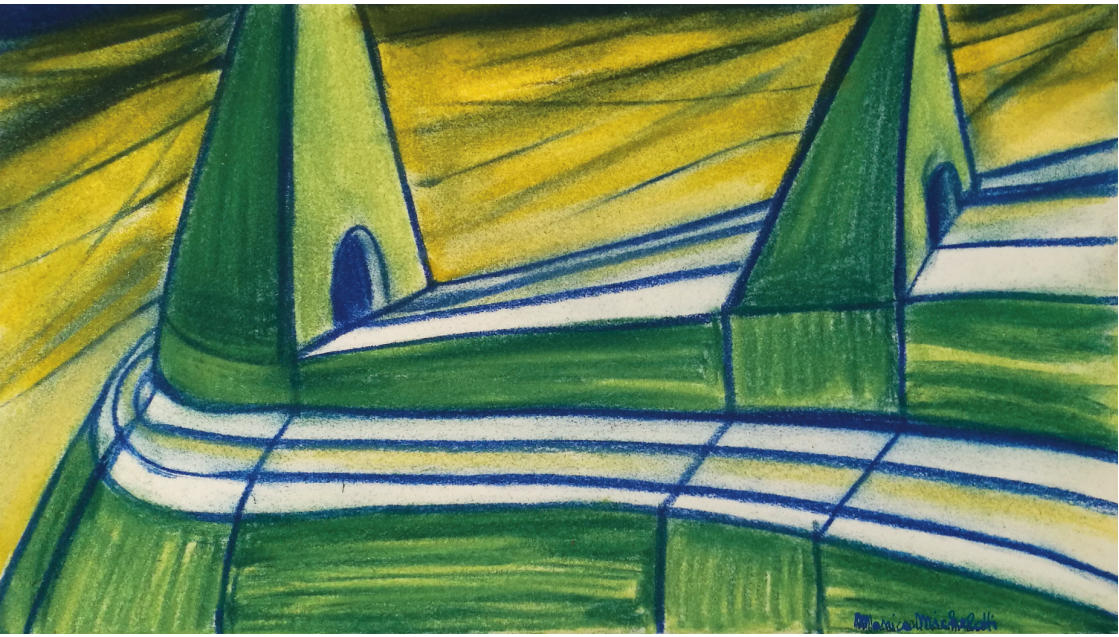
Smart specialisation: reappraising the local dimension

NEW EDITION REVISED AND UPDATED



Edited by Nicola Bellini, Marino Cavallo, Giulia Lazzeri

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This volume represents a tool for knowledge, training and dissemination of the topic of Smart Specialisation in the European local economies. The research group that carried out the analysis and coordinated the various phases of the research activities included: Nicola Bellini, Alessandra Borghini and Giulia Lazzeri from the Institute of Management of the Scuola Superiore Sant'Anna; Marino Cavallo and Valeria Stacchini from the Metropolitan City of Bologna. A special thanks goes to the RELOS3 partners and to all the involved public and private stakeholder for their collaboration in developing the project.

Cover image: Monica Michelotti, *green paths*, pastel on paper, 2000 courtesy of the author

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Acknowledgments

This volume is the main result of the research activities coordinated by the Institute of Management of the Scuola Superiore Sant'Anna and the Metropolitan City of Bologna as part of the INTERREG Europe project 'RELOS3 – From Regional to Local: Successful deployment of the Smart Specialisation Strategies' (www.interregeurope.eu/relos3/)[1].

INTERREG Europe is a European programme aimed at promoting the development and delivery of better public policies, based on the sharing of ideas and experiences among regional and local authorities across Europe, thereby improving strategies for their citizens and communities. Within this framework, RELOS3 is a 5-years interregional cooperation project launched in January 2017, addressing the topic of Research and Innovation, and more precisely the new European approach to regional innovation strategies: Smart Specialisation. RELOS3 is a valuable example of transnational collaboration capitalising on interregional knowledge exchanges and learning among sub-regional and municipal authorities from 6 European countries:

- Sabadell Development Agency (Lead Partner), Spain;
- Metropolitan City of Bologna (local authority), Italy;
- Tartu Municipality (local authority), Estonia;

1. The first edition of this volume was published in 2019 by the same publisher with ISBN 978-88-917-8984-6.

- Wielkopolska Region, (regional authority) Poland;
- Emmen municipality (local authority), Netherlands;
- Malta Enterprise Corporation (State agency), Malta.

The Institute of Management was in charge of supporting the Metropolitan City of Bologna in coordinating and developing some core research outputs during Phase 1 and Phase 2 of the project (January 2017-December 2021): Baseline Study, Good Practice analysis and cataloguing, Evaluation Survey, Final Study.

Research was carried out with a qualitative approach mixing different tools: desk research, case studies analysis for benchmarking and policy learning, on-line surveys, interviews and capacity building activities for policy makers and relevant local stakeholders.

The research team included: Nicola Bellini, Alessandra Borghini and Giulia Lazzeri from the Institute of Management of the Scuola Superiore Sant'Anna; Marino Cavallo, Valeria Stacchini and Simone Ferraro from the Metropolitan City of Bologna. Our special thanks go to the project's partners and to all the participants of the transnational meetings (thematic events, long term visits, local stakeholder meetings), that discussed various versions of our work and provided invaluable insights to improve it.

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Introduction: the lessons from the past, the challenges ahead

Nicola Bellini, Marino Cavallo

This volume summarizes the main evidence collected through the RELOS3 research activities and re-assesses the arguments that support the claim for a greater role of sub-regional governments in the Smart Specialisation Strategy (S3) development process.

The overall goal of the RELOS3 project was to stimulate a successful deployment of national/regional S3 at the local (i.e., sub-regional) level, enhancing awareness about the opportunities related to the deployment of S3 through the inclusion of local innovation actors (public and private) and offering ideas, suggestions and working directions for the development of innovative projects at the territorial level in the partner's regions.

Specifically, the RELOS3 transnational exchanges focused on four thematic issues:

- the role of the local (sub-regional) level in the S3 implementation process;
- the sustainability of Quadruple Helix Collaboration (Industry, R+D and Academy, public administration, and citizens) beyond S3 strategy;
- the participation of private sector in territorial innovation operations to pave the way of S3 deployment; and
- the challenge of removing 'policy silos' between R&D policies and public led innovation and the promotion of cooperation among EU regions with similar or complementary S3.

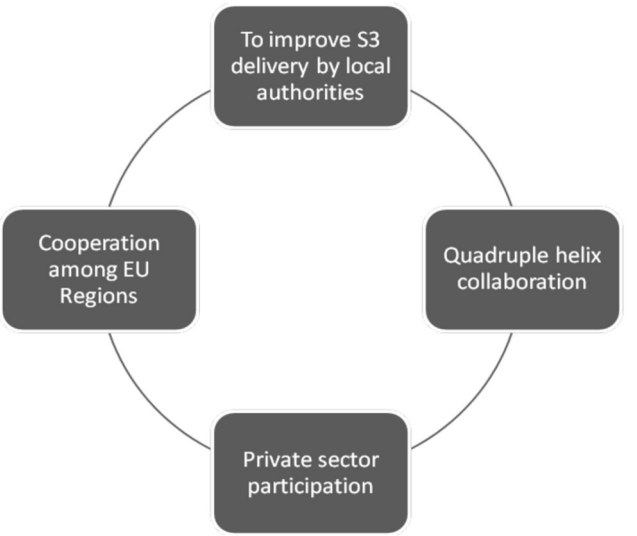

Figure 1 - RELOS3 key thematic areas

So far, there is a substantial absence of references to sub-regional governments in the literature on S3. Local (i.e., provincial and municipal) governments have in some cases been included as one more stakeholder in local partnerships; still, there is no clear role defined for them or systematic academic reflections on the role of different government levels in this type of process. Some authors recognize interdependencies between different levels of government and consequently propose multilevel governance to enhance their coordination. But there is little literature on how this coordination should be constructed (Estensoro and Larrea, 2016) and the S3 experience confirms the complexity of managing multi-level governance in this field (Larrea *et al.,* 2019).

The local dimension of S3 was not the object of clear and compulsory indications from the European Commission and the local role has been significantly absent from many strategies, with the only exception of the urban emphasis regarding the Digital Agenda. In this case, the contents and rhetoric of smart cities programs have often influenced the inclusion of the city dimension. A 2014 study prepared for the European Parliament's Committee

on Regional Development (European Parliament, 2014) already questioned the role of cities in the 2014-2020 programming phase and stressed the fact that the European Commission's intention to enhance that role had "not been fulfilled at Member State level. (...) All in all, the urban character has not been properly acknowledged in Cohesion policy, which is still very much oriented along sectoral thematic priorities at national level. (...) The role of cities in the 2014-2020 Cohesion policy period seems to be similar in scale to that of the previous 2007-2013 programming period".

In fact, on the one hand, the reference to S3 and to business-led models of economic development provided (at least potentially) "a driver to re-invigorate the urban agenda" (Rivas, 2018). On the other hand, a less obvious, but equally important connection exists also between smart villages and regional and rural development, lending itself to careful consideration and original implementation within S3. This has been visible especially in remote and scarcely populated areas where "local smart specialisation strategies" emerged as a necessary complement to regional strategies to suit the need of smaller communities like in Scotland and in the Nordic Arctic areas.

Otherwise, the meso-levels of government, i.e., Regions, have had an overwhelming weight in defining and implementing S3, except for "small" Member States, where national authorities have played that role. In some countries, one may even suggest that S3 proved to be instrumental to re-legitimize the weakened role of meso-governments on the crucial issue for economic development and resilience.

And yet, the challenge of adopting a "granular" approach and giving "capillarity" (Estensoro and Larrea, 2012) to regional innovation policy remains. By capillarity we mean, on one hand, the capacity of regional top-down strategies to target and be fine-tuned with specific situations (local clusters, individual firms) and, on the other, to develop bottom-up, locally designed programs.

With reference to cities, the 2014 study of the European Parliament's Committee on Regional Development (European Parliament, 2014) already included a set of significant recommendations, in fact looking at possible applications in the 2021-2027 programming period. As the study suggested, "in general terms, there are two ways to involve cities and urban areas. The first is to

consult them during the development of EU regulations or during the monitoring and evaluation process; and the second is to involve them at project level". Concerning the EU, the study emphasized the need to guarantee a higher political profile to the urban agenda, while reducing the risk of over-generalisations by means of more refined typologies of cities and urban areas, reflecting the variety of situations existing within the Union. Furthermore "the definition of integrated urban development could be better mainstreamed by developing adequate urban concepts", including cross-sectoral solutions, urban networking, more flexibility in territorial actions and greater coordination of actors. Opportunities of coordination across administrative borders and sectors appear to be more important at the national level, considering that "the character of the involvement of cities in the 2014-2020 programming period shows a picture of the general lack of acknowledgement of urban agendas on national term"'. Recommendations included greater flexibility on agglomeration policies and urban policy representation in European urban policy development. Similar needs of positioning urban agendas on project and programme levels (and of understanding differentiation between urban and rural areas) were identified at the regional level.

Present trends are not necessarily favourable. S3 require the presence of both professionally qualified and politically legitimized actors. Local governments may easily show greater embeddedness, but their ability to perform complex policies in the field of innovation and to be informed visionaries cannot be taken for granted. Furthermore, a consequence of the limited role played in the S3 process has been a limited awareness of the potential impact of this approach at local level (Rivas, 2018).

Seen from Brussels, but also from many capital cities, a greater role of sub-regional governments may suggest the risk of greater policy fragmentation, hindering control and coordination and proving potentially unsustainable. At the EU level, the 2014-2020 S3 implementation has often been affected by an emerging desire for normalization once the ex-ante conditionality was fulfilled, so that after the efforts of the S3 writing, a less challenging form of 'business as usual' was restored, weakening the expected innovativeness of the new generation of R&I interventions. The selec-

tion of S3 priorities has often been based on centralized efforts to assess the strengths and weaknesses of the regional economic structures through quantitative and qualitative techniques and studies conducted in-house by the regional or national administrations or by external consultancy firms, although this is not a guarantee of the capacity to really reach the relevant local innovation partners with their different needs and expectations: "Making processes simpler for the regional government might hinder potential discoveries" (Estensoro and Larrea, 2016).

On the contrary, the sub-regional dimension lends itself more naturally to place-based, decentralized policy experiments, especially those that are characterized by a more consistent involvement of business and civil society in the Quadruple Helix perspective, linking smart specialisation and social innovation (Garcia-Brustenga and Lazzeri, 2018; Rissola *et al.*, 2017; Spiesberger *et al.*, 2018; Pasi and Misuraca, 2018). To sum up, the future role of local (sub-regional) governments may ultimately depend on the combination of a sincere emphasis on the innovative characters of the S3 concept, of an original contribution to renew the methodologies of policy design and implementation and of the sincere effort to improve quality and professionalism of those governments in dealing with innovation policy.

This book is obviously inspired by the experience of Bologna, of its Metropolitan authority and of the Emilia-Romagna Region. Bologna and Emilia-Romagna have been international benchmarks of regional and local policies several times in the past and probably deserve to be so once more. On the one hand, as discussed in chapter 4, Bologna Metropolitan authority did engage in S3-related projects within European transregional programmes and attempted to apply the entrepreneurial discovery process (EDP) approach in a way that was not only consistent with the regional framework, but also adapted to the specificities of the local context. This was not done without doubts. A priority question was how to apply it in a context such as that of Emilia-Romagna, where the habit of negotiation, i.e., the involvement of social and economic partners, has deep and long-standing roots. In other words, what distinguishes the EDP from more traditional

patterns (territorial "forum for work and development", pacts, strategic plans and shared agendas) that had been promoted by the Region and the Metropolitan City of Bologna for so many years?

On the other hand, the experimentations in Bologna were part of the wider reappraisal of the first S3 strategy that was completed in June 2021, when the new 2021-2027 S3 was finally approved. This strategic document realizes a shift that was defined as "challenge based" and "social driven", i.e., implying a vision of innovation that is no longer only technological but also social, organizational, and with a stronger creativity dimension. This leads to a definition of priorities that is no longer carried out vertically with respect to sectors and supply chains, but with a strong cross-sectoral, multidisciplinary, and – most relevant in our perspective – genuinely territorial dimension.

This volume is structured as follows.

Chapter 1 introduces the S3 agenda by discussing its economic and political origins and the main practical innovations when moving from the smart specialisation discourse to its implementation. The centrality of the EDP and the principle of inclusiveness are underlined, focusing on the role to be played by regional institutions, i.e., the public sector and the other involved actors of the innovation ecosystem, for its successful deployment.

Chapter 2 questions opportunities and limits of the role of sub-regional local levels in the S3 design and implementation process across the EU trough contributions of experts (practitioners and researchers) working on the S3 approach.

The second part of the volume presents the main results of the field work conducted as part of the RELOS3 project research activities. Chapter 3 provides a data base of 39 European Good Practices selected through a case study methodology and conceived as a tool for benchmarking and knowledge sharing for S3 practitioners and policy makers. Chapter 4 discusses in detail the case of the Emilia-Romagna Region. Chapter 5 offers comparative evidence on how the RELOS3 partners addressed the challenge of EDP and discusses the main features and functioning of local stakeholder cooperation as part of the S3 process.

1. The analysis

Nicola Bellini, Giulia Lazzeri

1.1. Intellectual and historical roots of the Smart Specialisation approach

Smart Specialisation Strategies have been a key element of EU Cohesion Policy since the 2014-2020 Programming Phase, both because of the novelty of their approach and because of being the object of an ex-ante conditionality. According to the most authoritative definition,

> National/Regional Research and Innovation Strategies for Smart Specialisation are integrated, place-based economic transformation agendas that:
>
> - focus on a limited number of key national/regional priorities, challenges and needs;
> - build on each territory strengths, competitive advantages and potential for excellence;
> - support technological as well as practice-based innovation and aim to stimulate private sector investment;
> - get stakeholders fully involved and encourage innovation and experimentation;
> - are evidence-based and include sound monitoring and evaluation systems. (Foray *et al.*, 2012, p. 8)

The reformed 2014-2020 Cohesion Policy was characterized by a significant effort towards thematic concentration and,

within this perspective, by a shift of resources towards the innovation goal, i.e., the "thematic objective" 1. This choice has been especially strengthened by the inclusion of the S3 requirement as ex-ante conditionality. In other words, the adoption of a "Research and Innovation Strategy for Smart Specialisation", drafted and approved according to the standards proposed by the EU, became a necessary step to activate Structural Funds (Regulation EU No 1303/2013).

A list of S3 key characters has been prescribed to get the strategy approved. The main ones are:

- an economic transformation agenda supporting structural evolutions;
- a place-based strategy: realistic and balanced policy mix and road map;
- a dynamic and evolutionary process based not on an ex-ante identification of given specialisations, but on an interactive dialogue with stakeholders, i.e. an Entrepreneurial Discovery Process (EDP);
- an open and user-centred innovation policy, giving voice to innovation users;
- a more direct involvement of users in various stages of the innovation process;
- an inclusive strategy-making, possibly widening the range of stakeholders to include new actors that are usually not involved in the traditional consultation routines (according to the "quadruple helix" and the social innovation models);
- an outward-looking approach, inviting regions to connect with specialisations of other regions;
- explicit synergies with EU and national policies.

The S3 approach has challenged the established policy know-how in many respects.

First of all, it was intended to counter the trend towards converging, "photocopied" strategies and, instead, to develop original paths of innovative development, through distinctive pilot initiatives and "smart" experimentations. This was supposed to

be possible also thanks to a wider concept of innovation, not just based on the linkage to R&D assets but looking at original kinds of "co-invention of applications" (Foray *et al.*, 2009). Overall, this has meant to give up a linear approach to innovation policy, based on strengthening public and private R&D infrastructure, and to look for a more complex combination of actual/potential strengths (knowledge assets) and/or competitive realignment of "traditional" industries thanks to some Key Enabling Technologies (KET) and/or local challenges (meaning that even problems had to be explored as potentially leading to innovative solutions). Furthermore, the EU explicitly required to increase the level of inclusiveness in the design of strategies, in line with the "social innovation" and the "quadruple helix" logic.

These requirements implied a change in the policy making processes and the European Commission responded to this challenge by putting in place a policy-learning community through an unprecedented level of assistance provided through the Seville-based "smart specialisation platform" (http://s3platform.jrc.ec.europa.eu/).

Thus, S3 marked a discontinuity with the past, while also, and to a very large extent, "building on the past". The meaning and relevance of this approach can only be understood on the background of a decades-long history of reassessing economic theories and policy practices in regional economic development. The intellectual roots can be traced back to a few scientific turns in the debate on growth and innovation:

- the discovery of endogenous development dynamics and the role of spatially-defined industrial districts and clusters;
- a different focus on innovation, shifting from linear models to systemic and "open innovation" approaches;
- the impact of evolutionary economics on regional science, stressing related variety as a feature of localized development patterns.

Policy practices also contributed to design a new scenario. Starting with the Nineties, a sequence of experimentations in regional innovation policy has been realized within the EU cohe-

sion framework: Regional Technology Plans (RTP); Regional Innovation Strategies (RIS); Regional Information Society Initiative (RISI); Regional Innovation and Technology Transfer Strategies (RITTS). They have been inspired by a participative, policy-learning approach, emphasizing not so much the direct subsidization of activities but the creation of systemic and institutional pre-conditions and the provision of collective services and intelligence. This approach adopted a wide definition of innovation, focusing on SMEs and, most importantly, stressed the importance to abandon one-size-fits-all solutions and to look for place-specific and place-based strategies. At the same time, this approach advocated greater stakeholder involvement in policy processes and greater accountability for results before, during and after the programs' implementation.

Within the EU policy framework this new approach coincided with an important reappraisal of the cohesion strategy, marked by the publication of the Third Cohesion Report (2004) and characterized by the search for a consistency between the "Lisbon objectives" (enhancing prosperity and competitiveness, also through innovation) and the Cohesion goal (reduction of disparities). This new vision legitimized the shift from a "defensive", compensatory regional policy focused on disparities as problems to an "offensive" regional policy looking for opportunities behind disparities, embracing innovation as key priority area of intervention also for less advanced regions (Bellini and Landabaso, 2007). A few years later, the independent "Barca Report" (Barca, 2009) forcefully argued for a place-based approach: "the Union needs a policy for economic and social development tailored to the specific needs of very diverse places".

1.2. Priority setting as a "discovery" process

As part of the S3 agenda, the European Commission recommends EU regions and Member States to identify investment priorities through the setting up of an Entrepreneurial Discovery Process (EDP) (Foray *et al.*, 2012). Inspired by the new industrial

policy research, and particularly by the works of Hausmann and Rodrik (2003) on development as a self-discovery process led by entrepreneurs, the EDP is characterised by two important features: it is business-centric and puts the practice of discovery at the heart of the priority setting activity.

Adopting a business-centric logic means putting existing and potential needs of firms at the core of programs aimed at promoting innovation. Those who are in the best position to know which new economic activities can profitably be pursued in each country or region are the entrepreneurs. Thus, EDP implies the mobilisation of the entrepreneurial knowledge base available in the community to produce economic knowledge.

Entrepreneurial knowledge involves much more than knowledge about science and technology. Rather, it requires "knowledge of market growth potential, potential competitors as well as the whole set of inputs and services required for launching a new activity" (Foray *et al.*, 2011, p. 7), thus representing the most precious input of the priority-setting process. Economic knowledge relates to what targets the market needs and can be seen as the EDP main output (Foray, 2015; Hausmann *et al.*, 2011).

Entrepreneurs are intended in a broad sense, including innovative firms but also a variety of "local heroes": research leaders in higher education institutions, independent inventors and innovators, social and political leaders. In other words, the entrepreneurial character of the actors involved in the policy process is a cultural attitude, a way of thinking and acting, which does not belong only to business leaders (Bellini *et al.*, 2021; Foray, 2015; Hausmann and Rodrik, 2003).

The second key component concerns the emphasis put on the idea of discovery. Within S3, discovery is conceived as the activity of anticipating opportunities through the economic exploration of new activities. In entailing the possibility of opening a new domain where innovation might occur, discoveries can be seen as the stage that precedes an innovation, and its principal source of information. The reference to entrepreneurial discovery, rather than a merely rhetorical variation on more established labels of public-private cooperation, suggests the adoption within the

policy framework of the distinctive kind of discovery that characterizes entrepreneurial behaviour (Bellini *et al.*, 2021). It invites to "move away from analysing what is to discussing what is possible" (Ardichvili *et al.*, 2003) and therefore designs a different "choice architecture", nudging the exploration of new opportunities and paths (Cohen and Jabotinsky, 2020).

Understandably this shift is problematic. Also because of the "unusually swift translation of a still nascent academic notion into a hands-on policy approach" (Kroll, 2015), the emphasis on discovery risked being inconsistent with other requirements (like the robustness of evidence-based decisions) as well as with established practices of planning and concertation.

The process must be focused and selective. S3 asks for the identification of a limited number of priorities that are realistically tailored to a region's capabilities and able to reach critical mass. To be successful the EDP should be informed by local knowledge and capabilities and characterized by a strong degree of openness to capture the relevant entrepreneurial knowledge fragmented and distributed over many sites and organisations.

Through the EDP the new agenda attempts to provide a practical response to a long-standing debate on how to prioritize some R&D and technological activities while at the same time guaranteeing market-driven resource allocation boosted by decentralized entrepreneurial experimentations. Namely, S3s makes two critical and somehow conflicting requirements compatible: identifying priorities in a vertical logic (specialisation) while not dissipating the extraordinary power of market forces working in revealing domains and areas where priorities should be selected (smart) (Foray and Goenaga, 2013).The strategic interaction between all the entrepreneurial actors from both the public and the private sector is seen as the way to avoid the risk of lock-in into traditional activities that a rigid interpretation of the idea of specialisation could generate. Instead, the selection exercise is interpreted as a way to discover and support diversification potentials in new areas, also through new creative approaches such as the co-invention of applications, grassroot, frugal and social innovation etc. (Foray *et al.*, 2009; Foray *et al.*, 2012; Gomez Prieto *et al.*, 2019).

1.3. The Quadruple Helix model: inclusiveness and connectivity

The ability to recombine knowledge to create a larger variety of smarter and better products is a collective, rather than individual, endeavour where different actors collaborate and interact. Innovation is the result of systemic interactions, which are not limited to the development or adoption of new technologies nor confined to particular sectors or clusters, being instead understood as a complex, open, lateral and pervasive process, shaped by a variety of institutional routines and social conventions.

It is this perspective that gives strategic relevance to inclusiveness and to the need to look at the "demand" side of innovation, therefore marking a discontinuity with respect to the supply-side tradition of innovation policies (Grillo and Nanetti, 2016). According to the inclusiveness principle, all sectors have a chance to be included in the priority setting through the presentation of promising projects, ideas, and challenges (Foray, 2015; Foray and Goenaga, 2013). Consequently, innovation policies have become a "messy and complex, multi-level, multi-actor reality" (Flanagan *et al.*, 2011), which require the presence of coordination mechanisms linking ideas, people, resources, and markets, by promoting effective alliances. The S3 agenda asks for a high degree of connectivity ("social capital") among the stakeholders and S3 must be seen as (part of) a strategy to build these relational assets (trust-building). Setting up inclusive and effective processes is paramount to the success of any S3, more than setting the specialisation priorities themselves (Morgan, 2017).

During the last three decades, growth and innovation theories have evolved towards a systemic approach that is referred to as a relational turn (Fløysand and Jakobsen, 2010). Its distinctive features are the recognition that knowledge exploitation processes require dynamic interactions between the various components of inventions, research, technical change, learning and innovation (Soete *et al.*, 2010) as well as the evidence of the economic importance of the so-called relational assets: trust, voice and reciprocity (Morgan and Henderson, 2002). A particular emphasis is put on the role of networks in facilitating knowledge sharing and transfer. Networks

allow the diversification of participants' risks and the minimisation of transaction costs and facilitate information exchanges and the efficacy of voice mechanisms, thus ultimately enabling collective learning processes (Morgan and Henderson, 2002).

Concepts such as learning region (Asheim, 1996; Morgan, 1997 and 2007; Landabaso *et al.*, 2000; Hassink, 2004) and regional milieu (Camagni, 1991) were coined to stress the essence of innovation as a socially and territorially embedded learning process that cannot be understood independent of its institutional contexts. Knowledge, and especially an essential component, which is tacit knowledge, cannot be understood nor created in terms of independent decisions made at the level of single firms or inventors, being instead the result of complex dynamics across different actors from the public and private sphere (Lundvall, 1992; Morgan, 2004 and 2007). The relational turn points out that networks should guarantee a constant inflow and outflow of knowledge through internal and external connectivity.

In policy terms, adopting a relational perspective means recognising that innovation is not primarily or solely dependent on R&D efforts but on the capacity to absorb and diffuse knowledge within the innovation ecosystem characterised by a high number of interactions among participants and resources. The ecosystem approach emphasizes the role of public and private actors in continuously nurturing the innovation process, and the need for a high degree of openness to be able to capture the knowledge that is also located outside the regional physical space. This translates into the need for an active participation of all the relevant public and private actors and organisations. The European Commission stresses that not only industry, research institutions and Government exponents, as the tripartite model of the Triple Helix suggests (Etzkowitz and Leydesdorff, 2000), but also the demand side should be included, according to the so-called Quadruple Helix (4H) governance model (Foray *et al.*, 2012). The 4H refers to a four-tiered organisational structure for governing research and innovation resource allocation patterns. It entails the involvement of four types of actors in policymaking: institutional bodies, research sphere, business sector, and citizens.

1.4. The S3 governance challenge

"Adequate capabilities" are required (and need to be built) "in both public authorities and relevant stakeholders", as smart specialisation can prove to be "very demanding in terms of policy capacity" (Perianez-Forte and Wilson, 2021). This relates to the need to master a diversified and often innovative policy toolbox (S3 Platform, 2016; Gheorghiou *et al.*, 2016). But the most serious challenges are of an even more fundamental nature.

The reality of 4H cooperation is that the actors of the different helixes encounter problems and barriers in dealing with innovation, which are related to: different approaches to knowledge; different visions of failure; different propensity towards taking decisions; organisational and skill gaps; different view of the timing of the process due to political cycles and short-term managerial power logics (Blazek and Morgan, 2015; Trippl *et al.*, 2016). This leads many experts and scholars to emphasize the context-specific character of the S3 processes and the key role of regional connectivity in allowing for (or slowing) innovations in governance (Aranguren *et al.*, 2019).

The public sector is called to play a new and to a certain extent ambiguous function with respect to more traditional consultation practices. Orchestrating collaborative processes to enhance the diversity of voices and broaden the dialogue with the local stakeholder, while at the same time supporting in a preferential way the selection of promising projects and activities, implies activities characterized by a high degree of uncertainty and the capacity to routinely absorb mistakes. The public sector is asked to become itself a smart player, deeply involved in the social learning process it is trying to stimulate. Policymakers are expected to act not only *with* the entrepreneurs but also *like* the entrepreneurs (Bellini, 2015).

A good government for S3 should be experimentalist, i.e., be able to take risks; embedded, i.e., able to engage in strategic cooperation with the private partners; and characterised by a dynamic and long-term vision (Foray, 2015). These requirements entail changing the modus operandi of administrators and elected officials, and addressing the cultural gap between innovators and

bureaucrats, which stems from a long tradition of civil service being risk adverse and keen on the predictability of outcomes.

Besides, the stakeholders of the other helixes i.e., the research and university world, enterprises, and civil society, are asked to actively contribute to the planning process generating intensive experimentations and discoveries. The European Commission stresses the need to promote the empowerment of those actors, that are usually not represented by the traditional routines of consultation, like the civil society and its representations expressing significant dynamics of contemporary societies and economies (Foray *et al.*, 2012). In other words, one needs to deal with the challenging objective of more efficient ways of selecting stakeholders that could be more beneficial to the process, escaping from the "usual suspects' vicious circle" (Martínez-López and Palazuelos-Martínez, 2019).

A special emphasis is also put upon the critical role played by intermediary institutions, such as multi-actor platforms and government-led agencies (Perianez-Forte and Wilson, 2021). In order to develop sustainable cooperation routines, it becomes more and more important for policy makers to introduce local mediators, animators and facilitators of change processes that may fulfil a brokering and connecting role and create the conditions for reflection, decision and action such as common language and trust.

Besides, a critical aspect is the timing of the process. S3 are progressive strategies meaning that today's new activities will no longer be new tomorrow and could be replaced by other more suitable priorities (Foray, 2015). Guaranteeing continuity over time is essential and consolidating entrepreneurial discovery practices in a routine of public-private cooperation that goes beyond the strategy drafting phase and also concerns the implementation phase is definitely desirable (Grillo, 2017; Marinelli and Perianez-Forte, 2017; Perianez-Forte and Wilson, 2021). Stimulating sustainable 4H collaboration thus entails constructing and supporting collective awareness of complexity and requires motivation and an attitude to learn (and fail) among all the involved actors at all the involved levels. Accordingly, robust policy learning is a key feature for successful S3 governance (Bellini *et al.*, 2021).

The available evidence confirms the importance of adequate governance. The S3 experience supports the increasing awareness of the link between regional development and the quality of institutions and of social capital (Muringani *et al.*, 2021; Rodriguez-Pose, 2020). One may suggest that there may be a built-in bias in favor of "strong" Regions: "Only territories with better governance structures and quality of government have strategies that are concise and focused, meaning that these territories are pursuing clearer and less complex strategies with a more realistic and manageable number of priorities" (Di Cataldo *et al.*, 2020). On the other hand, S3 practice in less developed regions suggests that "the lack of connectedness, entrepreneurial spirit, size in terms of market potential, industrial diversity, quality of local governance and a critical mass of capabilities to develop collective learning processes made the identification of local technological domains a difficult process" (Capello and Kroll, 2016).

Of course, this clear-cut divide should not be overemphasized. A more detailed reading of S3 learning processes supports a differentiated evaluation within both strong and weak regions and, in fact, S3 processes can improve governance in spite of the baseline quality of governance (Cvijanović *et al.*, 2020; Bellini *et al.*, 2021). These improvements are especially needed to the extent that the EDP approach should be extended (as many authors and practitioners suggest) much beyond the strategy-making phases. It has been noticed that, in the 2021-2027 programming period, good governance of S3 has been officially re-defined as an "enabling condition" rather than as an "ex ante conditionality", i.e., a requirement that must be realized and verified continuously during the programming period.

1.5. A footnote: the impact of the pandemic

The last year of the programming period was characterized by the pandemic. Based on some preliminary evidence, it is possible to suggest that its impact could be relevant also for the S3 processes.

First, an impact on the methods of entrepreneurial discovery can be already detected, because of the forced substitution of traditional in-person activities (such as workshops, meetings, and other events) with on-line activities. This has implied several practical adaptations to the online context. However, the new familiarity with videoconference and other online tools may suggest a re-design of EDP processes along hybrid models that could be not only more effective and efficient, but also more inclusive (Laranja *et al.*, 2021).

Second, the transformative ambitions of S3 may be engaged in addressing those global challenges of our times (sustainable development, climate change, health, digitalization) that "need a system that supports challenge-oriented research and innovation": "a transformative S3 should be capable of catalysing stakeholders' ideas and energies into addressing the territorial manifestations of global challenges [and] this could in turn allow regions to embrace opportunities within and beyond Cohesion policy, preparing stakeholders to seek synergies with other funds and aligning them to global trends and value chains" (Marinelli *et al.*, 2021).

1.6. Why and how local matters

Transforming EU regions into more innovative places and promoting diversification through new paths of development can hardly rely on S3 alone but requires an alignment with other policies and strategies at various spatial scales. In fact, S3 was supposed to be a multi-scalar challenge (Morgan, 2013) in which there is a strong role to be played by the sub-regional level, as it is essential to capture evolving needs in their own place-specific dimension and not just through a centralized vision. The official guide accompanying the S3 process and drafted by the European Commission experts (as well as most of the literature) repeatedly referred to "local and regional authorities" as one category, without further articulation (Foray *et al.*, 2012).

S3 signals a challenge to all levels of the polity system and entails constant coordination and connectivity to the outside. On

one side, outside connectivity is about horizontal coordination with other regions or local areas, in order to foster cross-border collaborations, and get insights about a key additional set of missing information coming from peers and that should not be overlooked (Bellini, 2015). Knowledge transfer mechanisms tend to have a strong local bias (Boschma and Frenken, 2011), but at the same time, the relevant entrepreneurial knowledge could also be located elsewhere, i.e., outside the territory concerned. In the era of open innovation and global value chains, "endogenous does not mean indigenous" (Morgan, 2007) and the space of innovation partnerships cannot be limited to the local dimension. It should embrace an expanded territorial perspective and be outward looking, allowing to consider the relative position of each context and its competitive advantages in relation to others (Bellini, 2015; Foray *et al.*, 2012).

Outside connectivity is also about vertical multilevel coordination between the local, regional, national and EU level (Morgan, 2013). The need to synchronize S3 domains with priorities and incentives existing at the other levels must be considered when selecting projects, being also potential sources of additional financing. Likewise, this must not influence the selection process. Nonetheless S3 should not be developed to respond to national or EU priorities but to exploit the related opportunities when it comes to financing context-specific projects in the locally selected domains (Foray *et al.*, 2012).

As part of the multi-scalar governance challenge, the need for connecting regional and sub-regional governments assumes a key relevance: "regional governments often lack people to get involved in this dialogical process. But sub-regional (provincial, county, local or municipal) governments that lack the competences for S3 do sometimes have staff with long-term trust relationships with such stakeholders" (Estensoro and Larrea, 2016). Local governments can contribute to enhance the capabilities of a territory to develop S3 approaches and operationalize successful collaborations. As mentioned before, a good governance for S3 should be embedded. Embeddedness both implies the ability to engage in strategic cooperation with a wide range of entrepreneurial actors

and suggests that the quality and thickness of networks are a key asset and a condition for success. It also implies the opportunity to catch innovative propositions and implementation capabilities that are diffused, often fragmented and not easily detectable form a regional observation point.

This need for embeddedness provides the main argument to support a greater involvement of local (sub-regional) governments in S3. The local dimension may concern a variety of situations. E.g., rural spaces and inner areas can provide the context for innovations concerning the environment, agri-food industries, or tourism. However, a special attention needs to be devoted to cities, whose role as vanguard of today's societal challenges and as privileged testing ground and incubators of a wide range of innovation has given to "urban policies" a very high profile. Cities were the obvious candidates to be engines of S3 for a large majority of European regions. Considering the overall policy mix available at European level, a discourse on S3 can refer to the EU toolbox that is already in place to activate urban policies (ESIF, UIA, URBACT, EU Urban Agenda, European Innovation Partnership on Smart Cities and Communities).

On the one hand, cities can reinvigorate the S3 demand-driven innovation dimension by helping to create synergies between technologies, knowledge, and skills. Cities can better identify the most suitable areas for specialisation, capitalize on their unique eco-systems, mobilize their assets, resources, and individuals, and target their efforts to their own engines of innovation and growth. On the other hand, S3 can reinvigorate the business-led economic development urban agenda: S3 produces impacts inside and outside territories and can help turning cities into innovation drivers and developing dense polycentric networks of demonstrators across the whole Europe around emerging strategic themes/sectors (e.g., mobility systems, energy efficiency solutions, circular economy models) that are expected to offer broad business and job opportunities in the years to come.

Finally, the local dimension seems to be crucial in building a common "culture of innovation" as soft infrastructure for devel-

opment and innovation (Bellini and Pasquinelli, 2016), i.e., in spreading throughout the society the sensitivity towards the challenges of innovation and the need for societal cooperation as an essential element of place-based innovative eco-systems (Rissola *et al.*, 2017).

1.7. A simple model to analyse local S3

To sum up, the local (sub-regional) dimension of S3 can be analysed based on three main variables: the theme they deal with; the role envisaged for the local authority; and the envisaged relational context. Based on the analyses of practices performed during the RELOS3 research activities, these variables could be further articulated as follows:

A) Themes

- "smart city" deployment of new technologies in order to significantly improve living conditions in urban settings. S3 projects at the local level may articulate this challenge around sub-themes such as:
  - ICTs;
  - smart energy;
  - infrastructures;
  - circular economy;
- R&D&I initiatives, mainly around two sub-themes:
  - the establishment of research and higher education facilities and their integration in the local settings;
  - incubators etc., high tech companies, knowledge-intensive and business support services;
- innovation-led development through local interventions emphasizing specific key aspects (e.g., environmental sustainability) and specific settings such as:
  - rural areas;
  - remote and scarcely populated areas, inner areas;
  - areas characterized by processes of industrial restructuring and/or deindustrialization.

B) The role of the local/sub-regional government in the policy cycle

- at the design stage:
  - local management of an entrepreneurial discovery process;
  - locally specified projects within the framework of the regional strategy;
- at the delivery stage:
  - decentralized implementation of the regional programs;
  - setting up of the regulatory and/or organizational framework at local level;
- as experimentation of the regionally designed strategy:
  - targeted demand-side policies (like pre-commercial procurement initiatives);
  - "Living labs" etc.

C) The relational context

- within the local/sub-regional context: this happens typically when the local jurisdiction is relevant in size (e.g., metropolitan areas, city/regions);
- within the region's (or national) framework and under regional (or national) government coordination;
- as part of wider networks, either national or international (e.g., within INTERREG projects).

Graphically, the practice and potential of local involvement in the S3 process can be summarized as follows:

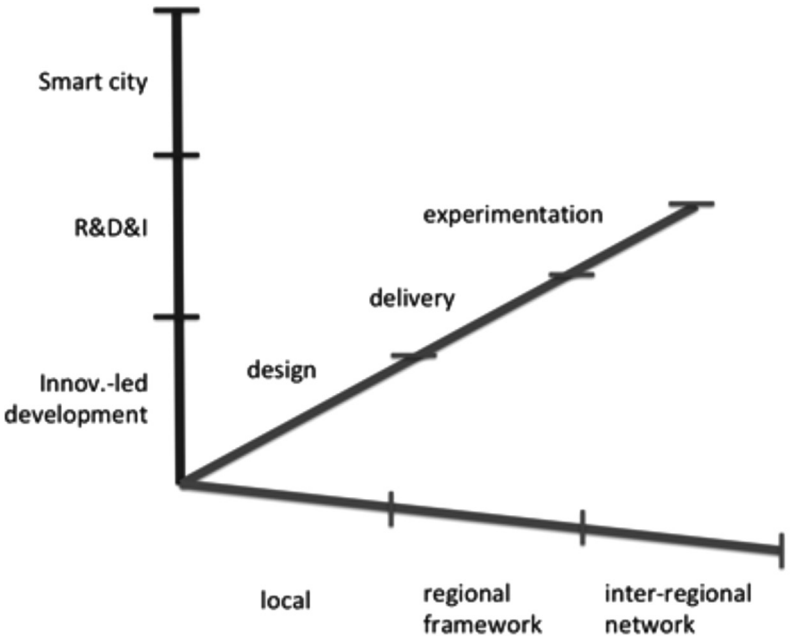

Figure 2 - Practice and potentials of local involvement in S3

2. Expert contributions

2.1. Can innovation policies survive their bureaucratisation?

Francesco Grillo

The relationship between innovation and public administrations is a critical one (Grillo and Landabaso, 2011; Oughton *et al.,* 2002; Borins, 2002). On one hand, it seems increasingly clear that the capability of a society to unfold the potential of the new technological revolution depends on the presence of the policies, regulations, new forms of welfare needed to govern disruptive changes (see Grillo and Nanetti, 2019 on the case of China in the 21st century; and Mazzucato, 2013 on the US industrial policies of the sixties). And yet there is a tension between the characteristics of the Schumpeterian innovation process and the nature of Weberian public administrations (Sager and Rosser, 2009).

This contribution is an attempt to identify main problems and to, then, put forward the proposals for creating the conditions for relaunching smart specialisations within the next programming period. It is an evolution of a previous article of the same author written for the Smart Specialisation Team at the European Commission's Joint Research Centre in Seville (Grillo, 2017).

2.1.1. *The problem setting*

One possible identification of the main problems to be tackled is the following:

1. *Public administrations cannot finance failures*

Failure is an intrinsically fundamental part of any innovative process. If you do not allow yourself to fail, you cannot have innovation because innovation has, by definition, uncertain outcomes (Green *et al.*, 2001). Public administrators, however, are not legally allowed to fail and, for instance, they cannot allow for temporary interruption of delivery of services due to a failure of the experimentation of a new technology (Nicholls, 2003). One of the consequences of such contradiction is that public administrations cannot technically fund projects which may fail, unless they engage innovators through complex public procurement procedures which are explicitly tagged as research (or less frequently as experimentations) (Koch, 2006).

2. *Institutions have hard time to make choices*

Smart specialisation means that resources get allocated to specific industries/niches (or phases of the value chain within industries) or to certain locations (as one may expect from a strategy for tourism: Bellini *et al.*, 2017) or to segments of populations (for instance, categories of entrepreneurs whose contribution is crucial for innovation to happen) (Foray *et al.*, 2011). This, again, poses a potential contradiction with the very nature of bureaucracies which were born with the very objective of ensuring that all citizens and all constituencies get equal treatment (in the Eighteenth century's tradition of the "modern state"). Unequal distribution of resources, albeit only temporary and based on evidence and efficiency reasons, is not normally accepted. This is a major difference between public and private sector where companies create or destroy value through decisions (Nutt, 2006).

3. *The organization gap*

Public administrations tend to be organised horizontally by typology of administrative tasks to be executed (Scott, 1992), whereas firms, instead, organize themselves by business units (although this is combined by functions into more complex matrix). A process-based organization chart makes difficult to conceive and implement smart specialisation strategies that still tend to be struc-

tured by portion of industries or by research domain. Consistently with this, civil servants are normally equipped with a set of (mostly legal and administrative) skills, which are not aligned with the technological and managerial expertise that S3 requires.

The organization gap becomes even more evident when we consider that, in order to smartly specialize a region/city, you need to position it *vis-a-vis* other regions/cities. You cannot identify some area's unique position, if you do not know what other regions are doing. This, in turn, is very useful also in order to identify your partners and competitors, and the investors and innovators you want to attract. This requires having a vision of market and technology dynamics at global level which is beyond the scope of the vast majority of public administrators (a remarkable exception being international organizations) whose function tend to be linked to a certain place.

4. The experts' trap

The remedies can be even worse than the initial problem. The experience of smart specialisations is that public administrations – including the European Commission – tend to respond to that gap by calling on so called experts. The problem here is that innovation is precisely about challenging existing behaviours and, even, disrupting existing knowledge base. Experts can be counterproductive both because they may be trapped into their own convictions themselves and run into a cognitive problem, and because of conflicts of interest.

Not less damaging is the idea to simply import models from the corporate world. Regions and companies have different sets of objectives, and this requires different decision-making patterns. An example of this is the selection of specialisations: a profit seeking firm would select the so called "stars" (growing market share within growing markets) as business units where invest more resources; for a country, instead, it may not make sense to select firms or sectors which are already winning in growing sectors, whereas this would imply to pour money where money is already piling up.

Smart specialisation would correspond, instead, to areas where there is a potential competitive advantage, which is constrained,

e.g., by the lack of an infrastructure or, even, of a technology. Too many experts and too much outsourcing do not solve the problem of skill gaps and create new ones: either experts are simply used to endorse political agendas; or they end up capturing public administrations which will lose the control of strategic decisions.

5. The political cycle

Many authors suggest that the engagement of policy makers is to be considered as a pre-requisite to success. This is almost obvious and yet politicians seem not focused enough on the details that can make the difference between good and bad innovation policies (Halvorsen *et al.*, 2005). They even tend to be short term oriented not less than executives in companies. Their time span may be even shorter than a quarter, when their success is measured by daily polls. As a result, they lose interest in something like R&D programs, which will have their impact in years.

2.1.2. *The problem solving*

Based on the author's experience of S3 design and implementation, we now propose five specific actions which may be undertaken to increase the chances for S3 sustainability.

1. Give value to failure through a proper knowledge management system

Allowing for failure is essential, but failure will not be allowed until we do not find a way to make sense of it (Koch, 2006). If one observes the world of venture capital (especially in areas like biotech and pharmaceutical), the real (economic) value of failure can be the knowledge which it can produce. This is the method by which highly innovative public administrations (an example is the US NASA) have got the right to fail even on very expensive programs.

This would lead to a completely different approach to the drafting of strategies and programs. Smart specialisations should be conceived as a portfolio of experimentations meant to solve one specific problem with unknown technical or social variables

(for instance: what does it take to make fossil free a city? or to increase the elderly's use of e-government applications?). With this approach, possible solutions would be tested against measurable outcomes. Some of them would legitimately fail, but knowledge is generated and made available to other constituencies.

2. *Integrate choices of 'smart specialisations' with the development of systematic spill over/reuse mechanisms*

Smart specialisations need to be integrated by explicit spill-over mechanisms so that it is clear how the value that is created in a specific territory or industry or research area or public service, can be spread to the rest of economy/society at a later stage. The reuse mechanisms are, therefore, the complement of the experimentation phase: funding mechanisms must be in place so that the result of experimentation can be expected to become a common asset.

3. Smart specialisations to be run by public-private partnerships

Strategies to respond to the skills gap include the development programs and organizations by areas of specialisation, the introduction of (young) people from outside which would challenge the existing culture, and cross border partnerships based on specific problems. However, in most cases more radical choices need to be considered. Smart specialisations are supposed to be the product of public – private partnerships and, consistently, one option would be that policies are implemented by development agencies outside the public administration domain and yet within the policy maker's influence. One further possibility is, also, to establish close-end equity funds which would pool together public and private money: the policy maker would define the overall strategy and specialisations and the private financial institution would choose where to allocate equity.

4. Develop metrics to detect early signs of success

The idea that the results of innovation can only be measured over a long time period is not true and extremely damaging, as it assimilates innovation amongst the policy objectives which are important but not urgent. On the contrary, there are signals which

tend to be neglected by most evaluators which unreasonably focus on the economic impact of innovation. The capability of public investment programs to raise further private investments should be one of the signs which detects the credibility of an innovation strategy and the quality of the partnership upon which it is based. The same can be said by the assessment of the expectations that S3 raises amongst specific targets of innovators (or even amongst the general public). After all the logic of S3 is one of an expectation-based policy. It is meant to modify the expected return of investing in innovation and, ultimately, the behaviour of economic actors. Developing systems to anticipate the success of S3 is also an effective way to make the policy maker feel the urgency to achieve results.

5. Design incentives so that performance is recognised

The idea that resources are allocated to specific institutions regardless of their capabilities must be abandoned. Subsidiarity mechanisms should be in place: money will be reallocated across institutional levels at different levels so that results are maximized. In addition, processes should be designed so that teams and program managers who are achieving good performances are rewarded by providing them the possibility to export their methods to other programs/regions.

2.2. Implementation: the design of experimental S3 mission-oriented policies

Jordi Garcia Brustenga

In Catalonia, local governments are already implementing their smart specialisation strategies. Within the framework of the S3 agenda, in 2017 the Catalan government launched the first call for Specialisation and Territorial Competitiveness Projects (PECT). Co-financed by the ERDF funds, this call represents an unprecedented local commitment that seeks to boost innovation in a specific area of knowledge and economic activity. Tarragona province is committed to family tourism; city of Lleida to intelligent agri-food; Maresme county to smart textile. And so up to about 25 approved projects, which bet on specialisation opportunity areas, decided by the local government in agreement with business ecosystem, universities and technological and research centres, leading to a public program that is actually generating a map of explicit specialisations in the region.

A bolt version of these local smart specialisation plans is "Vallès Industrial", led by the City Council of Sabadell. The plan attempts to consolidate a local innovation ecosystem around industrial design and innovation in this historically industrialised territory near Barcelona. An important sum of resources is being assigned to boost innovation and competitiveness in the area with this specific focus, which will contribute to the positioning of this county in the regional and international scenario. The goal is to become one of the local nodes of the global industrial design and transformation network.

The reason for this relevant change with respect to classical local economic promotion policies is that a territory cannot be globally competitive if it does not specialize with an innovative and transformative approach. Like companies and professions, a territory must specialize itself focusing on its more specific strengths and local characteristics and looking outward to the global challenges and trends. Moreover, the acceleration of new scientific-technical knowledge and the urgency to prevent climate change forces us to put innovation at the centre of our growth model. The territory that today does not systematically observe, devise, test and launch

new differentiated products and services will have an unviable economy in the future.

In this context, most public administrations have been developing a proactive role to stimulate innovation based on awareness, support, training and, above all, financing of so-called market failures. Knowledge and technology transfer requires a risky investment that neither the university nor the company are willing to finance, the famous "Death Valley". Hence, societies understand these activities as public goods, with real expectation of recovering the investment through direct and indirect generation of wealth, taxes and employment in the region.

So far, this is a story more or less known and shared by many people involved in regional development. Now, a new concept comes into play, especially with the inspiration of Mariana Mazzucato. This author invites the governments, in her book "The Entrepreneurial State" (2013), to take the lead in the co-creation of new markets, and not only in the setting and follow-up of existing ones. Only from the public perspective, together with business and academy, it is possible to put a direction to the regional growth. Concretely, as Mazzucato and the EU new strategy promote, to develop innovation policies oriented to social and green missions. The "entrepreneurial discovery process" that S3 talks about is a practical and useful way for the regional or local governments to determine and collaboratively agree their own missions. Examples of these missions, which are strategically aligned with UN 2030 agenda (Sustainable Development Objectives), can be reduction of obesity, increase of life expectancy or full access to water or housing.

Territories and organizations are neither more nor less than groups of people. And people mobilize effectively, efficiently, and creatively when we get together to solve a shared challenge or mission. The illusion, pride, and activation of most of our abilities and energies appear especially in these situations. Only organizations and people who represent us can lead the group. And these are the governments and their representatives. We are, therefore, to be developed through missions, based on our S3 strategy opportunities and, at the same time, on our biggest social and green local challenges.

2.3. Locally embedded tools for S3: Living Labs and local heroes

Giulia Lazzeri

An intense practical experimentation has started to take place across Europe as regions have engaged in the development of the S3 agenda. So-far developed scientific evaluations suggest that the 2014-2020 strategy development phase has been accepted by most EU regions as a useful planning exercise, culminating in the development of documents more responsive to regional potential than in the past programming period and based on inclusive processes entailing the participation of the main stakeholders at the planning arenas (Bellini *et al.*, 2015; Kroll, 2015). At the same time, these studies point out that one of the most critical aspects is the ability to translate the declarations of intent into a concrete policy toolbox (Capello and Kroll, 2016; McCann and Ortega-Argilés, 2016).

Smart specialisation is a new concept, of an ambiguous nature, that might hinder its translation into practice. In many cases, an excessive concentration of S3 priority investments on few Axis, especially Axis 1 as requested by the ex-ante conditionality, is registered, together with the tendency to embrace an extensive interpretation of the beneficiary eligibility criteria, responding to the need to speed up the release of public calls and the allocation of subsidies by simplifying procedures.

Play-it-safe interpretations have been adopted by many EU regions when moving to the S3 implementation phase. In the absence of focused and effective domains of action, targets and evaluation procedures, even well-developed strategic documents run a tangible risk of being applied in a distorted manner so as to betray their very essence. The main threat is that the effort to build S3 results in a progressive tendency to replicate what had worked in the past or to duplicate measures successfully adopted in other regions, to the detriment of their effective correspondence to local needs (McCann and Ortega-Argilés, 2016; Capello and Kroll, 2016).

Instead, it should be agreed upon more clearly that under the S3 approach there must be a limit to automatic procedures in favour

of more offensive and experimental approaches. Evidence shows that the adoption of locally embedded tools is essential in order to capture the cross-cutting nature of S3 domains and to discover and give visibility to innovation processes inspired by related variety.

As an example, instruments such as Living Labs (adopted by some Italian regions, amongst which Apulia) allow to look into the 'black box' of innovation and foster conversations between actors that were not used to networking with each other, especially civil society. Living Labs are defined as "public private partnerships in which public administrations, businesses, researchers, authorities and citizens work together for the creation, and validation of new services, business ideas, markets and technologies in real life contexts" (Bergvall–Kareborn *et al.*, 2009). Conceived as an open ecosystem whereby the users can actively take part in researching and testing innovative solutions through the use of ICT, the Labs encourage the incorporation of social issues in the discourse on innovation.

Also, the adoption of Google Drive showed to be particularly effective in exploring the reality of social innovation, as it happened in the case of the Sicily region (IT). Freely accessible to all those who 'felt they were social innovators', the tool allowed the discovery of more than 30 project ideas and innovative realities that were unknown to the regional administration, namely start-ups founded by young entrepreneurs operating in the field of smart cities, health care, food redistribution, among others.

The identification of local leaders belonging to the different parts of the 4H (government, business, research, civil society) also emerges as essential. Local heroes refer to committed and knowledgeable persons as part of the public administration, the civil society and the business world, able to spread their enthusiasm towards the new agenda across their local communities. Acknowledging that some people have a strong interpretative power and are thus able to affect the dominant perceptions of their local communities, appears strategic in engaging the right actors at the right moments throughout the whole S3 process.

These exercises represent a great novelty and an important step towards the design of better policies. Firstly, they promoted

awareness of the forms of innovation that already existed at the territorial level, which represent a valuable humus to be exploited; secondly, actors without any previous experience and competence in the planning fields were for the first time involved in the definition of policy tools and measures, which enhanced the capacity of capturing the distinctive and constantly evolving needs of places and facilitated the orientation of efforts towards concrete territorial challenges.

The S3 agenda should be seen as opportunity to open networks and to push forward the role of the local level in a political sense, even though some political issues might arise. The real value of S3 comes from establishing a common language. Territorial innovation is the result of interactions between political deciders at the different polity levels, teams of experts, SMEs, research institutes and users. These actors contribute to the articulation of the innovation demand and help to define societal findings and needs. Amongst them, the local level is particularly suitable in capturing local needs and aligning the urban investments in the wanted direction. Locally managed tools can inform the process of identifying technological needs during the design phase of S3 and support the subsequent development of successful trials in real applications by combining traditional industries and more innovative sectors.

Though, this role needs to be inscribed in the wider regional and national strategy. Learning within smart specialisation is about resources, skills, culture, and organisational changes. The new agenda requires managerial capabilities and technical skills for the different productive or research fields, and a diffused attitude to choosing and the risks associated. These issues go well beyond the ability usually possessed by the community of insiders involved in the regional ESIF management structures, asking instead for scale management and continuous learning and dialogue among polity levels.

2.4. S3 and the circular economy

Natalia Marzia Gusmerotti, Alessandra Borghini

The widespread definition of circular economy refers to an "industrial system that is restorative or regenerative by intention and design. It replaces the concept of 'end of life' with the concept of restoration, shifts towards the use of renewable energies, eliminates the use of toxic chemicals, which hinders reuse and aims to eliminate waste through the superior design of materials, products, systems and business models" (Ellen MacArthur Foundation, 2012). The main aim of a circular economy is to "enable effective flows of materials, energy, labour and information so that natural and social capital can be rebuilt" (Ellen MacArthur Foundation, 2013). In the performance economy frame, one of the theories on which the circular economy approach is founded, Stahel (2013) suggests how an economy based on closed loops, which promotes reuse, repair, and remanufacturing of goods rather than manufacturing of new goods, could generate a positive impact in terms of jobs, competitiveness, resource savings and waste prevention.

At local level, it is possible to identify three different circular loops:

- *Reuse Loop*, which includes second-hand markets, trade of reused goods (e.g. vintage apparel shops) and commercial activities, as in the case of refill. This loop generally takes place at local level.
- *Remanufacturing Loop*, which includes activities and processes able to extend the lifespan of products as repair, remanufacturing, upgrading. This loop can occur both at local level and in regional services hub.
- *Recycling Loop*, which includes processes able to provide recycled raw materials for industries. This loop can take place both at local and global level (i.e., global supply chain).

Smaller loops are more advantageous and allow a more efficient resources management. For this reason, in the circular economy approach the local and the regional scale are preferable. In this

context innovative business models gradually substitute traditional ones (i.e., manufacturing business models). New business models integrate products and services (e.g., product service systems – PSS) and generate value, well-being and jobs using fewer natural resources (Stahel & Reday-Mulvey, 1981; Wautelet, 2018).

This is consistent with the "3R" approach that represents one of the critical principles of the circular economy:

- the *first R* refers to the minimization of resources consumption, the reduction of emissions and environmental impacts generated by production, distribution and consumption phases, and, lastly, to waste prevention;
- the *second R* concerns reuse of scraps, products and their components, both after repair, refurbishment and remanufacturing activities and directly, partially or totally;
- the *third R* points out to the recycling of waste for reusing these recycled materials as new inputs of industrial processes[2].

The transition toward a circular economy – from a linear one – requires fostering – especially at local level – businesses and markets oriented to *reuse, repair, remanufacturing, upgrading, refurbishment, repurpose and recycling* (Reike *et al.*, 2018). This kind of activities can support local economies and job creation, since they are labour intensive and have basically sub-regional economies of scale (up to regional level, indeed) (Stahel, 2013).

Environmental benefits of *reuse* are very well explored in literature (Gusmerotti *et al.*, 2019). Several studies have confirmed that reused products generate lower environmental impacts comparing to those resulting from the manufacturing and distribution of news product from raw materials (*inter alia*, González *et al.*, 2017; Tecchio *et al.*, 2017; Castellani *et al.,* 2015). Social and economic benefits of reuse are also investigated in literature (Gusmerotti *et al.*, 2019). These include, for instance, job creation and training opportunities for unemployed and disadvantage people and the provision of products for low-income people (*inter alia*, Kissling

2. In the 4R approach the last R refers to recovery activities.

et al., 2012; O'Connell *et al.*, 2010). It is interesting to note that second-hand products represent an important source of IT equipment for business and educational organizations in the developing countries (*inter alia*, Kissling *et al.*, 2012; Streicher-Porte *et al.*, 2009). Gusmerotti *et al.* (2019) have found that the integration of waste management system at local level with reuse is crucial for the transition to a circular economy, because this allows to adopt and carry out strategies aimed at the maintenance of the highest value of products, material, and components in different loops.

Looking at the *reuse and recycling of packaging*, the circular economy approach includes concepts such as local integration and proximity. In relation to this, the French *Conseil National de l'Emballage* points out that packaging production and recycling are economic activities that occur mainly at local level (CNE, 2014). Indeed, in France the packaging industry is particularly reactive to local characteristics and needs. This is the case of purchasers of recycled paper and cardboard packaging that produce raw material for cardboard packaging producers, that are diffused all over the Country and deliver to packaging companies near their locations. The same happens for corrugated cardboard sector which has 73 production sites spread in the Country, being able to ensure its local presence (i.e., production sites are close to clients). Similar considerations can be made for collectors and reconditioners of pallets and wooden packaging, where, thanks to the number of actors involved, distance, financial and environmental costs are substantially reduced. The French glass packaging industry is strongly consistent with the principle of proximity. The presence of a strong network of 20 glass-making plants determines an average distance between a plant and its clients of 300 km. Used plastic packaging recyclers in French represent of over 70 sites, thus assuring a local presence. CNE (2014) estimated an average of one employee for every 400 tons of packaging waste recycled.

Another key element of the circular economy approach at local level is the *industrial symbiosis*, rooted on industrial ecology principles. Industrial ecology promotes collaboration between organizations with the aim to create eco-industrial network particu-

larly efficient under resource efficiency management perspective. Under this approach, scraps, waste, and by-products of a firm must be systematically valorised becoming – whenever possible – as input for another firm. An eco-industrial system based on these concepts can achieve a substantial reduction of resources consumption, of waste generation and of environmental impacts. Therefore, an industrial symbiosis is a business relationship focused on sharing resources, aimed at the improvement of the total impact of industrial processes and products on the environment and at the support of business competitiveness. This concept is inspired by biology where a symbiotic relationship refers to the mutually beneficial coexistence of individuals belonging to different species. In this kind of local partnership, each actor provides, shares and reuses resources to create shared value. The objective of industrial symbiosis is to create loops of technical or biological materials while minimizing the leakage and waste in the loops, thus demonstrating critical elements of a circular economy at a local scale. One of the most representative examples of industrial symbiosis is the Kalundborg Symbiosis (Hoff *et al.*, 2016). Situated in Kalundborg, Denmark, the symbiosis is based on public-private partnerships, with exchanges of energy, water, and materials in closed loops. Kalundborg is a small industrial town where several major industries are in close proximity. The main industries are DONG Energy/Asnæs Power Station, the largest power plant in Denmark, Statoil, a large oil refinery, Novo Nordisk, a multinational pharmaceuticals maker, and Saint Gobain Gyproc, a plasterboard manufacturer. All organizations involved are large production units. Not only the proximity and the industrial setting of the area have determined the successful cooperation between the enterprises involved, but also sociocultural relationships among people and the main characteristics of the Danish regulatory system have influenced the success of this network. Firstly, managers, engineers and other professionals lived closely in a small town, sharing places (e.g., clubs, schools) and way of life. This gives to them the opportunity to share ideas, projects, common issues, etc. Businesses located in Kalundborg are deeply embedded in the local community. Secondly, institu-

tions (e.g., Kalundborg Municipality) involved in the networks have behaved as player and not as administrator. Thirdly, the legal system in Denmark is largely collaborative and organizations can be proactive in defining solutions for managing environmental issues (Hoff *et al.*, 2016).

3. Good practices for RELOS3

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In the framework of RELOS3 a best practice analysis was conducted inspired by two set of motivations: the need to explore the actual and potential role of local governments in S3 strategies across the EU; and the need to coagulate consensus around the need for and benefits from local, place-based action.

This chapter introduces the methodology adopted to conduct the field work (rationale, criteria, and goals) and presents the database of 39 selected practices, deepening amongst them 12 cases evaluated as particularly relevant and inspiring in offering policy suggestions and recommendations on the research topic.

3.1. Which practices? The need for a method

Notwithstanding its popularity among both researchers and practitioners, the use of a "best practice" (BP) approach in investigating public policy issues requires a preliminary attention to some methodological questions or, at least, the sharing among participants of a sufficient methodological awareness. Otherwise, the risk of misunderstandings about the value and the usability of the analysed practices is very high (Vesely, 2011; Bellini, 2009; Bretschneider *et al.*, 2005). For such reason, we believe that it is important to summarize some of the main issues, as discussed in the literature (see list of references), and to point out why they are important to RELOS3.

Nowadays, the reference to best practices in an important feature of the policymaking at different levels. The main reason to engage in BP research is *learning*. A learning attitude has many underlying justifications. In some cases, it is a de facto obligation, so that a higher level of government is reassured about the quality of a program, project or policy proposition and can validate and finance it. In other cases, the push to learning is related to a more sincere need to explore new and better ways, whose urgency may be increased by the need to "compete" with other regions or localities. And learning itself is more complex as we need to look for ideas and solution much beyond the traditional (geographical or sectoral) borders defined by our jurisdiction (Mariussen and Virkkala, 2013).

A second set of reasons to engage in BP exercises is to *build consensus* around a policy option. By "demonstrating" policies we show that they are feasible and therefore we lower the perception of risk linked to policy innovation. BP can be didactically very powerful as they are "concrete", not abstract and "academic", therefore more effective in persuasion. This is especially important for innovative policies that are not following familiar standards and can raise uncertainty and doubts among stakeholders.

In the case of RELOS3 both sets of motivations apply: the need to explore the actual and potential role of local governments in S3 strategies, and – especially when a trend toward centralization emerges – to coagulate consensus around the need for and benefits from local, "place-based" action.

"Best", "good", "smart" or just useful? Behind these semantic variations, we find several very practical challenges. First, we must acknowledge that it is practically impossible to assess that some practice is "best", at least within a certain geographical or sectorial scope, because that would require a complete comparative analysis (not just a sample survey) on a scale that could be so large to prove unmanageable. In the RELOS3 case, the universe to be considered is extremely large indeed.

The wider is the range of possible BPs, the greater are the analytical difficulties, which one must face and in turn prevent the researcher to elaborate a rigorous comparison. In public policies

the causal linkages between a certain action and some outcome, which define the additionality of the policy, are rarely linear (because of multiple resource/multiple outcome situations and of rival explanations) and often not measurable.

A benchmark approach is an acceptable compromise (IRE, 2008; Kyrö, 2003; Dorsch and Yasin, 1998). "Benchmarking" is an expression borrowed from a technique developed in the corporate context, which consists of setting up processes for systematic and continuous comparison of some variables of one's own organisation with the same variables of other organisations, usually using batteries of indicators summarised in scoreboards. Based on this comparison, we try to understand the reasons for any differences in performance and to use this information to improve our performance. This learning-by-comparing approach (combined with case study analysis techniques) has been transferred to the comparison of policy practices. Rather than looking for the best, we get along dealing with the "good" ones, i.e., identifying cases that are useful for learning. As an extreme option, they may even be unsuccessful cases.

BP benchmarking is based on selective observation. Unsurprisingly, selection is a critical point, as different criteria can be used and often are used in a very pragmatic way. A list of criteria to select a BP should include:

- some kind of objective (possibly measurable) relevance of the practice, i.e., its importance and the significance of its outcome relative to similar experiences in the same field: of course, this criterion is used when such data are available (and comparable);
- reputation: when lacking objective elements, a practice can be "known as" a relevant case among qualified members of the community of practice and/or scholars, also because of previous observations and studies;
- contribution to the variety of the sample of BP, as it allows to consider a wider range of institutional and socio-economic contexts;
- innovativeness with respect to standard practices;
- transferability, i.e., the anticipated potential to use what we learned in a different context.

A pragmatic and eclectic approach is often necessary, and this is also the case of the exercise for RELOS3. Yet in the actual process of selection some critical problems are likely to emerge and need to be monitored:

- we may be trapped in our mental maps ("cognitive lock-in") and choose cases that we already know and like, as they look more manageable and more likely to provide us with good quality of information;
- we may be biased in the analysis because of the wish to extract evidence that is instrumental to our policy objectives;
- we may simplify the picture (and run the risk of excessive optimism) because of the urgency of "doing fast" and of compensating for the shortage of local ideas and solutions with some policy transfer (a low-cost "quick fix");
- we may focus on "advanced" countries/regions/cities and thus there may be an underestimation of the fact that "difficult" contexts may provide not just challenges (i.e., the handicaps compared to advanced countries) but also opportunities for creative imitation and improvement of policies (the "advantages of backwardness");
- we may face heterogeneous lists (like the one provided by the RELOS3 partners), also because of the heterogeneity of the institutional contexts. This implies the need for additional selection at the risk of losing interesting cases (and this is the reason why in this preliminary paper we used a large-mesh filter).

Policy learning will be used not only to perform an evaluation of one's position but also to consider the *transfer* of some of the solutions in a different context. This transfer may concern:

- individual policies or institutions that may be emulated or simply hard-copied (learning by *copying*);
- visions, ideas, strategies that may be source of *inspiration* for the same or different policies and help to consider or re-consider the policy objectives;

- specific aspects and technicalities of policies and institutions ("smart practices") that may be assimilated into other policies through *hybridization*.

What are we then looking for within the RELOS3 framework: a policy to be copied? inspiring ideas? technicalities to be assimilated?

The use of learned results presents several critical aspects*:*

- there may be a "policy fashion" effect, as there is a built-in propensity of political elites to imitate successful first movers. The reason for this is twofold: image and consensus (the wish to appear "modern"); risk reduction. "Waves" or "swarms" of policies may result, leading to indistinctive – and thus possibly unsuccessful – policy choices, like in the case of the "Silicon Somewhere" syndrome (Hospers, 2006);
- there may be an underestimation of the weight of contextual variables, which are often the result of unique institutions and modes of social and cultural interaction, that are historically and geographically determined and not reproducible in other contexts. Getting the essence of the local experience and separating it from the context-specific features requires an often-difficult balance between local knowledge and cognitive distance. In other words, this requires that locals are involved but it is difficult to do without a "third party" contribution;
- there may be an underestimation of the weight of contingencies that influence individual stories, starting with the role played by individuals, their "place attachment" and their personal motivations, competences and relations;
- one must consider the difficulty of reproducing with top-down actions, planned and carried out by public policies, phenomena that, in the case of reference, are instead "spontaneous" and the result of bottom-up processes;
- the way we learn is also relevant. Very often the sharing of experiences takes place in traditional manners, with little interaction and a one-way teacher-learner relationship. At its best, on the contrary, learning will take place and be effective when there is opportunity of co-designing and co-managing an action;

- policy learning is not just a cognitive exercise for enlightened politicians and bureaucrats. It is about having an impact by implementing what we have learnt. Therefore, policy learning is also about setting up the conditions for implementation (processes, organizations, people, resources): without this, there is no 'magic' effect of learning, but a risk of failure and de-legitimization.

Within RELOS3 this suggests the importance of thinking and planning not only the learning phase but also implementation. In so doing, an additional benchmarking exercise may be suggested, that looks less at actions than at capabilities. In the literature this is often called benchmarking of competences (internal learning) and benchmarking of networks (learning with others), emphasizing the disposition of institutions and territories to elaborate and creatively generate adapted solutions.

3.2. The RELOS3 good practices database

Dealing with RELOS3 objectives added two more difficulties to the BP analysis exercise:

- the scouting of the potential BP was made more complex by the minor role that local and sub-regional governments played in the definition of S3 in many countries and regions of Europe;
- RELOS3 has a wide range of potential topics that can be covered.

The 39 selected Good Practices include two kinds of cases: 23 cases that were proposed by the partners of the project; and 15 cases that were identified through desk analysis of several sources, including the data base of the S3 Platform, scientific literature, media and internet sources.

Practices were analysed on the basis of three main variables:

- the theme they deal with;
- the role envisaged for the local authority;
- the envisaged relational context.

Themes

Three main sets of elective themes emerge in the BP analyzed:

- the "*smart city*" concept is a popular concept that summarizes the attempt to coordinate the deployment of new technologies in order to significantly improve living conditions in urban settings. S3 projects at the local level articulate this challenge around the following main sub-themes: ICTs, smart energy, infrastructures, circular economy;
- although typically a topic for larger scale (regional or national) policy actions, *R&D&I* lends itself to a local policy design around two sets of sub-themes: the establishment of research and higher education facilities and their integration in the local settings; incubators etc., high tech companies, knowledge-intensive and business support services;
- *innovation-led development* issues are dealt with through local interventions emphasizing specific key aspects (e.g., environmental sustainability) and especially in specific settings such as: rural areas, remote and scarcely populated areas, inner areas, areas characterized by processes of industrial restructuring and/or deindustrialization.

The role of the local/sub-regional government

A role for the local (or sub-regional) institutions is identified along different phases of the policy cycle:

- already at the *design* phase one can consider: the local management of an entrepreneurial discovery process; locally specified projects within the framework of the regional strategy;
- at the *delivery* stage: a decentralized implementation of the regional programs; the set up of the regulatory and/or organizational framework at local level;
- as *experimentation* of the regionally designed strategy: targeted demand-side policies (like pre-commercial procurement initiatives); "living labs".

The relational context

The local role in S3 can be realized within different relational contexts:

- *within the local/sub-regional context*: this happens typically when the local jurisdiction is relevant in size (e.g., metropolitan areas, city/regions), although some BPs are not easily classified accordingly because of the specific institutional context (e.g., in the case of "small countries");
- *within the region's (or national) framework* and under regional (or national) government coordination;
- *as part of wider networks*, either national or international (e.g., within Interreg projects).

The information regarding the selected GPs have been organised in an Excel database reporting: location, area of action, involved actors, addressed themes, role played by the local government, relational context, timescale, link and contact details.

The following table gives a summary overview of the database.

Title	Country	Region/City	Area
BP01 – High Technology Network	IT	Emilia Romagna regions, city of Bologna	Industrial and applied research and technology transfer for enterprises
BP02 – Metropolitan Covenant for Employment and economic and social development	IT	Metropolitan area of Bologna	Innovative manufacturing, green and circular economy, employment, social inclusion and technical culture
BP03 – The re-launch of technical education	IT	Metropolitan area of Bologna	Educational services in the manufacturing areas, in economic sector and others (food, agro industry, buildings, environment)
BP04 – OF – Opus facere. Make to understand. Territorial Employability Laboratory	IT	Metropolitan area of Bologna	Training services in health and wellbeing, mechatronics and motoring, agro-food, new materials, automation, ICT and Big Data
BP05 – GreenPac Polymer Application Centre	NL	Emmen and the Drenthe region	Triple helix collaboration in the bio-based sector (i.e. Green Chemistry) through knowledge development and transfer and education
BP06 – ECOmunity Park Oosterwolde	NL	Oosterwolde	Quadruple Helix collaboration focusing on regional development, cooperation between companies and education and quality of space
BP07 – Entrance – Energy Transition Centre	NL		Plans to exceed energy market demands with new energy products and services

Title	Country	Region/City	Area
BP08 – Regions of Smart Factories	NL	Northern Netherlands	Innovation in 'old' manufacturing processes through research into new technologies
BP09 – Implementing the Entrepreneurial Discovery Process in practice	M	Malta	Structures and systems to stimulate, guide and drive the local EDP
BP10 – Review and re-design of Malta Enterprise's industry support schemes for RD&I	M	Malta	R&I incentive schemes for higher value added
BP11 – Setting up a Life Sciences Centre	M	Malta	Life Sciences and associated technologies
BP12 – PECT TurisTIC en família	ES	Tarragona province	Destination tourism
BP13 – PECT INNOAGRO:	ES	Lleida municipality	Innovation in the agro-food industrial sector embracing advanced manufacturing, food industries, cultural industries
BP14 – RIS3 EUSKADI	ES	Basque Country	Inter-departmental cooperation for the S3 deployment
BP15 – MobileMonday	EW	Tartu	Networking events between small and large IT companies, and between local and foreign talent
BP16 – SPARK Demo	EW	Tartu	Showcase the capabilities and strengths of local and regional companies located with focus on S3 domains (wood, metal, food, IT, biotechnology)

Title	Country	Region/City	Area
BP17 – sTARTUp Day	EW	Tartu	Collaboration between stakeholders from traditional business sectors, IT and biotechnology, start-ups, business support organisations, government and media
BP18 – Tartu Entrepreneurship Week	EW	Tartu	Business culture and attitude towards entrepreneurship
BP19 – Territorial targeting of Regional Operational Programme of Wielkopolska Region 2014-2020 (WRPO 2014+)	PL	Wielkopolska Region	Place-based needs and challenges diagnosed in different areas trough different territorial-based tools
BP20 – Skills Academy of Pila	PL	Pila	Entrepreneurial attitudes among high school student
BP21 – DUAL EDUCATION – STUDIES OF THE 21st CENTURY	PL		Innovative educational project based on acquiring theoretical knowledge supported by practice
BP22 – Export activities	PL	Gostyn County	Actions directed to local companies to improve the condition of companies in the field of export and UE supplies
BP23 – Contest for the Marshal of the Wielkopolska Region Award	PL	Wielkopolska Region	Spreading smart specialisations for Wielkopolska in scale of country and world
BP24 – AS-Fabrik	ES	Bilbao	Digital transformation of industry
BP25 – Smart LEADER	ES	Extremadura	Rural development
BP26 – RegioWIN	DE	Baden Württemberg	Light-house projects

Title	Country	Region/City	Area
BP27 – LEP	UK	England	Local enterprise partnership for S3 delivery
BP28 – Metropolitan Digital Fabric	IT	Sardegna	Complex project for innovative solutions to specific local problems
BP29 – Living Labs-ict Apulia innovation in progress	IT	Puglia	Experimenting innovative (ICT) solutions at local level
BP30 – S3	FI	Helsinki-Uusimaa Region	Municipal + metropolitan S3
BP30 – Smarter City Karlsruhe Initiative	DE	Karlsruhe	Smart city strategy
BP31 – Campus Skelleftea	SE	Västerbotten – city of Skellefteå	"Multi-university shared campus" in remote community
BP32 – "Route des Lasers"	F	Aquitaine	Public-private partnership to support the establishment of high-tech companies specialising in optics-lasers
BP33 – Rider-SOE	F-ES-P	various local communities	Local innovation systems in rural settings, with transnational platform
BP34 – Smart energy	CZ	Litoměřice	Smart energy strategy
BP35 – ENIGMA	GR	Thessaloniki	Joint transnational pre-commercial procurement (PCP) procedure between 5 cities: Eindhoven (coordinator), Malmo, Espoo, Stavanger and Bassano del Grappa. Focus: innovative public lighting
BP36 – Action research	ES	Pais Vasco	Action research at local level for territorial development and social innovation

Title	Country	Region/City	Area
BP37 – Creative meeting places	SE	Region Jämtland Härjedalen	Municipal business units to facilitate cross-fertilisation
BP38 – Cradle-to-Cradle	NL	Venlo	Support to circular economy
BP39 – Smarter City	DE	Karlsruhe	Smart city

In the following pages, 12 case studies are discussed more in depth as particularly relevant and inspiring to the research objectives. For each practice, after presenting a synthesis of its main elements (territorial scale, goals, partnership), the added value of the local scale and the main elements of originality are questioned.

TITLE

The re-launch of technical education as part of the broader strategy "Manufacturing Renaissance"

WHERE

Italy (Metropolitan area of Bologna and Emilia Romagna NUTS2 region)

THE PRACTICE IN A NUTSHELL

The practice was designed in 2013 by the Metropolitan City of Bologna and was implemented by an inter-institutional public-private partnership made of local educational institutes and their associations (AsaBo – Association of Autonomous Schools of Bologna); public institutions (the Emilia Romagna regional administration and its agencies; the Bologna Chamber of Commerce); enterprises and their representations; research centres.
The main goal of the practice is to give new vigour to the Bologna traditional manufacturing sectors and prompt the application of new technologies and digitalisation by bettering the existing local educational services.
The project initially involved 9 local institutes operating in the mechanics, electronics, ICT, chemistry, graphics, logistics and fashion fields, and focused on 4 principal areas of intervention, i.e.:

- welcome programs (e.g., organisation of open days and workshops to promote technical culture in lower secondary schools; launch of the Technical Culture Festival);
- partnership with companies (e.g., through the definition of conventions and standard procedures);
- curricular, methodological and organizational innovation (e.g., experimentation of integrated curricula among different educational schools and fields);
- network activities between institutes (e.g., through the development of digital platforms for cooperative learning among institutes of different fields and territories).

In 2015 the practice was extended to regional institutes of the economic sector (accounting, finance, marketing, business information systems, international relations, tourism) and courses on food, agro industry, buildings and environment were launched.

ADDED VALUE OF THE LOCAL SCALE

The practice addresses an issue, i.e., education, in respect to which the local level appears to be particularly legitimated and effective in designing and delivering successful policy actions.
Operating at the metropolitan city scale allowed to reach a better integration among schools – territory – jobs at the territorial level. The role of the local government of the city of Bologna was fundamental in building up the partnership and prompting an effective knowledge exchange and dialogue within the involved stakeholder, thus facilitating the identification of the relevant educational areas responding to the needs of local firms operating in traditional sectors (such as food, agro-industry, buildings) and others (e.g., environment). This also stimulated the progressive inclusion of new partners and the extension of the practice to new sectors and areas, generating transferable knowledge throughout the whole region.

ELEMENTS OF ORIGINALITY

As part of this practice, education, and more precisely technical education, is addressed as a strategic asset to stimulate the economic, social and cultural renaissance of the Bologna traditional manufactory and to support the recovery and competitiveness of its local industry. In line with the industry 4.0, investing in the technical educational culture is seen as key to stimulate the digitalisation of traditional sectors, and actively contributing to nurturing the local innovation system.

TITLE

GreenPac Polymer Application Centre

WHERE

Netherlands (Emmen and the Drenthe region)

THE PRACTICE IN A NUTSHELL

Green PAC is an open innovation centre for green plastics, fibres and composite that offers to local businesses the opportunity to develop and carry out innovative projects under favourable conditions. Green PAC stands for:

- the development of knowledge;
- the valorisation of promising innovative ideas and research;
- the facilitation of projects in the commercial risk phase.

Moreover, the Green PAC hub also focuses on education by developing connections between Higher Professional Education 'HBO' (Centre of Expertise) and Secondary Vocational Education 'MBO' (Centres for Innovative Craftsmanship) programmes and the business community in order to offer to students the opportunity to learn and at the same time gain practical experience in the sector.
The hub is nurtured by the constant knowledge exchange and dialogue among public and private territorial actors of the cluster around Zwolle and Emmen in the Netherlands.

ADDED VALUE OF THE LOCAL SCALE

The "green technology" challenge is addressed by the city of Emmen with the aim of stimulating as much as possible the plastics (chemistry) cluster and in this way create more (i.e., better and sustainable) jobs at the territorial level. This entails the need to develop an effective eco-system at the local level that facilitates access to all the assets that a company needs i.e., not just the availability of raw materials but also access to skilled labour, contacts, knowledge and methods. The local scale appeared the most suitable level to prompt a close cooperation among the high-tech business community and the knowledge institutions made of students, lecturers, researchers, professors of applied sciences, which is key to nurture the innovation process.

ELEMENTS OF ORIGINALITY

Green PAC provides all the necessary ingredients and links to nurture the innovation process and stimulate the translation of technological issues into research themes, that lead to innovation and to new products. The practice emerges as a successful mix of research activities, educational services and enterprises supporting schemes. The hub allowed to quicker the adaptation of new technology in the local business community and bettered knowledge circulation between universities, technology companies and regional education institutes, thus also stimulating the development of start-ups and new enterprises.

TITLE

PECT (Territorial Competitively and Specialisation Project) TurisTIC in family

WHERE

Spain (Tarragona province)

THE PRACTICE IN A NUTSHELL

With a total budget of 3,7mil. euro and co-financed by the ERDF, the PECT TurisTIC en família project was approved by the Catalan government in 2018 and will be concluded by 2020.
It is aimed at boosting and improving the family experience tourism in Tarragona province. The actions are grouped around the so-called Territorial Specialisation and Competitiveness Project (PECT) TurisTIC in the family, which is implemented by the following local partners: Rovira i Virgili University; Tourism Board of the Costa Daurada and Terres de l'Ebre; Fundació Parc Científic i Tecnològic de Turisme i Oci de Catalunya; Centro de Difusión Tecnológica de la Madera y el Moble de Cataluña; Instituto Catalán de Paleoecología Humana y Evolución Social (IPHES); Ayuntamiento de Montblanc.
The objective of the different involved agents is to generate competitiveness, innovation, growth and new direct and indirect employment at the territorial level, turning the tourist destinations of the Costa Daurada and the Terres de l'Ebre into an innovative global reference for family tourism.
Actions entail different areas given the extension of the region, including both coastal destinations and cultural and rural ones. Amongst these:

- Family vineyard, i.e., boosting the destination and development of wine tourism products designed for families;
- Innovative beach, i.e. boosting the destination and development of sustainable solutions for more efficient management and better family safe beach experience;
- Historic & Cultural experience, i.e., boosting the destination and development of solutions in education, cultural and historical information based on the experience of inspiring discovery.

ADDED VALUE OF THE LOCAL SCALE

The governance model of the project is based on the recognition of the essential function of the local scale in managing the S3. The Tarragona provincial government plays an important role in leading and coordinating the complex

network of public and private actors involved in the definition and operationalisation of the project's actions. In fact, in order to assure the effective delivery of the strategy, the provincial government works with a high number of municipalities, counties and other local actors (different universities, research centres, business associations, tourism agencies).
Moreover, the Tarragona provincial government is involved and supports other projects launched by the regional level in the field of tourism. In particular, the Terres de l'Ebro Biosphere Reserve, coordinated through the Baix Ebre County Council; Innovative, safe and healthy Food, through the City Council of Reus; and the 'Priorat-Montsant Siurana, agricultural landscape of the Mediterranean mountain', through the Priorat County Council.

ELEMENTS OF ORIGINALITY

The project is an interesting practice in how it was able to address tourism as a multidimensional and multidisciplinary innovation domain. The vision of the project is to improve the sector both from a destination perspective (making the territory more attractive and competitive to tourists, especially family oriented) and from a "economic sector" perspective, by enhancing the innovation capacities of the companies working in tourism (hotels, restaurants, commerce) but also using tourism as a lever to activate other economic sectors, always with innovation as a driver.

TITLE

sTARTUp Day

WHERE

Estonia (city of Tartu)

THE PRACTICE IN A NUTSHELL

sTARTUp Day is a business festival taking place in the city of Tartu in South-Estonia. First organised in 2016 with the aim of incorporating different business events taking place in Tartu, the sTARTUp Day has become a flagship initiative and is today recognised as the biggest business festival in the Baltics bringing together stakeholders from traditional business sectors, IT and biotechnology, start-ups, business support organisations, government and media.
The Festival is conceived as a frame where start-uppers and traditional entrepreneurs, experts and newbie, government and media can discuss business, innovation and new technologies, share start-up success stories and lessons learned. The festival is open for everyone who is interested in:

- entrepreneurship and start-ups;
- getting to know how to avoid making common mistakes in starting a business;
- getting to know how to increase success rate;
- meeting with interesting people, networking with greatest minds and making new contacts;
- or just wants to enjoy the inspiring vibes of the most awesome business festival held in Tartu.

The program entails matchmaking events completed by several pitching competitions, hands-on seminars with professionals and a large expo area where companies showcase their latest innovations.
The main organising partners are University of Tartu, Tartu City Government and the sTARTUp Community. Supporting partners are Tartu Science Park, Tartu Business Advisory Services, Tartu Centre for Creative Industries, Tartu Biotechnology Park, University of Tartu Idea Lab, Ole Rohkem, Contriber, sTARTUp Hub, Spark Hub, Buildit, Convertal, Mooncascade.
The next sTARTUp Day will be held in January 2019.

ADDED VALUE OF THE LOCAL SCALE

The Tartu City Government together with the University of Tartu has designed and launched this initiative acting as a promotion and knowledge diffusion agent, stimulating the territorial innovation process and the creation of new & innovative entrepreneurship related to the local manufacturing tradition and culture.
The local level also emerges for its effectiveness in managing the otherwise weak outward-looking dimension of the city of Tartu through the activation and attraction of an international network. The coming edition (23-25 January 2019) is expected to bring together over 100 world-class speakers and 4,000 international attendees, thus contributing to raising awareness of the Tartu territorial assets.

ELEMENTS OF ORIGINALITY

The practice is a good example of inspiring platform for generating new business ideas, exchanging experiences and contacts and enhancing cooperation between start-ups, mature companies and public organisation. Particularly, it emerges as an effective and original tool to stimulate the contamination among tradition and innovation. The initiative stimulates the modernisation of traditional industries and small handicraft enterprises thus enhancing their competitiveness in the global markets.

TITLE

Biomalta – Setting up a Life Sciences Centre

WHERE

Malta

THE PRACTICE IN A NUTSHELL

The Malta Life Sciences Park (MLSP) is a world-class research facility and digital hub set to spur the growth of Malta's life sciences sector by increasing available skills, drive new FDI and RTD activity and incubate new enterprises. The life sciences sector has a large presence within the Maltese economy, with many companies operating in the pharmaceutical, medical device, healthcare technology and health tourism sectors. This is in large part a result of Malta offering a knowledgeable workforce of skilled, English-speaking individuals and its well-established connections to foreign markets. The MLSP aims to further leverage these advantages, allowing new life sciences companies to launch with minimal preparation and start-up costs.
The specific objectives of the centre are:

1. Creation, incubation and attraction of new knowledge-based companies;
2. Supporting new and existing SME to invest in knowledge-based activities;
3. Increasing collaboration between knowledge institutes and Malta enterprises;
4. Develop a currently unutilised area designated as an employment node around the MDH and UoM in generating high value-adding activities.

The MLSP provides laboratory spaces to new and existing companies. It also extends business advisory services, financial incentives and tangible support to companies intending to set-up operations.
The project was launched in May 2010 by the Malta Finance and Economic Development Ministry. The construction of the BioMalta campus was completed in 2015. The project forms part of a larger biotechnology park proposed to be built in the Sam Gwann Industrial Estate.

ADDED VALUE OF THE LOCAL SCALE

The project entails a strong territorial dimension. In addition to supporting the growth of the region's knowledge-based economy, the MLSP aims at stimulating new & innovative entrepreneurship and create new jobs at the local level. A key role in this respect is played by Malta Enterprise, the government agency

responsible for attracting foreign investors and promoting industrial development in Malta. Moreover, the project site is strategically located in proximity to the University of Malta and Mater Dei Hospital, enabling operating companies to work in collaboration with the university staff and the hospital.

ELEMENTS OF ORIGINALITY

The Centre provides a facility with the right functional environment whereby target companies achieve expansion and growth through specialisation in key knowledge-based activities and networking with companies from the same sectors, hospitals, academia, and other service providers like laboratories, that decide to set an operation within the centre as well as generate employment by incubating new enterprises.

TITLE

Rider-SOE

WHERE

France – Spain – Portugal

THE PRACTICE IN A NUTSHELL

Rider-SOE was an economic cooperation project aimed at creating local systems for the access of small rural enterprises to innovation in order to promote territorial economic dynamics. It involved five partners from the SUDOE zone:

1. ADEFPAT (Asociacion pour le Développement par la Formation des Projets, Acteurs et Territoires) – lead partner (FRANCE)
2. SyndicatMixte du Pays Couserans Direction – Associated Partner (SPAIN)
3. DIPUTACIÓN PROVINCIAL DE GRANADAÁREA DE CULTURA, JUVENTUD Y COOPERACIÓN LOCAL – Associated Partner (SPAIN)
4. CORANE – ASSOCIAÇÃO DE DESENVOLVIMENTO DOS CONCELHOS DA RAIA NORDESTINA – Associated Partner (PORTUGAL)
5. Pays de Figeac – Associated Partner (FRANCE)

The project – covering a period of 32 months (from May 2009 to December 2011) with a total budget of EUR 1.007.000, 75% of which coming from the European Regional Development Fund (ERDF) – helped the partners to gain a shared culture of innovation, overcoming the disadvantages of the rural areas of the SUDOE Space. The main delivered products were:

- Development of a feasibility study for the innovativeness platform adapted to the needs of each territory;
- Creation of 4 permanent platforms of innovation (of business services) to search new sectors/needs;
- Training courses for «ambassadors of innovation» in the SUDOE space;
- Creation of 5 «clusters of companies for innovation»;
- Creation of 4 on-line exhibitors of commercialization of the products of the companies;
- Identification of a common protocol to continue training in rural areas in the SUDOE zone.

ADDED VALUE OF THE LOCAL SCALE

SMEs represent 90% of all companies in the European Union. This kind of businesses show relevant potentials in terms of innovation that are not always completely expressed. The reasons for that are, amongst others: isolation, the lack of cooperation between companies, their diversity of status and activities as well as difficulties in accessing support services. RIDER connected the existing regional systems with the local needs by creating an assistance scheme for very small businesses in rural areas. The project allowed rural businesses to build up a strategy of adaptation to markets and facilitated their internationalization. Furthermore, the project created jobs and new activities at the local scale that, at the end, increased the power of attraction of the rural territories of SUDOE.

ELEMENTS OF ORIGINALITY

The RIDER project generated results at two levels. On one side, it stimulated organizational innovation through the creation of local innovation platforms ("clusters") structured in a transnational network. On the other side, the project contributed to marketing innovation through the creation of local on-line exhibitors. Following the aim of ensuring the diversification of the SMEs, RIDER allowed entrepreneurs to define a collective and innovating strategy of promotion of manufactory products and services, according to the needs of consumers. Local Innovation Platforms also formed "innovation ambassadors" i.e. business leaders who implemented strategic plans focused on innovation in different companies ensuring their further development, once the project ended.

TITLE

Routedes Lasers

WHERE

France (Aquitane)

THE PRACTICE IN A NUTSHELL

In 1999, France took the decision to replace nuclear testing with high-energy laser simulations. It was then decided to build the Megajoule Laser (LMJ), one of the most significant tools for simulation, in the Aquitaine region. Taking into consideration the estimated amount of property investments, a local management company (Société d'Economie Mixte Locale, 17 SEML), whose statutes allow for public and private funds to be combined, was created to implement the project. The project allowed the development of three business parks (LASERIS 1, LASERIS 2 and Photonic City – Cité de la photonique) representing slightly more than 40 hectares, for the benefit of industry and service businesses. The project started in 2004. Investments are still progressing, but activity areas are already operational. The experience involves the regional government, "Department de la Gironde", municipalities, the chamber of commerce, local banks, and companies.

ADDED VALUE OF THE LOCAL SCALE

The Route des Lasers project is a flagship for the Aquitaine region and remains among the most strategic and most promising in terms of scientific, economic, and social development. The project created job opportunities and achieved national and international recognition of the Aquitaine region in the field of lasers and related technologies. To date, the laser-optical sector includes 80 institutions, 8,850 jobs and 600 researchers. The three business parks host 39 companies and generate 400 jobs and 800 indirect jobs, thus greatly exceeding the initial objective of creating up to 100 jobs.

The emergence of a new industrial sector is a very ambitious goal that can only be achieved in the long term. Some achievements are still on-going (e.g., the business development of Park LASERIS 2 – reserved for solar energy – has been hampered by the moratorium on photovoltaic facilities). However, all the decisions taken to develop the sector have helped make the concept of the 'Aquitaine laser industry' credible and visible at national and international levels.

ELEMENTS OF ORIGINALITY

The only equipment comparable to the Megajoule Laser in Aquitaine is located in California. The importance of the LMJ has generated major interest in the scientific community from industrial and scientific perspectives. The established management allowed for the emergence of a new industrial sector focused on laser technologies and their applications and for strengthening basic research and scientific sectors of higher education and continuing education.

TITLE

Metropolitan Digital Fabric (Tessuto Metropolitano Digitale)

WHERE

Italy (Metropolitan area of Cagliari and Sardegna NUTS2 region)

THE PRACTICE IN A NUTSHELL

Metropolitan Digital Fabric is a research, training and technological transfer project carried out by the Centre for Advanced Studies, Research and Development of Sardegna (CRS4) and the University of Cagliari. It is aimed at studying and developing methods and technologies to offer new intelligent solutions to improve city attractiveness, resource management, and the safety and quality of citizens life through the close combination of use and experimentation of advanced communication infrastructure and widespread sensors, and the study and development of innovative vertical solutions. More precisely, the project's goal is to produce concrete solutions in response to specific territorial needs affecting the following four macro-areas:

1. Local intelligent networks for energy distribution;
2. Applications for meteorology and flood prevention, with extensive use of sensors (Internet of Things), cloud and big data;
3. 3D modelling of architectural assets and public buildings;
4. Traffic management, with wide use of cloud solutions and production of open data.

The project started in 2017 and will last till the end of 2021.

ADDED VALUE OF THE LOCAL SCALE

The project is based on the effective collaboration between the regional and the metropolitan level. The role of the Municipality was essential to identify the relevant issues on which focusing the experimentations in relation to specific localized needs such as forecasting and mitigation of large meteorological phenomena. Therefore, the project experimentation is carried out at the metropolitan city scale through the direct involvement of the Municipality of Cagliari, besides generating transferable knowledge throughout the region.

ELEMENTS OF ORIGINALITY

As recognized by the Strategic Implementation Plan-SIP, actions to overcome the obstacles that still hamper smart cities include: the development of infrastructure platforms and common architectures for smart city information; the availability of data in the urban domain; tools for scalable integrated design, simulation and multi-criteria optimisation to enable multi-stakeholder analyses of different spatial and sectoral perspective. The project can actively contribute to the implementation of these strategies through the development of an open urban digital infrastructure of data from sensors distributed throughout the metropolitan area and multi-sector and multi-space decision supporting systems, by means of advanced analysis, simulation and visualization tools, enabling new digital services in the energy and environment domains, to improve the quality of life of citizens and the attractiveness and competitiveness of the city.

TITLE

Local Enterprise Partnerships

WHERE

England (UK)

THE PRACTICE IN A NUTSHELL

To replace existing Regional Development Agencies, the May 2010 Coalition Agreement outlined plans for the creation of Local Enterprise Partnerships (LEP) defined as "joint local authority-business bodies brought forward by local authorities themselves to promote local economic development". The Government received a total of 62 LEP proposals, 24 of which were approved in the Local Growth White Paper. A further 15 LEPs were subsequently approved covering the remaining areas in England.

According to the White Paper the roles of the LEPS are: i) working with Government to set out key investment priorities, including transport infrastructure and supporting or coordinating project delivery; ii) coordinating proposals or bidding directly for the Regional Growth Fund; iii) supporting high growth businesses, for example supporting consortia to run new growth hubs; iv) making representation on the development of national planning policy and ensuring business is involved in the development and consideration of strategic planning applications; v) lead changes in how businesses are regulated locally; vi) strategic housing delivery, including pooling and aligning funding streams to support this; vii) working with local employers, Job centre Plus and learning providers to help local workless people into jobs; viii) coordinating approaches to leveraging funding from the private sector; ix) exploring opportunities for developing financial and non-financial incentives on renewable energy projects and Green Deal; x) becoming involved in delivery of other national priorities such as digital infrastructure.

The LEP network – a not-for-profit company limited by guarantee, governed by three volunteer LEP Chairs – allows LEPs to discuss issues of shared importance, engage with government and share knowledge and good practice.

ADDED VALUE OF THE LOCAL SCALE

Cities, towns and rural areas across England face a range of economic opportunities and challenges. Over recent years, LEP have assessed these local needs and tailored economic policy responses accordingly. They have played an important role in supporting local growth and have increased private sector

involvement in economic decision making, encouraged greater collaboration between public sector leaders across administrative boundaries, and ensured that effective investments are made across areas in growth priority projects. Moreover, in order to work with 38 LEPs, the Smart Specialisation Hub has been set up. The Hub is a facility to develop innovation strategies and collaborations that follow S3 methodologies.

ELEMENTS OF ORIGINALITY

LEP replaced the former Regional Development Agencies which delivered poor value for money; covering sprawling government office regions, the Regional Development Agencies were distant and remote from local business, and the arbitrary regions had no connection with natural economic areas. This approach has led to significant local innovation.

The collaboration between local actors is strategic to the model. Private sector leadership is integral to the LEP model. Businesses provide essential market intelligence to inform local decision making. Councils are also critical. They provide political accountability and community knowledge. They support business growth through their statutory functions, investment in economic infrastructure, and wider role in creating quality places. Successful LEP have also worked closely with universities, business representative organisations, further education colleges, the voluntary sector, and other key economic and community stakeholders.

TITLE

Contest for the Marshal of the Wielkopolska Region Award

WHERE

Poland (Wielkopolska Region)

THE PRACTICE IN A NUTSHELL

The practice aims at spreading smart specialisations for Wielkopolska in scale of country and world, building awareness of the Wielkopolska brand and reach the goals of the strategic documents of the Wielkopolska Region concerning development, innovation and economic promotion.
To this end, the Marshall Office awards the companies' most innovative solutions. Products or services are divided into six categories in line with the six smart specialisations for the region, namely: Biomaterials and food for aware consumers, Interiors of the future, Industry of the future, Specialised logistics processes, ICT-based development, Modern medical technologies.
Winners of the competition receive financial awards the total value of PLN 120,000.00 and promotional packages whose total value amounts to PLN 90,000.00.

ADDED VALUE OF THE LOCAL SCALE

The award stimulated knowledge diffusion and raised awareness around the implementation of innovative products and services at the local scale in line with the S3 strategic priorities.

ELEMENTS OF ORIGINALITY

The award marks the local relevance of the S3 strategy, raising local awareness and engagement.

TITLE

Skills Academy of Pila

WHERE

Poland (Pila)

THE PRACTICE IN A NUTSHELL

The Skills Academy of Pila initiative is aimed at stimulating entrepreneurial attitudes among high school students. By participating to "Lessons of Entrepreneurship", workshops, consultations and meetings with entrepreneurs, students acquire key competences in the marketing and advertising field to prepare competition's projects.
Expected benefits of the practice entail:

1. Stimulate the youths' abilities to take more conscious decisions about their education path and, consequently, their professional development;
2. Enhance entrepreneurial attitudes among youths;
3. Integrate theory with practise through the organisation of meetings with coaches-practices, local businessmen's and marketing experts;
4. Develop marketing strategies used by companies and finding new possibilities of promotion;
5. Broaden school knowledge;
6. Get practical knowledge about how to set and develop a business;

ADDED VALUE OF THE LOCAL SCALE

The project was developed by the Pila Community and is realized in cooperation with Inwest-Park, a municipal company working for the creation of favourable conditions to raise investment attractiveness and the development of entrepreneurship in the Piła sub-region.
Designing and implementing the practice at the local scale allowed to better identify and plan the best forms of support for youths, which give the key competences and knowledge necessary to prepare competition's projects; and to obtain the commitment to co-operation the biggest group of experts, businessman and companies, who give the highest profits to the project.

ELEMENTS OF ORIGINALITY

The greatest idea of the Academy is the creative cooperation model of students and businessmen's, who become real teachers, i.e., mentors and guides in the field of running an own company. Participating to this initiative showed to generate benefits for both sides:

- for students, the opportunity to complement and broaden school knowledge, getting the possibility to check knowledge it the real world of practice;
- and for businessmen, the opportunity to reap the benefits of students' creativity and fresh view.

TITLE

Cradle-to-cradle Product Innovation Institute

WHERE

Netherland (Venlo)

THE PRACTICE IN A NUTSHELL

In contrast to the concept of "Cradle to Grave", illustrating our resource-to-waste lifestyle, the "closed loop" or "Cradle-to-Cradle" (C2C) approach to production processes seeks to create systems that are not only efficient but also essentially waste-free.
The Venlo Region, located in the southeast of the Netherlands, is the first region in the world to embrace the C2C principle on a large scale. The Cradle-to-Cradle Products Innovation Institute (C2CPII), headquartered in the USA, opened its first European product certification training center in Venlo in 2012. The Institute's aim is to provide support to business to develop new products, and to create a platform to encourage European companies to become more familiar with the benefits and process of Cradle to Cradle® product certification.
In this frame, the Cradle-to-Cradle Certified Products Program is a publicly available transparent and third-party verified methodology that encourages manufacturers to make products in fundamentally better ways by providing them and their suppliers with criteria and requirements for continually improving products and what they are made from.
The Institute is administered and supported by the C2C ExpoLAB Foundation. Also supported by the municipal authority of Venlo and the European Union. The municipal offices in Venlo are situated in a unique building, designed and built based on the principle of Cradle to Cradle (C2C).

ADDED VALUE OF THE LOCAL SCALE

The city of Venlo adopted the Cradle-to-Cradle model as a driver of the region's economic development, and many large companies in the region have joined. Venlo also hosts and partly funds the C2C ExpoLAB, which is providing consultancy services, workshops, project support etc, and also facilitates the C2C-Centre, which is actively involved in the gathering and dissemination of information on Cradle to Cradle. In this way, Venlo demonstrated how the circular economy can be a model to collectively solve problems, share best practices, and build capacity for positive impact.

ELEMENTS OF ORIGINALITY

C2C has quickly become the main organizing principle for the development of the Venlo region, and is successful in supporting private demand. It is seen as a transferable economic model with the capacity for enhancing the cooperation of all major regional players from local governments, industry, civil society organizations and NGOs, universities/educational institutions, and citizens.
In line with the Venlo's strategic vision 2030, the municipality wants to encourage other (local) government, businesses and organizations to start innovating according to the principles of Cradle to Cradle and circular economy. Therefore, Venlo wants to share the gained knowledge and experience based on open-innovation.

4. Setting the local level in the RIS map: the case of the interregional and urban cooperation

Marino Cavallo

4.1. S3 at local level and the EDP process in the social and "orange" economy

Over the years, S3 has made "transversality" and "plurality" two opportunities for its continuous enrichment and evolution, as demonstrated by the case of the Emilia-Romagna Region where, despite being configured as a conditionality linked to the approval of its ERDF ROP (Regional Operational Programme), S3 actually represents a transversal strategy for the structural funds and regional planning instruments, an integrated set of tools and actions that can also strengthen the regional system's ability to attract resources from national and European programmes in support of research and innovation.

In view of the start of the 2021-2027 programming period, the 2014-2020 S3 must be updated, considering the results of the previous seven-year period, the evolution of technologies, production systems and the regional research ecosystem, but in particular taking into account the new global challenges, as highlighted in particular by the objectives of the new EU Cohesion Policy and Agenda 2030. To this end, these pages will present some case studies from the experiences gathered by the Metropolitan City of Bologna during its participation in the Interreg Europe project RELOS3.

Technological innovation is increasingly proving to be a trend that can both underpin all the traditional sectors identified since

2014 in S3 and allow these sectors to intersect with new ones. This trend can therefore be defined as an integration made possible by the gradual breaking down and overcoming of existing cultural and technological "silos".

The consequences of this trend can be seen, for instance, in the extension of S3 to new economic sectors, such as those represented by the so-called "orange economy" (cultural and creative economy) and the "social economy". This enlargement is leading S3 to consider as its interlocutors not only economic actors from social entrepreneurship, such as social cooperatives, or cultural and creative industries (CCI), but also cultural and citizens' associations, as well as non-governmental and non-profit organisations.

On the one hand the "orange economy" is an economic sector, which has at the centre of its business the promotion and protection of cultural heritage, multimedia productions, arts and entertainment, also includes traditional "culture driven" enterprises (such as the historical brands of the Emilia-Romagna territory, which has always been characterised by the high quality of its manufacturing production) and the specific fields of cultural and sustainable tourism (Sacco *et al.*, 2018; Florida, 2014; Buitrago Restrepo and Duque Márquez, 2013; Jackson *et al.*, 2006).

On the other hand, the "social economy" is a significant proportion of Europe's economy including people ("stakeholders") other than investors or owners ("shareholders") such as cooperatives, mutual societies, non-profit associations, foundations and social enterprises (Gagliardi *et al.*, 2020).

The main reasons for this expansion can be seen in the benefits that open innovation processes in these sectors can also create, e.g., through the increased value of products or services made possible by digitisation and the use of new enabling technologies (as the use of so-called Big Data and Artificial Intelligence in the field of human wellbeing or as the use of domotics and of the "Internet of Things" for home health care).

But while it is now a fact that today's main innovation processes pass through the contribution of technologies at local level (as far as the region of Emilia-Romagna is concerned, the entrepreneurial environment that could be affected by these actions is composed

of 397,767 companies, of which 15,468 are small and medium-sized enterprises), their diffusion among businesses will be impossible until investments in these fields are able to generate a convincing ROI metric (Return-On Investment methodology).

Within this frame, the following needs emerged in the case of Bologna as part of the process of reframing the regional S3 at the local level:

a) intersection between orange economy and social economy for the realisation of quality products and services: the exchange of data between these two sectors can increase the value generated for both. In addition, in the Italian legal system, benefit societies and social enterprises are effective vehicles for the CCIs to achieve aims of common benefit or general interest and to respond to the call for sustainable development. More generally, the existence of a new attention towards quality products and services, which requires new information to demonstrate the value of this intersection, has also been noted at local level;
b) the creation of new information "portfolios" to be integrated into the products and services that are possible thanks to the new information that economic actors could have through technologies capable of increasing the commercial value and reputation of the products;
c) the design of new entrepreneurial models based on the values of corporate welfare and collective well-being, and which aim to create new ecosystems that are beneficial to all the market actors. More generally, the design of new models to live with the processes of automation/digitisation/innovation that are increasingly affecting the world of the professions (professionals of 'culture' and 'social entrepreneurship') after that of production;
d) a new compliance in the realisation of products and services aimed at overcoming the simple adaptation to the provisions of the policies and legislative constraints of "command and control" for the realisation of strategies that go towards the possibility of intercepting the advantages made possible by "soft policies" (e.g., granting of public funding – European

projects). More generally, a new compliance capable of creating new accountability even in situations where national legislation itself is weak, thanks to the possibility of voluntarily submitting oneself to audits (e.g., submitting to control activities with the aim of obtaining European funding).

In order to meet these demands, strategies that pay attention to small businesses are needed in order to avoid the risk of a "digital divide", so as to make technologies less threatening for them. For example, by making explicit how the purposes for which these technologies are used can benefit the entire business ecosystem (e.g., in the European projects the shared "European added value" that they are able to generate on the territory).

Moreover, regarding the CCIs at different levels of government, these "soft policies" have emerged to balance the generalised "mistrust" and lack of understanding of public and private investors towards cultural entrepreneurship. As a matter of fact, cultural operators are therefore often excluded from traditional banking services and creative start-ups have more difficulty than others in attracting attention and subsidies than, for example, technology start-ups (Friel and Borrione, 2020).

"Mistrust" arising from studies that have shown in the past that these businesses are not always more successful than others in terms of scalability or sustainability (European Union, 2018), but whose results could be reversed if their innovation and digitisation processes were adequately supported in the current context.

Moreover, in the near future, the collection of more and more accurate data will allow both more effective funding and the expansion of this economic sector to other fields, such as cultural participation and health. Specifically, with regard to the latter, the Commission is investigating new relationships with the 'cultural/orange economy' sector (as part of the so called "new knowledge economy"), e.g., by promoting studies that focus not only on the recreational or entertainment aspects of cultural products, but also on their ability to alleviate states of psychological and emotional suffering. In the 2021-2027 period these intersections and widening of economic sectors could fill the long-standing

gap in the field of S3 concerning the role it assigns to culture. As a matter of fact, there are few explicit references to culture in S3 (Rivas and Cappellano, 2020). Even in these strategies, which in the European Cohesion Policy value chain are placed as "ex ante" conditionality, cultural action is predominantly perceived as an appropriate means of achieving all other key objectives.

The S3 has been the main instrument through which Europe has built its competitive advantage in the field of the new knowledge economy, in which cultural and creative elements are central. Competitive advantage depends on Europe's ability to promote new growth models at regional level by targeting investments in innovative sectors with significant growth potential and high added value, addressing challenges such as increasing cooperation in innovation investments between regions and exploiting synergies and complementarities between EU policies and instruments.

It is important to underline that for the 2021-2027 programming period strategic interactions between S3 and Interreg Europe have been foreseen. «At a strategic level, Interreg Europe 2021-27 contribution to smart specialisation could be regarded as a space for experimentation, learning and generation of good practice in smart specialisation strategies that can serve broader purposes. In addition, the interregional policy learning process helps to build capacities for S3 implementation and to exploit synergies between S3 and other EU Funds, including Horizon Europe» (Interreg Europe 2021-2027, 2021, p. 12).

In a context like Italy, intercepting these opportunities represents a real paradigm shift introducing competitive elements typical of private entrepreneurship in a social economy and cultural and creative field that for many years was mainly governed by the system of public funding.

In order for this paradigm shift to take place as smoothly as possible, it is therefore also necessary at local level to refer to the methodologies that are at the heart of S3 itself, such as the entrepreneurial discovery process for prioritising investments based on an inclusive and evidence-based process driven by stakeholders› engagement and attention to market dynamics.

The advantage of this is that in the EDP it is possible to plan stakeholder involvement in five different phases, which are interconnected in a circular way: I) policy formulation; II) decision-making; III) implementation; IV) evaluation; V) agenda-setting (Kyriaku *et al.*, 2017; Lasswell, 1956). Wide range of stakeholders' involvement as the citizen associations or NGOs engagement is realised by the "Quadruple Helix" model, where these kinds of actors not only play an active "grassroots lobbying" role, but also contribute to monitoring and evaluating the actions undertaken.

EDP learning process now includes new actors because of the recognition that the innovation borders could also include non-technological activities: it's a holistic vision about opportunities in existing or emerging sectors. As a matter of fact: «entrepreneurial discovery process is not just a process referred to the identification of investment-priorities on research and innovation (priority-areas) and to explore new techno-economic opportunities thanks to stakeholders' engagement, but it is a social and political process, where issues such as power, vested interests of different groups, etc., need to be taken into account» (Hegyi and Prota, 2021).

4.2. Bologna in the RELOS3 project phase 2: the embedding of project methodologies at local level in the new normality

RELOS3 was an opportunity for the Metropolitan City of Bologna to contribute to the fine-tuning of the Emilia Romagna regional S3 by developing locally embedded projects in specific areas of intervention, that are:

a) located inside the Metropolitan City area of influence and competences;
b) relevant in the framework of the 2018-2020 Metropolitan City of Bologna Strategic Plan (PSM) 2.0 priorities;
c) aligned with the regional S3 areas of specialisation;
d) inspired by the interregional learning of RELOS3.

The process that was implemented through this project had the following activities as its milestones:

a) analysis of the regulatory framework and competences in terms of S3 implementation;
b) identification of areas of intervention, which both pertained to the Regional S3 and Metropolitan City's priorities;
c) identification of needs of improvement within the selected areas;
d) development of locally specified projects inspired by interregional learning and coherent with the PSM 2.0 and the regional S3 priorities.

Within the local context these processes have been able to generate both direct and indirect influences. Among the direct influences it is possible to identify the impact on the policy instrument design: the knowledge and the competences acquired during Phase 1 were directly used to influence the PSM 2.0 drafting (March 2017), its consulting phase (November-December 2017) and its approval (July 2018). As indirect influences we can include effects on:

- the strengthening of competences and capacities within the institution;
- governance improvements thanks to the exploitation of intersectoral logic and "Quadruple Helix" model;
- the inspiration of Good Practices, which have led to the development of a new project aimed at strengthening the link between creative and cultural industries and social entrepreneurship.

In addition, the project also led to an important and concrete result: the Bologna Local Action Plan, which aims to boost the innovation process in CCIs and Social Enterprise. To achieve this goal the plan has two specific focuses on: Social Enterprises (SE) and CCIs. The plan also defines two specific outputs (coaching and acceleration tools; workshops/events) specifically target the

following subjects: SE; CCI; aspiring new entrepreneurs; artists and students; and interest groups, including NGOs.

The successes that the Metropolitan City of Bologna achieved within the project were:

- the RELOS3 policy learning helped to consider and/or re-consider the policy objectives of the addressed policy instrument (PSM 2.0);
- RELOS3 enhanced awareness about the concrete opportunities related to the deployment of S3 through the inclusion of local innovation actors (public and private);
- the role of the local dimension was included as a key topic within the on-going consultations as part of the 2021-2027 regional S3 design process;
- cross fertilization with other EU Projects and Programs;
- transfer model to share with other territories in peer reviews of Interreg EU Platform.

Otherwise, the most critical aspects were:

- the multi-level coordination mechanisms because of difficulties in dealing with different regulations pertaining to different levels of government;
- the horizontal coordination with different typologies of local stakeholder (SMEs, academia, civil society);
- the effects of Covid-19 on targeted sectors (especially CCI and tourism).

The trade-off between these positive and negative aspects therefore presents us with the following challenges ahead:

- enhance multi-level learning flows among national, regional and local level during the S3 design phase;
- stimulate the local experimentation of regionally designed strategies during the implementation phase;
- foster synergies with other S3 external networks (such as Interreg and Horizons projects).

The findings at the end of this path are that smart specialisation is an important and innovative way to re-think the role of the economy in the local context. That is the reason why we started with the analysis of the regulatory framework and the identification of the area of intervention, followed by the identification of needs of improvement within the selected areas and the selection of specific project where to apply the methodology of S3 and EDP in concrete initiatives to be implemented in our territory.

At local level S3 is an abstract concept. Therefore, it is better to focus on what it can actually do.

For this reason, in Bologna S3 inspired the implementation of different soft policies and projects through the cooperation between strategic departments of the Metropolitan City for the creation of innovative policies. This resulted either in projects directly involving citizens through the instrument of culture and creativity/orange economy, as in the case of the Urban Regeneration Mix project (Cavallo and Cencioni, 2021); or to coaching activities for social entrepreneurs and SMEs as in the case of the CE Responsible project. The latter is a project on social economy where the main challenge was to apply the EDP methodology to new type of actors, discovering with surprise how it can give good results also in these cases. These concrete examples of embedding the S3 methodology at local level will be presented in the following paragraphs in order to show how it can orient both macro-economic investments as well as investments of single market actors such as persons working in a social cooperative or in a cultural or artistic association (as for instance in the case of digitalisation and investments for the creation of new competences increasingly needed to intercept the opportunities of technological transition).

4.3. Case study (1): Interreg Central Europe CE responsible project

"CE Responsible – empowering social business in Central Europe" aims to improve skills and entrepreneurial competences

for advancing economic and social innovation in Central Europe. Failures to fully exploit the potential of this economic sector are primarily motivated by the lack of long-term support for social entrepreneurs. Support that could be provided by creating and maintaining a proactive stakeholder network.

Strategies of social enterprise are a crucial element of interest for the Metropolitan City of Bologna because they help the reconstruction of the social fabric by cultivating relationships of trust and building conditions of self-esteem. But as any public authority knows, connecting different stakeholders with local policies is a very problematic issue. That is the reason why to consolidate stakeholder motivation in the territory and to maintain involvement at different stages of policy development, we have chosen to apply the EDP methodology to economic sectors where it is usually little used.

So, adopting these methodologies where stakeholders are involved in the starting phase (during the agenda setting), in the decision-making process, in the implementation and in the evaluation phases, we tried to build a new motivation. Local stakeholders are engaged as key actors of innovation in the "social economy" sector. The EDP is applied as an empowerment tool for the involvement of different actors in order to make them more competitive in their respective markets.

We organised specific activities devoted to capacity building, and we realised a PEST analysis (in political, economic, social and technological field) in order to get feedback about stakeholders'' priorities and the main external factors that concretely influences the functioning of their organisations.

This coaching for setting social policies was based on:

- capacity building;
- PEST analysis with stakeholders;
- relationship between entrepreneurs and "altrupreneurs". "Altrupreneurs" are genuinely altruistic entrepreneurs (socially responsible entrepreneurs) that want to offer their resources (funds, work and knowledge) to social entrepreneurs in a way similar to business angels in the start-up world;

- policies and mentoring tools for social start up and social innovation initiatives;
- communication and digital platform to exchange experiences.

The Metropolitan City of Bologna lacks the jurisdiction to develop and create "command and control" policies and a "soft policy" is for us the way to be able to influence local and territorial growth dynamics linked to innovation.

A good level of social cohesion and civic culture is certainly helpful for citizen-led initiatives. From the point of view of social innovators, it is obviously easier to develop initiatives in a favourable environment, where they can easily encounter people who share the same goals, skills and attitudes and where certain public spaces and organizations are dedicated to the dissemination of ideas and networking. Furthermore, citizen-led and social innovator initiatives in this way can access resources and services allocated to them by the public bodies. In the European perspective one may refer to:

a) the guidelines on the new social criteria of the European Union in public tenders aimed at creating opportunities for the social economy and social enterprises (European Commission, 2021);
b) the new services that the CE Responsible project is developing for these actors thanks to its "net4socialimpact.eu" platform.

This platform connects social entrepreneurs and "altrupreneurs" thanks to a social network, a database of resources, and a tool for receiving and giving support to social entrepreneurs. If the Project "CE-RESPONSIBLE" has been started by 11 Partners (from Austria, Croatia, Czech Republic, Germany, Hungary, Italy, Poland, Slovakia and Slovenia), today it can be implemented on a wider scale internationally through the platform.

4.4. Case study (2): URBACT III Urban Re-Generation Mix Project

The aim of bringing new life into communities by using the arts and cultural services to attract people, to counter industrial economic decline and to design a new image for cities can now also be achieved thanks to the new role recently played by public administrations in promoting the creative use of technologies to strengthen relational capital, shaping its structure and directing public policies to make the city an enabling infrastructure.

Concrete examples of this can be seen in the numerous European cases related to recent urban regeneration processes (Eutropian Research & Action, 2017). Urban regeneration practices can also be empowered thanks to specific projects, such as "Urban Regeneration Mix" in which the Metropolitan City of Bologna participates within the European programme "URBACT III".

This project allowed us to participate in a European network of cities (transfer network) within which it was possible to replicate the collaborative city models promoted at local level, increasing the participation of city residents, favouring their equal involvement, and strengthening the relationships between the main stakeholders of urban regeneration processes. In this way, the aim of these transfer networks was to research, identify and apply the key success factors that bring life back into historic areas but also bring citizens back into regenerated areas. Within this framework the area in which we focused our interventions was the so-called Manifattura delle Arti in Bologna's Porto District.

In this context the EDP perspective was used as a tool for community engagement in the co-design of the project's activities and, during these processes, in the valorisation of the role of young generations and students. The goal of the project was the revitalisation of historic neighbourhoods through the redevelopment of multifunctional buildings. For this reason, it has been identified as a strategic commitment for us, enhancing the regeneration initiatives already launched in the city (Inter-American Development Bank, 2019, p. 94).

For Bologna in particular, it represented an opportunity to further enrich its strategic assets represented by culture and its lively and creative social fabric.

The main challenges were:

- to make the area more attractive for new inhabitants, increasing cultural and creative opportunities, working on spaces and potential capital;
- to stimulate greater collaboration between cultural institutions, the public-private sectors, young people, students, the inhabitants of the city centre;
- to promote entrepreneurship and creative work;
- to develop greater opportunities in terms of social inclusion and innovation, to reduce the distances between citizens, city users, inhabitants, students, associations and neighbourhood associations.

The thesis at the core of this initiative is that "cultural districts" as theorised by Santagata (2004), and specifically the museum cultural district and the metropolitan cultural district, can in the current scenario lead to the creation of competitive advantages even in a market of cultural and creative products and services that is now globalised and based on the massive use of technology.

Especially with regard to territorial development policies, these would in fact have as their specific aim the accumulation of what was defined as "cultural capital" (Santagata, 2004, p. 2).

Beside these arguments, the use of these cultural districts as a political tool for local economic development is in any case very complicated due to its many rigidities. Rigidities arise mainly from two binding consequences related to the conditions of the local socio-cultural contexts within which the cultural districts should be implemented: «To superimpose the design of an industrial cultural district onto an inadequate socio-economic structure inevitably leads to failure», and «The industrial cultural district is the result of a long and often socially painful incubation» (Santagata, 2004, p. 11).

Thanks to RELOS3 we have tried to overcome these rigidities in the Urban Regeneration Mix project, using the EDP tool and

adopting new practices, working closely with the university, and fostering the dialogue between cultural institutions.

The catalysts for this change were:

a) the valorisations of the distinctive features of these places (milieu);
b) the promotion of models aimed at creating a structured multiculturalism (a reversal of the tendency to exclude parts of society).

Thanks to the Urban Regeneration Mix project we proposed the rationale of S3 using the tools of community engagement (regular online meeting and learning webinar). But also, in the S3 perspective, we proposed grassroots policies using the contribution by young inhabitants, students, etc.

5. Multi-level governance and the Entrepreneurial Discovery Processes in the experience of RELOS3 partners

Giulia Lazzeri

As part of the research activities of phase II of the project, a qualitative investigation was carried out in order to assess how the RELOS3 partners addressed the challenge of entrepreneurial discovery processes (EDP) to sustain the implementation of the S3 agenda 2014-2020.

The policy design behind S3 severely challenged the quality of the governance in European regions by introducing new requirements and a model of strategy making that marked a clear departure from the highly diversified heritage of regional innovation policies. As discussed in previous chapters, the EDP has been one of the most demanding for regions (or countries) to implement. Its effective realization asks for a change in the modus operandi of traditional routine of consultation, looking for new participatory methods based on an interactive and continuous dialogue with different types of actors representing distinctive needs, goals and visions.

This chapter is structured as follows: paragraph 5.1 presents the adopted methodology and sources; paragraph 5.2 discusses the RELOS3 partners' experience highlighting the characters and functioning of stakeholder cooperation in their territories.

5.1. Methodology and sources

In the framework of RELOS3 a qualitative investigation was conducted to set out the lessons learned from the partners' experience with organizing participatory processes according to the EDP logic.

Adopting a policy learning perspective, the field work aims at assessing if and to what extent the introduction of the S3 agenda, and particularly the request to adopt an EDP approach, inspired a learning-path within the public sector (intra-organisational learning), at the innovation system level (intra-system learning) and horizontally and vertically between different systems (inter-system learning) (Borras, 2011; Nauwelaers and Wintjes, 2008). Namely, intra-organisational learning refers to learning in policy-making implementing institutions (local, regional and national administrations) and is mainly about administrative resources and skills and the capability to use them; intra-system learning refers to learning processes occurring between the relevant stakeholders, thus being fundamental to guarantee collective discoveries and innovation diffusion; and inter-system learning is about the system's capacity to guarantee effective horizontal (between regions or countries) and vertical (from the regional level to the national and European level, in both directions) coordination and governance mechanisms.

The hereby presented analysis is based on two sources: an evaluation survey distributed to RELOS3 stakeholders throughout the project implementation (2017, 2019, 2021) and aimed at the monitoring their perceptions about the relevance of the S3 strategy at the local level; and qualitative interviews to the RELOS3 partners focusing on the main features of the stakeholder involvement process realized in their local territories.

It is important to notice that RELOS3 partners are characterized by various regulatory frameworks and competences in terms of S3 implementation. The project involves heterogenous institutional entities: provincial and municipal authorities (Sabadell, Bologna, Emmen, Tartu); regional administrations (Wielkopolska); and national government agencies (Malta). As

a consequence, there were significant differences in the role and weight they had in designing and implementing 2014-2020 strategies. Also, partner differ in terms of innovation policy capacity due to their previous experience in R&I policy, which influences the way they interpreted and realized the whole S3 process.

The following table offers some informative elements regarding the partners' policy context and regulatory framework when entering the 2014-2020 S3 process.

The S3 policy context		
SABADELL, Spain	**EMMEN, Netherlands**	**TARTU, Estonia**
In Spain S3 were formally managed at the regional level, though the local levels could be directly involved in the implementation phase. Namely, within the framework of the 2014-2020 S3 agenda, in 2017 the Catalan government launched the first call for Specialisation and Territorial Competitiveness Projects (PECT). Co-financed by the ERDF funds, PECT instruments are competitiveness projects developed to bring the RIS3CAT at local level and are managed by local and supralocal authorities. The municipality of Sabadell leads the implementation of the PECT Vallès Industrial, together with several agents from the local and regional innovation ecosystem.	The 2014-2020 S3 was developed and managed by the Northern of Netherlands region (Managing Authority) comprising 3 provinces and 4 cities. The city of Emmen authority adopted the S3 regional operational programme as leading and inspiring document and aligned its local actions and projects in specific economy areas with the S3 priorities. This connection in terms of contents and priorities was done without producing a formal strategy but just by adopting a "policy of spearheads" approach in line with the idea of S3.	Due to the small size of the regions and economy in general, Estonia used a top-down approach to design and manage the national S3, where the public sector determines narrow growth areas with administrative guidelines. With the attempt of narrowing down priority areas, several territories, including Tartu as one of the pioneers, have defined their own S3 growth areas. The Tartu and South-Estonian S3 (LENSS in Estonian) was developed as a voluntary initiative and was approved in 2014. It focuses on specialisation areas conceived in line with the national S3, covering all the south of Estonia territory.

BOLOGNA, Italy	WIELKOPOLSKA REGION, Poland	MALTA
In Italy regional authorities had an overwhelming role in implementing the 2014-2020 S3 agenda. Particularly, the Emilia Romagna region entered the S3 process counting on a great heritage in terms of R&I policy experience. Thus, the strategy was conceived in continuity with previous R&I policy, though based on a more inclusive process in respect to previous policy-making routines. In this frame, in order to contribute to the fine-tuning of the regional S3, the Metropolitan City of Bologna developed locally embedded projects in specific areas of intervention, that are aligned with the regional areas of specialisation.	The Wielkopolska 2014-2020 S3 was designed and managed at the regional level. The region entered the S3 process with some previous experience in R&I policy. The first regional strategy aimed at supporting the regional innovation system was developed in 2004. Nevertheless, the Wielkopolska S3 2014-2020 S3 represented a radical change in respect to previous experience and a first step towards a new vision of regional R&I policy. Though it maintained a strong focus on the regional dimension, both in the selected specialization areas and in the way the S3 process was conducted.	The S3 2014-2020 process was managed at the national level involving a bottom-up approach and a variety of inputs. The 2014-2020 S3 of Malta was incorporated as one of the three pillars of the National Research and Innovation Strategy 2014-2020. The rationale behind this decision was to achieve a comprehensive R&I support ecosystem and a stronger knowledge base. R&I in Malta is quite a new policy area and the sector itself is quite young, thus missing concrete experience and know-how.

5.2. The analysis

Despite the heterogeneity of the involved policy contexts, the analysis suggests that the stakeholders' understanding of the role to be played by the S3 agenda improved almost in all the territories. The general perception about the relevance of the S3 approach at the local level increased throughout the RELOS3 project implementation (2017-2021) and the stakeholders acquired more awareness about its capacity to impact on territorial competitiveness and innovation. The perception about positive benefits particularly increased in relation to the capacity of the S3 agenda to inspire a transformation in the vision of competitiveness and innovation policies in their territories by stimulating, for example, the identification of more focused and place-based specialisation areas and the development of new policy tools and instruments.

Also, local stakeholders underline the S3 positive impacts on multilevel cooperation and cross-border collaborations in strategic policy areas such as industry 4.0 and green and digital transition.

Among the key elements influencing a successfully deployment of the S3 agenda, the importance of the functioning of stakeholder engagement according to an EDP logic is underlined. Taking the right stakeholders on board, i.e., identifying the public and private actors relevant for a transformative change, is seen as strategic to take advantage of it at the local scale. Particularly, involving local governments is underlined as a necessary step to build an effective S3 governance system able to ensure the participation, ownership, and motivation of all the actors of the 4H.

Looking more in-depth in the functioning of the EDP, the partners' experiences revealed strengths, but also some critical aspects.

a) Strengths

- *Learning processes within the public administrations*: there was not much clarity about what the EDP should do and how it should be supported by public authorities responsible for its implementation. The EDP concept sounded easy on paper, but its novelty and ambiguities hindered its translation into practice. Consequently, it inspired from the very beginning a

learning path within the public sector. Adopting an EDP logic implies that the government has not the full control on the use of resources, having instead to deal with risk and uncertainty factors that represented a huge novelty for the public sector.

The public administration was forced to critically reflect on past experience and errors, becoming more conscious of the need to assume the role of facilitator of a continuous process of collaboration with different stakeholders as formal and informal partnerships. This stimulated the strengthening of competences and capacities within the institutions and generated governance improvements through the exploitation of an intersectoral logic and the "Quadruple Helix" model.

Also, the transfer of visions, ideas and strategies as part of interregional learning activities promoted by the European Commission across the EU through the S3 Platform and other projects and programs, emerged as relevant to support a cultural change within the public administration.

- *New and innovative participatory tools*: the introduction of the S3 agenda inspired the adoption of creative tools to balance the presence of the private, public e academic world within the territorial innovation constituency. New participatory tools were adopted in line with the idea of EDP such as Living Labs, business contrast sessions, online services and meeting, social media activities, interviews and surveys, project meetings, trainings and seminars aimed at facilitating knowledge transfer among the relevant stakeholders. Particular efforts were made to stimulate a stronger involvement of businesses, which are increasingly in charge of innovation issues, as well as academia and research institutes.
- *Involving the right stakeholders:* expanding and enriching the innovation constituency is a political and organizational challenge. It entails the capacity to identify the relevant stakeholders which means those actors representing contents and not interests, and thus able to engage in the S3 process with the aim of developing their local business ecosystem, strengthening entrepreneurship, increasing added value, and developing a common agenda and a transformative roadmap for action.

- *Aligning national/regional and local S3 priorities and actions*: at the national and regional levels, fragments of EDP were implemented to design and implement the 2014-2020 S3. With different intensities and according to the specific territorial declinations, the local level was consulted during the S3 process. But this mainly took the form of institutional meetings aimed at collecting feedback and suggestions on the strategy draft or on specific urgent economic issues (such as climate and energy), without discussing the overall vision of the local innovation ecosystems. As a result, most of the 2014-2020 documents were affected by an insufficient level of granularity in the selected specialisation areas, making it difficult to prioritise actions and implement concrete projects.
  Instead, when it was realised, the active participation of the local level in the S3 design phase resulted effective in narrowing down national/regional S3. In the frame of RELOS3, several territories have defined their own S3 growth areas by spontaneously aligning local actions and projects in specific economy areas with the national/regional priorities. These voluntary initiatives show a greater capacity to build up mutual commitment towards innovation and focus on concrete opportunity areas decided by the local government in agreement with business ecosystem, universities and technological and research centres, according to the EDP methodology, leading to locally specified projects coherent with the regional S3 priorities.
  Besides, evidence also shows that the formal involvement of local authorities in the national/regional S3 delivery, if the strategy vision and goals were not shared during the design phase, entails the risk of being focused on the distribution of funding among municipalities, focusing more on the capacity to spend than on policy contents and connections.

b) Critical aspects

- *The challenge of delivery*: the translation of S3 strategic goals into concrete actions within the ERDF Regional Operational Programmes was not an easy task. Obstacles related to: weaknesses of the strategy itself (wideness of goals and domains;

high number of selected specialisations); administrative resistances and governance issues (competences and tasks of the responsible departments; internal coordination mechanisms); rigidity of funding mechanisms (calls were maintained open without focusing on specific S3 domains, thus hampering the degree of experimentation); historical fragilities related to the characteristics of the local innovation systems (such as low competences and trust on the part of the private sector; excessive weight of the public sector in the field of research).

In few cases the EDP influenced the launch of new and successful policy measures. This happened mainly in contexts with low previous experience in R&I policy and thus more incline towards experimentation. In other contexts, instead, national R&I programs (different from S3) have sometimes shown to be more capable to reach effective results in the field of R&I, thanks to flexible funding mechanisms able to adapt to the specific needs of the local innovation system.

- *An effective method but producing few discoveries*: the EDP showed to be effective as a method to foster stakeholders' participation, stimulating the development, review and renewal of policy-making consultation practices. But less consensus emerges as far as its capacity to stimulate "discoveries". The exploitation of growth potentials in new niche areas happened more frequently in less mature innovation systems, while in more advanced contexts this was mainly about the enlargement of existing traditional specialisations by adding transversal priorities.
- *An on-going (and not concluded) process*: the EDP needs time and maturity to consolidate and transpose its effects in the political agenda. The process is far from being concluded. In many cases the results have just started to be visible. A change of attitude is reflected in the 2021-2027 strategic documents. For example, thanks to the interactions with different local economic actors and the collected data, new economic sectors and activities were selected respect to the 2014-2020 specialisations, signalling a greater emphasis and consciousness on the role of local niche areas with potentials also in more structured economic systems.

- *Lingering uncertainty about the role of sub-regional entities*: as far as the 2021-2027 S3 is concerned, the analysis highlights that the strategy design phase was conducted without a clear indication about the role to be played by the local authorities, as it happened in the previous programming period. Nevertheless, in few cases the local dimension was for the first time included as a key topic within the on-going consultations, though not in a format specifically designed for EDP. The need to guarantee effective multi-level learning flows among national, regional and local level during the S3 design phase to share goals, actions and monitoring processes remains an open challenge, that will continue to influence the effective deployment of the future S3.

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This volume is a tool for training and dissemination on the topic of Smart Specialisation in the European local economies. By discussing the main evidence collected through the INTERREG Europe cooperation project 'RELOS3 - From Regional to Local: Successful deployment of the Smart Specialisation Strategies', this publication re-assesses the arguments that support the claim for a greater role of sub-regional governments in the design and deployment of Smart Specialisation strategy. Based on knowledge exchanges among sub-regional and municipal authorities from 6 European countries, the volume presents different points of view and methodologies to stimulate a successful deployment of Smart Specialisation at the local level, enhancing awareness about the opportunities related to the deployment of innovation strategies through the inclusion of local actors (public and private) and offering ideas and policy recommendations for the development of innovative projects at the territorial level.

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