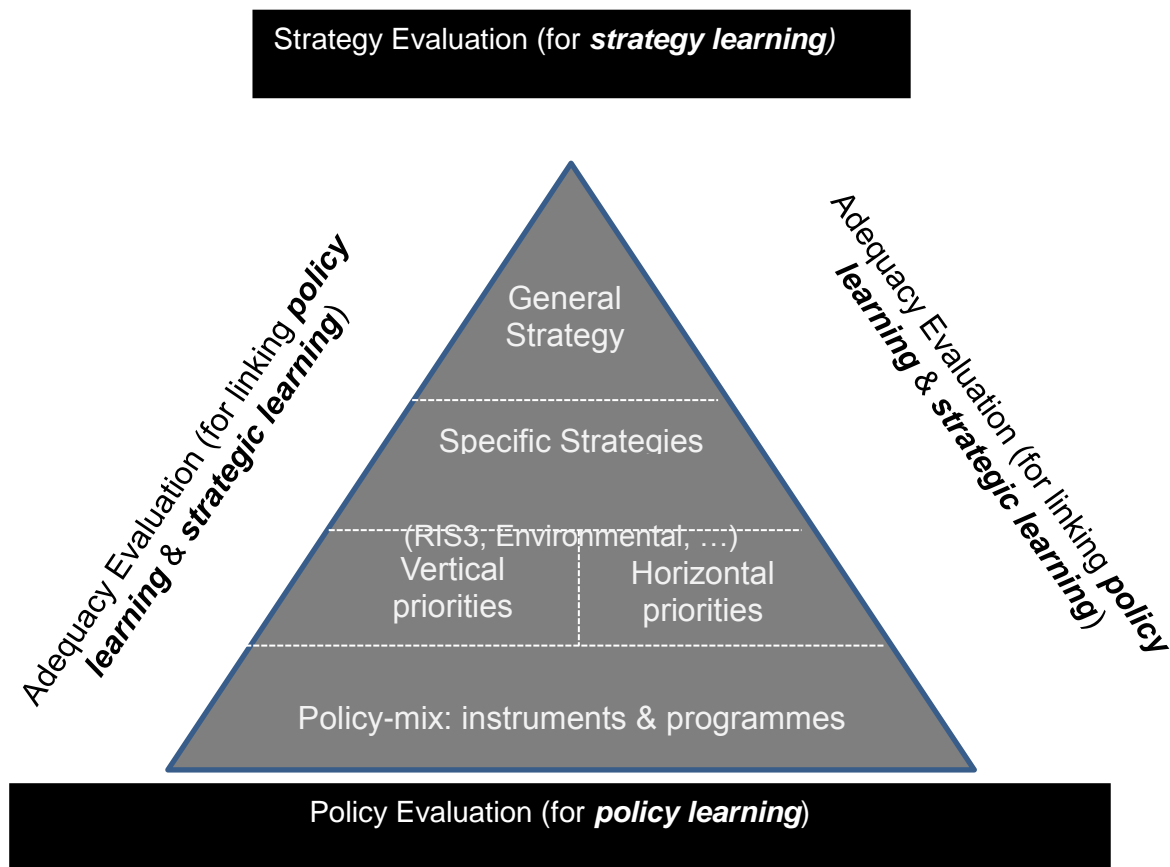
Streicher, G., Schibany, A., and Gretzmacher, N. (2004). 'Input additionality effects of R&D subsidies in Austria', Vienna: Austrian Institute for Economic Research (WIFO).

Sugden, R., and Wilson, J. R. (2002). 'Economic development in the shadow of the consensus: A strategic decision-making approach', *Contributions to Political Economy*, 21: 111-134.

Tirole, J. (1988). *The Theory of Industrial Organisation*, Cambridge, Massachusetts: MIT Press.

Todlting, F., and Trippl, M. (2005). 'One size fits all? Towards a differentiated regional innovation policy approach', *Research Policy,* 34(8): 1203-1219.

Wilson, J. R. (2008). 'Territorial competitiveness and development policy', *Orkestra Working Paper No. 2008-02*, San Sebastian: Orkestra.

Figure 5.1. Hierarchy of elements in territorial strategy

Source: authors' elaboration.

Figure 5.2. Evaluation framework for territorial strategy

Smart Specialisation: Results-Oriented Policies and the Use of Results Indicators with Specific Reference to Entrepreneurship and SMEs policies

Philip McCann and Raquel Ortega-Argilés

University of Groningen

p.mccann@rug.nl

r.ortega.argiles@rug.nl

1. The Rationale for Results-Oriented Policies

Recent years have seen a burgeoning of analysis focused on the role played by institutional and governance issues in shaping economic and social behaviour. The work of Acemoglu and Robinson (2012) and Rodrik (2007, 2014) amongst others has heavily influenced contemporary thinking regarding the nature of economic policy, its possibilities and limitations. Much of the analysis has focused on understanding how the behaviour of elites and the ways in which institutional 'insiders' are typically driven by their wish to capture policy-related rents. In particular, much research focuses on the ways in which the behaviour of elites and powerful interest groups can shape, alter, distort, oppose or even subvert the policy context (Acemoglu and Robinson 2012). The rise in awareness of the role played by these complex governance (rather than simply government) issues has lead to a re-thinking of many aspects of contemporary industry policy debates.

One of these aspects which has undergone significant rethinking concerns the case for multi-level governance activities. In order to be effective, a policy such as regional policy necessarily involves multiple partners operating at different spatial scales and different hierarchical jurisdictions. Finding ways to build complementarities between different policy arenas is essential and in the case of regional policy there are many arguments which suggest that it is at the local and regional levels where such complementarities can best be built (OECD 2011). Yet, mobilising different stakeholders in order to build such complementarities is a complex challenge, and requires a consideration of the various incentives mechanisms operating. Policy agendas such as smart specialisation face these challenges.

Another issue concerns the role of ideas and narratives. In order to overcome institutional opposition and rent seeking it is necessary to develop a concept or idea whose narrative can engage directly with a range of different elites and constituencies and can persuade them to cooperate with and align themselves with the policy initiatives (Rodrik 2014). Smart specialisation has the potential to do exactly this because it derives from the insights and understanding of variety of different files spanning innovation, science policy, regional development, and economic geography. Such a broadly-based consensus on which the smart specialisation agenda builds offers the possibility to develop an overarching framework on which policy prioritisation decisions can be based in a variety of different settings.

One of the issues which has arisen from this re-thinking relates to the role played by the objectives and intentions of a policy. All policies arise from a complex bargaining process between different stakeholders, different parties, different interest groups and different constituencies, and any policy to some extent necessarily represents a compromise between diverging interests and views. Agreement between differing groups is essential in order for a policy to be decided upon and to operate (Stiglitz et al. 2008) and as such the motivations underlying each policy reflect a dialogue spanning a complex patchwork of perceptions, incentives and interests. However, each actual policy which is implemented should have an overall umbrella and encompassing vision in order for there to be any agreement between different parties and this vision should also reflect the fundamental and underlying intentions of the policy. Moreover, there should also be a clear set of sufficiently narrowly-defined objectives which the policy is focused on achieving, in order to observe the effects of the policy action. Clarity is therefore required both in terms of the 'big picture' and also in terms of the specific picture. However, the political economy complexity and multi-faceted nature of policy making often means that this clarity is lacking or obscured, either at the level of the big picture or at the level of the specific picture. Yet, finding a way to uncover such intentions and too make them explicit is necessary both in order to ensure that the policy is designed as well as possible and also to allow for the policy to be evaluated. Without such a clarity of intentions, neither an optimal policy design nor a policy whose impacts are in any way measurable, can be realistically attained[1].

In order to provide such clarity and to facilitate better policy design and delivery, policies which are amenable to monitoring and evaluation exercises are increasingly advocated. One of the key components of such policies is that they permit the use of outcome indicators or results indicators. There is a wide-ranging literature (Rodrik 2004, 2007; World Bank 2010) which argues that developing a results-oriented policy setting is generally perceived as being an important topic in any type of industrial policy or regional development policy, and within this policy portfolio innovation-related policies are increasingly seen as being essential for all aspects of growth (McCann and Ortega-Argilés 2013). Nowadays, leading-edge policy-related research generally regards the use of outcome/results indicators allied with monitoring and evaluation exercises as being essential for assessing the impacts of innovation-related policies. The reason for this is that the arguments for the use of indicators and monitoring and tied up with the intentions and objectives of the policy and also to the institutional and political economy issues in which a policy is situated. The use of indicators allied with monitoring and evaluation exercises are key elements which allow policies to be framed as closely as possible to the agreed societal objectives which the policy is seeking to influence. Without such key elements, policies or policy-settings can be influenced primarily by other political economy criteria which are not necessarily related to the policy intentions or objectives, and as such, the policy will be diverted or even subverted in terms of its efficacy.

In terms of the field of public policy analysis, the idea of results-oriented policies is generally regarded as being a sensible and meaningful way of thinking about policy design. Yet, in reality it is surprising how few policies are really results-oriented in terms of both design and delivery. Many policy interventions even in advanced economies have little explicitly-measurable objectives in-built in their design and very few are therefore amenable to comprehensive monitoring and evaluation exercises. Many policies appear to have multiple – and often too many – goals, while others have stated objectives - such as raising GDP - which are realistically too far away from the policy to be meaningful. Instead, what are needed are a small number of clearly-stated objectives and intended outcomes which are realistically close enough to the policy actions to be connected to those same actions, and which are also directly amenable to tracking via the use of indicators. Otherwise, it will be impossible to identify whether the apparently observed outcomes of the policy are actually due to the policy actions. Yet in each specific case, in order to provide

---

[1] This paper suggests using a COTE framework for policy formulation. In this, the letter "C" stands for both *policy clarity* and *policy coherence*; the letter "O" stands for *objectives* of policy; the letter "T" stands for *targets* and the letter "E" stands for *evaluation.*

sound underpinnings to these monitoring and evaluation activities there are also many issues relating to the intended objectives of the policy which first need to be addressed in each specific policy action or intervention. The reason is that the goals of the policy, the possible actions or interventions, along with the specifics of the context, all influence the choice and ways in which results/outcome indicators are used in the service of these monitoring and evaluation activities. This is very much the case for regional policies as it is for any other type of industrial policy.

There is now a growing literature on the requisite properties of outcome indicators and results indicators, along with the features of good evaluation and monitoring exercises, which are desirable in modern industrial policy interventions. These principles which are emerging from this literature needs to be applied directly to the smart specialisation agenda. Within EU Cohesion Policy, the importance of monitoring and evaluation for smart specialisation actions and interventions is largely related to the importance of these activities for regional development policies in general. The principles according to which outcome indicators or results indicators are to be designed have been set out in the guidance documents for a reformed EU Cohesion Policy provided by the European Commission. Yet, in the case of smart specialisation, and more specifically the ways it is being employed in the service of EU Cohesion Policy, requires some additional issues to be reflected upon. In particular, there are features and challenges associated with smart specialisation relating to the pan-European heterogeneity of the institutional and regional context which require careful consideration.

All smart specialisation actions, as is the case for all Cohesion Policy interventions in general, must connect with one of more of the Europe 2020 strategy thematic dimensions of 'smart', 'sustainable' or 'inclusive' growth. These different dimensions are each broken down into various sub-categories and all Cohesion Policy actions or interventions must connect directly with one or more of these sub-categories. The thinking underlying the Europe 2020 strategy reflects a more general worldwide shift in thinking regarding the nature of growth and development which has lead to a growing consensus that growth and development not only have multiple dimensions, but that all growth trajectories must involve all three dimensions in order to be truly sustainable in the long run on all understandings of sustainability, and this thinking also underlies the OECD growth strategy of stronger, cleaner and fairer growth (OECD 2011). At the same time, in order to be effective actions related to smart specialisation must also dovetail with many other elements of Cohesion Policy, according to the logic of what is known as the Common Strategic Framework. This sets out the legal framework regarding the ways in which different policy actions and funding steams associated with Cohesion Policy can be integrated and bundled together.

As well as this, all smart specialisation actions in each country must fit within the overall Cohesion Policy logic, as it is applied in each particular country. EU policies operate according to principle of 'subsidiarity', by which policy actions are intended to be taken at the lowest and most local levels feasible, in order to be effective (Bachtler and Turok 1997). The institutional and governance structure of each member state differs and as such, the exact ways in which EU Cohesion Policy is both designed and applied differs markedly according to the national context. These issues are set out in the partnership agreements between the European Commission and each member state along with the 'operational programme' under which all specific policy actions and projects are undertaken. In each member state the design of smart specialisation actions and interventions therefore needs to be consistent with the institutional and governance arrangements operating in each country regarding Cohesion Policy as well as with the provisions of the CSF.

2. The Importance of a Theory of Change for Policy Monitoring and Evaluation

The approach to evaluating very large scale or mega infrastructure types of projects tends to closely follow a classic textbook type approach to costs benefit analysis (Brent 2009; Farrow and Zerbe Jr 2013; Link and Scott 2011; Priemus et al. 2008). In these cases the scale for the project allows for meaningful direct links to be drawn between the project and its impacts on the local or regional economy, for secondary to be readily used in its design, and for appropriate project-evaluation data to be constructed during the life of the project. In contrast, in the case of innovation-related, entrepreneurship-related, or skills and social inclusion-related projects, the theoretical links between the individual project interventions and the wider societal impacts are rather more diffuse. Moreover, many of these types of policies involve small individual interventions and this makes the assessment of the wider impacts of these types of policies more difficult. As such, the tracking these impacts of these types of innovation or entrepreneurship policies, is often rather more difficult than in the case of large infrastructure-related projects. The scale of the public expenditure is disguised because it is spent by a wide range of government departments, regional organisations and non-government agencies. In these cases it is necessary to adopt a rather more of a realist type of methodology (Pawson 2006; Davies et al. 2000; Storey, 2008) which builds various indicators and tracking devices and approaches in order to get insights into the impacts of the policy, and this is particularly the case with innovation-related policies (Gault 2013) and entrepreneurship-SME policy (Storey, 2008). As we have formulated in the previous section, evaluation cannot take place adequately until the objectives and targets of the policy are clearly defined. But, additionally, these type of policies are unlikely to be "coherent" where they are delivered by many different government departments without clear co-ordination and without an adequate dialogue between them.

Results oriented policies require monitoring and evaluation exercises to be a natural part of the policy process. Evaluation needs to be understood as a process and should not be undertaken solely as a historic accounting exercise to determine whether public money has been spent wisely. Results oriented indicators are required in the long run in order to allow for the ex post evaluation of the impacts of the policy. More immediately, however, monitoring is required for the ongoing steering of the policy and to facilitate policy feedbacks and learning during the life of the policy. Monitoring tracks the implementation and progress of an intervention in order to support programme administration. Evaluation assesses the design, implementation, or results of an intervention in order to support new planning (Hempel and Fiala, 2011). However, both monitoring and evaluation exercises are essential parts of results oriented or outcome oriented policies, and the reason why they are so critical is because these types of results oriented policies demand an explicit theory of change to be articulated in each case ex ante. The demand for an explicit theory of change to be articulated ex ante breaks away from a purely political logic to policy design and instead introduces outcome based or results based criteria for policy design and delivery. In this way policies become designed as far as possible according to what effects they have on people's lives rather than on any political logic governed by the distribution of political rents. However, in order for this to be case, what this implies is that there must be a logical and well-substantiated set of expected links between particular policy actions and behavioural responses on the part of different actors and institutions which is articulated ex ante. Such a theory of expected change is essential, because the development of results oriented policies – including the use of results/outcome indicators and the associated monitoring and evaluation activities - cannot proceed unless there is a well-defined and clearly articulated theory of change in place which forms the underlying rationale not only the policy as a whole but also for each of its particular elements. Moreover, unless there is such a clearly articulated theory of expected change, then it will be impossible to reach agreement on the part of different actors as to the preferred policy and its priorities, as is necessarily required (Stiglitz et al. 2009).

Yet, this does not imply that theory of change underpinning the policy has to be watertight. All policies operate in a context of risk and uncertainty, and new policy initiatives, by definition, do not operate in a context whereby the policy has been pre-trialed, tested, adjusted, and evaluated over a long period. This is particularly the case for policies relating to entrepreneurship and innovation which by definition are dealing with phenomena associated with newness and novelty (Gordon and McCann 2005). While on the one hand we have general models which demonstrate the critical role played by innovation in aggregate growth (Aghion and Howitt 1992, 1996, 1998) and we also have econometric models (Crépon et al. 1998) demonstrating how innovation proceeds via a series of linkages between stages, these models and econometric results are at a level of aggregation and generality which precludes them from providing specific guidance as to what to do in any particular case or context (Hughes 2012). Yet, this does not imply that a policy operates in a knowledge vacuum. Rather, the theory of change underlying the policy logic is derived both from the higher-level aggregate analytical framework plus consideration of the experience of other examples and any recent analytical evidence relating to similar issues elsewhere. As such, while in some specific policy initiatives there may indeed have some previous pilot projects on which to justify the approach, in reality most new policy initiatives therefore take place in a context of a certain degree of ex ante uncertainty, and therefore require experimentation and 'self discovery' (Haussmann and Rodrik 2003) in order to identify what works in each specific context. In other words, part of the theory of change underpinning the policy logic is something to be experienced as a learning-by-doing phenomenon rather than as something which is constructed entirely ex ante.

New policy initiatives to some extent therefore work in the opposite methodological direction of formal economic models. Formal models typically proceed by in a primarily top-down deductive manner by building an analytical framework and constructing an ex post appropriate dataset followed by the econometric testing of these data in the light of the hypotheses derived from the model framework. In terms of policy design the pure logical positivist approach requires ex ante that a well-specified model can be constructed and that data already exist on which to test such models ex ante. In contrast, in the case of new policy initiatives, the data on which to base a comprehensive ex ante analysis are typically not available in advance, and can only be acquired at some point in the future. New policy initiatives therefore tend to be based on partial, indirectly-related or incomplete data. This is because either the arena into which the policy engages is new, or alternatively because the particular approach to engagement with the policy arena is new. By definition, in almost all such cases there will be no perfectly-constructed and ideally-fitted dataset prepared in advance on which to base all aspects of the new policy design and delivery. Therefore, the policy process for new policy initiatives tends to proceed in a rather more inductive manner reliant on the use of the available data alongside bottom-up observations and experience and a monitoring and evaluation of those observations and experiences. This largely realist type of perspective (Davies et al. 2000; Pawson 2006), rather than a pure logical positivist perspective, eschews any assumption as to an overall tightly-specified analytical model ex ante and instead proceeds is a more iterative manner, assembling knowledge and evidence as it arises. This also implies, however, that new data must be constructed during the life of the policy in order for the policy to be evaluated ex post, and that these data must closely relate to the theory of expected change put forward as the basis for the policy. Key issues to be assessed include the relevance, effectiveness and efficiency of policy and whether it can be improved (European Commission, 2013). Again, this type of data-generation process also reflects something of a more bottom-up inductive approach than a top-down deductive approach.

A similar set of issues arises in terms of ex post evaluation and counter factual analysis. For any subsequent ex post policy evaluation a purely logical positivist approach simply requires that the requisite appropriate data for testing will be made available and that the underlying model remains valid (Pawson 2006). According to a more extreme instrumentalist argument (Blaug 1992) whether the actual details of the underlying model closely reflect reality is not especially important as long as the model ex ante provides the correct ex post predictions. Yet, if a correct

underlying model exists and appropriate data exist ex ante on which to base policy design, then an ex post evaluation tends to become largely redundant, unless we also assume that the policy-makers have an underlying model which is valid, but which is also subject to statistical variations across individual cases. Testing then becomes meaningful as a means of understanding the degree of variation around the model, rather than assessing the underlying model itself. That is, of course, unless exogenous circumstances change significantly during the life of the policy, whereby the ex ante data on which the policy design was tested and the underlying model itself are no longer appropriate for assessing the policy. This is typically the case where significant structural transformations associated with fundamental institutional, macroeconomic, political or technological changes take place. There is a large literature which suggests that entrepreneurship and innovation are not only closely associated with such structural changes but also that they may drive such changes. In cases where innovation and entrepreneurship policies are very successful they may often be associated with major structural changes, thereby rendering the original model on which they were based somewhat problematic. As such, ex ante expectations regarding the veracity of the underlying nature of the innovation model need to be treated with caution, as all systems-type analyses of innovation are always stressing. This is further complicated by the fact that if innovation system features vary by location, as is posited by the thinking underpinning smart specialisation, then again the concept of a valid underlying model applicable in all cases becomes even more problematic. Yet, if we adopt a logical positivist type of approach amenable to ex post counter-factual and econometric analysis, whatever is the nature of the innovation-generating system or process, a clearly-articulated theory of expected change derived from a formal model is still essential in order to distinguish between statistical variation around a stable underlying model and exogenous changes which change the underlying model.
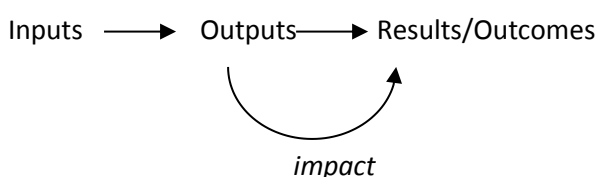
In contrast, in the case of a realist (Pawson 2006) perspective, there are no assumptions regarding the veracity of any underlying universal model of innovation and entrepreneurship, and this approach works on the basis that is enough partial and incomplete knowledge on which to base a policy but which also relies on knowledge emerging and being revealed during the life of the policy. From this vantage point there is obviously no assumption regarding fully-comprehensive and ideally-suited underlying secondary data being available ex ante on which to base policy design and testing, because if there were such data, then there would no real need for self-discovery or experimentation. Instead, both the features of the model – or rather proto-model or a heuristic model are better descriptions - and the data for any ex post evaluations of the policy must be derived from the policy actions themselves. The proto- or heuristic-model on which the policy is based depends crucially on the theory of expected change underlying the policy. This is framed in terms of a series of expected links and a likely chain of events involved in the innovation and entrepreneurship process, which allowing for significant variation is still understood to capture the major features of the phenomenon which the policy is intended to engage with. Such a theory of change also outlines the types of data which would be needed in order to some extent evaluate the policy, including any counter-factual-type evaluations. Indeed, the ex post evaluation of the performance of the policy can only be feasible not only if such data can be constructed and made available but also if the indicators used and the data complied conform to certain key properties and principles described below. Again, the need for a clearly-articulated theory of expected change and the associated links underpinning any policy intervention alongside the generation of data reflecting these expected links is therefore still critical in a realist perspective, even if no formal model akin to a pure logical positivist or instrumentalist framework can be specified.

Whatever the actual model is which is widely understood by stakeholders to best describe the innovation system, this needs to be as clearly articulated as possible in order that a agreed understanding of the likely chain of links and events in response to the policy interventions can be arrived at. Only with such an agreement can a theory of expected change be articulated which forms the basis both for the expected behavioural responses engendered by the policy and also therefore the means of evaluation.

3 The Logic of Intervention for Results-Oriented Policies

Smart specialisation is critical in articulating this theory of expected change. In order to commence the policy prioritization process smart specialisation requires a detailed analysis of the current regional economic and industrial structure on the basis of the best available evidence currently available. For this we need baseline or profiling indicators. No evidence will be complete or ideally constructed but working with the best evidence and indicators available is essential for smart specialisation. If activities, technologies, inter-institutional linkages, sectors, or a mix of these are to be prioritised as part of a smart specialisation agenda, then there have to be clear arguments as to why these are being prioritised and these depend on the theory of expected change which is being articulated. Smart specialisation helps to establish these priorities, but once they have been established then there needs to be a clear logic for assessing the progress of the intervention.

The evaluation approach to be employed in the context of EU Cohesion Policy interventions is discussed in detail by the European Commission *Evalsed*[2] guidebook along with other detailed policy evaluation guidance documents.[3] In terms of assessing the progress of the policy via monitoring and evaluation, the logic of intervention to be adopted is:

Inputs $\longrightarrow$ Outputs $\longrightarrow$ Results/Outcomes
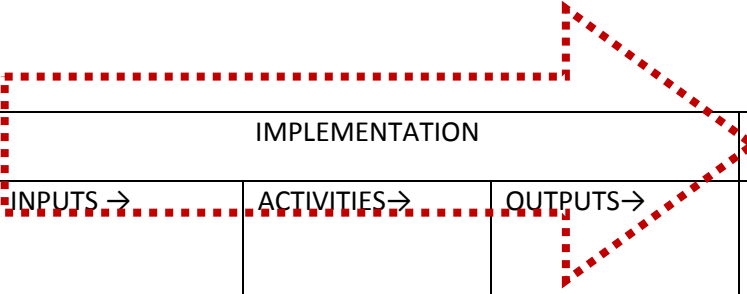
impact

In this logic of intervention framework, the *inputs* are the financial resources employed in the policy interventions, the *outputs* are the directly measurable actions whose intention it is to produce results, and the *results*/*outcomes* are the changes in behaviour which the policy is intended to influence. The results/outcomes indicators are designed to capture the changes in the intended results/outcomes, and the *impact* of the policy is the change in the results/outcome indicator which can credibly be ascribed to the policy intervention such that the movement towards the desired outcomes can be confidently related to the policy.

---

[2] http://ec.europa.eu/regional_policy/sources/docgener/evaluation/guide/guide_evalsed.pdf
http://ec.europa.eu/regional_policy/information/evaluations/guidance_en.cfm
[3] http://ec.europa.eu/regional_policy/information/evaluations/guidance_en.cfm#1

Table 1 Logic of Intervention Features

IMPLEMENTATION			RESULTS	
INPUTS→	ACTIVITIES→	OUTPUTS→	OUTCOMES→	HIGHER-LEVEL OUTCOMES
Resources mobilized	What the programme does	Products or services	Direct short to medium-term effects on the beneficiary population resulting from the project outputs.	Long-term effects in the living standards / performance of the targeted population
Budget Staff Partners Equipment	Actions Processes Techniques Tools Events Technologies of the programme	Products and services directly under the control of the implementing organization	Immediate changes in attitudes, knowledge, skills, as well as, late changes in behavior, status and the like	They can be influenced by a variety of factors and are typically not under the full control of the programme
			Often defined in the project development objective as targets	Often described as impacts
	Provide, facilitate, deliver, organize	*Trained, used, funded, participated – Complete actions*	*Increased, improved, reduced, etc.*	

Source: adaptation of Hempel and Fiala (2012)

There are various different uses of these types of terminology and Table 1 provides examples of how these types of terms are used in the case of various innovation and R&D-related programmes, and Figures 1 and 2 provide a more detailed and nuanced diagrammatic schema of the logic of intervention in innovation-related interventions. For clarity and consistency, however, here we use the terminology exactly as it is employed by the European Commission in the specifications and regulations for Cohesion Policy.

Using this framework, smart specialisation provides the ex ante policy prioritisation principles which underpins the logic of the overall strategy design. Ex ante evaluation is key to assess whether the proposed actions are relevant and coherent and whether the expected impacts are realistic. Ex ante evaluation is important to design indicators and procedures for subsequent monitoring and evaluation. *Monitoring* is used to observe the ongoing behaviour of the results/outcome indicator as the policy progresses and *evaluation* is the ex post activity by which the impact is assessed. Program and project evaluation approaches typically use a combination of a realist perspective alongside an ex post counter-factual analysis based on logical positivist principles.

However, evaluation cannot be undertaken unless targets exists. This is because evaluation can only take place in a framework in which the expected policy impacts are clearly specified. Hence, considerations of how policy is evaluated should therefore be incorporated into policy formulation when new ideas are being developed. In order to coherently link the logic of intervention to the monitoring and evaluation activities we need different types of indicators. As already mentioned, the ex ante regional profiling which is essential for smart specialisation uses profiling or baseline indicators. These establish both the features of the regional economy which are relevant to the policy decision-making process and also the baselines from which any subsequent policy interventions will be evaluated.

During the life of the programmes in order to tack the progress of the policy it is essential to use results/outcome indicators. These indicators must be chosen by the policy-making authorities so that they not only dovetail with the intended objectives of the smart specialisation agenda but also best capture the behavioural changes which are intended to be engendered by the policy interventions. The desired properties of these results indicators are discussed in detail by Barca and McCann (2011a) and examples of such indicators are discussed relating to innovation, research and development (Barca and McCann 2011b) and to environmental issues (Barca and McCann 2011c). Adherence to the principles outlined in these documents is not only important in terms of responding to the conditionalities inherent in the new Cohesion Policy[4] arena but more generally also in order to avoid the use of indicators which either fail to capture the policy effects or alternatively are reduced to tautologies. There are also specific examples provided by Technopolis and MIOIR (2012) and by Gault (2013) showing how such indicators relating to innovation which contain all of the desired properties can be easily embedded within the design of the innovation policy logic.

Result indicators are the reflection of policy objectives. Policy objectives are something that we plan to achieve, change, influence or facilitate. The results indicators should capture what we plan to achieve, change, influence or facilitate in a variable. Results/outcome indicators are normally metrics (with a necessary clear measurement unit) but they can also be supported with qualitative indicators. Indeed, the most robust and sophisticated monitoring and evaluation systems are those which incorporate both quantitative and qualitative evaluation methodologies which are intended to complement each other and to respond to different issues and provide insights. Qualitative

---

[4] http://ec.europa.eu/regional_policy/sources/docoffic/working/sf2000_en.htm

and case study techniques (Vanclay 2012) allow for a detailed understanding of how the expected links within the theory of change operated and performed while quantitative indicators more readily permit ex post and counter-factual type evaluation approaches (Scarpa 2012). Qualitative evaluation methodologies engage participants in the policy learning; offer a deeper understanding of processes leading to impacts; can assess against a wide range of evaluation criteria and allow to pick up unintended consequences. However, qualitative evaluation methodologies also have disadvantages such as respondents and interviewers may be biased or poorly informed; rarely provide a clear answer; tend to "describe' rather than "evaluate"; have the risk to including "unrepresentative" groups and present difficulties in judging efficiency and effectiveness or establishing cause and effect. On the other hand, quantitative evaluation techniques also have advantages and disadvantages associated to the situation: among their advantages, they provide clear answers on impact or can be independently verified; among the disadvantages: they have a higher associated costs related to data collection and technical demands; lack information on context and mechanisms behind policy impacts; absence of pure control group; possible false impression of precision; narrow focus on effectiveness and efficiency and are difficult to use on indirect interventions that seek to influence the business environment. Realist approaches to evaluation (Davies et al. 2000; Pawson 2006; Link and Vonortas 2013; OECD 2007; Stockmann 2011; Sedlacko and Martinuzzi 2012) aim to combine these different techniques in order to produce a portfolio of evidence including outcome indicators (Abreu 2012) which ideally largely point in the same direction. A result indicator will always have associated a baseline value that is related with the value of the indicator before intervention linked with a number or description of situation and a *target* that is the intended value or the quantification or desired development trend after intervention in a particular year or period[5]. Table 4 provides examples of these types of mixed-methods approaches employed by various OECD regions aiming to enhance their entrepreneurship and innovation performance.

In general, there are four main types of *evaluation* exercises over the policy cycle: ex ante evaluations, interim and ongoing evaluations, terminal evaluations and ex post evaluations.

Ex ante evaluations are performed before a policy intervention is implemented in order to assess its relevance and coherence and its implementation arrangements. It can be used to set up targets and milestones for activities, outputs and outcomes and to set up procedures for subsequent evaluations over the lifetime of the intervention.

Interim and ongoing evaluations occur during implementation of a policy intervention in order to assess how the policy is progressing over time. They help to manage the intervention and to ensure that there is warning if targets are not going to be met.

Terminal evaluations occur immediately on the closure of a programme and ensure that there is institutional memory and that statistics and qualitative information from those immediately involved in implementation are preserved. Such evaluations also give policymakers an understanding of immediate next steps, particularly when quick decisions are needed on continuation or closure of policy measures.

Ex post evaluations take place after implementation is complete and when the final impacts are known or can be estimated. They give a more detailed view of the impact of particular measures and whether the actions delivered the expected results effectively and efficiently. They should be used in designing future interventions based on concrete knowledge of what has worked and what has not.

What is most important here is that for smart specialisation innovation and entrepreneurship policies to be results-oriented, it must be the case that the logic of intervention, the theory of expected change, the indicators to be

---

[5] Main source: European Territorial Cooperation Strategic Approach 2013+ (Anna Burylo, Evaluation Unit, DG for Regional Policy, European Commission)

employed during the life cycle of the policy programmes, the data to be constructed, and the design of the policy, are all closely interrelated issues which cannot be divorced from each other. Table 1 outlines some of the key principles in terms of the links between the project design and its impact evaluation potential via the use of indicators.

In the Appendix in Table A2 we present a more detailed outline of the types of evaluation methodologies typically employed in different settings. Table A3 provides example of different types of policy monitoring and evaluation techniques and tools which are employed in different contexts and the table also outlines the major advantages and disadvantages of each approach. Table A4 presents examples of systems of indicators used in various cases for capturing the effects of innovation and entrepreneurship-related policies and Table A5 provides examples of good policy monitoring and evaluation practices employed by different European regions.

What becomes clear from this inventory of innovation-related policies examples involving the use of: evaluation methodologies; different types of policy monitoring and evaluation techniques and tools; systems of indicators; along with some regional examples of good practice for evaluating innovation-related issues, is that there is no 'one-size-fits-all' blueprint or template for the use of results indicators and for results-oriented policy evaluation, Rather, these results-orientation and policy monitoring and evaluation aspects have to be built into the policy design right from the beginning, exactly as the originators of the smart specialisation concept understood (David et al. 2009). Adopting a results oriented approach to policy making therefore imposes an analytical discipline on all aspects of the policy process which allows for agreement between different parties, actors and institutions on the basis of intentions, analysis and expectations, and works against a purely political logic to the policy process. The clarity of analysis and expectations introduced into the policy process also facilitates a policy transparency and accountability which is associated with an openness to measurement, monitoring and evaluating, and as far as possible the development of a culture of policy learning and institutional capability (Sedlacko and Martinuzzi 2012).

4. Case analysis: Entrepreneurship and SME policy

4.1. European Policy Background: Europe 2020, Small Business Act, "SME test" and the Entrepreneurship 2020 Action Plan.

SME and entrepreneurship policies fall under the Europe2020 economic growth strategy pillar of Smart Growth and under the Thematic Objective of the Operational Programmes for next programming period 2014-2020 titled "Enhancing the competitiveness of Small and Medium Entreprises (SMEs)". They are linked with the ex ante conditionality: Specific actions that have been carried to underpin the promotion of entrepreneurship taking into account the "Small Business Act" for Europe (SBA). The rationale behind is that competitiveness and growth of SMEs and the starting steps of new companies is often hampered by a poor business environment that does not consider their financial, administrative and other specific needs. Without improvements in these fields, the investments devote to SMEs would risk not to deliver their expected impacts.

The "Small Business Act" (SBA) reflects the Commission's political will to recognize the central role of SMEs in the EU economy and for the first time puts into place a comprehensive SME policy framework for the EU and its Member

States. Annually, DG Enterprise (DG ENTR) produces the SBA country factsheets that serve as an additional source of information designed to improve evidence-based policy making, along ten established (COM(2008) 394 final) principles: (1) entrepreneurship, (2) second chance, (3) Think small first, (4) Responsive administration, (5) State aid and public procurement, (6) Access to finance, (7) Single market, (8) Skills and innovation, (9) Environment, and (10) Internationalization (European Commission, 2008 and 2011).

The Entrepreneurship 2020 Action Plan is a blueprint for decisive action to reignite the entrepreneurial spirit in Europe. This Action Plan acts as a follow up to the Small Business Act review of April 2011. The Entrepreneurship 2020 Action Plan is built on three main pillars: entrepreneurial education and training to support growth and business creation; strengthening framework conditions for entrepreneurs by removing the existing structural barriers and supporting them at different stages of their business lifecycle and dynamising the culture of entrepreneurship in Europe by nurturing the new generation of entrepreneurs, additionally reaching out to specific groups whose entrepreneurial potential is not being tapped to its fullest extent or who are not reached by traditional outreach for business support is also under their priorities. The Communication on the Action Plan was preceded by a [public consultation](#) in July 2012. The consultation did not target any specific group as all citizens and organisations were welcome to participate. Among other conclusions, the public consultation showed that access to finance constitutes one of the most significant constraints on growth of SMEs and entrepreneurship in Europe. (European Commission, 2012).

The investment priorities connected with this Thematic Objective under the European Regional Development Fund (ERDF) are promoting entrepreneurship and supporting the capacity of European SMEs. In particular, promoting entrepreneurship by facilitating the economic exploitation of ideas and fostering the creation of new firms and supporting the capacity of SMEs to grow in regional, national and international markets and to engage in innovation processes. Among the specific actions that the European Commission envisages are measures to reduce the time and cost involved in setting-up a business or developing monitoring and evaluation mechanisms to assess the implementation of the SBA.

Regarding the impact assessment exercises, the European Commission has developed the "SME test". It is a key action to implement the "Think Small First" principle, which is the core principle of the "Small Business Act for Europe. The SME test is part of the Commission's regulatory impact assessment. The idea behind an SME test is to analyse the effects of a legislative proposal on SMEs. The SME test will be further discussed in following sections.

4.2. SMEs and Entrepreneurship Policy

SMEs, and in particular entrepreneurship, are an important factor in economic development because of its clear impact on the wealth generation in terms of innovation, productivity and economic growth, nurturing of new skills and capabilities, opening up of new markets, job creation and satisfaction (Van Praag and Versloot 2007; Feldman et al 2011; European Commission, 2012). They contribute to policy objectives such as job creation and economic growth but also sustainable development and social inclusion. These potentialities are recognized and supported by the governments, whose goal is to propel their economy forward. SME and entrepreneurship policies tend to be governmental initiatives that influence the formation, viability and commercial success of new and smaller scale

firms and tend to create an entrepreneurship-friendly environment. In the majority of the cases these policy initiatives seem to be developed at different governance levels – local, regional, national and supra-national. These aspects of entrepreneurship policies make their monitoring and evaluation systems harder than other more specific and concentrate policies.

Storey (2008) identifies the following four market failures that justify the government intervention in the case of SME and entrepreneurship policy:

- Individuals are unaware of the private benefits of starting a business. This is frequently used to justify "entrepreneurship policies" such as the raising of an entrepreneurial culture by including entrepreneurship courses at different levels of the education system.

- Owners of small firms and self-employees do not fully appreciate the private benefits to their business of taking certain courses of action. This information imperfection is used to justify subsidies to promote SMEs to undertake workforce or management training or obtaining external advice from specialists or consultants or used to fund visits by SMEs to overseas trade fairs.

- Financial institutions are unable to accurately assess the risk of lending to small firms so denying some (good) small firms access to funds and constraining their growth. To respond to this problem governments introduce Loan Guarantee Schemes in which the state agrees to reimburse defaults on bank loans made to SMEs with viable business plans but lacking the collateral that banks would expect to be available if they were making fully commercial loans.

- Finally, a range of SME policies reflect the divergence between private and social benefits. The best examples relate to policies to promote innovation in small firms. Here it is argued that, without subsidies, there would be a socially sub-optimal formation and growth of technology-based firms. The potential presence of positive externalities is used to justify policies to promote Science Parks or public funding of seed equity programmes focused on technological-based firms.

Additionally, situations where market barriers affect particularly to certain groups of individuals is used to justify target group policies, such as women, young or senior people.

The presence of market failure is, however, a necessary but not a sufficient condition for government intervention other policy rationale can be focused on information asymmetries, government failures, social equity or education failures (Stevenson and Lundström, 2007).

Stevenson and Lundström (2002, p.60) identify four entrepreneurship policy typologies: extension policies, new firm creation policies, "niche" target group policies and "holistic" entrepreneurship policy. Entrepreneurship extension policies have as the main objective to improve the access and services to start-up supports through existing SME support structures. New firm creation policies focus in reduce the barriers to firm entry and exit, increase the start-up rate and reduce the red tape and administrative burden. "Niche" target group policies are focused in the group that are underrepresented in entrepreneurship. Finally, the most comprehensive entrepreneurship policies are the "holistic" entrepreneurship policies that have as main objectives to increase the entrepreneurial culture showing entrepreneurship as a role model or a professional career option and create dynamic markets with better growth conditions.

Hart (2003) gives a good overview of different aspects in the area of entrepreneurship. Among these aspects are his definitions of the two distinct subjects of public policy and public governance. Whereas public policy includes actions taken by the government and institution, public governance focuses on more informal means of supporting entrepreneurs. These two aspects combined form a thorough base for strong entrepreneurial growth by providing official as well as communal support. Apart from these two types of interventions, there are a number of indirect aspects affecting entrepreneurial behavior, such as education policy or other economic policies. Regarding the level, there is no special consensus of which is the most appropriate policy level to implement successful entrepreneurship and SMEs support policies, however some authors have concluded that in general "macro" policies are more effective than "micro" policies. "Macro" policies are the ones linked with demand management, immigration policy, competition policy, tax and benefit regimes and regulation. While "micro" policies include: training, information, advice and management programmes for SME owners or potential owners; cultural change programmes such as enterprise education or access to finance programmes (Storey, 2008).

In general there is a clear distinction between SME and Entrepreneurship policy. SME policy applies to existing enterprises whereas Entrepreneurship policy relates to policies seeking to enhance the creation of new enterprises. In Table 2 the main features of SME and Entrepreneurship policies are reported.

Table 2. Features of SME and Entrepreneurship Policy Measures and Examples

SME Policy	Entrepreneurship Policy
Reducing administrative and bureaucracy burden	Reducing administrative and bureaucracy burden
Business taxes and fiscal incentives	Business taxes and fiscal incentives (Social security benefits, including health care, pensions and unemployment benefits, etc.)
Access to capital/financing (risk reduction tools including investment readiness and proof-of-concept and the leveraging of public procurement, repayable short-term loans) e.g. Ensuring access to finance (Opolskie, PL)	Access to micro loans and seed funds (support self-finance, venture, grants, bank loans, corporate co-sharing funding, research grants, guarantee schemes, stock purchase warrants…) e.g. Lombardy Seed Fund (Lombardy, IT); Microfinance Institute (East-Mid Sweden, SE); Capital Investment Fund (Malopolska, PL)
Provision of information services e.g. The 2000 SME Plan (Nord-Pas-de-Calais, FR); One southern Indiana Chamber (1SI) (New Albany, Indiana, US)	Provision of information about start-up e.g. Barcelona Activa (Barcelona, ES);
Export and marketing services (support the first client search, procurement, soft landing, technological showcasing, quality and design management, meet-the-buyer fairs, export	Highlighting entrepreneurs as role models – *communication about heroes* e.g. mentoring support in Women's Enterprise Agency

guarantee scheme) e.g. Chamber of Commerce of Prato (IT); State export initiative (Washington, US); Center for Trade Development (Pennsylvania, US).	(Helsinki, FI); Endeavor Programme (County Kerry, IE); Business Plans competitions (Poitou-Charente and Midi-Pyrénées, FR); entrepreneurship fairs
Provision of training and consultancy (advice, coaching, mentoring, professional services, vocational training scheme) e.g. SPIT and CQMS (Bratislava, SK)	Entrepreneurship education e.g. CASE-Centre for Amsterdam Schools for Entrepreneurship (Amsterdam, NL); Företagsamt Halland (SE); Endeavor Programme (County Kerry, IE); Solvay School and NEC (BE); IRCE (Provence-Alpes-Cote d'Azur, FR)
Technology transfer (cluster, inter-clusters, university-enterprise partnerships, diaspora, technology centers, open innovation platforms) e.g. *innovation voucher schemes:* INDEX (West Midlands, UK); IVC (Estonia, EE). Poznan Science and Technology Park PPNT (Wielkopolska, PL); TOP Programme (Twente, NL)	Facilitating network services e.g. Madrid Emprende's business incubator network (Madrid, ES); Barcelona Activa (Barcelona, ES); Juneau County Economic Development Corporation's (JCEDC) and Inventors and Entrepreneurs Club (Camp Douglas, US)
Support of infrastructures (incubator, living labs, prototyping, design centers, science parks, fab labs)	Support of infrastructures (incubator, living labs, prototyping, design centers, science parks, fab labs) e.g. Wallonia Space Logistics (Wallonia, BE); Cloud Incubator Hub (Murcia, ES)

Sources: Lundström and Stevenson (2005); Hoffmann (2007); Stevenson and Lundström (2007); McCann and Ortega-Argilés (2013); European Commission (2013b)

Previous literature concludes that a country's context matters greatly in the formulation of entrepreneurship policy. It could be logically assumed that policy makers would take their specific context conditions into consideration when assessing policy gaps and opportunities and developing their policy analysis. Given than contextual conditions will vary from one country or region to another it would also be logical to assume that governments will differ in their policy approaches. Having said that, the literature shows various ways to implement a national entrepreneurship policy strategy, among other examples, Bornefalk and Du Rietz (2009) discuss the cases of Denmark and Sweden in the light of EU Agendas that have been implemented to further entrepreneurship in the member countries. While Denmark defined a very ambitious strategy that involved substantial research, defining policy areas, and introducing policies to reach targets in improved entrepreneurship, Sweden has after an initial willingness to make policy changes ceased to focus on this issue (Bornefalk & Du Rietz, 2009). Denmark has since introduced various initiatives that target entrepreneurs in their country including the Danish Foundation for Entrepreneurship or the Global Entrepreneurship Week (Danish Business Authority, 2015). In Sweden, the Swedish Entrepreneurship Forum was founded that serves as a source of information and has a strong focus on research and on connecting the academic and the real life facets of entrepreneurship (Swedish Entrepreneurship Forum, 2015). There are many more examples of specific initiatives taken by governments to support the issue, not only at national but also at other levels. McCann and Ortega-Argilés (2013), for instance, mention a list of regional government initiatives, such as the Endeavor Programme in County Kerry, Ireland or Euregional start-up initiative in Rhein-Maas-Nord, Germany.

4.3. Evaluation of SME and Entrepreneurship Policies

As we discussed previously, the evaluation of SME and Entrepreneurship policies can be a complicated exercise due to the broad scope of policy actions in different mainstream government policies such as tax, education or social policies like immigration or unemployment benefits, among others. These policies have a clear effect on entrepreneurship and SME development but rarely are taken into consideration in the evaluation of the impact of SME and Entrepreneurship policies. Additionally, we can also add the fact that SME owners, since they have a business to run, regard themselves as having little time to engage with the government in providing data to secure the monitoring and evaluation of their activities. Finally, any evaluation should ensure that all types of SMEs are taken into consideration (Gazelles, spin-offs, self-employees, micro-enterprises[6], start-ups, etc.). Having said that, the monitoring and evaluation of entrepreneurship and SME policies is extremely important task for the government not only to show the taxpayer and business community whether the programme is a cost-effective use of public funds or to achieve continued improvement in the design of the programmes but also to strengthen the government credibility and reputation.

Table 3 presents a series of indicators used to analyse the entrepreneurial activity of a location. The table considers measures both in terms of the density (such as proportion of SMEs) and dynamics (such as annual growth in SMEs). A high level of the variables included in the table is considered positive for the entrepreneurial activity.

Table 3 Indicators for Entrepreneurship

Entrepreneurial vitality variables	
Density (static) measures	**Dynamic measures**
-Business ownership rate to labour force	-Annual growth in num. of SMEs
-TEA index	-Annual growth in SME employment
-Nascent entrepreneur prevalence rate	-Annual entry rate (to total firms)
-Self-employment rate (% of total employment)	-Start-up rate *minus* exit rate (net growth in firms)
-Female share of self-employment	-Start-up rate *plus* exit rate (turbulence)
-SMEs per 1000 inhabitants	
-SME share of total employment	
-Solo firms (% of all firms)	
-Micro-firms < 10 employees (% of all firms)	

---

[6] SMEs with less than 10 employees and a turnover or balance sheet total equal to or less than €2 million.

-Micro-firm share of employment	
-Venture capital deals per 1000 people	

Source: adaptation from Stevenson and Lundström (2007); Mayer (2011)

Several organizations have developed attempts to develop a framework to evaluate and test Entrepreneurship and SME policies, among them, 'the SME test" by European Commission, the application of the "C.O.T.E." framework to SME policy in the case of OECD or the MILES framework in the case of the World Bank.

The "SME test" of the European Commission

The "Think Small First" principle requires that SMEs' interests are taken into account at the very early stages of policy making in order to make legislation more SME friendly. The Commission Impact Assessment Guidelines support its application, indicating that services should assess the impact of forthcoming legislation and administrative initiatives on SMEs (the 'SME-test'), and take the results of this analysis into account when designing proposals, including through alternative mechanisms and using flexible approaches (European Commission, 2009).

The "SME test" comprises four main steps (European Commission, 2009):

1.Consultation with SMEs/SME representative organisations. The test establishes a minimum consultation period of 12 including among other activities an Small Business Act follow-up meeting with stakeholders. The Commission has developed a number of tools which help to get the opinion of businesses. These include the Enterprise Europe Network and the Network of SME Envoys. Among the examples of good practices for the consultation of stakeholders can be found: round table discussions with stakeholders, specific committees, on-line consultations, forums (European Commission, 2009).

2.Preliminary assessment of businesses likely to be affected. In this step the government should establish whether SMEs are among the affected population. The characteristics of the businesses and sectors likely to be affected should be identified. Among other relevant sources of information to be explored we can found the number of businesses and their size, the proportion of employment concerned in the different categories of enterprises affected; the weight or presence of the different types of SMEs in the sectors and the links with other sectors and possible effect of subcontracting (European Commission, 2009).

3.Measurement of the impact on SMEs. An exhaustive cost-benefit analysis should be performed in this step. The analysis should analyse the distribution of the potential costs (financial costs, substantive costs of adoption of standards and regulation, and administrative costs) and of the benefits such as the improvement of working conditions, increase in competition, accessibility to more qualified staff. It would be of interest to run a comparative analyse between the costs and benefits of SMEs and large firms (European Commission, 2009).

4. Use of alternative options or mitigating measures, if appropriate. Among others, it is understood as mitigating measures: the size-related exemptions from certain accounting requirements; temporary reduction or exemptions in some legislation; reduced fees; simplified reporting obligations for SMEs or specific

information campaigns or user guides, training and dedicated helpdesks or offices (European Commission, 2009).

The application of the COTE framework by the OECD (OECD 2007)

The main objectives of the entrepreneurship policy following the COTE framework for policy formulation. C stands for clarity and coherence; O stands for objectives of policy; T stands for targets and E stands for Evaluation.

In particular in the case of entrepreneurship and SME policies the objectives of policy should consider the following (OECD 2007):

- Be a strong voice for small business at the heart of government – ensuring that government is aware of the needs of business
- Strive for a regulatory framework which minimizes the burdens on business
- Develop and maintain a world class business support service to enhance the competitiveness and profitability of small businesses
- Champion the importance of entrepreneurship across society, particularly in under-represented and disadvantaged groups

OECD (2007) identifies seven headings under which SME policies can be assessed. These are: *Rationale, Additionality, Appropriateness, Superiority, Systemic Efficiency, Own Efficiency* and *Adaptive Efficiency*.

Additionality is defined as the true impact of the scheme/programme. In other words activity that would not have taken place without the programme but is attributable to the firm participating in the programme. Whilst it is not always easy to quantify, it is likely to be reflected in a measure such as additional output, employment, sales or export activity that can be attributed to the existence of the programme (OECD 2007).

This implies that for any given outcome, that policy impact can be considered as the difference between the observed outcome with the intervention and what would have happened without the intervention (OECD 2007). This exercise could be very difficult for the following reasons (OECD 2007):

- It is not always clear what changes might have occurred in the firms as a result of participation. Some programmes might be expected to lead to a greater likelihood of firm survival, other growth in sales, profits or employment, others to the greater likelihood of innovating or selling into overseas markets.

- Participation in the programme will precede improvement. Some programmes will have a more immediate impact than others.

- Another problem is linked with the diaspora of SME performance which is the results of different determinants internal and external to the firm (managerial skills and experience, sectoral belonging, geographical location, macro-economic conditions, etc.).

The "Six Steps to Heaven[7]" procedure has been defined to support the impact assessment of SME policies taking into consideration the potential problems that have been discussed above.

- Step 1. Take up of schemes: count the number of participants

- Step 2. Recipients' opinions: assess client satisfaction

- Step 3. Recipients' views of the difference made by the assistance

- Step 4. Comparison of the performance of the assisted with "typical" firms

- Step 5. Comparison with match firms – "treated" against "non-treated" firms.

-Step 6. Taking account of selection bias (self-selection, committee selection policy approaches)

This is an approach that is mainly relevant to quantitative and ex post evaluations rather than to qualitative and ex ante evaluation. The steps are ordered according to the sophistication of the procedure. The Six Steps procedure considers steps 1 to 3 as monitoring and steps 4 to 6 as evaluation procedures. The difference between Monitoring and Evaluation in that the former relies exclusively upon the views of the recipients of the policy. Evaluation however seeks, by some means, to contrast these views or actions with those of non-recipients in order to present the "counter factual". The difference between actual changes and the "counter factual" is viewed as the impact of the policy – or its "additionality".

The MILES framework (World Bank, 2007)

Macroeconomic and political stability. Entrepreneurs require a sound macroeconomic framework in which to expand their business and create new jobs.

Investment climate, institutions and infrastructure. Firms will expand and create formal sector jobs when the costs of doing business (from regulation, heavy tax burden, and poor infrastructure) are low and predictable.

Labor market regulation and institutions. Sound regulations are crucial for both the employer and the worker to engage in a productive, long-term working relationship.

Education and skills. High productivity jobs are invariably based on good formal education and require appropriate skills for all age groups.

Social protection. A strong and balanced social protection scheme protects the income of workers from shocks to employment.

Some of the main conclusions that these attempts have found can be summarized as follows[8]:

---

[7] Storey (2000), reviewed and operationalized by Lenihan et al. (2007); Bonner and McGuiness (2007) and Ramsey and Bond (2007).
[8] Sources: European Commission – DG Regional Policy (2012); European Commission (2013); OECD (2007).

- The major concerns of entrepreneurs and SME owners is connected with financial constraints. Among the mechanisms to accelerate the access to finance the use of loans seems to be more effective than grants in supporting innovation.

- Non-financial 'soft' support such as business advice has been found also effective in business performance

- A combination of financial and non-financial support in one package seems to have a positive effect in the impact of the policy

- The most successful policy measures were the ones that target not just capital market failures but also information market failures. For medium-sized enterprises, innovation support, networking and innovation consortia proved effective at increasing long-term growth and productivity. For small and micro enterprises, basic business advice may be the single most cost effective form of support. For SMEs of all size, this may suggest a tailored package mixing appropriate financial and non-financial elements.

- Evaluation approaches need to be developed that permit policy makers with SME and entrepreneurship responsibilities to be able to engage more fully in cross-government discussions on priority setting.

- Policies focusing primarily on producing good general economic framework conditions are unlikely to be sufficient to produce a more entrepreneurial society. Governments with the highest commitment to improving the level of entrepreneurial dynamism adopt integrated poicy approaches, with efforts to promote fair and open competition, well-functioning capital markets and flexible labour markets as well as specific measures in key entrepreneurship policy areas to reduce administrative and regulatory procedures for star-ups, promote entrepreneurial values in society, increase opportunities to learn about entrepreneurship, and ensure all members of the population have access to the economic resources and supports necessary to become entrepreneurs and build viable businesses. (Stevenson and Lundström, 2007).

- Evaluation needs to become more central to the policy-making process. It should not be undertaken solely as a historic accounting exercise to determine whether public money has been spent correctly.

4.5. Case example: Evaluation of Inclusive Entrepreneurship Policies

Inclusive entrepreneurship policies work targeting specific populations such as youth, seniors, women, the disabled, ex-offenders, ethnic minorities and the unemployed. They are intended to offer equal opportunities in terms of entrepreneurship and self-employment regardless of different social backgrounds and to improve their labour market outcomes. They contribute to the economic growth pillar under Europe 2020 of inclusive growth.

The main areas of intervention of these types of policies are: access to start-up financing, training, mentoring and consultancy; entrepreneurship education and awareness raising; network building; or improvements to social security and business regulatory systems.

Evaluations in the case of these policies should be designed to assess policy actions against a range of key success criteria: relevance, effectiveness, efficiency, impact and sustainability taking into consideration the targeted groups of individuals.

Table 5. Key Evaluation Criteria

Measure	Definition
Relevance	The extent to which the activity is suited to the priorities and policy of the target group, recipient and government (objectives versus needs).
Effectiveness	The extent to which the intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance (outcomes versus objectives).
Efficiency	The outputs in relation to the inputs. Is the intervention using the least costly resources in achieving the desired results? (inputs versus outputs)
Impact	The positive and negative changes produced by a policy intervention, directly or indirectly, intended or unintended (objectives versus outcomes).
Sustainability	Whether the benefits of an activity are likely to continue after funding has been withdrawn.

Source: European Commission/OECD (2013)

Given the focus on improving the live and work conditions of certain group of individuals, the analysis should start by assessing the local labor market and the market of goods and services.

Labor market assessments seek to understand employment patterns and trends in the local economy. Common factors to analyze during such an assessment include the following (Asian Development Bank, 2007):

- Labor Demand. Overall economic conditions; size of the formal and informal sectors; dynamic sectors or industries and geographic areas that have a demand for labor; industry trends and projections; expected number of jobs to be created; skill requirements by occupation; wage levels and earnings; working conditions; hiring practices; employer perceptions; barriers to employment based on gender, age, ethnicity, social status, religion, or other reasons; and so on.

- Labor Supply. Size and structure of working age population; employment, under-employment, and unemployment by gender, age, education level, urban/rural areas, sector of the economy, occupation, formal/informal, and public/private sectors.

- Institutional and Policy Environment. Existing labor market programmes, policies, laws, and institutions, including, for example, minimum wage regulations, employment protection laws, unionization, unemployment benefits, and the like. Other aspects of interest include sectoral economic priorities defined at the national, regional and local levels.

Assessing the market for goods and services helps determine the potential for small producers to engage in sustainable economic activities and the possible distribution of role (for example, for youth or women) in these markets (Penrose-Buckley 2007).Common market features to be analyzed include:

- Market demands and value chains. Existing and future gaps in terms of consumer products and services; demand for commodities, processed products, and semifinished goods by retailers, wholesalers, or processing companies; identification of local, regional and export markets; identification of existing market players; and other factors.

- Market stability. Market vulnerabilities to shocks, seasonality, and changing trends, potential restrictions to market access and the movement of people and products due to conflict and insecurity.

- Market prices. Price volatility of end product and supplies; potential impact of additional producers on prices; inflation; transaction costs.

Market assessments are usually carried out through a combination of analyzing existing data and surveying employers or small business holders. Interviewees can provide important insights about employment prospects in particular sectors, how hiring decisions are made, the main constraints formal and informal businesses are facing, their perceptions of young people, and more.

The key indicators to be used to monitor and evaluate inclusive entrepreneurship need to be collected for each of the social inclusion groups targeted by policy (women, youth, seniors, ethnic minorities, the unemployed, the disabled, ex-offenders, etc.) .

Table 6 Indicator Examples and the Questions Addressed

Type of indicator	Examples	Typical questions
Baseline indicators for target groups	Number of business owners Number of self-employed Business start-up rate Rate of entry to self-employment	Is inclusive entrepreneurial activity growing? Where are the gaps?
Policy activity indicators	Number of people supported by policy Proportion of beneficiaries from target groups	Are the activities relevant to beneficiaries' perceived needs? Are the beneficiaries those with the greatest need?
Customer satisfaction	Participants' views on quality of the programme	Is the delivery method appropriate? Are there key barriers not addressed by the programme?

Policy output indicators	Change in proportion of entrepreneurs accessing business loans	How far is policy addressing barriers to entrepreneurship in the target group?
	Change in proportion of entrepreneurs with business training	
	Change in attitudes to entrepreneurship and self-employment	
Policy outcome indicators	Rate of business start-up by policy beneficiaries	Does policy support lead to business creation?
	Rate of entry to self-employment by policy beneficiaries	Are the businesses sustainable?
	Survival rate after 6 months, 1 year, 3 years	
	Employment in businesses created	
Policy impact indicators	Number of beneficiaries in employment after a period of time	Even if the enterprises did not survive, has the experience benefited the beneficiaries of the programme?
	Income of beneficiaries after a period of time	

Source: European Commission/OECD (2013a)

4.6 Evaluation of entrepreneurship education

Indicators to assess a *training course* aimed at supporting people gain the skills they need for business start-up could include:

- the number of people who attended the course (from project records or sign-in sheets)

- the satisfaction of the attendees with the content and delivery of the course (from a survey immediately after the course),

- what the attendees learned on the course (from a test after the end of the course or a review of the quality of business plans produced by participants);

- whether the attendees' behavior changed as a result of the course (from data on the number of enterprises established, their success in raising finance, etc.)

Table 7 Examples of Indicators for Youth Skills Training Projects

Category	Sample target	Example of indicators
Input	Two trainers and facility within budget of €10,000	Two trainers skilled, equipped and deployed Cost of programme in € within desired budget
Activity	Provide life skills training for youth (20 hours)	Number of training hours delivered Number of youth participating by age, gender, level of education Date by which the training was provided
Outputs	100 youth participating in training	Number of youth who finished the training (by age, gender, level of education)
Outcomes	Increased knowledge of effective communication	By the end of the programme: - Number and percentage of youth able to express ideas clearly measured against a predetermined test score card - Number and percentage of youth with improved verbal and non-verbal communication skills measured against a predetermined test score card -Number and percentage of youth who report feeling comfortable approaching employers
Impacts	Increased household income	Years after, average monthly household income increased by 20% compared to baseline.

Source: Hempel and Fiala (2012)

Table 8 Examples of Indicators for Youth Enterprise and Entrepreneurship Projects

Category	Example of indicators
Input	- Budget allocation and expenditure (in €) - Amount and share of matching funds raised - Number of program staff by level -Number of local facilitators under contract -Number of local organizations who provide in-

	kind contributions
Activity	- Number of hours for support services provided - Number of business plan competitions organized. - Average number of hours of mentoring provided per week/month
Outputs	Number of youth submitting a complete business plan -Number of youth enterprises supported annually. -Number and percentage of youth talking to their mentor at least once every two weeks
Outcomes	By the end of the programme: - Number and percentage of youth who started a business - Number and percentage of business registered -Total sales last week/month - Number of jobs created - Percentage of profits reinvented
Impacts	Years later: - Household income - Local youth unemployment rate (%) - Levels of individual/household food consumption (including fruit and vegetables) -Number and percentage of youth who report that their house/apartment has basic infrastructure (running water, electricity, etc.) - Number and percentage of youth who report reduced levels of conflict in the previous year

Source: Hempel and Fiala (2012)

5. Summary and Conclusions

Given the fact that SME and entrepreneurs are an important driver of the regional socio economic system, they should be involved in the process of setting-up, implementation and evaluation of the RIS3. Public authorities and RIS3 penholders have to find a suitable way to ensure that the views of leading entrepreneurs and SME associations are not only taken into account but that these individuals and organisations become central to the whole process. In some regions the focus will tend to be on new firm start-ups, in other regions on growing the existing new firms, in others it will be on issues such as supply-chain developments. Whatever is the priority it is clear that the indicators used must well capture the levels of engagement, mobilization and dynamism of SMEs in the entrepreneurial search processes. As Jaffe (2015) argues, when it comes to evaluating the effects of public interventions, and especially where knowledge-related and innovation-related issues are at stake, not everything can be even approximately captured by metrics and a mix of quantitative and qualitative indicators is not only the best approach, but without such an approach a quantitative approach alone will produce biased results, as will a qualitative-only approach. Here we have argued on the basis of the literature plus numerous examples of best practice from around the world that the current state of the art points exactly this mixture being the best approach for both the monitoring and evaluation of smart specialisation interventions.

References

Abreu, M., 2012, Good Practices in the Selection and Use of Outcome Indicators, Available at:

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

Acemoglu, D., and Robinson, J.A., 2012, *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Crown Publishers, New York

Aghion, P., and Howitt, P., 1992, "A Model of Growth Through Creative Destruction", *Econometrica,* 60.2, 323-351

Aghion, P., and Howitt, P., 1996, "The Observational Implications of Schumpeterian Growth Theory", *Empirical Economics*, 21.1, 13-25

Aghion, P., and P. Howitt, 1998, *Endogenous Growth Theory*, MIT Press, Cambridge MA

Bachtler, J., and Turok, I., 1997, (eds.), *The Coherence of Regional Policy*, Jessica Kinglsey, London

Barca, F., and McCann, P., 2011a, "Outcome Indicators and Targets – Towards a New System of Monitoring and Evaluation in EU Cohesion Policy", 2011, *DGRegio Website*, July. Available at:

http://ec.europa.eu/regional_policy/information/evaluations/guidance_en.cfm#1

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

Barca, F., and McCann, F., 2011b, "Complementary Note 1: Outcome Indicators for the Thematic Priorities Addressing the Europe 2020 Objective 'Improving the conditions for innovation, research and development. Examples', *DGRegio Website*. Available at:

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

Barca, F., and McCann, P., 2011c, "Complementary Note 2: Outcome Indicators for the Thematic Priorities Addressing the Europe 2020 Objective 'Meeting climate change and energy objectives", *DGRegio Website*. Available at:

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

Blaug, M.,1992, *The Methodology of Economics: Or How Economists Explain*, Cambridge University Press

Boland, L.A., 1992, *The Principles of Economics: Some Lies My Teachers Told Me*, Routledge

Bornefalk, A. and Du Rietz, A. (2009*). Entrepreneurship Policies in Denmark and Sweden Targets and Indicators.* Available at: http://www.snee.org/filer/papers/518.pdf [Accessed 10 Jan. 2015].

Brent, R.J., 2009, (ed.), *Handbook of Research on Cost-Benefit Analysis*, Edward Elgar, Cheltenham

Crépon, B. E., Duguet, and J. Mairesse, 1998, "Research, Innovation, and Productivity: An Econometric Analysis At the Firm Level", *Economics of Innovation and New Technology*, 7, 115-156

Danish Business Authority, (2015). *Initiatives Targeting Entrepreneurship - Danish Business Authority.* [online] Danishbusinessauthority.dk. Available at: http://danishbusinessauthority.dk/initiatives-targeting-entrepreneurship [Accessed 10 Jan. 2015].

David, P., Foray, D., and Hall, B., 2009, *Measuring Smart Specialisation: The Concept and the Need for Indicators,* Knowledge for Growth Expert Group, See:

http://cemi.epfl.ch/files/content/sites/cemi/files/users/178044/public/Measuring%20smart%20specialisation.doc

Davies, H.T.O, Nutley, S.M., and Smith, P.C., 2000, (eds.), *What Works? Evidence-Based Policy in Public Services*, Polity Press, Bristol

European Commission, 2008 "Think Small First" A "Small Business Act" for Europe", Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. COM(2008) 394 final, Brussels.

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0394:FIN:EN:PDF

European Commission, 2009, Impact Assessment Guidelines, 15.01.2009. SEC (2009) 92. http://ec.europa.eu/enterprise/policies/sme/files/docs/sba/iag_2009_en.pdf

European Commission, 2011, "Review of the "Small Business Act" for Europe", Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. COM(2011) 78 final, Brussels.

http://ec.europa.eu/enterprise/policies/sme/small-business-act/files/sba_review_en.pdf

European Commission, 2012 Entrepreneurship 2020 Action Plan. Reigniting the entrepreneurial spirit in Europe. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. COM(2012) 795 final, Brussels.

European Commission, 2013a Policy brief on Evaluation of Inclusive Entrepreneurship Programmes. Entrepreneurial activities in Europe. *European Commission/ OECD-LEED.* Luxembourg, 2013. http://ec.europa.eu/social/BlobServlet?docId=11086&langId=en.

European Commission, 2013b Regional Policy for smart growth of SMEs. Guide for managing authorities and bodies in charge of the development and implementation of Research and Innovation Strategies for Smart Specialisation, Publications Office of the European Union, Luxembourg.

European Commission, DG Regional Policy, 2012 What are counterfactual impact evaluations teaching us about enterprise and innovation support? *Regional Focus* 02/2012.

Farrow, S., and Zerbe Jr, R.O., 2013, (eds.), *Principles and Standards of Benefit-Cost Analysis*, Edward Elgar, Cheltenham

Feldman, M., Lanahan, L. and Miller, J., 2011, Inadvertent infrastructure and regional entrepreneurship policy. In: Fritsch, M. (ed.) *Handbook of Research on Entrepreneurship and Regional Development*, pp. 216-251, 1st edition, Cheltenham: Edward – Elgar.

Gault, F., 2013, (ed.), *Handbook of Innovation Indicators and Measurement*, Edward Elgar, Cheltenham

Gordon, I.R., and McCann, P., 2005, "Innovation, Agglomeration and Regional Development", 2005, *Journal of Economic Geography*, 5.5, 523-543

Haussmann, R., and Rodrik, D., 2003, "Economic Development as Self-Discovery," *Journal of Development Economics*, 72.2, 603- 633

Hempel, K., and Fiala, N., 2011, *Measuring success of youth likelihood interventions: a practical guide to monitoring and evaluation.* Washington, DC: Global Partnership for Youth Employment.

Hoffmann, A.N., 2007, A rough guide to entrepreneurship policy. In: Audrestch, D.B., Grilo, I. and Thurik, A.R. (eds.), *Handbook of Research on Entrepreneurship Policy,* Edward Elgar, Cheltenham, 140-172.

Hughes, A., 2012, "Choosing Races and Placing Bets: UK National Innovation Policy and the Globalisation of Innovation Systems", in Greenaway, D., (ed.), *The UK in a Global World. How can the UK focus on steps in Global Value Chains that Really Add Value?*, BIS e-book, CEPR and Department for Business, Innovation and Skills See:

http://www.cepr.org/pubs/books/cepr/BIS_eBook.pdf

Jaffe, A.B., 2015, "A Framework for Evaluating the Beneficial Impacts of Publicly Funded Research", Motu Note 15, See:

http://www.motu.org.nz/publications/

Link, A.N., and Vonortas, N.S., 2013, (eds.), *Handbook on the Theory and Practice of Program Evaluation*, Edward Elgar, Cheltenham

Link, A.N., and Scott, J.T., 2011, (eds.), *The Economics of Evaluations in Public Programs*, Edward Elgar, Cheltenham

Lundström, A., and Stevenson, L. (2005) *Entrepreneurship Policy: Theory and Practice.* New York: Springer Science+Business Media Inc.

Mayer, H., 2011, *Entrepreneurship and Innovation in Second Tier Regions,* Edward Elgar, Cheltenham.

McCann, P., and Ortega-Argilés, R., 2013, "Modern Regional Innovation Policy", *Cambridge Journal of Regions, Economy and Society*, 6.2, 187-216

OECD, 2007, *OECD Framework for the Evaluation of SME and Entrepreneurship Policies and Programmes,* Organisation for Economic Development and Cooperation, Paris

OECD, 2011, *OECD Regional Outlook 2011*, Organisation for Economic Development and Cooperation, Paris

Osborne, S.P., and Brown, L., 2013, (eds.), *Handbook of Innovation in Public Services*, Edward Elgar, Cheltenham

Pawson, R., 2006, *Evidence-Based Policy: A Realist Perspective*, Sage, London

Priemus, H., Flyvberg, B., and Van Wee, B., 2008, (eds.), *Decision-Making on Mega-Projects: Cost-Benefit Analysis, Planning and Innovation*, Edward Elgar, Cheltenham

Rodrik, D., 2004, "Industrial Policy for the Twenty-First Century", Working Paper, Kennedy School of Government, Harvard Univerity, Cambridge MA

Rodrik, D., 2007, *One Economics Many Recipes: Globalization, Institutions and Economic Growth*, Princeton University Press, Princeton

Rodrik, D., 2014, "When Ideas Trump Interests: Preferences, Worldviews, and Policy Innovations", *Journal of Economic Perspectives*, 28.1, 189-208

Scarpa, R., 2012, *Guidance for the Design of Quantitative Survey-Based Evaluation*. Available at:

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

Sedlacko, M., and Martinuzzi, A., 2012, *Governance by Evaluation for Sustainable Development: Institutional Capacities and Learning*, Edward Elgar, Cheltenham

Stevenson, L., and Lundström, A., 2007, Dressing the emperor: the fabric of entrepreneurship policy. In: Audrestch, D.B., Grilo, I. and Thurik, A.R. (eds.), *Handbook of Research on Entrepreneurship Policy,* Edward Elgar, Cheltenham, 94-129.

Stiglitz, J.E., Sen, A., and Fitoussi, J-P., 2009, *Report by the Commission on the Measurement of Economic and Social Progress*, See http://www.stiglitz-sen-fitoussi.fr/en/index.htm

Stockmann, R., 2011, (ed.), *A Practitioner Handbook on Evaluation*, Edward Elgar, Cheltenham

Storey, D.J., 2008, Entrepreneurship and SME Policy. World Entrepreneurship Forum, 2008 Edition.

Technopolis Group and MIOIR, 2012, *Evaluation of Innovation Activities: Guidance on Methods and Practices*, Study Funded by the European Commission Directorate-General for Regional Policy, Brussels

Van Praag, C.M and Versloot, P.H., 2007, What is the value of Entrepreneurship? A Review of Recent Research, *Small Business Economics,* 29, 4, 351-382.

Vanclay, F*.,* 2012, *Guidance for the Design of Qualitative Case Study Evaluation*. Available at:

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

World Bank, 2007, *Miles to Go: A Quest for an Operational Labor Paradigm for Developing Countries,* World Bank, Washington DC.

World Bank, 2010, *Innovation Policy: A Guide for Developing Countries*, World Bank, Washington DC

Table A1. Smart Outcomes and Impacts

S	Specific: Impacts and outcomes and outputs must use change language – they must describe a specific future condition. Put numbers on it, differentiate among target groups. Specify clear and unambiguous definitions of the selected indicators and objectives to avoid misunderstanding.
M	Measurable: Results, whether quantitative or qualitative, must have measurable indicators, making it possible to assess whether they were achieved or not. The measurable indicators clarify the policy objectives and make the monitoring process more useful as it easily shows in numbers whether the policy objectives are achieved or not: measuring in managing.
A	Achievable/Attainable: Results must be within the capacity of the partners to achieve. Be reasonable when putting target values for indicators. Unreachable targets can lead to an early abandoning of the monitoring system. Start with baseline measurements before setting the target values. Relative improvements are better for reporting as they support continuous improvement.
R	Relevant: Results must make a contribution to selected priorities of the national development framework. Avoid defining too many policy objectives and too many indicators. Focus on information relevant to the policy measures we want to evaluate. Examine each indicator carefully on its future use, if it cannot be linked directly to an objective or corrective action, better do not include it.
T	Time-bound: Results are never open-ended – there is an expected date of accomplishment. Monitoring is strictly bound with time of the policy objectives. *Policy makers are rarely interested in what the effects will be of their policy decisions beyond the next elections.*

Sources: UNDP http://web.undp.org/evaluation/handbook/ch2-4.html and SCINNOPOLI www.scinnopoli.eu

Table A2. Suggested Measurement Methodologies by Innovation Program Type

Aggregate behaviour	Program type	Suggested Measurement Methodology
Knowledge Generation	Direct Academic Support	Regression Discontinuity Design Indicator-based frameworks (scorecards & benchmarking) Case studies
	Public and non-for-profit research organisations	Indicator-based frameworks (scorecards & benchmarking) Case studies
Innovation Facilitation	Innovation Intermediaries	Random field experiments Matching estimation Client-based surveys
	Direct Business Support	Random field experiments Matching estimation Client-based surveys
	Indirect Business Support	Regression discontinuity design Difference-in-difference estimation
Demand	Public Procurement	Difference-in-difference estimation

		Matching estimation

Table A3. Monitoring and Evaluation Techniques and Tools

TYPE	DEFINITION	USEFUL for…	ADVANTAGES	DISADVANTAGES	COST	SKILL REQUIRED	TIME REQUIRED
Performance Indicators	Measures of inputs, processes, outputs, outcomes and impacts for development projects, programs or strategies	- Setting performance targets and assessing progress toward achieving them - Identifying problems via an early warning system to allow corrective action to be taken - Indicating whether an in-depth evaluation or review is needed	-Effective means to measure progress toward objectives - Facilitates benchmarking comparisons between units	- Poorly defined indicators are not good measures of success - Too many indicators or those without accessible data sources are costly, impractical and underutilized - Trade-off between choosing the optimal or desired indicators and having to accept the indicators which can be measured using existing data	- It is related to the number of indicators collected, the frequency and quality of information sought and the comprehensiveness of the system	Data collection, analysis and reporting skills, and management information system skills are required to implement performance monitoring systems	Several days to several months, depending on the gathering and complexity of the indicator system.
Logical Framework Approach	Logframe helps to clarify objectives in any project, program or policy. It leads to the identification of performance indicators at each stage in this chain, as well as risks which might impede the attainment of the objectives	- Improving quality of the project and program designs - Summarizing design of complex activities - Assisting the preparation of detailed operational plans - Providing objective basis for activity review, monitoring and evaluation	- Ensures that decision-makers ask fundamental questions and analyse assumptions and risks - Engages stakeholders in the planning and monitoring process - When used dynamically, it is an effective management tool to guide implementation, monitoring and evaluation	- If managed rigidly, stifles creativity and innovation. - If not updated during implementation, it can be a static tool that does not reflect changing conditions. - Training and follow-up are often required.	Low to medium, depending on extent and depth of participatory process used to support the approach	Facilitation skills required for use in participatory planning and management	Several days to several months, depending on scope and depth of participatory process.
Theory-Based Evaluation	Theory-based evaluation has similarities to the LogFrame approach but allows a much more in-depth understanding of the workings of a program or activity. It need not assume	- Mapping design of complex activities - Improving planning and management	- Provides early feedback about what is or is not working and why - Allows early correction of problems -Assists	- can easily become overly complex if the scale of activities is large or if an exhaustive list of factors and assumptions is assembled	Medium – depends on the depth analysis and data collection	Facilitation skills	Can vary greatly, depends on the depth analysis, the duration of the program or activity and the depth of the

	simple linear cause-and-effect relationships. By mapping out the determining or causal factors judged important for success and how they might interact, it can then be decided which steps should be monitored as the program develops, to see how well they are in fact borne out. This allows the critical success factors to be identified.		identification of unintended side-effects of the program. -Helps in prioritizing which issues to investigate in greater depth, perhaps using more focused data collection or more sophisticated M&E techniques. -Provides basis to assess the likely impacts of programs	- Stakeholders might disagree about which determining factor they judge important, which can be time-consuming and costly			M&E work.
Formal Surveys	Formal surveys can be used to collect and standardized information from a carefully selected sample of individuals. Surveys often collect comparable information for target groups.	-Providing baseline data against which the performance of the strategy, program or project can be compared. - Comparing different groups at a given point in time - comparing changes over time in the same group. - Comparing actual conditions with the targets established in a program or project design - Describing conditions in a particular community or group - Providing key input to a formal evaluation of the impact of a program or project	- Findings from the sample of people interviewed can be applied to the wider target group or the population as a whole - Quantitative estimates can be made for the size and distribution of impacts	- Results can often not be available for a long period of time - The processing and analysis of data can be a major bottleneck for the larger surveys - Many kinds of information are difficult to obtain through formal interviews.	Cost will be significantly higher if there is no master sampling frame for the country	Sound technical and analytical skills for sample and questionnaire design, data analysis and processing	Depends on the sample size.
Rapid Appraisal	Rapid appraisal methods are quick, low-cost ways to gather the views and feedback of	- Providing rapid information for management decision-making, especially at the project	- Low cost - Can be conducted	- Findings usually related to specific communities or localities – thus difficult to	Low to medium, depending on the scale of the method	Non-directive interviewing,	Four to six weeks, depending on the size and location of

Methods						
	beneficiaries and other stakeholders, in order to respond to decision-makers' needs for information	or program level. -Providing qualitative understanding of complex socioeconomic changes, highly interactive social situations, or people's values, motivations and reactions -Providing context and interpretation for quantitative data collected by more formal methods	quickly - Provides flexibility to explore new ideas	generalize - Less valid, reliable and credible than formal surveys	adopted	group facilitation, field observation, note-taking, and basic statistical skills.	the population interviewed and the number of sites observed.
Participatory Methods	Participatory methods provide active involvement in decision-making for those with a stake in a project, program or strategy and generate a sense of ownership in the M&E results and recommendations	- Learning about local conditions perspectives and priorities to design more responsive and sustainable interventions. - Identifying problems and trouble-shooting problems during implementation - Evaluating a project, program or policy - Providing knowledge and skills to empower poor people.	- Examines relevant issues by involving key players in the design process - Establishes partnerships and local ownership of projects - Enhances local learning, management capacity, and skills. - Provides timely formation for management decision-making.	- Sometimes regarded as less objective - Time-consuming if key stakeholders are involved in a meaningful way - Potential for domination and misuse by some stakeholders to further their own interests.	Low to medium. Costs vary greatly, depending on scope and depth of application and on how local resource contributions are valued.	Several days training for facilitators	Varies greatly depending on scope and depth of application
Public Expenditure Tracking	PETS track the flow of public funds and determine the extent to which resources actually reach the target groups. The	- Diagnosing problems in service delivery quantitatively. - Providing evidence on delays,	- Supports the pursuit of accountability when little financial information is	- Government agencies may be reluctant to open their accounting books.	- Cost can be high until national capacities to conduct them have been	Sound technical and analytical skills for	Five to six months

Surveys	surveys examine the manner, quantity and timing of releases of resources to different levels of government, particularly to the units responsible for the delivery of social services such as health and education.	"leakage' and corruption.	available. - Improves management by pinpointing bureaucratic bottlenecks in the flow of funds for service delivery	- Cost is substantial	established.	sample and questionnaire design, data analysis and processing, and good understanding of sector to be assessed.	
Impact Evaluation	Impact evaluation is the systematic identification of the effects – positive or negative, intended or not - on individuals, households, institutions and the environment caused by a given development activity such as a program or a project.	- Measuring outcomes/impacts of an activity and distinguishing these from the influence of external factors. - Helping to clarify whether costs for an activity are justified - Informing decisions on whether to expand, modify or eliminate projects, programs or policies - Comparing effectiveness and Strengthening accountability for results	-Provides estimates of the magnitude of the outcomes and impacts for different demographic groups, regions or over time - Systematic analysis and rigor can give managers and policy-makers added confidence in decision-making	- Expensive and time-consuming - Reduced utility when decision-makers need information quickly - Difficulties in identifying an appropriate counter-factual	High, depending on project size, complexity and data collection requirements.	Strong technical skills in social science research design, management, analysis and reporting. Ideally, a balance of quantitative and qualitative research skills.	Up to 2 years or more.
Cost-Benefit and Cost-Effectiveness Analysis	They are tools for assessing whether or not the costs of an activity can be justified by the outcomes and impacts. *Cost-benefit analysis* measure both inputs and outputs in monetary terms. *Cost-effectiveness analysis* estimates inputs in monetary terms and outcomes in non-monetary quantitative terms (such as improvements	- Informing decisions about the most efficient allocation of resources. - Identifying projects that offer the highest rate of returns on investment	- Good quality approach for estimating the efficiency of programs and projects - Makes explicit the economic assumptions that might otherwise remain implicit or overlooked at the design stage. - Useful for convincing	- Fairly technical, requiring adequate financial and human resources - Data for cost-benefit calculations may not be available, and projected results may be highly dependent on assumptions made - Results must be interpret with care	Varies greatly, depending on scope of analysis and availability of data	Economic analysis and availability of relevant economic and cost data is required.	Varies greatly depending on scope of analysis and availability of data.

	in student reading scores).		policy-makers and funders that the benefits justify the activity				

Source: Based on *Monitoring and Evaluation: some tools, methods and approaches*, The World Bank, Washington D.C., 2002.

Table A4. Examples of Indicators used for Monitoring and Evaluating Outcomes

LEVEL OF MONITORING	REGIONAL/NATIONAL EXAMPLE	TYPE OF INDICATOR				Monitoring method
		Input	Output	Outcomes		Monitoring method
Project level			Number of companies supported by funding Number of participants in a workshop	Amount of new cooperation with other companies and/or R&D institutions Increase in turnover Increase in jobs		Standardised questionnaire by the regional government distributed to the regional companies.
Project level	**State Aid Schemes: R&D, investment, internationalization (Lower Austria, AU)**		Collaboration, New innovation projects, patents	Improvement of market position, Technological know-how and qualification of the employees and amount in turnover Newly created jobs.		Two page ex-post questionnaire (3 to 6 months after the project finishes). The feedback from the beneficiary is around 80% response.
Project level	**The Barometer**			Supported companies performance compared against non-supported regional companies		
Programme level	**State aid Scheme `Innovation Assistant` (Lower Austria, AU)**		New collaboration partners of the supported companies	New products,	Innovation culture, Strategy, and	External ex-post evaluation by ex-post questionnaire 1 or 1.5 years after the

				New jobs,	Technological position of the supported companies	completion of the programme.
				Additional investment volume of the supported companies		
Programme level	**The Innovation Network Programme _ Denmark**	Ability to Innovate	Effect on employment in the companies	Increase of the innovation knowledge and production after the project.		A survey is carried out among the participating companies in the innovation networks.
		Investments in private research	Value-added in the companies	Increase of skills such as knowledge of market facts, understanding of user behaviour and value chains and collaboration and innovation concepts		
		Investments in innovation	Productivity per employee in the companies			
		Regional distribution of activities		Increment of the period of collaboration between businesses and research institutions		
		Cooperation projects between companies and knowledge institutions		Increase in the role of knowledge institutions as an advisors and partners.		
		Participation of small companies				
		Number of companies				

96

The Innovation Consortium Programme_ Denmark	Ability to Innovate Investments in private research Investments in innovation PhDs, patents, etc. Regional distribution of activities Cooperation projects between companies and knowledge institutions Participation of small companies Number of companies	Effect on employment in the companies Value-added in the companies Productivity per employee in the companies Individual salary effect	Gross profits (firm's value creation) and employment (number of employees)	Impact assessment exercises have been already carried out. With the use of registry data that follows the firms that have already participated in one or more consortia during the period of the programme. The growth of firms is evaluated by means of two indicators: gross profits and employment which are followed before and after the onset of the consortium. The growth of firms participating in the programme is compared to a control group of firms not involved in a consortium but similar with regards to size, industry, age and region.
The Knowledge Coupon Programme_ Denmark	Ability to Innovate	Effect on employment	New collaborations with firms involved in a knowledge coupon	

		Investments in private research Investments in innovation Regional distribution of activities Cooperation projects between companies and knowledge institutions Participation of small companies	in the companies Value-added in the companies Productivity per employee in the companies Survival rate of companies	project and knowledge institutions Specific products, process, market and organizational innovations developed by the firms involved in a knowledge coupon project	
	The Open Funds Programme_ Denmark	Ability to Innovate Investments in private research Regional distribution of activities Cooperation projects between companies and knowledge institutions	Effect on employment in the companies Value-added in the companies Productivity per employee in the companies	Creation of new knowledge from abroad on business innovation in the firms involved in the programme. Creation of new activities involving open innovation, employee-driven innovation, service innovation and or public innovation. Creation of new ways of strengthen cooperation between businesses and research institutions	The assessment methodology uses an approach that includes control groups. The assessment is based with a variety of data sources including databases, official statistics, evaluations and impact assessment reports.

		Number of companies			
Regional level	**RIS SCOREBOARD – Regional Innovation Observatory,** Provence-Alpes-Côte d'Azur – PACA (FR) http://www2.mediterranee-technologies.com/missions/laboratoire/observatoire-regional-de-l%E2%80%99innovation-orion PACA region has developed the *Regional Innovation Observatory* as part of its RIS3. Support to fact-driven decision-making process by collecting, organizing and analyzing innovation related data, Provence-Alpes-Côte d'Azur region, France				
Regional level	**Impact Scan, Flanders (BE)**				
Regional level	**Moderna Plan,** Navarra (ES)				
Regional level	**Ontario Innovation Ecosystem**	Higher education expenditure on R&D (HERD) Highly cited scientists Public-sector R&D personnel Business enterprise	S&T outputs (publications and patents) University graduates College graduates R&D outputs (patents and publications)	Aggregate productivity Employment growth Economic well-being (GDP)	Regression discontinuity design (direct academic support and public and not-for-profit research organizations program type) Random field experiments, matching

Level	Framework	Inputs	Outputs	Outcomes	Methods
		expenditure on R&D (BERD) Industry R&D personnel Venture capital and angel funds Leveraged funds Tax credits Creative economy	Contracts and intellectual property agreements Spinoffs Rate of new venture creation Leading R&D firms New or improved products High-wage employment Firm entry and firm exit		estimation, client-based surveys (innovation facilitation programs) Difference-in-difference estimation for public procurement schemes Crepon-Duguet and Mairesse model for firm innovation impact.
National level	**Finland's Tekes: Hierarchy of Phenomena Related to economic Recovery and renewal**	Investments in R&D&I Human resources for R&D&I General conditions and incentives for R&D&I	Strengthening of intangible assets Position in global value networks	National prosperity Productivity of the economy Job creation High growth enterprises Foreign direct investment	

Sources: Innovation Impacts: Measurement and Assessment. The Expert Panel on the Socio-economic Impacts of Innovation Investments. Council of Canadian Academies, Ottawa, 2013. Scinnopoli: Scanning Innovation Policy Impact INTERREG IVC Capitalisation project with Fast Track Support by the European Commission. EPISIS – European policies and instruments to support service innovation. Service Innovation: Impact analysis and assessment indicators. (Pro Inno Europe INNONETS EPISIS).

Table A5. Examples of Good Practices in Monitoring and Evaluation Systems

Regions involved	Methodology	Description
LOWER AUSTRIA (AT)	**The I-AM Lower Austria result indicators.**	The Balanced Scorecard (BSC) methodology is the monitoring process of the RIS Nö strategy in Lower Austria. Since 2008 is systematically rolled-out for all innovation services and the respective intermediaries as service providers. The results of the monitoring process serve to have an indication of the development of the region in relation to other provinces in Austria as well as to the Austrian average. In combination with the program BSC shows the contribution of the regional economic and innovation policy to the regional development. The data is gather externally but treated internally by the regional government.
	STATE AID SCHEME: EXTERNAL EX-POST EVALUATION	The target group of monitoring are companies supported by the state aid scheme: "Innovation Assistant". The ex post evaluation is evaluating the whole programme "Innovation Assistant" by aggregating the results of the individual projects. The evaluation consists in sending an ex-post questionnaire (1 or 1.5 years after completion of the funding project). The processing of gathering, analyzing and evaluating the data is done externally. The results of the analysis serve to the regional government to see whether the regional state aid scheme fulfils its targets. Additionally, the insights of the analysis help to identify potentials for further improvement and further need adaptation of the existing scheme.
	LARGE SCALE QUESTIONNAIRE	The aim of the questionnaire is to help in the monitoring of Lower Austria regional strategy. It is addressed to approximately 5000 companies with a response rate of approx 10 to 14%. It monitors future perspectives of the companies like strategic key activities and need for innovation support, knowledge, usage, etc. It is used to identify gaps and overlaps. Further issues are the relevance of innovation partners,

		transparency of offered services and companies´ economic and innovative performance. With these data the Regional Government of Lower Austria can draw conclusions about the impact of regional innovation policy and the importance of service providers.
PUGLIA (IT) NAVARRA (ES) WESER EMS (DE) LODZ (PL) TYROL (AT)	**IASMINE PROJECT – provide useful tools and methods for characterizing the regional innovation policies, analyzing the expected policy influence on the regional innovation system, monitoring policy implementation and evaluating impacts. It is a system view that emphasizes the importance of the interplay among different subjects and the mutual exchanges of " ideas, skills, knowledge, information and signals of any kind"**	IABM – Impact, assessment, benchmarking– Methodology Steps: 1) Characterization of the regional innovation policies (low complexity and risk) 2)Characterization of the regional innovation system& ex-ante policy evaluation(medium complexity and risk) 3)Assessment of the regional innovation policies impact on the Regional Innovation System (high complexity and risk)
BRITTANY (FR)	**Shared Indicator Set (SIS): Long term experiences**	The SIS – activity indicators- was conceived in 2007, it is a monitoring system at program level. The activities and indicators monitored, are dependent of the general mission of the Innovation and Technology Centers. Their mission can be briefly described, they have two main roles: assisting companies of their relevant industry in the development of technology based innovation projects, and coordinating business networks and relations between industries and research. It includes indicators such as: • number of innovation projects

		assisted
		• number of companies visited
		• number of network oordination events organized
		• number of network oordination events in which the ICT has participated.
		It allows comparisons from year to year, to calculate mediums and understand the variations according to the economic situation of Bretagne region. As an example, in 2007, the choice of indicators lasted 9 month and involved decision makers and intermediaries and BDI as back-up. The number of available/ correctly used indicators for comparison went from 25% of the initial set on the first year to 75% on the fourth year. The remaining 25% seem hard to use.
	Face to Face Interviews	The face to face interviews were designed to monitor the impact of the services provided by the intermediaries on the beneficiary businesses.
		More precisely, the monitoring was focused on the impact of the services provided on innovation capacity of the businesses. This was
		done by the means on the impact analysis of 12 "Innovation enablers".
		Innovation enablers can be described as determinant organizational skills that make a business innovation savvy:
		1. Strategy
		2. Structure and organization
		3. Innovation culture
		4. Financial resources
		5. Human resources and skills
		6. Access to information

		7. Network reinforcement and cooperation culture
		8. Access to and acquisition of knowledge and technologies
		9. Creativity process
		10. Innovation implementation
		11. Marketing orientation
		12. Exploitation of innovation
		The target group is composed of 81 businesses:
		• 31 % Information and Communication Technology
		• 25 % services to business
		• 15 % food processing
		Not proportionally representative of the regional economic fabric, the key regional sectors were represented. 50 % have
		less than 10 employees; most of the regional fabric is made up of such businesses. Very large range of turnover: from 100 K € to 5000 K € in similar proportions.
		The main aim is to have a global view of the impact of the services of intermediaries on the businesses.
Provence-Alpes-Côte d'Azur – PACA (FR)	**The Barometer**	In PACA, the barometer is run by the regional innovation observatory, ORION, piloted by Méditerranée Technology, coordinator of the innovation support organisations regional network.
		Quantitative survey: External
		data are gathered by a Quantitative questionnaire addressed to regional innovative companies coupled
		by financial data available for

| | | companies publishing the balance sheets (possible on for countries where balance sheets data are public).

A number of different profiles are then drawn on the base of a number of crossed critical variables. This allows a first segmentation of the innovation support supply targets.

Qualitative survey: A qualitative

survey is subsequently conducted through a panel of 30 selected companies in order to deepen the interpretation of the quantitative survey. The companies included in the panel could also be used as

"test" clients to test a customized service offer based on data collected and a in-depth diagnosis.

The monitoring is done in two points of time: "Ex ante": to define the regional innovation strategy and design the regional innovation service supply. "In process": to monitor on a regular basis the policy impact and the companies' needs evolution in order adjust the support system response every two years. |
|---|---|---|
| | **Innovation INDEX** | The Region innovation performance

and positioning compared

with other similar regions as well as

its evolution over time. Thus, indirectly,

the scoreboard measures the

overall innovation policy impact.

The index is composed of 11 categories

of indicators:

1. Demography and macroeconomic

data

2. Regional Innovation Performances |

		3. Economic activities' structure 4. Companies' Profile 5. Innovation and business 6. Clusters 7. Human Capital, Education and training 8. Public R&D 9. Key Innovation projects 10. Patent and publications 11. Export The objectives of this monitoring process are: • To draw a global picture of the regional situation: • To have a synthetic background diagnosis for the Regional Innovation Strategy • To support regional marketing • To assess the overall impact of the regional innovation policy over time.
	RIS SCOREBOARD	It monitors the regional innovation strategy (RIS) and the underlining actions implementation and compliance with the overall objectives set, through inputs, outputs and outcomes/impacts indicators. The main objective of this monitoring process is to assess the follow up of the regional innovation strategy: management of the funding and the innovation actors. With a set of indicators at programs, projects/intermediaries' activities level on a continuous process through a robust data collection system – data gathered and treated internally.
FLANDERS (BE)	**Innovation Audit**	Project level monitoring of a group of intermediaries in the regional innovation system. The intermediaries (e.g. regional

		innovation centres) perform the innovation audit in a group of companies. The innovation audit makes as snapshot of the current innovation status of the company and compares it with 49 best practices in 8 different domains. The main and direct results of the audit is an innovation action plan for the company. The monitoring collects data of the impact, all innovation support that the company received and assesses the impact of the policy mix as it tries to capture the evolution of the innovation status over time.
	Impact Scan	The aim here is to monitor the regional innovation budget. The level of monitoring is the region. It is needed to have information on the total amount spent on regional innovation as well as a thorough knowledge of the distribution of this money over the policy objectives, intermediaries and services. To describe the innovation context 31 indicators are used: size and density of the policy context, regional innovation policy governance, innovation support supply and demand side. The target monitoring group are companies (impact of services), intermediaries (services and budgets) and policy itself (budgets assigned to policy objectives). Based on the results of IMPACTSCAN partners have: improved the evaluation of Regional Innovation Support System and gathered elements for design of regional consulting and monitoring tool for intermediaries.
	Web based activity reporting of innovation support services	Ex-post project level monitoring. The level of monitoring is single project level however the data can be aggregated on program level. The target group is the management of the innovation service providing organization. The standard activities to be monitored are: information actions, publications, seminars, etc. The activities and the financial support used are monitor in order to verify if the project is still on track.

SCHLESWIG-HOLSTEIN (DE)	**CRM-SYSTEM**	The Business Development and technology Transfer Corporation of Schleswig-Holstein (WTSH) manage parts of the regional public support system. The WTSH documents all of the activities with their customers in a central Customer-Relationship-Management (CRM) database. The CRM system monitors activities of the intermediaries and it is not specialized on the project, program or strategy level.
	Strategic Controlling	The strategic controlling of the WTSH measures the impact of the intermediaries and programs. The Strategic Controlling tool is an ex-post statistical data analysis from 2009, which analysed the support activity panel-data from 2000. The Strategic Controlling of WTSH measured services/support activities of the WTSH like the impact of innovation-consultancy, property-rights-consultancy, R&D subsidies, innovation-audit, foreign trade consultancy, trade fair support, the promotion of foreign trade and the support for the companies in the Schleswig-Holstein Business Centers
NAVARRA (ES)	**Balanced Score Card of the 3rd technology plan of Navarra**	The Balanced Score Card (BSC) of the Third Technology Plan of Navarra monitors outputs: results of the activities carried out in each of the 41 action lines included in the Technology Plan. The outputs monitored depend on the specific action line of the Technology Plan, but some examples are: number of projects funded, total budget of the projects, total funding granted, number of project proposals submitted to FP7 calls, number of international research visits, etc… The indicators selected

		as output are thus a direct measurement of the running activities (number of projects funded); or a measurement of an expected behaviour (number of project proposals submitted to FP7) as a result of the actions lines of the Third Technology Plan. The impact of these action lines on the stakeholders in terms of increase of turnover, number of new jobs, increase of R&D budget, etc. is not measured by the BSC as impact indicators, and were not defined for the Third Technology Plan.
DENMARK	**Innovation Network Programme** (*Innovationsnetværk)*	The monitoring process is carried out at the project level. A survey is carried out among the participating companies in the innovation networks documents the effect of the projects.
	Innovation Consortium Programme (*Innovationskonsortier)*	The Innovation Consortium programme provides a flexible framework for collaboration between companies, research institutions and non-profit advisory/knowledge dissemination parties. The Danish Government has carried out impact assessments of the programme with the use of registry data of the growth of the companies that have taken part in one or two consortia during the period of the program.
….		

Sources: Scinnopoli: Scanning Innovation Policy Impact INTERREG IVC Capitalisation project with Fast Track Support by the European Commission. EPISIS – European policies and instruments to support service innovation. Service Innovation: Impact analysis and assessment indicators. (Pro Inno Europe INNONETS EPISIS)

Table A6. SBA Framework

I. Entrepreneurship	VI. Access to finance
Self-employment rate	Rejected loan applications and loan offers
Entrepreneurship rate	Access to public financial support including guarantees
Entrepreneurial intention	Willingness of bank to provide a loan
Opportunity-driven entrepreneurship	Relative difference in interest rate levels between loans up to EUR 1 million and loans over EUR 1 million.
Preference for self-employment	
Feasibility of becoming self-employed	Total duration to get paid (# days)
Share of adults who agree that school education helped them to become entrepreneurs	Lost payments (% turnover)
Share of adults who think that successful entrepreneurs receive a high status in the society	Venture capital investments – early stage (% GDP)
Media attention for entrepreneurship	Strength of legal rights
	Depth of credit information index
II. Second chance	**VII. Single market**
Time to close a business (years)	SMEs in intra-EU imports (%)
Cost to close a business (cost to recover debt as % of debtor's estate)	SMEs in intra-EU exports (%)
Degree of support for a second chance (%)	Single market directives not transposed or notified (%)
	Number of directives overdue by 2+ years
	Average transposition delay-overdue directives (months)
III. Think small first	**VIII. Skills and Innovation**
Communication and simplification of rules and procedures (0=best, 6=worst)	SMEs introducing process or product innovations (%)
Burden of government regulations (1=worst, 7=best)	SMEs introducing marketing or organizational innov. (%)
Licenses and permits systems (0=best, 6=worst)	SMEs innovating in-house (%)
	Innovative SMEs collaborating with others (%)
	New-to-market or new-to-firm innovation sales (% turnover)

	EU funded research SMEs' participation (per 100.000 SMEs)
	SMEs selling online (% of SMEs)
	SMEs purchasing online (% of SMEs)
	Enterprises providing training to their employees (%)
	Employees participation rate in education and training (% of total number of employees in micro firms)
IV. Responsive administration	**IX. Environment**
Time to start a business (calendar days)	Innovations with environmental benefits
Cost to start a business (% income per capita)	SMEs that have introduced resource-efficiency measures (%)
Paid in minimum capital (% income per capita)	SMEs that have benefitted from public support measures for resource-efficiency actions (%)
Time required to transfer property (calendar days)	
Cost required to transfer property (% prop. Value)	SMEs that offer green products or services (%)
Number of tax payments per year	SMEs with more than 50% turnover generated by green products or services (%)
Time required to comply with major taxes (hr/y)	
Cost to enforce contracts (% of claim)	SMEs that have benefitted from public support measures for production of green products (%)
Online availability of the basic public services to businesses	
V. State aid and Public Procurement	**X. Internationalization**
SME's share in total value of public contracts awarded (%)	SMEs importing from outside the EU (% of SMEs)
State aid for SMEs (% of total aid for SMEs)	SMEs exporting outside the EU (% of SMEs)
Average delay in payments from public authorities (days)	Cost required to import (in USD)
e-Procurement availability (pre-award)	Time required to import (in days)
EU regional funds for entrepreneurship and SMEs in 2007-2013 (% total allocation by Member State)	Number of documents required to import
	Cost required to export (in USD)
EU funds for business creation and development in 2007-2013 (% of EAFRD total allocation)	Time required to export (in days)
	Number of documents required to export

The contribution of peer reviews to smart specialization strategies

Claire Nauwelaers[9]

ABSTRACT

The experimental character of smart specialization strategies reinforces the need for reliable and detailed assessments, addressing design and implementation issues. This paper argues that peer review methods, when used appropriately, can provide valuable contributions to support S3. These methods include elements that address the need for these strategies to be: open, well-informed, integrated, differentiated, shared and impact – oriented. Peer reviews are seen as effective mechanisms to lift policy learning, relying on a user-driven approach.

Comparing the peer review experiences run by the OECD and the European Commission, the paper identifies success conditions such as: strong political endorsement, wide stakeholders participation, quality of peer review panel composed of a balanced mix of peers and experts, attention to all stages in the three-step/six stages peer review process. The analysis underlines the specific value of this technique, that combines tacit and codified knowledge in a purpose-oriented exercise ending up in applicable and realistic policy recommendations.

The conclusion underlines the potential, but also the limits of peer reviews to help this new wave of policies reaching their ambitious goal. It suggests a model for peer review which is adapted to the emerging needs of S3 in the near future.

Introduction

The problem of assessing the effectiveness of regional innovation policies is receiving increased attention along with the upsurge in popularity of these policies, combined with enhanced requests for accountability of public spending. Faced with a large spectrum of demands possibly leading to conflicting priorities, governments need evidence that investing in innovation contributes to economic growth and jobs creation. The question of evaluation has also become prominent in the 2014-2020 programming period of Cohesion policy at European level. The new wave of this policy is characterized by a 10-points reform, one of them being: "*Fixing clear, transparent, measurable aims and targets for accountability and results*". To meet these goals, policy-makers respond in defining indicators, setting targets and implementing monitoring systems to follow-up the implementation of policies. The information, collected through well-designed monitoring systems, forms the basis on which the evaluation of outcomes, results and impacts of policies can be worked out.

In most European regions, responses to this important demand for monitoring and evaluation of regional innovation policies are still in their infancy. The availability of relevant, accurate and measurable indicators, along with appropriate methods and capacities to exploit them to enhance policy learning and influence policies, are still too limited. One issue in particular is a key stumbling block for policy-makers: moving from evaluation of individual policies to evaluation of policy mixes, i.e. sets of interacting policies which together contribute to certain goals (such as raising innovation performance of a region). Existing evaluation methods use quantitative and qualitative approaches (or mix both) but they are mostly geared towards the evaluation of individual programmes or organisations. To date, there are still no fully-fledged methods for undertaking the systemic evaluations that would address the double question of relevance and effectiveness of policy mixes.

Smart specialization strategies (S3), which we qualify as a new wave of regional innovation policies with specific characteristics intended to enhance their effectiveness, deserve in-depth appraisal. Their experimental character reinforces the need for reliable and detailed assessments, addressing both design and implementation issues. This paper argues that peer review methods, when used appropriately, can contribute to address two questions of particular importance for S3:

1. Are the orientations of the strategy relevant, given the situation and perspectives of the regional economy?
2. Is the policy mix effective to reach the intended goals of the strategy?

This paper is organized in two parts. In a first part, the paper discusses the concept of peer reviews and its components, and examines how this method has been implemented in the field of research and innovation policy. It draws conclusions on the key elements that contribute to the value of this method. In a second part, lessons from experience in policy peer reviews are confronted with the assessment needs for smart specialization strategies (S3). The conclusion underlines the potential, but also the limits of this technique to help this new wave of policies reaching their ambitious goal.

1. Peer Review approaches and methods: a comparative and critical analysis

1.1. The origins of the peer review method

The peer review method originates from the science policy domain, where funding of scientific research ultimately depends on the assessment of the quality of research carried out by qualified scientists from the same discipline, i.e. the "peers". The main task of the latter is to verify that the research relies on the state-of-the-art in the field and brings elements of novelty, while using appropriate sources and methods so that the research is likely to succeed. The peer review process lies at the heart of the selection procedure for publications, which is the main output indicator for scientific research. Institutions such as research laboratories or entire university faculties are also assessed by independent peer reviewers and the result of such evaluations may impact on the extent of public funding sources allocated to these institutions.

The need to avoid conflicts of interest in peers judgment, and the codified and trans boundary nature of science, result in peer reviews that often have an international character: the use of peers from other countries than applicants for research funding increases neutrality in judgment and potentially raises the level of excellence by extending knowledge of the state-of-the-art beyond national research traditions. The selection of research projects for funding by the European Union Framework research programmes is notably largely based on international peer reviews mechanisms.

Peer reviews of scientific activity, which have a long history, is a topic that has been the subject of important research, justified by the crucial role of this mechanism for the orientation of scientific research. Issues such as conservatism of peers, which tend to favour established researchers and research lines rather new ones; the difficulty to evaluate trans-disciplinary research, or the changes to be brought to the method in order to include criteria of research relevance, are key discussion points in this literature (and key practical issues for managers of research funding agencies).

This paper addresses another type of peer review, that does not benefit from such as strong tradition: peer reviews applied to policies. In this type of peer review the target of the review consists of policies rather than research projects or institutions; the peers are, logically, policy-makers rather than scientists; and the expected results are effective policies rather than high level and high impact publications and research results.

The OECD was pioneering the application of peer reviews for the benefit of better policy-making, already in the 60s. Such a process corresponds to the core mission of the international organization, which is an inter-governmental forum where senior officials from the member countries meet and exchange to improve their policies through benchmarking and learning from each other. Voluntary peer reviews of policies are at the essence of the OECD working method (OECD 2003). Peer reviews apply to its key product, the OECD economic surveys, but also to other policy fields such as environment, energy, labour market, as well as research and innovation. The European Union and other international organizations

such as the International Monetary Fund, also use policy peer reviews, even if those do not lie at the core of their procedures.

The next sections in this part provide, first, a definition and a discussion of key elements of the concept of policy peer review, applied to the field of research and innovation. Next, they analyse how the method has been used in practice under the leadership of international organisations (OECD and European Union) or by regions and countries in the framework of inter-regional cooperation programmes. The conclusion enlightens similarities and differences between the various applications of the methods, as well as success factors.

1.2. Definition and key elements of policy peer reviews

Definition of policy peer reviews in research and innovation

Peer reviews of research and innovation policies are policy learning exercises, whereby governmental authorities in charge of designing and implementing these policies in one country or region decide to submit themselves to the scrutiny of peers from other countries/regions, with the aim to improve their own policies thanks to peers' advice and the incorporation of lessons from foreign practices.

There is an important difference in the expected result of policy peer reviews, compared to scientific peer reviews: the results consist in improved policies for the former, and in selection or rejection of research projects (binary decisions) or change in funding for institutions for the latter. This means that the expected results are less easy to capture for policy peer reviews than for scientific peer reviews: benefits of policy peer reviews may be dispersed between a variety of actors, target broad orientations as well as concrete structures or organisations, and may only occur in the medium- and long-term.

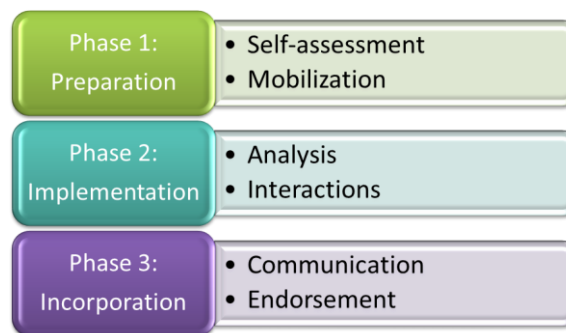*Key characteristics of policy peer reviews*

Policy peer reviews methods display the following characteristics:

1. A **three-steps method** (Figure 1): a first step concerns the preparation of the work through gathering codified information on the reviewed country/region and mobilizing key actors (in the reviewed country/region and from peer countries/regions); in a second step the actual peer review analysis takes place involving both remote analyses of the information collected in the first step and face-to-face interactions within the reviewed country/region; the third step consists in elaborating and communicating the findings of the peer review in a suitable way (usually through a report including analysis and policy recommendations) in the reviewed country/region and in preparing endorsement in actual policy-making.

2. A **voluntary initiative**: both the reviewed country/region and the peers embark into such exercises on a voluntary basis. This implies, for the former, an openness to critical views and the mobilization of relevant stakeholders to communicate

information needed for the peer review, and for the latter, the willingness to devote efforts to study the specific situation of the reviewed country/region and reflect on the suitability of own experience to this situation. The output of the peer review exercise includes recommendations without compulsory character and without any sanction attached to compliance. The main mechanism to generate change in policies is "peer pressure", i.e. the influence exercised by the peers on the reviewed country/region.

3. A **participatory process**: key stakeholders in the reviewed country/region need to be mobilized and be willing to cooperate to the peer review exercise. This is necessary during the preparation and implementation phases, where the stakeholders communicate information and opinions on the research and innovation system and on actors' strategies, and also at implementation phase where the stakeholders endorse and translate the recommendations into their own practice and strategies. This endorsement is facilitated by the dialogue that takes place between peers and stakeholders during the implementation phase: formal analyses and recommendations are supplemented by peers' influence exercised through informal dialogue with stakeholders.

4. A method **combining tacit and codified knowledge** (Nauwelaers and Wintjes 2008): the method relies foremost on the tacit knowledge held by the external peers and stakeholders in the reviewed country/region, but the process also incorporates codified knowledge (e.g. in the form of a benchmarking exercise based on comparable data) during the preparatory and analytical tasks.

Figure 1. The three-steps process of policy peer reviews

Key issues for policy peer reviews

Several important (and interlinked) issues need to be addressed to ensure effectiveness of policy peer reviews.

First, the **choice of the peer reviewing countries/regions.** Should the countries or regions acting as peers come from countries and regions similar to the examined one? And on which elements to assess the degree of similarity between countries or regions? Who should select the peer countries/regions? Since the learning process naturally suggests that less advanced

countries/regions learn from the more advanced ones, does it mean that only the first category has the opportunity to benefit from peer reviews? And what could be the motivation then to engage in peer reviews for the most advanced ones? The question of number of peer review countries or regions needs also to be solved: a good balance needs to be struck between, one the one hand, diversity and complementarity of views which is favoured by a large group of reviewers, and, on the other hand, the manageability and costs of the exercise, that should remain reasonable pointing to a limitation in the number of peers.

Second, the **definition of the analytical framework**. In line with the above remark on the elusiveness of benefits to be expected from policy peer reviews, the peer review faces a subject which is quite complex: research and innovation systems and policies are multi-dimensional and the analytical models to be applied to support the peer reviews are tentative rather than robust. There is a limited parallel to be made between "selection criteria" used by peer reviewers of science, on the one hand, and quality criteria for policies supporting research and innovation systems, on the other hand. This also raises the question whether the review should cover all possible questions, taking a broad, exploratory, but also necessarily more superficial stance, or whether pre-defined and narrower issues should be the topic of the peer review, with the risk of focusing on wrong questions or missing important ones.

Third, the issue of **transferability of practices** from one environment to another. That issue lies at the heart of the peer review model. How to make sure that what works well in one environment will also work well in another environment and how to disentangle the elements of success that are universal and transferable, from those that are context-specific? Here a consensus is forming on the point that there are no universal best practices in research and innovation policies, but rather context-dependent good practices. How and who should conduct the adaptation process from one environment to the other – the "de-contextualisation" process - and should this task be part of the peer review itself?

Fourth, the **selection of the peer panel**. The selection of individual peers links to the conservatism issue, found in scientific peer reviews: namely, selecting experienced peers may increase the risk of favouring existing, tried and tested practices, rather than developing relevant new practices that are only emerging and may not be familiar to the peers. The complexity of research and innovation systems also implies that a range of peers with different backgrounds may fit the exercise: the particular combination of expertise displayed by the peers will influence the focus, and the results of the peer review. The selection of experts is another issue: they should both display specific expertise relevant to the (often unknown in advance) critical questions of the review, and the capacity to compare and "de-contextualise" country-specific experiences brought by peers. The balance between peers and experts in a peer review panel is a third critical issue.

Fifth, **reaping benefits**. How to make sure that the lessons and findings from peer reviews are successfully incorporated in the existing system and deliver the expected benefits? This is the essence for having a third step in the peer review process, but there may also be elements in the first and second steps to ensure that the whole exercise does not remain at the level of exchanges of experiences, with little impact on actual policies.

Sixth, **defining methods and involving actors**. A range of important and concrete issues need to be decided, in order to ensure the delivery of full benefits from this method. This covers: the duration of the exercise, the access to relevant country/region-specific data and information; the organization of the work of the peer review panel; the potential role of facilitating organisations such as OECD Secretariat or European Commission; the means to involve stakeholders from the reviewed country/region; the balance between remote work and on-site visits; the diffusion methods of the results, etc.

Seventh, **managing costs**. What is the reasonable budget for such review? In particular, should the peers work on a free basis or get paid for their work? And even if the peers work for free, what is the opportunity costs for senior officials working on such assignments in addition to their main job assignment?

The next sections investigate the responses that have been given to those core issues in OECD practice, first, and in the European Union, next. The final section compares the two types of experiences and draws lessons.

1.3. OECD experience in policy peer reviews

The OECD is engaged since the sixties in the production of "Science Policy Reviews". From the early sixties until the mid-nineties, over 60 country reviews were carried out by the OECD (Aubert 1997). During this period the reviews focused initially on the science systems, following a linear view under which economic benefits from scientific activities would flow seamlessly to the economy and the main issue was to optimize the functioning of the science system. During the 70s the reviews were called "Science and Technology Reviews" to reflect the attention to industrial innovation and government measures in support to it. During the 80s "Innovation Policy Reviews" were proposed with a broader scope, extending beyond the narrower S&T policies and endorsing the "innovation system" concept. However, these were not popular amongst member countries, due to institutional configurations that were not ready to accommodate the type of horizontal reviews extending beyond the frontiers of science and research policies. Hence the reviews were renamed at the end of the 80s "Science, Technology and Innovation Reviews".

By the end of the 90s and in the first years of the new millennium, innovation gained progressively more recognition as a policy domain and governments became ready to learn and work on this issue. In 2006 a new series of OECD Reviews of Innovation Policy, focusing on innovation systems, was launched. The aim of these Reviews is to produce independent and well-informed critical assessments of the innovation system and to provide policy recommendations for improvement based on experience from other countries/regions.

Between 2006 and 2014, 19 countries were subject to a review (Table 1). These reviews are produced by the OECD Science, Technology and Industry Directorate (STI) under the auspices of the Committee for Science and Technology Policy (CSTP). The countries are identified following requests from their governments while the peer reviewer countries consist of volunteers from the CSTP. In parallel, since 2007, the OECD launched a series of

Reviews of Regional Innovation, produced by the Directorate of Public Governance, under the auspices of the Territorial Development Policy Committee (TDPC). Between 2007 and 2014, 7 regions or groups of regions have been reviewed along a similar method. That Directorate also publishes Territorial Reviews at city, region and country levels, focusing on regional development issues, and some of those reviews include a whole chapter on innovation (e.g. Skane 2012 and Switzerland 2011)[10].

Table 1. OECD Country and Regions Reviews of innovation policy 2006-2014

Peer Reviewed Country	Peer Reviewers mentioned in reports and co-funding
Switzerland 2006	
Luxembourg 2007	
New Zealand 2007	
South Africa 2007	Belgium, Norway
Chile 2007	Finland, New Zealand
Norway 2008	Australia, UK
China 2008	Mobilisation of a large number of experts from Austria, Australia, Finland, France, Germany, Japan, Korea, Norway, Sweden, US (Co-funding from US and Japan)
Hungary 2008	
Korea 2009	
Mexico 2009	Spain, Switzerland
Russian Federation 2011	
Peru 2011	In collaboration with Inter-American Development Bank
Slovenia 2012	
Sweden 2012	Australia, Netherlands
Croatia 2013	Ireland, Austria (co-funding by European Union)
Columbia 2014	Spain, Finland
Netherlands 2014	Belgium

---

[10] The OECD also carried out a series of "Peer Reviews of Higher Education and role in regional development", along the same principles, but of shorter duration.

Vietnam 2014	Co-funded by World Bank
France 2014	
Peer Reviewed Region	**Peer Reviewers mentioned in report**
North East England 2008	New Zealand, Netherlands
Piedmont 2009	Germany, France
15 Mexican States 2009	United States, Spain
Catalonia 2010	Italy, Belgium
Basque country 2010	France, Germany
Southern and Central Denmark 2012	Norway, United Kingdom
Wallonia 2013	Scotland, France, Switzerland

The OECD reviews involve the following steps during a period that extends generally over one year:

- The reviews are requested officially to OECD by the governments of the interested countries/regions, who pay for the review's costs;
- In many cases, a preparatory mission is made at the start to determine the scope and schedule of the review;
- A background report is prepared by the reviewed country/region (by authorities and/or experts), following instructions from the OECD Secretariat;
- Interviews take place in the country/region (generally during one week, sometimes followed by a second shorter mission) by the OECD Team (OECD Secretariat and experts, in some case peer reviewers join). These visits are organized and facilitated by the reviewed country's officials;
- A report is drafted by the OECD Secretariat and external experts (one or two but in a few cases many more). In some cases an interim conference helps to fine-tune the final report while in many others a draft of the overall assessment and recommendations is discussed with the reviewed country/region;
- A special session of the CSTP or TDPC is devoted to the discussion of the report and some members of these Committee act as peer reviewers;
- A public event is organized in the reviewed country/region with high-level attendance and involvement of media, in order to diffuse the results, ensure public scrutiny and support involvement of key stakeholders in further discussing implementation of the recommendations.
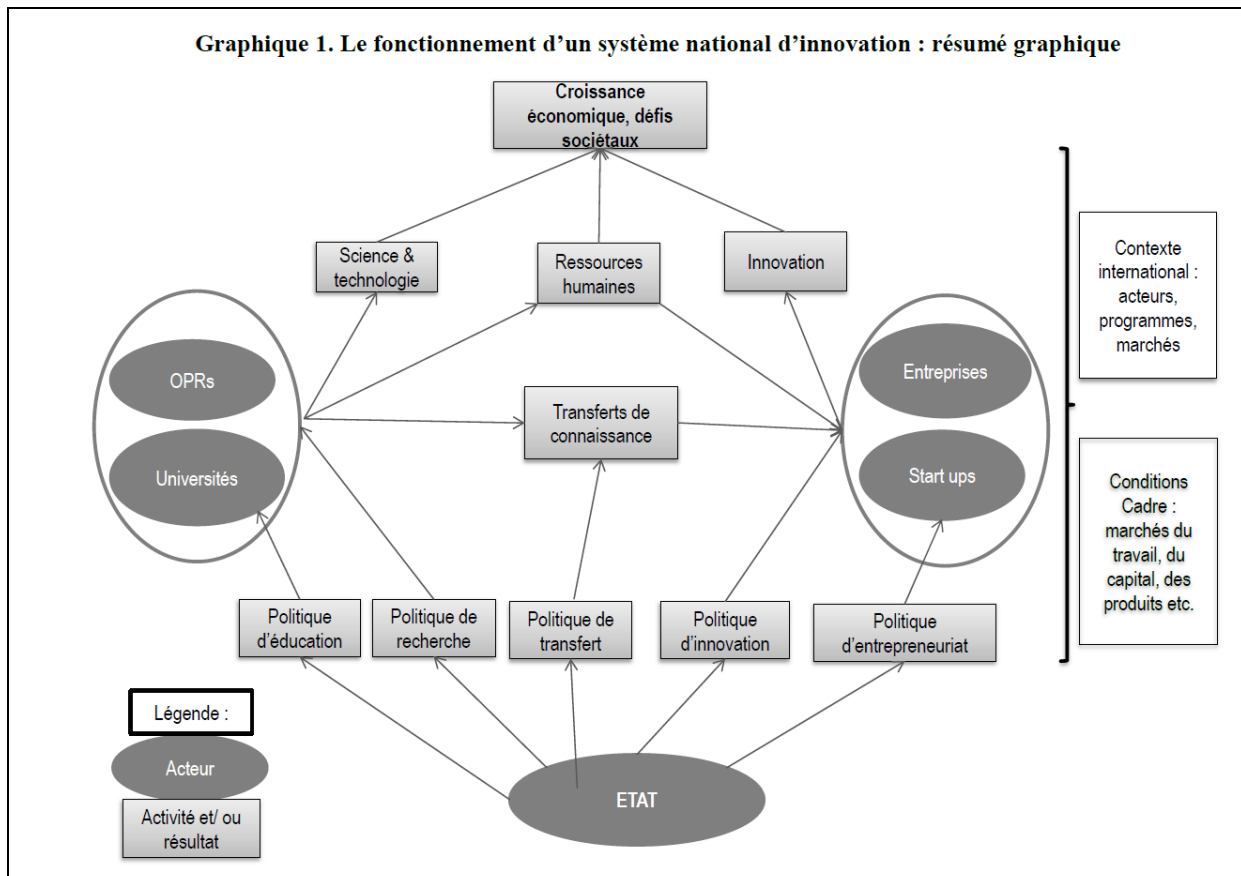
This process displays some variations: the China Review was most extensive as it involved a large number of experts from China and from OECD countries as well as additional activities such as multiple thematic fact-finding missions and workshops; some reviews like China, Peru, Croatia and Vietnam (non OECD members) were co-funded by other bodies than the OECD and the reviewed country; additional activities took place in a few countries such as surveys and focus groups in Croatia; national and regional reviews are generally disconnected (because the decisions to engage in a review rest on national and regional authorities respectively and those do not necessarily coordinate) with the exception of the Mexican reviews; and the scope of the reviews are more focused for certain countries like France where the analysis of a large governmental programme ("Future Investments") was prioritized over an all-encompassing review of the research and innovation system.

The OECD reviews adopt the national innovation system framework with a focus on knowledge flows in the system, and take, in principle, a broad perspective on policies, incorporating education, research, technology transfer, innovation and business policies (Figure 2). Among the key topics covered by the reviews (see Box 1), the governance of the system is given a particular attention. Qualities such as coherence and coordination, efficiency, adaptability, legitimacy and stability are investigated over the various phases of the policy cycle: agenda setting; implementation and reflexivity (OECD 2009). In addition, the multi-level dimension in governance is covered in the regional reviews.

Some lessons can be drawn from this long OECD experience of peer reviews of innovation policy.

First, the comparative and benchmarking dimension is brought in the reviews thanks to both experts (including members of the OECD Secretariat) and peers. The balance between the two types of contributions differs in each case, but in general the experts have a strong influence, notably thanks to the exploitation of knowledge accumulated in earlier reviews. The (self-)selection of peers coming from countries/regions that were subject to earlier reviews contribute to this diffusion of good practices. An enquiry towards beneficiaries of the reviews indicated that more intense involvement of peers in the reviews is seen as a path for improvement (OECD 2009).

Figure 2. OECD Country Reviews of innovation policy: the framework

Graphique 1. Le fonctionnement d'un système national d'innovation : résumé graphique

Source: OECD 2014

Box 1. OECD Country Reviews of innovation policy: key topics

1. Human resources for innovation: analysis of the matching between education system and current and future needs of economy
2. Public sector research: assessment of quality of public research and relevance to needs of society and economy; effectiveness of the organizational structure
3. Relations between science and industry: intensity of transfer through various channels and assessment of the quality of the transfer
4. Corporate innovation: contribution of innovation to business sector's productivity and competitiveness; assessment of effectiveness of public support mechanisms to corporate innovation; relevance of government strategies
5. Business entrepreneurship: extent of entrepreneurial activity and role of policy and structural factors
6. System governance: assessment of the relevance of the principles and strategies and the contribution of various governmental bodies to system governance

Source: OECD 2014

Second, the selection of peers does not follow a systematic procedure. Rather, it depends on the interest of other countries/regions to participate in the exercise. A scrutiny of Table 1

generates several hypotheses for these motivations: a "neighboring" effect (adjacent countries are prone to look at and learn from their neighbors' system); proximity in terms of institutional context (e.g. centralized versus decentralized countries), a "peer community" effect also may happen where countries that have been part of a review volunteer to participate as peers in a subsequent review. In practice, the availability of persons with suitable knowledge and an inclination towards such comparative exercises, members of the CSTP of TDPC, plays an important role in the final composition of peer panels.

Third, the preparation of the background document by the reviewed country/region has proven to be a valuable exercise in itself, and for some countries/regions, this document constitutes an important attempt to document their STI system.

Fourth, the wide mobilization in the reviewed country, at all stages (preparation of the background document, interviews and interactions with OECD team, and discussion of the draft conclusions) is an important outcome of the review. This method helps to address the danger of externalized analyses which are subsequently not endorsed by policy-makers and key actors.

Fifth, an in-depth knowledge of the situation of the reviewed country/region needs to be acquired if the recommendations are to impact on policies. Proposed solutions to address identified weaknesses in the innovation system should indeed not only be relevant, but also be acceptable and implementable in the particular context of the reviewed country/region. The concept of "best practice", which may have been in fashion in the past, is now outdated with a better recognition of the complex web of place-specific influences on an innovation system.

Sixth, a difficult issue relates to the nature of the recommendations: there is a balance between the width and the depth of these recommendations. This points to the necessity, at preparation stage, to reach a consensus on the focus (broad or narrow) of the review. In the future, and especially for countries/regions with a more mature system and advanced policies, more focused reviews may be more appropriate than overall system analyses .

Seventh, the type of impacts expected from the reviews are generally felt as having a long-term character and being of a structural and fundamental nature, rather than giving more concrete and immediate suggestions (Box 2), thus differentiating them from consultancy or evaluation reports. The timing of the review with respect to the political cycle is an important pre-condition for maximizing impacts (OECD 2009). The impacts also depend on the underlying rationale for engaging in a review: the review can legitimize and provide external support for orientations already taken by the government, as well as generate a shift in underlying principles or in actual implementation of policies. The latter case depicts a more profound influence, which can only be achieved when the reviewed country/region is open to criticisms and ready to change.

Eight, the follow-up of the reviews in the mid- and longer-term is not systematically organized. This would however help improving the method based on an improved

understanding of the features enhancing policy learning and incorporation of recommendations into policies.

Finally, the key comparative advantages for the success of reviews carried out under the auspices of the OECD are: reputation, objectivity (absence of conflict of interest) and competences (accuracy and analytical quality) (OECD 2009). The last point encompasses the exploitation of earlier work at OECD and the availability of tried-and-tested practices from other OECD countries. The idea of "peer pressure" does not seem to be at the heart of the learning process, as national/regional conditions still are the dominant forces influencing policy changes.

Box 2. OECD Country Reviews of innovation policy: impacts expected

1. Raising awareness of the importance of STI and STI policy at the highest level of government and with a broader set of actors in the economy and society
2. Facilitating the integration of STI in mainstream economic and social policy
3. Contributing to the debate on the scope of STI policy, its direction and its priorities
4. Informing the reform of STI governance arrangements, for example, in terms of improving institutional coordination (e.g. between ministries) and steering (e.g. of PROs) and policy implementation
5. Informing the STI strategies of specific ministries, agencies and research performers
6. Influencing STI budgetary processes
7. Improving the design and effectiveness of STI policy tools and the overall policy mix
8. Stimulating dialogue between innovation system actors
9. Fostering the learning and adaptation of international good practices

Source: OECD 2009

1.4. European Union experiences in policy peer reviews

CREST and ERAC peer reviews

The European Union has a shorter history than OECD in using peer reviews in the field of RDTI policy. Peer review processes in this field were launched within the framework of the Open Method of Coordination (OMC), established by the European Council of Lisbon in March 2000. The OMC is an inter-governmental mode of governance, which rests on voluntary participation by Member States, and on "soft law", non-binding mechanisms such as guidelines and indicators, benchmarking and sharing of best practice. The expected strength of this method lies on the power of peer pressure, since the European Union has no legal power to impose policy changes in this field on Member States.

The OMC has been applied in the field of research and innovation since 2003 under the aegis of the consultative body for research and innovation, CREST (European Union Scientific and Technical Research Committee), acting as the forum for the exchange of experience and mutual learning. The objective of the OMC is to foster the implementation of the European Research Area by facilitating: 1) enhanced mutual learning and peer review; 2) identification

of good practices and of their conditions for transferability; 3) development of joint policy initiatives among several Member States and regions and 4) identification of areas where Community initiatives could reinforce actions at Member State level. Four cycles have been implemented between 2003 and 2008, during which several specialized groups exchanged knowledge and practices on topics of importance for RDTI policy, and peer reviews took place under the CREST "policy mix" group.

In the period 2005-2008, 11 EU countries were peer reviewed: three (Romania, Spain and Sweden) in a pilot operation during the second cycle (2005-2006), six (Belgium, Estonia, France, Lithuania, Netherlands, United Kingdom) in the third cycle (2006-2007), and two (Austria and Bulgaria) in the fourth cycle (2007-2008). In 2010 CREST was renamed ERAC (European Research Area Committee) in order to better align its role with the new emphasis given to the ERA by the Treaty on the functioning of the European Union. Seven countries (Cyprus, Latvia, Estonia, Denmark, Belgium, Iceland and Spain) were peer reviewed under ERAC until 2014 (Table 2). The list of reviewed countries shows a wide diversity of country sizes and levels of development.

Table 2. EU - CREST and ERAC Peer Reviews of innovation policy 2005-2014

Peer Reviewed Country	Peer Reviewers mentioned in reports
CREST Peer Reviews 2005-2008	
Romania	Netherlands, Belgium, Slovenia
Spain	Slovak republic, Norway, Ireland
Sweden	France, Netherlands, UK, Estonia
Belgium	Switzerland, Denmark, Germany, Spain
Estonia	Slovenia, Netherlands, Norway
France	Slovenia, Spain, Sweden
Lithuania	UK, Netherlands, Denmark, Slovenia
Netherlands	Sweden, UK, Poland
United Kingdom	Austria, Romania, Denmark, Finland, France
Austria	France, Sweden, Netherlands, UK
Bulgaria	UK, Ireland, Estonia, Norway
ERAC Peer Reviews 2010-2014	

Cyprus	Malta, Greece, UK, Ireland, Austria
Latvia	UK, Finland, Lithuania, Estonia, Sweden, Norway
Estonia	Denmark, Slovenia, Finland, Israel
Denmark	Germany, Finland, Austria, Netherlands
Belgium	Finland, Switzerland, Austria, Spain
Iceland	Finland, Ireland, Netherlands
Spain	Sweden, France, Germany, Belgium, Estonia

The method used for CREST/ERAC peer reviews adopts the three-step process as in the OECD method, but shows several differences:

- The peer review team is composed of an independent expert (lead consultant), peers from the Member States and a representative from the European Commission. The same countries are acting both as peer reviewers and reviewers in subsequent exercises;

- A background report is prepared either by the European Commission (Joint Research Centre IPTS) or the lead consultant. The peer reviewed country prepares a self-assessment report, focusing on key elements of the innovation system (Figure 3), covering the interrelated domains of human resources, science base, business R&D and innovation, economic and market development and governance. The report uses the EU "Self-Assessment Tool" (SAT) (Box 3), and defines the crucial issues amongst this 10-points framework, on which the review should focus. An analysis of the use of the SAT tool enlightened the following benefits (Halme 2012): 1) Increasing the efficiency of the review exercise: the SAT provides an essential guidance and short-cut to the key issues that should to be addressed in the peer-review; 2) Providing an important 'insider view to the national policy', revealing useful tacit information; 3) Engaging national stakeholders early on into the peer-review process; 4)Increasing the chances to meet the end-client's expectations.

Figure 3. Conceptual framework for OMC peer reviews

Source: Guy and Nauwelaers 2003

Box 3. Innovation Union Self-Assessment Tool for STI peer reviews

The Innovation Union Self Assessment Tool (SAT) intends to capture the systemic dimension of the "knowledge triangle". It includes the following features of well performing national and regional research and innovation Systems:

1. Promoting research and innovation is considered as a key policy instrument to enhance competitiveness and job creation, address major societal challenges and improve quality of life and is communicated as such to the public

2. Design and implementation of research and innovation policies is steered at the highest political level and based on a multi-annual strategy. Policies and instruments are targeted at exploiting current or emerging national/regional strengths within an EU context ("smart specialisation")

3. Innovation policy is pursued in a broad sense going beyond technological research and its applications

4. There is adequate and predictable public investment in research and innovation focused in particular on stimulating private investment

5. Excellence is a key criterion for research and education policy

6. Education and training systems provide the right mix of skills

7. Partnerships between higher education institutes, research centres and businesses, at regional, national and international level, are actively promoted

8. Framework conditions promote business investment in R&D, entrepreneurship and innovation

9. Public support to research and innovation in businesses is simple, easy to access, and high quality

10. The public sector itself is a driver of innovation

Source: http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf COM(2010) 546

- The exercise is quicker (around 6 months) and has a more limited scope than the OECD exercises: it is characterized as a "light' exercise to encourage the sharing of information about policy-related issues between senior policymakers and to generate generic lessons for the formulation and implementation of effective policy mixes" (CREST 2007). ERAC peer reviews "provide quick professional views for a selected focus area" (Halme 2012);

- The contribution of peers is comparatively more important than the contribution from experts. According to a synthesis report of CREST peer reviews: "*A key benefit is widely held to flow from the two-way learning that occurs at the personal level, i.e. between the peers and their interlocutors during the missions to the review country. This interactive dialogue and networking dimension helps to distinguish the CREST policy mix exercise from the more strictly objective and analysis-based OECD type of country review*" (CREST 2007);

- One of the expectations from the OMC was the evolution towards better coordination of policies across Member States: this aspect has been underdeveloped in practice.

As the experiences accumulated with more countries covered under the ERAC peer reviews, three key success conditions were identified.

First, policy commitment at the highest level, along with the choice of the right timing for conducting the exercise taking due consideration of the policy cycle, is a first necessary condition. This commitment supports the three stages of the peer review process: it ensures a well-thought definition of focus for the peer review, access to relevant information sources, technical support for the preparation of missions and mobilization of stakeholders, and, above all, it raises the likelihood of actual incorporation of recommendations into the policy-making.

Second, wide stakeholders participation from the reviewed country is also seen as a key success factor that also benefits the three phases: this helps improving the depth of the analysis of the review panel, eliciting tacit information and actors' agendas that need to be

taken into account to prepare realistic recommendations, and preparing the actors to implement changes flowing from the recommendations.

Third, the quality of members and of the peer review panel as whole, composed of a mix of experts and peers, is an essential element of success. The selection of this panel should be part of the preparatory phase, allowing a good match between the peers and experts and the more focused questions of the exercise.

Interreg IVC inter-regional learning experiences

In addition to these centrally-managed EU-wide peer review exercises, a number of ad hoc initiatives have been taken by regions and countries in the EU, often facilitated by the availability of EU funds dedicated to support trans-national learning(in particular the Interreg C programme).

The Assembly of European Regions (AER) promotes peer reviews amongst its members. Their aim is for regions to identify, exchange and transfer good practices in terms of regional policy instruments for innovation policies at the regional level. An example of the application of the appr   oach sketched out in Figure 4, is described in Box 4, the SMART EUROPE project, funded by Interreg IVC. In this kind of model, the peer review visit and peer-to-peer reciprocal learning are the central elements, since each region acts as both reviewer and reviewed partner within the same partnership of regions. The main advantage of this methodology that is heavily focused on the role of peer-reviewer is that "*the selection of experts, who are practitioners in the field of assessment, means that the recommendations given by them after the review will be practical and realistic*" (quote from Tampere region, subject to peer review in SMART EUROPE).
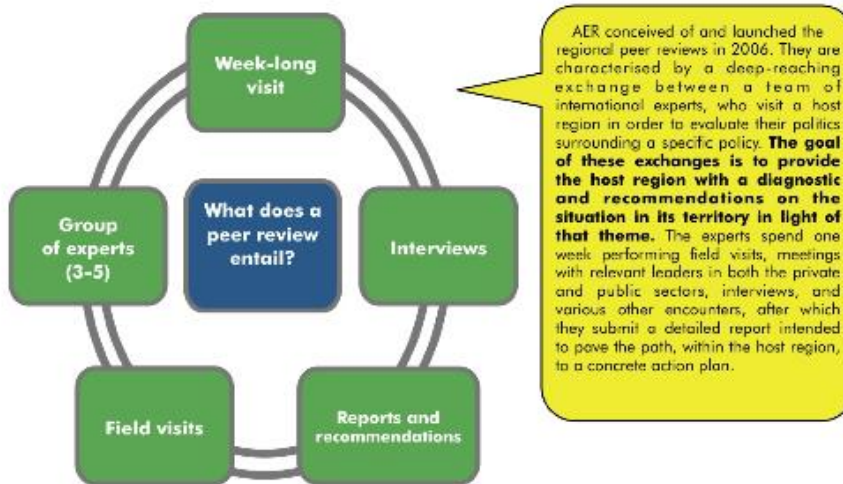
Many Interreg IVC projects have focused on "exchanges of good practices". This has resulted in a bulk of material, such as "good practices databases or brochures" which tend to be used only sporadically beyond the partners of the projects that produced them. To remedy this lack of diffusion, the Interreg IVC programme funded "capitalization exercises" including reflections on the transferability of good practices.

These bottom-up initiatives differ from the EU peer reviews described above, in two main respects:

1. Their focus is on transfer of individual good practices rather than on overall systems assessments;

2. They are not part of a series of similar exercises and are not placed under the aegis of broad political Committees (such as the ERAC). Hence, the diffusion of results is in practice restricted to projects' participants.

Figure 4. Assembly of European Regions Peer Review methodology

AER peer reviews: a unique methodology

Source : www.aer.org

Box 4. Inter-regional peer reviews under Interreg IV C: the example of SMART EUROPE

SMART EUROPE is based on the concept that smart and targeted regional policies and interventions can be designed to boost the employment directly in the regional innovation-based sectors. With this aim, a consortium of 13 partners, representing 11 EU regions, exchanged policies and instruments for identifying and supporting the main regional economic actors that can generate job opportunities in the innovation based sectors of their economy. In support of this overall purpose, the project activities address the following sub-objectives:

- Collecting and exchange of good practices and possible policy improvements in the field using a Peer Review methodology;
- Setting up of the SMART EUROPE Toolkit, a customized package of policy instruments and measures to facilitate the creation of innovation-based jobs;
- Development of concrete implementation plans for each partner region to achieve the main objective;
- Dissemination of the tested measures towards other interested EU Regions.

The methodology standardises the relevant aspects that need to be measured, in order to enable experts with different background, to assess the regional situation in an objective way. By this, they will be able to give appropriate recommendations on the field of innovation-based job creation in the host region. Relevant local stakeholders are involved since the

beginning with the aim to collect the needs and demands for the territory and to define specific focus of action.

Eleven Peer Reviews took place, one in each SMART EUROPE partner region, allowing to build on the knowledge of peers, experts and practitioners dealing with employment strategies in different European countries, selected by the partners. A Peer Review team consists of 10-12 highly experienced experts from the Partner Regions (2 experts per region). Background information is provided to the review team prior to the Peer Review. The host region sets the agenda with interviews, study trips and workshops allowing the experts to identify strengths and weaknesses in its innovation and employment policies.

A checklist is the common tool used by the peers to assess the host region's policy regarding its innovation anchor. After the visit, the review team prepares a report with a series of recommendations on how to improve the region's policy design and delivery.

Based on the feedback of the experts, the host region prepares its Action Plan setting out the concrete steps to follow up to the recommendations. An Implementation Plan defines a longer-term strategy and explains how the recommendations will be included in future regional policies.

Source: www.smart-europe.eu

1.5. Conclusion

There are several commonalities, but also differences in the way policy peer reviews have been deployed at the OECD and in the European Union. Table 3 indicates the content of the various phases and activities within them, and Table 4 summarises the OECD and EU approaches (here the focus is on the CREST-ERAC peer reviews) according to the key issues identified at the start of this section.

The two types of peer reviews follow broadly a similar three-step pattern, with an important focus on interactions with stakeholders in the reviewed country/region, at the heart of the peer review process, but the OECD peer reviews are longer, more in-depth exercises than EU peer reviews, which are quicker and less analytical. The respective roles of peers and experts differ: the balance places more weight on peers in the EU model and on experts in the OECD model. Both models do not include a systematic follow-up of consequences of the peer reviews in the reviewed country.

The response to the issue of transferability of good practice is similar in both cases: the adoption of a broad and systemic conceptual framework for the peer review enlightens the context-dependent character of policies, and puts the emphasis on policy mixes rather than on individual policy instruments working in isolation (Nauwelaers and Wintjes 2008). Hence in both cases, the aim of the peer review is not to find and replicate "best practices" but to learn from successful foreign experience. The work of "de-contextualizing" good practices needs the intervention of external experts. Combination of peers and experts is hence a necessary feature of these exercises.

In both cases the continuity of the exercises and the learning between exercises is not systematically organized. This can be considered as a missed opportunity to create "communities of practice" between policy-makers supporting continuous policy learning.

The benefits of OECD and EU peer reviews are that the results are tailor-made to the need of the peer reviewed country. There is indeed a lot of information available on good practices for any fields of RDTI policy, which is not used by governments. Peer review is a mean to put these at use for the purpose of national policy learning: a key characteristic of the peer review method is that recommendations are likely to be more credible and applicable due to the fact that they have been screened by peers from the real policy-making world (fuelling the "peer pressure"), and checked against the reality of the reviewed country/region thanks to interactions with stakeholders.

Table 3. Content of phases and tasks in OECD and EU policy peer reviews models

Main phases and tasks	Key elements OECD model	Key elements EC model
Phase **1** **PREPARATION** **Self-assessment**	Preparatory mission to define scope Background report by the reviewed country/region	Background report prepared by EU-appointed external expert
Phase **1** **PREPARATION** **Mobilization**	Mobilization under responsibility of the review country/region	Mobilization under responsibility of the review country/region
Phase **2** **IMPLEMENTATION** **Analysis**	In-depth analysis, using OECD knowledge base	More limited analysis
Phase **2** **IMPLEMENTATION** **Interactions**	One or two visits in the country/region, peers not systematically attending Discussion of draft report with country/region Discussion of draft report at OECD with peers	One or two visits in the country/region, peers systematically attending Informal, not systematic discussion of draft report with country/region
Phase **3** **INCORPORATION** **Communication**	OECD launch event - visibility	Presentation of report at ERAC committee with peers Presentation of report in

		country/region
Phase 3 INCORPORATION **Endorsement**	No systematic follow-up of policy changes	No systematic follow-up of policy changes

Table 4. Differences and commonalities between OECD and EU policy peer reviews models

	OECD policy peer review model	EU policy peer review model
Choice of peer reviewing countries/regions	Small number of peer countries/regions Self-selection based on interest in and proximity with the reviewed country/region	Larger number of peer countries/regions Self-selection based on interest in and proximity with the reviewed country/region "Community of practice " with cross-participations in several exercises
Definition of the analytical framework	OECD analytical framework Coverage of broad research and innovation system, focus on flows and governance Exploitation of earlier OECD work	CREST model and EU Self-Assessment Tool Coverage of broad research and innovation system
Transferability of practices	Emphasis on overall framework, context-dependent good practices	Emphasis on overall framework, context-dependent good practices
Selection of peer panel	Experts-dominated	Peers-dominated
Reaping benefits	Focus on analytical findings, mediated by peers views Credibility and applicability of recommendations	Focus on mutual learning process Coordination and alignment of policies across EU Credibility and applicability of recommendations

Defining methods and involving actors	Typical duration: one year Relying on codified more than tacit knowledge	Typical duration: six months Relying more on tacit than codified knowledge
Managing costs	Cost borne by reviewed country	Cost borne by reviewed country, EC funding for experts and travel for peers

2. The contribution of Peer Reviews to Smart Specialisation Strategies

2.1. The specific requirements of S3 for policy-making

Smart Specialization Strategies, which started to be designed in 2012 in the wake of the preparation of Structural funds programme for the period 2014-2020 (the presence of such strategies was set as a formal condition for accessing the funds), are new types of policies for knowledge-based regional development, displaying the following six characteristics (as defined by the SMARTSPEC project):

1. **Open:** the identification of a region's smart specialisation potential takes place within an international context, is based on a functional definition of the region (extending over administrative borders), and incorporates a trans-regional dimension;

2. **Informed:** based on a robust evidence base, on iterative and learning-based process, thus calling for a lot of policy intelligence and evolving over time;

3. **Integrated:** fostering synergies between different sectors, innovation actors, policy domains and policy levels;

4. **Differentiated:** starting with the identification of the region's specific competitive advantages, which necessarily differ according to the stage of development and the characteristics of the regional innovation system;

5. **Shared:** based on a synergistic, collective, politically-endorsed process, where private actors play an important role as main actors of the "entrepreneurial discovery process";

6. **Impact – oriented:** goal-orientated exercise expressed in terms of concrete and measurable goals and targets and adapted according to impacts achieved.

Clearly, Smart Specialization Strategies place new requirements for policy-making. The observation of the first years of practice indicates that all six features pose considerable challenges on regional policy-makers. The two most immediate challenges to which policy-makers have been confronted with are: first, the identification of (emerging) areas of specialization for the region; and second, the assessment of contribution of policy to enhancing the transformation capacity of the regional productive fabric towards new specialization domains.

2.2. Joint Research Centre S3 Platform Peer Reviews

The European Commission, in charge of checking the presence and quality of smart specialization strategies in the context of the negotiations for the use of Structural Funds, has acknowledged that this requirement is highly demanding: policies implemented in the wake of smart specialization strategies would represent, for most regions, a step change compared to the current situation. To respond to this difficulty, the Joint Research Centre of the European Commission (the Institute for Prospective Technological Studies in Seville, IPTS) has been given the task to support regional authorities (and national authorities in Member States where the regions have little relevant powers) to develop such strategies. The IPTS has established a S3 Platform in 2011: peer reviews, started in 2012, soon became the flagship activity of the S3 Platform. Between January 2012 and February 2015, 18 "informal peer review workshops" have taken place within this Platform.

The S3 Platform peer reviews consist in one- to two-day workshops, during which four regions present their situation and questions with respect to S3 development, and the other regions act as peer reviewers, named "critical friends". The participants switch roles alternatively between reviewers and reviewees. The conceptual framework relates to the S3 process rather than the innovation system analysis. The core of the peer review workshops consists in this interactive process between peers, which is supplemented by various experts' contributions acting in a plenary session, and commenting on peers' exchanges. The results of the debates are gathered in a report produced by the staff of the S3 Platform. While the S3 Platform peer review workshops follow a three-phase process like the other peer reviews, the weight of the exercise is on "interactions" in the second phase. The success factors for these interactions have been identified as: 1) value sharing; 2) level of commitment; 3) mutual trust and 4) credibility (Midtkandal and Rakhmatullin 2014).

Due to their approach which favors reactions on the spot, these particular types of peer reviews are more successful in eliciting tacit rather than codified knowledge in policy-making. They are also more geared towards policy learning processes than actual policy changes.

The key characteristics of these particular types of peer reviews are depicted in Tables 5 and 6 below, including the same items as the ones developed for the OECD and EU models above (Midtkandal and Hegyi 2014, Midtkandal and Rakhmatullin 2014).

Table 5. Content of phases and tasks in JRC-IPTS S3 Platform policy peer reviews model

Main phases and tasks	S3 Platform Peer Reviews
Phase **1** **PREPARATION** **Self-assessment**	Peer reviewed region prepares slides on S3 status and questions, a short summary of regional situation, and fills a self-assessment questionnaire covering the key S3 characteristics.
Phase **1** **PREPARATION** **Mobilization**	No specific mobilization in peer reviewed region, beyond participation of 3-5 representatives to the workshop. The preparation of the workshop might act as a momentum for mobilization of actors at home.
Phase **2** **IMPLEMENTATION** **Analysis**	Peer reviewers read peer reviewed region's short background document and S3 slides and presentation before the workshop.
Phase **2** **IMPLEMENTATION** **Interactions**	The core of the activity consists in interactions during the workshop, between 4 peer reviewed regions, which change roles and act both as reviewers ("critical friends") and reviewees.
Phase **3** **INCORPORATION** **Communication**	Results of the interactions are made public on the S3 Platform website, and brought home as "lessons learned" by participants of the peer reviewed region
Phase **3** **INCORPORATION** **Endorsement**	The workshop participants are invited to draw up list of "follow up actions" from the exchanges.

Table 6. Key characteristics of S3 Platform policy peer reviews model

	S3 Platform Peer Reviews
Choice of peer reviewing countries/regions	On voluntary basis. Coordinating role by S3 Platform plays for matching peer reviewees and reviewers. Key factors are: timing of voluntary submission of demand, the interest placed on the hosting region, some commonalities (e.g. some workshops focused on national level authorities in centralized Member States).

Definition of the analytical framework	The method starts from the key issues from the RIS3 methodological guide, namely: stakeholder engagement, analytical work, shared vision, priority definition, action plan, policy mix, outward looking dimension, synergies between policies and funding sources, governance and monitoring. Each peer reviewed region defines its own priority questions within the list.
Transferability of practices	The issue of transferability of practices proposed by the peers is discussed in the workshop sessions.
Selection of peer panel	Peers dominated, experts are peripheral.
Reaping benefits	Exchanges amongst peers and creation of a community of practice; understanding of S3 concept.
Defining methods and involving actors	Typical duration: one month around the workshop. Relying on tacit knowledge.
Managing costs	Cost borne by reviewed and reviewer regions; animation costs by the EC (JRC-IPTS).

An enquiry targeting participants in the first 12 S3 Platform workshops revealed a few interesting points (Midtkandal and Hegyi 2014):

- Despite the focus of the workshops on exchanges between peers, participants tend to value inputs from experts more than inputs from peers. This unexpected result is thought to be linked to better preparation from experts than peers, before the workshop;

- Self-preparation seems to bring as much value as peers' contributions (especially when peers come from less advanced regions);

- Repeated participations to workshops is seen as valuable for policy learning and for the creation of "communities of practice" supporting policy learning;

- Post-workshop reports are positively evaluated but not systematically shared;

- The positive feedback from participants on the workshops relates to the awareness and understanding of the S3 concept, but less to the actual work on S3.

The key benefits of these very light models of peer reviews lie in:

1. the exchanges between peers and the practical and real-life character of the lessons learned. The possibility that is given to regions to expose their achievements and questions with respect to S3 and get a "mirror effect" from peers' reaction is expected

to spur a policy learning process. The mutual character of this peer learning process helps to create a right environment to activate learning processes;

2. the wide awareness-raising across Europe thanks to the large number of regions and countries participating to these exercises ("community of practice" effect).

The main limitations of this type of peer reviews are:

1. the impossibility for all peer reviewed regions to get a "mirror effect" from stronger regions, due to the "switching role" method;

2. the limited understanding of peer reviewers of situation of the peer reviewed region (limited analytical task during implementation phase), which results in "light" comments. This is to be related to a complete reliance on voluntary contributions from peer reviewers during the sessions of limited duration;

3. the lack of capitalization from the whole range of peer reviews carried out under the same framework.

2.3. The role of Peer Reviews for assessing S3

A matching between the key features of S3 and of "full" Peer review models as developed in the OECD and EU[11] (columns 1 and 2 respectively in Table 7) underlines the potential of the latter technique for supporting this new type of policies.

Table 7. S3 features and Peer Review characteristics

S3	Peer Review
Open	International policy learning support the opening of the policy process beyond own borders.
Informed	Peer reviews start with a preparation phase where evidence is used to fuel the implementation phase. Iterative and learning-based process.
Integrated	Peer reviews tend to target innovation systems as a whole, rather than parts of them.
Differentiated	Interactions with peers and experts help understand the diversity of practices, "de-contextualise" and "re-contextualise" practices, and avoid the adoption of "one-size-fits-all" solutions.
Shared	Participatory approach used in peer reviews support the involvement of a wide range of stakeholders in strategies.

---

[11] The focus is here on the EU models as implemented under the ERAC aegis rather than the S3 Platform.

	Political endorsement is a necessary component. Participation of private actors might be missing.
Impact – oriented	Peer reviews are goal-oriented exercises: they are aiming at policy changes, not just at producing analyses. They may raise the appetite for indicators and targets setting, but not go as far as needed for concrete implementation of these.

Peer reviews are by definition an opportunity to look at regional innovation systems from an outsider perspective, hence facilitating the "opening up" of policies. Peer reviews can also provide an opportunity to identify other regions and countries with complementary areas of specialization, as potential collaborating partners.

During preparation phase, peer reviews help create a robust information base, which is completed during the implementation phase by additional evidence as a basis for the S3. The iterative and learning-based process of peer reviews helps to upgrade the basis on which strategies are built. The above analysis has made clear that peer reviews exercises, rather than aiming at "transferring good practices", endeavor to enlighten the diversity of responses to similar policy challenges in order to fuel policy thinking in the reviewed region. This is well in line with the exploratory character of S3, which requires a lot of policy intelligence.

Peer reviews adopt an innovation system model as underlying framework, where interactions and relationships between all components of the system are scrutinized. This helps developing strategies extending beyond individual policy domains, and to identify opportunities for synergies between actors. Meetings organized under the peer review exercises may offer opportunities for de-fragmenting the dialogue between actors in the reviewed region.

A differentiated approach lies at the heart of S3: regions should be able to develop strategies that are adapted to their specific situation and comparative advantages, rather than replicating so called "best practices" or following fashions. This is a notoriously difficult task: a puzzling recent analysis of innovation policies across the EU has found that innovation policy mixes tend to be similar across countries, spurred by diffusion of best practices through transnational policy learning (Izsak et al. 2014). Arguably such a process should not be called "transnational learning" but rather simple "copy and paste" practices. When carried out properly, peer reviews should avoid such a syndrome and helps regions "de-contextualise" and "re-contextualise" existing foreign practices.

The stakeholders involvement, which is an essential component of the OECD and EU peer review models, underlines the value of a "participatory approach" as a key device for raising the effectiveness of evaluations (Diez 2001). All peer review experiences have concluded on the importance of strong political endorsement for the success of the last step of peer review, namely, the incorporation of peer review recommendations into actual policies.

Finally, the main goal of peer reviews is to produce effective, realistic and acceptable policy recommendations. Hence the challenge these exercises face in developing recommendations is to deliver concrete ideas in terms of measurable targets, indicators and monitoring mechanisms which are needed for S3 as goal-orientated strategies.

Conclusion

Policy peer reviews is a method that rests on the hypothesis that policy-makers learn best through exchanges with their peers. This is because:1) part of the knowledge needed for policy-making process cannot be codified, and is hence embedded in people; and 2) peers can deliver policy recommendations that are realistic and closer to practice than other types of recommendations from experts' work. This starting point makes sense, considering the large amount of policy-relevant material available from academic work, international organizations publications, evaluation reports, databases, etc. which remain under-used for the purpose of improving policies. Organizing peer reviews of policies is an appropriate way to adopt a "living lab" approach for innovating in policy-making. This method involves a more user-driven approach to studying policies, than what is found in existing knowledge bases. By focusing the work on the actual needs of the reviewed country/region the existing knowledge base is put in motion, and tailor-made to the needs of the examined country/region. The value of the method lies in the combination of large amounts of both codified and tacit knowledge that is used in a purpose-oriented exercise. Rather than relying on "peer pressure" for changing policies, the method fosters "peer learning" to that purpose.

The main conclusion of this paper is that policy peer reviews are relevant tools to support smart specialization strategies, for which policy learning requirements are particularly high. The impact of such a method will be maximized by combining the valuable aspects of the experience gained so far in peer review exercises conducted under the aegis of the OECD and the European Union.

Thanks to a comparison between the various peer review models implemented in practice, and a reflection around the specific needs of policy-makers involved in S3, this paper has enlightened the success conditions for such a method to deliver its full potential. These pave the way towards models for "S3-relevant peer reviews", with the following features.

First, peer reviews for S3 should work according to **a balanced three-phases/six tasks models**: the analysis found that the three phases of preparation, implementation and incorporation are not only relevant, but also necessary for the method to yield full benefits. The six tasks of Self-assessment, Mobilization, Analysis, Interactions, Communication and Endorsement all need proper attention. In practice different emphasis has been placed on these tasks, with e.g. the S3 Platform peer review method placing a priority focus on "Interactions" in the implementation phase and much less on the other phases and tasks. Within the Implementation phase, the OECD model is strongest on the "Analysis" task, while the EU peer reviews are more geared towards the "Interactions" task. The latter two models have a much more developed preparation phase than the S3 Platform method does. All methods have in common a comparatively lower attention to the incorporation phase, which

is difficult to act upon since it lies almost totally in the hands of the peer reviewed region. The high visibility of OECD reviews in many cases is a good feature of this method for the "Communication" task. The EU idea of launching light "pre- and post- peer reviews" exercises is a good idea to ensure a better attention to the two ends of the peer review cycle, ensuring clearer definition and supporting effective incorporation of recommendations.

Second, getting a **balanced mix of experts and peers** is an important point of attention. The analysis has shown that both types of contributors provide relevant, yet complementary types of expertise. Broader expertise, more conceptual understanding of issues and wider international views are mode developed with experts, while peers bring more realistic, credible and effective solutions based on tried practice. While the OECD model tends to be dominated by experts, the S3 Platform model is dominated by peers. A domination by experts is likely to weaken the "mutual learning" benefits among peers and result in too generic recommendations. A domination by peers may affect the comprehensiveness and depth of recommendations: "de-contextualising" good practices in one environment needs an external eye. A good mix of the two types of contributors, as endeavored in the more recent EU peer reviews, is likely to be the most suitable combination to obtain the full range of expected benefits, provided that the panel is able to develop good synergies between the two types of people. Getting the most of the two types of contributors can be fostered by giving reference to profiles of experts that have a close acquaintance with practice, and to peers who have a good international exposure and a broad understanding of issues beyond their personal experience.

Third, **costs and timing issues** are, in practice, a determining factor to make peer reviews work for S3 design and implementation. Models with an in-depth coverage of all phases and tasks, and involving a good variety of peers and experts, are costly. Experts need fees in line with their investment, and deep and extended interactions between large peer review panels and groups of stakeholders raise travel and accommodation costs. In addition, full-blown peer review exercises with in-depth self-assessment and analytical phases such as in the OECD model take time (one year at least) and this might not be compatible with the policy cycle. Compromises need to be searched between timeliness and depth of peer reviews, starting from a fine understanding of the reviewed country/region's need.

Fourth, the **content coverage** of peer reviews is a rather new issue. Most peer review models have taken so far a wide coverage of all aspects of research and innovation systems, but there are signs that this approach is now reaching its limits. All models are evolving towards a more focused definition of policy reviews: this is visible in the S3 Platform model where the workshops start by re-formulating the questions from the peer reviewed region, or in the EU model which is now evolving towards a two-stages model with a first phase devoted to a first exploration of the focus of the review. After three years of peer reviews of the S3 Platform, which so far have benefitted more on awareness raising and understanding of the S3 concept, the current focus is now shifting on more substantial issues of content. These light peer reviews may act as preparatory phases for more in-depth peer reviews as carried out under EU-ERAC or OECD.

Fifth, the **choice of peer regions** remains an open issue. In most of the reviewed models, this choice is not made on a systematic manner, relying e.g. on analyses of similarities or differences between regions or countries. The association of peers to a particular exercise relies partly on the ad hoc availability of country/regions representatives having an interest (and staff resources) to study the peer reviewed country/region. Proximity in policy approaches and tradition of cooperation is an important driving force, and similarity in overall context (country size, institutional context (federal, unitary), overall level of development) is another common reason for associating regions/countries in a peer review exercise. In the future, in line with an identified need for more focused peer reviews, the choice of peer regions or countries would need to be fine-tuned according to the more specific focus of the review. This focus will provide a screening tool to identify those regions and countries that share a similar interest in the issue and have found a variety of responses to that issue. Still the fact that policy-makers have a higher inclination to work with representatives of countries/regions with higher "policy-making maturity", as identified e.g. by the S3 Policy learning platform, will remain and further fuel the "policy learning paradox": namely the problem that regions/countries that are more advanced in the policy learning cycle are also more likely to be involved – and benefit from – policy learning exercises. Those regions/countries most in need of lessons from peer reviews are those that show highest deficiencies in the pre-conditions for undertaking these exercises, in particular: a weak high-level policy commitment, deficit in innovation culture, and shortages of skilled staff and strategically-minded stakeholders.

Finally, peer reviews for S3 would benefit from **capitalization exercises and continuity**. Learning from each other is a continuous process, as demonstrated by the S3 Platform methodology which is effective in creating "communities of practice". Mutual or multilateral learning is an interesting feature to avoid a "one-size-fits-all" and "best practice copy" temptation. Mechanisms should be associated to the peer reviews to capitalizes on lessons learned from the various exercises and use them in subsequent peer reviews, as the OECD models endeavors to do.

The main limitation of peer reviews is that it is very demanding on the side of reviewed country/region. The first pre-requisite for this method to deliver expected results in terms of policy improvement, is the presence of an evaluation culture, an openness to learn from outside and the willingness to change. The second pre-requisite, which is a corollary of the first, is that adequate capacities exist in the country/region to contribute to the three phases of the exercise with adequate competences. The lack of strategically-minded persons to interact with peers is a main limiting factor and absence of evaluations of existing policies (both in reviewed and reviewer country/region) is a main limiting factor for the learning process.

References

Aubert, J.-E. (1997), On the OECD experience of country reviews, in OECD (1997), *Policy evaluation in innovation and technology*, OECD Publishing, Paris.

Auttio, E. (1998), Evaluation of RTD in regional systems of innovation, *European Planning Studies*, Volume 6, Issue 2.

Borras, S. (2011),Policy learning and organizational capacities in innovation policies, *Science and Public Policy,* 38 (9): 725-734.

CREST (2006), *Policy Mix Peer Reviews: Synthesis Report*, Second Cycle of the Open Method of Coordination for the Implementation of the 3% Action Plan, Report prepared for the CREST Policy Mix Working Group by Ken Guy, Wise Guys Ltd., in conjunction with IPTS.

CREST (2007), *Policy Mix Peer Reviews: Synthesis Report*, Third Cycle of the Open Method of Coordination for the Implementation of the 3% Action Plan, Report prepared for the CREST Policy Mix Working Group by Ken Guy, Wise Guys Ltd., in conjunction with IPTS.

Diez, M.-A. (2001), The Evaluation of Regional Innovation and Cluster Policies: Towards a Participatory Approach, *European Planning Studies*, Volume 9, Issue 7, pp. 907-923.

Guy, K. and C. Nauwelaers (2003), Benchmarking STI Policies in Europe: In Search of Good Practice, *IPTS Report*, February, 20-28.

Halme, K. (2012), *Self Assessment Tool in ERAC Peer Reviews*, Ramboll Management group, Helsinki.

Izsak, K., Markianidou, P. and S. Radosevic (2014), Convergence of National Innovation Policy Mixes in Europe: has It Gone Too Far? An Analysis of Research and Innovation Policy Measures in the Period 2004, *Journal of Common Market studies*, p.1-17

Midtkandal, I. and R. Rakhmatullin (2014), *The S3 Platform Peer Review Methodology*, S3 Working Paper Series n° 02/2014 – January, European Commission, JRC-IPTS, Seville.

Midtkandal, I. and F. Barbara Hegyi (2014), *Taking stock of S3 Peer Review Workshops*, S3 Working Paper Series n° 07/2014 – December, European Commission, JRC-IPTS, Seville.

Nauwelaers, C. and R. Wintjes, (2008), Innovation policy, innovation in policy: Policy learning within and across systems and clusters, in Nauwelaers, C. and R. Wintjes (ed.) (2008), *Innovation Policy in Europe*, Edward Elgar, Cheltenham.

OECD (2011), *Issue Brief : Peer Review, Innovation Policy Platform*, OECD electronic platform.

http://www.keepeek.com/Digital-Asset-Management/oecd/economics/peer-review_9789264099210-en-fr#page6

OECD (2009), *Country reviews of innovation policy*, DSTI/STP(2009)4, OECD, Paris.

OECD (2006), *Policy mix for innovation in Iceland*, OECD Publishing, Paris.

OECD (2003), *Peer Review: An OECD Tool for Co-operation and Change*, OECD Publishing, Paris.

Regione Tuscana (2010), *ERIK ACTION Mainstreaming Guide: Learning from a Capitalisation Experience within INTERREG IVC*, www.eriknetwork.net/erikaction.

[i] Indeed, while it remains common to refer to 'policy makers' as a distinct group of agents responsible for designing public policies, the blurred boundaries between politicians, policy technicians, policy administrators and a whole range of other agents that may be involved in the policy design process, including beneficiaries, mean that the notion of there being a unique 'policy maker' is inappropriate.

[ii] That the market-government failure perspective still dominates public policy debate can be seen clearly in responses to the 2007 financial crisis, which has been almost exclusively analysed in terms of market failures and corresponding regulatory (or government) shortcomings that have failed to address or exacerbated these failures (Branston *et al.*, 2012).

[iii] In practice it is very difficult to arrive at complete and objective measures of innovation outcomes. See Klette *et al*. (2000) for a critical review of several evaluation studies and reflections on the analytical difficulties in making these evaluations. See also Streicher *et al.* (2004), Cerulli and Potí (2008) and Magro (2012) for a selection of more recent innovation policy evaluation studies in the Austrian, Italian and Basque Country (Spain) contexts.

[iv] In the context of these evolutionary rationales Edquist (2008) pleads for a substitution of the term 'failure' for 'problem', arguing that failure is a neoclassical concept.

[v] Highlighting the scope of the innovation system concept, Lundvall (2007: 1-2) has argued: "*Without a broad definition of the national innovation system encompassing individual, organizational and inter-organizational learning, it is impossible to establish the link from innovation to economic growth*. A double focus is needed where attention is given not only to the science infrastructure, but also to institutions/organisations that support competence building in labour markets, education and working life."

[vi] This is reflected in the growth of popularity of theory-based evaluation approaches (Chen and Rossi, 1983; Chen, 1990), including realist evaluation (Pawson and Tilley, 1997), which seek to understand the intervention logic of policies alongside the real-life mechanisms and processes that determine their effective implementation in practice.

[vii] For more information see www.ciw.ca.

[viii] We should note that the policy mix only reflects the governmental interventions that steer towards territorial priorities and leaves apart the actions of other stakeholders; this is why we suggest that it is only part of the how, albeit a very significant part.