Smart timing and specialised spaces: Reflections on the implementation of smart specialisation strategies in Milan and Brussels

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ABSTRACT

The EU initiative for "Smart Specialisation Strategies" (S3) is animating the policy debate thanks to an interesting and innovative approach. However, this rapid success has left some mismatches from theory to practice that have emerged after the first round of implementation, and related considerations. To reflect on the S3 notion, we discuss the cases of Milan and Brussels which, in our view, question relevant theoretical elements: two advanced urban areas with entirely different institutional and spatial settings facing structural challenges and significant opportunities to keep a high level of competitiveness. This article aims to compare these two cases around four analytical dimensions: the multi-scale aspect of issues addressed; the relationships between the urban core and the surrounding areas; the possibility to govern the structural changes in the economy leading to jobs creation; and the capacity to locally embed economic development. We conclude arguing that time and space are fundamental variables to understand the dynamics leading to a 'successful' S3 implementation regarding the replicability of experiences associated to the scale of intervention, the long-term effects and risk-taking attitudes.

Keywords: Smart Specialisation, Milan, Brussels, Implementation, City-Region.

JEL classification: O38, R10, R58

1. INTRODUCTION

The EU Policy for "Smart Specialisation Strategies" (S3) is animating the policy debate thanks to an innovative and partly new approach to research and innovation (R&I) policy (Foray et al., 2009; McCann and Ortega-Argilés, 2015). According to the European Commission (EC)'s official guide, S3 is defined as follow: "integrated, place-based economic transformation agendas that: focus policy

support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures; build on each country/region's competitive advantages and potential for excellence; support technological as well as practice-based innovation; get stakeholders fully involved and encourage innovation and experimentation; are evidence-based and include sound monitoring and evaluation systems"(Foray et al. 2012).

Despite the emphasis put by the EC in defining the new agenda and the operational steps for its implementation, when moving from theory to practice many issues are still open. The key scholars advocating for S3 and the EC itself have worked to address these ambiguities (e.g. Gianelle et al., 2016), but policymakers across European regions and cities were not always able to adequately interpret the S3. The S3 approach requires operationalising a number of new concepts recently established in the literature but with limited applications in policy practices such as cross-sectorial hybridisation, technology platform, related variety, open innovation and user-centred innovation. For this purpose, the EC has invested significant resources in creating an S3 platform sharing experiences and promoting mutual learning across managing authorities and stakeholders. In some cases, however, these new ideas overlapped with old ones, both semantically and content-wise, generating confusion and uncertainty theoretically and, even more, for practical implementation. The S3 toolbox was voluntarily maintained open and flexible by the EC to favour the design of place-based policies acknowledging differences across European regions. However, this made the concrete delineation of its components and modes of delivery problematic (Asheim, 2013; Capello and Kroll, 2016; Foray, 2015; Kroll, 2015; McCann and Ortega-Argilés, 2016; Morgan, 2017). Nevertheless, this 'confusion' is in our view a fertile ground to reflect on the implications of applying this innovative theoretical approach providing feedback for both academics and policymakers.

The first challenge to discuss the S3 experience is to put into its broader context. The goal of transforming European regions into more innovative places and promoting diversification through new path development can hardly rely on S3 alone but requires alignment with other policies and strategies at various spatial scales. Undoubtedly, the dialogue between the EC and the national and regional managing authorities has dominated the S3 experience. In some countries, one may even suggest that S3 proved to be functional to re-legitimise the weakened role of meso-governments, like regions, on a crucial issue for economic development and resilience (for the case of Italy, see Bellini, 2013; Dotti and Bubbico, 2014). Looking back at the original expectations, the S3 was supposed to be a multi-scalar challenge in which a substantial role should be played by the sub-regional level as it is essential to capture evolving and place-specific needs (Morgan, 2017). This local dimension aims to avoid the risks of imposing a centralised vision, yet it may concern a variety of situations: as an example, rural spaces can provide the context for innovations concerning the environment, agri-food industries or tourism. However, cities would need specific attention as the vanguard of today's societal challenges and privileged testing ground and incubators of a wide range of innovation from technological and market-oriented ones to policy practices (Borrás and Jordana, 2016; Camagni, 2002). Cities were the obvious candidates to be the 'engines of S3' for a vast majority of European regions because they can better identify the most suitable areas for specialisation, capitalise on their unique eco-systems, mobilise their assets, resources and individuals to target their efforts. Besides, cities can create their own networks and partnerships for innovation regardless the region in which they are located (Camagni, 1991; Derudder et al., 2010). By reinvigorating the business-led economic development urban agenda, the S3 might produce intra-regional polarisation in favour of the urban core. Even though the overall balance might be positive for the region, the increasing disparities within the region question the relationship between the urban core and the surrounding areas, back to the well-known trade-off between equity and efficiency (e.g. Dall'Erba and Hewings, 2003; Pike et al., 2007). The S3 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. smart mobility systems, energy efficiency solutions, 'circular economy' models) that are expected to offer broad business and job opportunities in the years to come. Yet, this questions the relationship between cities and the rest of their regions, and the European principle of territorial cohesion.

Within this framework, we discuss the S3 approach by comparing its deployment in the cases of Milan and Brussels. The discussion will focus on four analytical dimensions that, in our view, were under-considered in the first round of reflections on the implementation of the S3; whereas, these aspects aim to enrich and further the debate reinforcing the S3 policy implementation. First, the multiscale approach of the S3 questions the different institutional settings, which are unique to each country. The second dimension on the city-region relationship is strongly related to the first one

because managing authorities in charge of the S3 have different spatiality. For instance, Brussels is a city-region with vast competences but spatially locked within Flanders, though the metropolitan area goes even beyond including parts of Wallonia; while, Milan is just a municipality with limited competencies embedded in the broader regional context of Lombardy (an Italian region having about the size of the whole Belgium). Third, one of the objectives of the S3 is the creation of tomorrow's jobs that opens the theoretical and forward-looking challenge on which one will be located in the urban cores. Finally, the fourth dimension refers to the embeddedment of economic development in cities: what will come after the S3? The S3 approach is an opportunity for a forward-looking exercise and investment supporting territorial competitiveness. More theoretically, this refers to the challenge of embedding economic development in territories in a more and more globalised world.

The article is structured as follow. Section 2 revises the debate on the first experiences of implementation of the S3 agenda across the EU. In Section 3, four analytical dimensions, which in our view are missing from this debate, are proposed to move forward the theoretical discussion. Sections 4 and 5 present the cases of Milan and Brussels, respectively. Some general reflections comparing the two cities are presented in Section 6. Section 7 concludes.

2. THE DEBATE ON THE FIRST EXPERIENCES OF SMART SPECIALISATION

The S3 requirements have significantly challenged established R&I policy practices (for a review, see Bonaccorsi, 2009). Since its launch, a first generation of scientific assessments of the S3 experience was carried out in the attempt to investigate the on-going practices across the EU. Even though assessment exercises came late concerning the advancements made by the practice, these have already identified a series of significant strengths and weaknesses of this new policy approach. Most of the works developed during the early implementation phase (approximately between 2012 and 2016) suggest that despite the important efforts put in place by the EC, the S3 agenda still presents some difficulties potentially hampering its successful deployment. These are due to the ambiguous use of concepts (and slogans), such as entrepreneurial discovery, and the very idea of specialisation that were open to diverging interpretations when moving to practice.

Acknowledging that this is a strong simplification to address a sophisticated debate, the primary interest for the S3 method is the notion of 'entrepreneurial discovery process' (EDP). According to the authors who first formulated it, the EDP is an entrepreneurial-driven process emphasising the idea of 'discovery' to identify the specialisations that best fit the innovation potentials of each territory (Asheim, 2013; Foray, 2015; Foray et al., 2009; McCann and Ortega-Argilés, 2015). As pointed out by Kemeny and Storper (2015), the notion of specialisation might be conceived as absolute or relative. Absolute specialisation refers to the case of a city or region 'specialised' in one (or few) industries; whereas, relative specialisation refers to a city or region having many industries, of which some of them are stronger in comparison to other cities and regions (see also Dotti and Spithoven, 2017a). Furthermore, the scientific debate has recently put forward the notion of 'related variety' arguing that the hybridisation across 'related' industries is crucial to promote innovation (Content and Frenken, 2016; Frenken et al., 2007): industries that are too close or too far are unlikely to promote cross-fertilisation leading to innovation (see also Boschma, 2005). In the S3 framework, specialisation is intended as the identification of priorities that are tailored to regional assets, stressing the necessity to bring together different but 'related' activities, specialising and particularising in this sense a region's economy (Asheim et al., 2011; Foray, 2015). Clearly, this refers to the idea of related variety, though a superficial reading of these concepts might find a contradiction between the used labels of specialisation and variety. The goal is to promote competitive positioning in the global value chains that can lead to exploring new market or technology opportunities. However, the implementation has often reduced this to specialisation in given statistical industries (e.g. NACE codes), somehow oversimplifying the original rationale, which is expected to be also related to the size of the region/city.

What emerges from the first assessment exercises is that the EU agenda is neither a radical revolution (see the notion of policy paradigm shift as in Hall, 1993) nor the solution to all the inefficiencies affecting the European regional and urban policy, especially regarding absorption and implementation in past programming periods. Both optimists and sceptics acknowledge the uncertainties regarding the modalities by which the EDP should be implemented and, within it, the difficulties of priority setting and policy mix definition. The result of these difficulties seems evident in the design of strategies that might be affected by, among others, an excessive number of selected

domains, a lack of critical mass and a tendency to replicate priorities that are considered strategic at the national or global level (Capello and Kroll, 2016; McCann and Ortega-Argilés, 2015; OECD, 2013). These problems harm the likelihood of promoting related variety around existing local specialisations. Furthermore, the low vertical dialogue and exchange with the EU level due to difficulties in managing the complexities of the multilevel governance coordination mechanisms and little attention to potential synergies with other EU regions were also identified as common weaknesses (Kroll, 2015). Besides, the main merit of S3 lies in the improvement of consultation and governance practices (Polverari, 2017). The introduction of the new agenda is forcing public authorities to make policy-making processes more explicit and based on concrete evidence, and nurtured by the involvement of a broader array of stakeholders than in previous planning routines. Significant gains are registered regarding communication and coordination suggesting that S3 is potentially a good catalyst able to facilitate knowledge exchanges and contaminations between actors and organisations, as well as generating policy learning benefits in policy fields that are often complex to be managed (Kroll, 2015; Uyarra and Flanagan, 2010).

3. AN ANALYTICAL FRAMEWORK TO MOVE FORWARD THE DEBATE

Within the early debate on the S3, we have identified four relevant dimensions to be discussed: namely, the spatial scale of intervention, the institutional framework for implementation, the challenge of creating tomorrow's job and the capacity to embed these dynamics locally.

First, the scale of implementation for the S3 was left open to be applied to the different European settings with some soft references to multi-scalar coordination. However, transforming EU regions into more innovative places and promoting diversification through new path development can hardly rely on S3 alone. On the contrary, it requires alignment with other policies and strategies at various spatial scales. The need for multi-level governance for territorial development is determined by the complex institutional settings of the European regional and urban policy and, in general, of the EU (Bachtler and McMaster, 2008; Bachtler and Mendez, 2007; Dotti, 2016, 2013; Green and Orton, 2012; Hooghe and Marks, 2003). In fact, the implementation of S3 concerns a variety of situations from rural areas to urban/metropolitan areas, from very small to large regions. Cities are the obvious candidates to be engines of S3 for a large majority of European regions (cf. Florida et al., 2017; Iammarino, 2005; Moulaert and Sekia, 2003), but they are rarely in charge of R&I policy and, in general, have limited competences and resource for economic policy. Under the ongoing programming period, the EU has made available a significant toolbox to activate and support urban policies such as the Urban Innovative Action (UIA), the URBACT cooperation programme, the European Urban Agenda and the European Innovation Partnership on Smart Cities and Communities. Though, as the local dimension of S3 was not the object of clear and compulsory indications from the EC, the cities' role has been significantly absent from many strategies with the only exception of the Digital Agenda. In this case, the contents (and rhetoric) of smart cities programs have influenced the inclusion of the urban dimension. Otherwise, national practices and legal frameworks have been decisive in defining the quality and intensity of participation by the local levels. This gap regarding poor city-region articulation about S3 does not seem coherent with the growing role of cities.

Besides institutional settings, the S3 approach questions the relationship between cities and surrounding areas. In common sense, the city is where managerial activities are mainly located, especially the innovative ones; while, the rest of the region is where large manufacturing plants are located. This stereotypical image is clearly outdated, yet it opens the issue of the spatial division of the economic activities of tomorrow. New technologies like 3-D printing machines are giving the impression that manufacturing activities can be brought back to city centres, though this is doubtful whether produced volumes and supply of raw materials would significantly increase. If the city is the place where innovation is generated, it is also the place with the highest pressure on the use of land. The de-industrialisation that started in the 1970s has left many brownfields that were progressively filled in from the 1990s onwards with a radical shift from manufacturing to service industries. This issue should be addressed when implementing the S3 because investing in R&I activities risks creating potential tensions between the urban cores and the rest of the region as well as tensions on the use of land in saturated urban areas. The concentration of investment in the most innovative areas risks reinforcing tensions between urban and non-urban contexts.

The third dimension directly refers to the jobs of tomorrow, and implicitly to the capacity of policy to support their creation. The forward-looking exercise requested by the EDP aims to promote a risk-

taking approach exploring the potentials for new market niches. This approach seems to be a soft compromise between a purely liberal approach (the 'laissez-faire' where entrepreneurs are left free to take the risk on the market) and a more interventionist one (public authorities deciding about investments on technological, R&D activities). In this respect, the S3 aims to mobilise the business knowledge of entrepreneurs by involving them in a discovery process where public authorities are expected to work facilitating coordination. However, the creation of future jobs is a difficult and challenging task for any R&I and, in general, socio-economic policy. In the case of cities, this challenge is combined with finding the space needed for these jobs (the second analytical dimension), especially in highly saturated urban cores with high pressure on real estate values.

The fourth dimension refers to the embedding of these dynamics in the city and regions implementing S3. Since the first analysis using the 'shift-share' model (Armstrong and Taylor, 2000; Capello, 2007), we know that regional growth might be led by having a local mix of fast-growing industries (the so-called 'mix' effect) and/or because industries located in the region grow more than homologues elsewhere (the regional effect). Although this model is somewhat descriptive, it highlights the importance of supporting regional productivity. Referring to the case of S3, the challenge is the anchoring of R&I dynamics in cities, keeping in mind the distinction between having a portfolio of fast-growing industries versus having regional industries performing better than competitors located elsewhere (for a more advanced approach along similar intuition, see Camagni and Capello, 2013).

These four dimensions (multiscalar approach to S3, city-region relationship, the creation of future jobs and the embeddedment of economic development) will be applied to the two cases of Milan and Brussels. These two cities have been selected because, in our view, question the notion of S3. Both cities are economically advanced, yet have different institutional and spatial settings. Brussels is a city-region with a regional government having a constitutional status, but complicated relationships with the two surrounding regions; while, Milan does not have such a strong status, but it has better relationships with the rest of the Lombardy region. For both cities, the creation of new jobs and embeddedment of regional development represent key challenges because they are competing to keep a leading position in the European economic space.

4. THE CASE OF MILAN

In the last decade, Milan had recovered its international image after a period when it was just a 'good player in a minor league'. In 2015, this 'renaissance' became evident internationally thanks to the Expo fair that took place in Milan and was 'certified', among others, by the New York Times that listed the city as the first place to be in 2015 (New York Times, 2015). This positive sentiment is largely shared by citizens, firms and organisations as well as international investors (see the Milano Scoreboard in Assolombarda and Comune di Milano, 2017). This success is related to a new economic model able to mix an improbable combination of factors supporting the local productive system and leading to innovation, such as the concentration of universities, strong cultural assets (e.g. exhibitions, theatres and museums) and a relatively efficient public transport system (at least in the urban core).

The combination of both traditional economic factors and soft cultural assets leading to a growing number of start-ups is combined with a new frame for industrial policy, which are less about market interactions while focusing more on systems, networks, institutions and capabilities. Referring to the S3 frame, the success of Milan is particularly enlightening because it is a large, international city acting as the gateway of a broader region, Lombardy. In the case of Milan, it is the regional authority of Lombardy responsible for the S3 development, and not the municipality, and within this strategy, the regional government did not include any meaningful differentiation for the different regional territories, from Milan to medium-size cities in the region or peripheral mountain areas.

Starting from the first analytical dimension, the city of Milan had no formal competence on the formulation of the S3 strategy for Lombardy, but this does not mean that city policymakers did not influence regional ones. Specifically, the city has expressed its strength on the design and implementation of the regional S3 thanks to its weight on the regional economy and, even more important, by developing its own metropolitan strategy with many overlapping points to the contents of the regional one. Furthermore, Milan benefits from the chance to use the post-Expo area to create a new 'industrial and scientific park' with the specific aim to foster innovation, clearly in relationship to themes developed by both the metropolitan plan and the regional S3.

The regional S3, as interpreted by Lombardy, aims to escape the conventional top-down approach in which a policy is defined ex-ante, implemented mechanically and controlled ex-post. The new strategy blends the selection of some macro-areas (called 'competence systems') with a bottom-up entrepreneurial process of discovery involving all the relevant stakeholders in the consultation, i.e. firms, higher education institutions and research centres as well as independent inventors and innovative startuppers. In the regional experience, the 'competence systems' are related to nine pre-existing clusters[38], previously recognised also by the national Ministry for Economic Development. More precisely, Lombardy, like other northern Italian regions, has used the S3 to match the rich 'territorial capital' (cf. OECD, 2001) with a strong regional R&I system (see also Camagni and Dotti, 2010; Dotti and Bubbico, 2014). In so doing, Lombardy has adopted an 'open innovation' approach (Chesbrough, 2003; Chesbrough and Appleyard, 2007), i.e. firms are invited to use external and internal ideas and paths to market. For this purpose, the region also launched a new open-innovation platform as an 'experimental lab' to mobilise SMEs and researchers (see Regione Lombardia, 2018), aiming to stimulate entrepreneurial discoveries within clusters that may result in new value-chain strategies (Bramanti, 2015a). The S3 approach is thus well suited in this context as it allows for the concentration of resources in selected industrial domains, some of which have a significant presence in the Milan area.

In this framework, Milan has had the possibility to play an even more relevant role thanks to two main factors. First, the 2014 national reform of local authorities has established, among others, the Metropolitan City of Milan replacing the Province of Milan. Without entering into details, the new Metropolitan City is an inter-municipal administrative tier aiming to coordinate the municipalities of Milan and surrounding areas (i.e. the metropolitan city covers the same territory as the province of Milan); whereas, the 'old' province was an autonomous body with their own elected council and president. Practically speaking, mayors and members of the city councils have now an arena to coordinate directly, instead of an intermediate body as the old province. In this respect, the Metropolitan City of Milan, led by the Mayor of Milan, was the first one in Italy adopting a strategic plan on 12 May 2016 (see Città Metropolitana di Milano, 2016). This plan was conceived as a process of defining and building the goals of development of the metropolitan area by activating networks between public and private actors (inclusiveness) as well as short- and long-term actions and cross-sectoral policies. More precisely, the Plan identifies six key strategies: digitalisation of public services and data accessibility, urban entrepreneurship and networking among productive clusters, investment attraction, smart and sustainable city (green urban planning, energy efficiency and sustainable building), smart mobility and 'integrated' governance. The overlapping between the metropolitan strategic plan and the regional S3 are evident: both documents adopt a similar method focusing on dynamic activities (not sectors) and the existing SMEs operating on these technologies, which are both likely to be located in the urban core.

The second key-asset for Milan is the availability of the site of Expo 2015 (the international exposition that closed its gates at the end of September 2015). This location, which benefits from excellent infrastructure and high accessibility (both locally and internationally), has been chosen for an 'industrial, research and innovation park' devoted to innovative production and tertiary-level vocational training. The availability of these physical spaces – located within the metropolitan city - is an extremely strong precondition to developing a truly innovative district, as presented and discussed further on in this section.

Moving to the second analytical dimension, the Milan-Lombardy dyad represents the ideal-typical case of a city-region with many interacting mechanisms at work between the urban core and its region. Specifically, Lombardy (like other northern Italian regions) has a longstanding system of medium firms interacting with the urban core of Milan, where knowledge-intensive activities are clustered. The interaction between the 'regional' manufacturing sector and the 'urban' advanced services is, probably, the key factor for the competitiveness of Milan in the 'knowledge economy. Both the regional S3 and the metropolitan strategic plan rely on this 'productive backbone' to promote more systemic approaches aiming to facilitate, (re)combine and support exchanges among existing economic actors and lead to innovation.

This systemic approach aims to address our third analytical dimension on creating the tomorrow jobs, probably the hardest one in policy design, and which is often a significant problem in advance

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[38] The nine clusters are aerospace, agro-food, green chemistry, energy and the environment, smart plant, mobility, life sciences, living environments and smart communities.

regions competing to keep the leading positions. For this purpose, Milan and Lombardy have renovated their efforts focusing on their 'vocational education and training' system. This basically implies the development of transversal competencies and soft skills, such as problem-solving, critical thinking, creativity, initiative, learning to learn and to take risks, reflection, and collaboration, and the involvement of firms in the process, thereby enhancing what has been called the 'educational firm' (Bramanti, 2015b).

The fourth and last dimension is related to the embedding of all the previous dynamics to produce territorial economic growth (possibly inclusive and sustainable). The keyword seems here to be 'innovation district'. Innovation districts are, by definition, geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators and accelerators (see Katz and Wagner, 2014). Innovation districts are physically compact, transit-accessible and technically-wired, and offer mixed-use housing, office and retail. Innovation districts are the manifestation of mega-trends altering the location preferences of people and firms that are choosing to converge and co-locate in compact, amenity-rich enclaves in the cores of urban areas. Start-up entrepreneurs are setting up their ventures in collaborative spaces where they can benefit from the presence of their peers and may have efficient access to everything from legal advice to sophisticated lab equipment. These kind of locations are already present in Milan. The city can count on a growing number of co-working facilities and 'FabLab' that will have a major opportunity to grow thanks to the reconversion of the post-Expo area and the induced effects.

To conclude, the case of Milan shows an unusual combination of factors from a renovated institutional framework to an 'open' policy approach explicitly conceived to rely on existing strengths. The funding tools are implemented to address systemic issues and networking existing actors, while the spatial dimension is articulated to exploit the 'unique' opportunity of the post-Expo area. The goal is to consolidate a renovated economic vigour for a longer-term perspective.

5. THE CASE OF BRUSSELS

The Brussels-Capital Region (henceforth, BCR) is one of the three regions of Belgium in charge of implementing the S3. The BCR is a fully urbanised region with about 1.2 million inhabitants encompassing 19 municipalities and is an enclave in Flanders. The BCR is the urban core of a larger metropolitan area which includes parts of Flanders and Wallonia as well, reaching up to 1.5 million inhabitants, though definition and boundaries are still debated (Annoni and Dijkstra, 2013; De Maesschalck et al., 2015; Dijkstra and Poelman, 2017; Dotti et al., 2014; Dotti and Spithoven, 2017b). Brussels is located in the centre of Belgium: despite representing just one-tenth of the Belgian population, about one-fifth of the national GDP is concentrated in the BCR (which goes up to one third if considering the whole metropolitan area). Differently from Milan, Brussels is not living a reinvigorated period of economic growth, but it was able to keep very high levels of economic competitiveness being one of the top-5 European regions regarding per capita GDP (twice higher than the European average). On the other hand, Brussels suffers significant contradictions between this economic 'success' and an unusually high rate of unemployment (more than 16%), which is a long-standing problem.

Since 1999, the BCR has set up a regional R&I policy that has progressively been developed with growing budget and tools. In 2004, 'Innoviris' was set up as the regional R&I agency (formally established in 2003 with another name, then renamed in 2010). For this article, the most important milestone is in 2005 when a new regional coalition led by Socialists in alliance with Christian-Democrats and the Greens identifies, for the first time, three thematic areas for economic specialisation: health, environment/green economy and ICT. The following year (2006), the first regional innovation plan is adopted and the regional budget for R&I policy progressively increased from 22 million Euros in 2004 up to 60 million in 2016. In 2014, a new regional innovation plan was adopted paving the way to the following S3 (adopted in 2016).

When the EC launches the S3 agenda, the BCR could benefit from having already developed a framework for R&I policy that easily fits in the new European framework. The three themes, already selected by the regional political coalition, were slightly reformulated over the years, but without substantial changes: health was redefined as 'life sciences' broadening the scope, the ICT sector has sometimes been articulated in 'digital industries' or limited to IT; while, 'environment' was articulated as 'green technologies', 'eco-construction' and, more recently, as 'circular economy'. The first two themes were chosen because of the strong presence of those sectors/industries in the BCR;

while the 'green economy' was, on the contrary, more challenging to identify, and the definition has shifted over time from 'eco-construction' (i.e. referring to construction as well as architecture) to 'green technologies' and, more recently, to 'circular economy'. Despite some marginal and nominal changes, these three themes can be seen as constant since 2004-2006 (with some mentions already in policy documents back to 1999). To support these three specialisations, the BCR has progressively developed a complete policy mix from R&D subsidies and clusters for SMEs and large companies to incubators and acceleration programmes for startups (Innoviris, 2016).

Within this framework, the BCR has had an easy task to implement the S3 fulfilling European requirements. The key themes for regional specialisation were already identified; while, Innoviris as implementation body could double its staff and benefited from cooperation with the already existing regional Science Policy Council, where stakeholders are represented. Therefore, the S3 can be seen as 'just' a way to support an already going on process, providing some extra budget to boost policy implementation.

Referring to the four dimensions chosen to question the S3 implementation, in the case of Brussels the Belgian institutional framework undermines the multi-scalar approach to S3. The BCR is one of the seven federated entity of Belgium (three Regions, three linguistic Communities and the Federal level). Without entering into details of the (complicated) Belgian federalism (cf. Spithoven, 2013), the BCR is mainly in charge of economic development (among other competencies); while linguistic Communities are in charge (among others) of fundamental research and universities. The BCR is the only region of Belgium where both French and Dutch speaking Communities overlap. Acknowledging this substantial simplification of the Belgian federalism, for the case of the S3, the BCR is solely in charge of the S3 implementation without the formal requirement of cooperation with other governments of Belgium, as the other two regions are. Furthermore, the BCR has limited competencies on economic development, and not on university and fundamental research (which belong to two different linguistic Communities). With both Flanders and Wallonia, the BCR has established some minor cooperations on specific programmes (i.e. the Walloon poles for competitiveness, the Flemish living lab for active ageing and a joint programme across the three regions for SMEs). These tools were conceived to promote synergies and simplify procedures, somehow overcoming the rule that firms can receive funding only from the region where they are located. Nevertheless, these initiatives have a limited budget and were set up even before the S3 as efforts to overcome institutional constraints. Thus, the S3 action was easy to implement in a region like the BCR that already identified fields for specialisation and was already developing her own R&I policy mix R&I; on the other hand, the complicated federalism of Belgium prevented a multi-scalar approach.

Related to these institutional constraints, the BCR suffers from congestions determined by the limited size and full urbanisation of the regional territory. This limitation goes in two directions, within and outside the region. Internally, the BCR has to 'find space' to support selected specialisation; while the limited possibilities for inter-regional cooperation narrow options for the scale-up of new economic activities. In this respect, the BCR has an interesting but under-considered asset represented by eight business centres and four incubators (hosting already 600 startups in total). Even though these infrastructures were conceived mainly for urban regeneration, they might be an opportunity to give space to new companies in selected fields of specialisation. Economically, these infrastructures might reduce pressure on start-ups to find a central location in a saturated area against the overwhelming presence of 'already successful' industries such as finance and public sectors.

This also relates to the third dimension of creating jobs in a region having longstanding problems with unemployment, and having an economic structure dominated by industries that are unlikely to create new jobs like finance and the public sector. One of the most known features of the economy of Brussels is the massive presence of the public sector (14% of the regional GVA, about twice the national average, and 37% of jobs) due to the co-location of both European and Belgian bodies (see Dotti, 2015). However, the most significant industries in the BCR are finance and insurance, and business services; whereas, manufacturing industries and construction are particularly limited in comparison to the rest of the country. This economic profile strongly oriented to service industries is typical of developed urban areas, something similar to Milan, where administrative functions and business services tend to be concentrated in the main urban agglomeration (Carr and Feiock, 1999; Castells, 1989; Iammarino, 2005; Thisse, 2000). On the other hand, new technologies like FinTech are posing pressure on these industries shifting from traditional banks to new (smaller) firms, potentially

leading to major jobs losses. Furthermore, Brussels is recognised as an international, but not global financial centre (e.g. Yeandle, 2017). Similarly, the public sectors, both Belgian and European ones, do not seem promising industries for jobs creation and new technologies are likely to have similar impacts on public administrations.

The fourth dimension is the capacity of the BCR to embed the S3 in its region. In this case, the BCR was already engaged on R&I policy in favour of regional specialisation, and the S3 initiative is somehow just an exogenous help to support an already ongoing process. In fact, the BCR is a rich and developed region, and this might question the need for European intervention. As a policy practice, the S3 initiative seems having had the effect of reinforcing an existing trend; regarding economic impact, the size of means given by the S3 seems unlikely to be able to address the long-standing problem of unemployment.

To conclude, the S3 gave new resources to the BCR to reinforce a growing R&I policy mix, already oriented to support long-term regional specialisation in three selected industries. While the institutional framework undermines inter-regional cooperation; the economic structure of Brussels poses critical challenges being dominated by industries that are unlikely to create new jobs in a region with a particularly high unemployment rate, whereas the relationship with surrounding regions seems weak and institutionally constrained.

6. REFLECTIONS ON SPATIALITY AND TIMING OF SMART SPECIALISATION

From the comparison of the cases of Milan and Brussels, three main lessons to further the debate on S3 can be drawn referring to the fundamental dimensions of space and time. As far as the four analytical dimensions used to investigate the two cases, the goal is to reflect on the replicability of these experiences and, in general, of the S3 approach across Europe (and beyond). We aim to provide lessons that can be generalised to further the S3 notion both theoretically and empirically.

Starting from the spatiality of the S3 experience, three sub-dimensions emerge as relevant from the cases of Milan and Brussels: the need for physical space, the scale of implementation and the inter-dependencies associated with it. Acknowledging the crucial role played by cities for innovation (e.g. Florida et al., 2017), the S3 rationale is likely to intervene mainly in urban agglomeration where R&I activities tend to cluster. Nevertheless, cities are also the place with highest pressure for land use leading to strong selectivity on the emergence of most innovative (thus, highly risky) entrepreneurial activities. This pressure is critical especially in the phase of scale-up when usually innovative entrepreneurial initiatives tend to create the new jobs, which obviously requires more space. Even though these dynamics are well-known in the literature, the need for space to implement the S3 calls for more involvement of local authorities which are commonly in charge of urban planning. In this respect, for example, the post-Expo area in Milan opens a unique opportunity that Brussels does not seem having. In general, the implementation of S3 needs to take into consideration also the space to be implemented, overcoming the distinction between R&I policy and spatial planning.

The city-region dynamics also question the institutional framework in which the S3 policy is implemented since these are clearly intertwined. In this perspective, the S3 experience, like all the other EU policies, is challenging because of the high heterogeneity of European territories regarding both regional economies and institutional frameworks. The EU is looking to balance between the two extremes of a one-size-fits-all tool for the whole Europe and too vaguely defined tools. Although this is common to all the policy applied to a large scale, the S3 approach seems to have the potential to overcome this limitation, at least theoretically, because of the emphasis put on the EDP. However, on the ground, the perspective seems more blurred. If Milan has been able to promote a multiscale approach, this is not the case for Brussels because of institutional constraints that do not match the spatiality of the metropolitan area. On the other hand, Brussels was already involved in a similar process. Thus, the EU intervention is somehow redundant and limited to boosting the existing one. In the case of Brussels the S3 is just a way to reinforce an existing path; whereas, Milan seems to benefit from a renovated impulse. Here, the spatial scale of implementation ends up being related to the inter-dependencies existing across policy frameworks (the multi-level governance) and economic spaces. The dialogue between cities and surrounding regions is affected by the institutional frameworks looking for economies as well as diseconomies of scale, and the other way round. While an EU-wide initiative would be impossible to manage, even cities like Brussels might lack critical mass, thus requiring cross-institutional cooperation. The spatiality of the S3 refers, thus to internal

dimensions (need for space) as well as multiscale nature of R&I issues and the inter-dependencies with other factors.

The need for space for innovative activities, the multi-scalar nature of R&I activities and related policy, and the interdependencies between territories such as cities and surrounding areas are the sub-dimensions to be considered when analysing the spatial dimension of the S3 implementation. Theoretically, the S3 approach focused on the EDP seems a good way to reconcile top-down and bottom-up approaches (i.e. an exogenous incentive to orient regional dynamics). Nevertheless, the EU intervention needs to address the context-specific scales associated with this spatiality. European policymakers are aware that national, regional and local mean different things in each context, yet this ambiguity is still open without a clear, operational solution. Besides policy terminology, rephrasing this issue regarding space and scale for S3 implementation helps, in our view, to better define the challenge of implementing S3 and, in general, EU policy. Space matters depending on the scale of intervention, and the other way round. Policy-makers need to have a critical mass to intervene on, and this 'mass' is located somewhere in space and affected by this localisation. On the other hand, new economic activities need space as well, and this is more likely to happen in dense, often saturated areas like cities. Yet, taking the risk for most innovative initiatives is critical whether this happens in areas with high pressure from already successful economic activities. In this respect, initiatives like business incubators, coworking spaces, start-up houses, FabLabs, business accelerators seem a good compromise to provide a 'protected space' for new initiatives solving these issues on the space-scale nexus.

Referring to the fundamental dimension of time, the S3 has intervened on two cities living different economic and policy cycles. Milan has benefited from a reinvigorated process of growth led by the 2015 Expo; while, Brussels already had developed an R&I policy mix substantially in line with the S3 approach. Furthermore, an open issue exists about the timing for the return of these investments, and this is clearly critical: policymakers under higher pressure might be forced to speed up the implementation orienting investments towards safer returns, thus undermining the experimental risk-taking attitude promoted by the EU Commission (cf. Dotti, 2016). While Milan and Brussels are both successful metropolitan areas, at least in economic terms, they might 'fail' in implementing their S3 for internal reasons (endogenous failure) or by being outdone by competitors (exogenous failure) that would frustrate the local policy community. In this case, the EC does not seem having provided a 'safe' way-out preventing harmful competition among cities and regions.

Finally, a meta-argument on the S3 implementation refers to policy learning (Bennett and Howlett, 1992; Borrás and Højlund, 2015; Conzelmann, 1998). To promote a longer-term perspective, the S3 should not only work to promote R&I investments and EDP but also on capitalising from this experience through policy learning. The implementation of the S3 entails policy learning within the implementing institutions (at the intra-organisational level, i.e. within the public administration) as well as at the involved territorial level (intra-system learning) and between different territories horizontally and vertically across spatial scales (inter-system learning). Policymakers working on the S3 development and implementation are learning fundamental policy knowledge that might be critical for the future implementation of R&I policy and, in general, to support regional competitiveness.

To conclude, the S3 approach would benefit from considering the whereabouts of its implementation. The spatiality and temporality of the S3, as articulated in this section, should be considered to develop this notion of taking into account the need for space for the implementation of the S3, the spatial inter-dependencies as well as the need to articulate the timing and risk-taking attitude to S3. The challenge is to capitalise from the S3 initiative and, even more, to learn how to capitalising from this experience. Even though the implementation of the S3 might be difficult and, in some cases, did not succeed, policymakers need to keep this policy lesson. This experimental exercise carried out all over Europe provides the ground to develop the policy capacity of European cities and regions, though this needs to be recognised as such to do not waste these experiences.

7. CONCLUSIONS

The implementation of the S3 in Milan and Brussels has provided the opportunity to reflect on this innovative approach. After having put the S3 in the European context, four dimensions were used to assess the two cases and investigate the S3 approach, namely: the multi-scale nature of the S3, the relationship between the urban core and surrounding areas, the challenge of creating tomorrow jobs

and the embedding of the S3 dynamics locally. Despite being developed city-regions, Milan and Brussels have entirely different patterns to apply this new EU agenda. The differences discussed in the paper pointed out two fundamental elements often underestimated in the debate on the S3 implementation: the spatiality and temporality of this policy. In fact, the S3 implementation requires space to support the scaling-up of innovative activities, coordination among tiers of government involving local, regional, national and European policymakers, and taking into account the spatial economic interdependencies between cities and surrounding areas. Furthermore, the timing of the S3 implementation (from design to ex-post evaluation) affects the risk-taking approach highlighting the potential mismatch between short-term returns and longer-term perspectives, even more considering internal and external potential failures. Finally, we want to point out the challenge of capitalising the S3 experience as an opportunity to build regional capacity for R&I policy and, in general, for policymaking. An unsolved question to the S3 approach is the follow-up of this experience for both territories where it did not deliver the expected results, and how to embed the policy learning associated with this EC-led experience.

REFERENCES

Annoni, P., Dijkstra, L., 2013. EU Regional Competitiveness Index RCI 2013. EU Commission, Ispra.

Armstrong, H., Taylor, J., 2000. Regional Economics and Policy. Blackwell, Oxford.

Asheim, B., 2013. Smart specialisation - Old wine in new bottles or new wine in old bottles? (No. ersa13p476), ERSA conference papers. European Regional Science Association.

Asheim, B.T., Boschma, R., Cooke, P., 2011. Constructing Regional Advantage: Platform Policies Based on Related Variety and Differentiated Knowledge Bases. Regional Studies 45, 893–904. https://doi.org/10.1080/00343404.2010.543126

Assolombarda, Comune di Milano, 2017. Milano Scoreboard 2017 (No. 978-88-909565-2–2). Assolombarda and Comune di Milano, Milano.

Bachtler, J., McMaster, I., 2008. EU Cohesion Policy and the Role of the Regions: Investigating the Influence of Structural Funds in the New Member States. Environment and Planning C: Government and Policy 26, 398 – 427.

Bachtler, J., Mendez, C., 2007. Who Governs EU Cohesion Policy? Deconstructing the Reforms of the Structural Funds. Journal of Common Market Studies 45, 535–564.

Bellini, N., 2013. Smart specialisation: le sfide del nuovo ciclo di programmazione comunitaria per il regionalismo italiano, in: La finanza territoriale, Rapporto 2013. Franco Angeli, Milano, Italy, pp. 133–140.

Bennett, C.J., Howlett, M., 1992. The lessons of learning: Reconciling theories of policy learning and policy change. Policy Sci 25, 275–294. https://doi.org/10.1007/BF00138786

Bonaccorsi, A., 2009. Towards better use of conditionality in policies for research and innovation under Structural Funds (Working Paper for the Barca Report).

Borrás, S., Højlund, S., 2015. Evaluation and policy learning: The learners' perspective. Eur J Polit Res 54, 99–120. https://doi.org/10.1111/1475-6765.12076

Borrás, S., Jordana, J., 2016. When regional innovation policies meet policy rationales and evidence: a plea for policy analysis. European Planning Studies 0, 1–21. https://doi.org/10.1080/09654313.2016.1236074

Boschma, R., 2005. Proximity and Innovation: A critical assessment. Regional Studies 39, 61–74.

Bramanti, A., 2015a. Politiche di rilancio e sostegno all'economia lombarda (Policy Paper No. ECO15014). Éupolis Lombardia, Milano, Italy.

Bramanti, A., 2015b. Nuove alleanze nel percorso scuola-lavoro. Scuola Democratica 617–641. https://doi.org/10.12828/82079

Camagni, R., 1991. Innovation networks: spatial perspectives, 1st ed. Belhaven Press, London; New York.

Camagni, R., 2002. On the Concept of Territorial Competitiveness: Sound or Misleading? Urban Studies 39, 2395–2411.

Camagni, R., Dotti, N.F., 2010. Il Sistema Urbano, in: Perulli, P., Pichierri, A. (Eds.), La Crisi Italiana Nel Mondo Globale: Economia e Società Del Nord. Einaudi, Torino, pp. 35–68.

Camagni, R., Capello, R., 2013. Regional Competitiveness and Territorial Capital: A Conceptual Approach and Empirical Evidence from the European Union. Regional Studies 47, 1383–1402. https://doi.org/10.1080/00343404.2012.681640

Capello, R., 2007. Regional Economics. Routledge, Abingdon (UK).

Capello, R., Kroll, H., 2016. From theory to practice in smart specialization strategy: emerging limits and possible future trajectories. European Planning Studies 24, 1393–1406. https://doi.org/10.1080/09654313.2016.1156058

Carr, J.B., Feiock, R.C., 1999. Metropolitan Government and Economic Development. Urban Affairs Review 34, 476–488.

Castells, M., 1989. The Informational City: Information Technology, Economic Restructuring, and the Urban-regional Process. B. Blackwell.

Chesbrough, H.W., 2003. Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business Press.

Chesbrough, H.W., Appleyard, M.M., 2007. Open Innovation and Strategy. California Management Review 50, 57–76. https://doi.org/10.2307/41166416

Città Metropolitana di Milano, 2016. Milano: Metropoli Reale, Metropoli Possibile (Piano Strategico). Città Metropolitana di Milano, Milan, Italy.

Content, J., Frenken, K., 2016. Related variety and economic development: a literature review. European Planning Studies 24, 2097–2112. https://doi.org/10.1080/09654313.2016.1246517

Conzelmann, T., 1998. "Europeanization" of Regional Development Policies? Linking the Multi-Level Governance Approach with Theories of Policy Learning and Policy Change. European Integration online Papers 2, 1–23.

Dall'Erba, S., Hewings, G.J.D., 2003. European Regional Development policies: the trade-off between efficiency-equity revisited.

De Maesschalck, F., De Rijck, T., Heylen, V., 2015. Crossing Borders. Social-spatial Relations between Brussels and Flemish Brabant. Brussels Studies 84.

Derudder, B., Timberlake, M., Witlox, F., Matthiessen, C.W., Schwarz, A.W., Find, S., 2010. World Cities of Scientific Knowledge: Systems, Networks and Potential Dynamics. An Analysis Based on Bibliometric Indicators. Urban Studies 47, 1879–1897. https://doi.org/10.1177/0042098010372683

Dijkstra, L., Poelman, H., 2017. European cities – the EU-OECD functional urban area definition - Statistics Explained (Eurostat Metadata). Eurostat.

Dotti, N.F., 2013. The Unbearable Instability of Structural Funds' Distribution. European Planning Studies 21, 596–614. https://doi.org/10.1080/09654313.2012.722956

Dotti, N.F., Bubbico, R.L., 2014. New Challenges for Structural Funds: The New Territorial Capital Approach in the Perspective of the Evolution of the EU Regional Policy. EStIF 2, 101–115.

Dotti, N.F., Spithoven, A., van Heur, B., 2014. The competitiveness of Brussels in European Research Area. Brussels Studies 81.

Dotti, N.F., 2015. Update of the Economic Impact of the European and International Institutions on the Brussels-Capital Region, Europe in Brussels. Figures 2016. Visit Brussels, Brussels, Belgium.

Dotti, N.F., 2016. Unwritten Factors Affecting Structural Funds: The Influence of Regional Political Behaviours on the Implementation of EU Cohesion Policy. European Planning Studies 24, 530–550. https://doi.org/10.1080/09654313.2015.1047328

Dotti, N.F., Spithoven, A., 2017a. Economic drivers and specialization patterns in the spatial distribution of Framework Programme's participation. Papers in Regional Science Online first version. https://doi.org/10.1111/pirs.12299

Dotti, N.F., Spithoven, A., 2017b. Spatial perspectives on knowledge brokers: Evidence from Brussels. Environ Plan A 49, 2203–2222. https://doi.org/10.1177/0308518X17724442

EU Commission, 2008. Green paper on territorial cohesion. Turning territorial diversity into strength. EU Commission, Brussels, Belgium.

Faludi, A., 2006. From European spatial development to territorial cohesion policy. Regional Studies 40, 667–678.

Florida, R., Adler, P., Mellander, C., 2017. The city as innovation machine. Regional Studies 51, 86–96. https://doi.org/10.1080/00343404.2016.1255324

Foray, D., 2015. Smart Specialisation: Opportunities and Challenges for Regional Innovation Policy. Routledge.

Foray, D., David, P.A., Hall, B., 2009. Smart Specialisation - The Concept. Knowledge Economists Policy Briefs 9, 1–5.

Frenken, K., Oort, F.V., Verburg, T., 2007. Related Variety, Unrelated Variety and Regional Economic Growth. Regional Studies 41, 685–697. https://doi.org/10.1080/00343400601120296

Gianelle, C., Kyriakou, D., Cohen, C., Przeor, M. (Eds.), 2016. Implementing Smart Specialisation: A Handbook. European Commission, Brussels.

Green, A.E., Orton, M., 2012. Policy Innovation in a Fragmented and Complex Multilevel Governance Context: Worklessness and the City Strategy in Great Britain. Regional Studies 46, 153–164.

Hall, P.A., 1993. Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain. Comparative Politics 25, 275–296.

Hooghe, L., Marks, G., 2003. Unraveling the Central State, but How? Types of Multi-level Governance. American Political Science Review 97, 233–243.

Iammarino, S., 2005. An evolutionary Integrated View of Regional Systems of innovation: concepts, measures and historical perspectives. European Planning Studies 13, 497–519.

Innoviris, 2016. Rapport d'Activités 2015 (Activity report). Innoviris, Brussels, Belgium.

Katz, B., Wagner, J., 2014. The Rise of Innovation Districts. Brookings.

Kemeny, T., Storper, M., 2015. Is Specialization Good for Regional Economic Development? Regional Studies 49, 1003–1018. https://doi.org/10.1080/00343404.2014.899691

Kroll, H., 2015. Efforts to Implement Smart Specialization in Practice—Leading Unlike Horses to the Water. European Planning Studies 23, 2079–2098. https://doi.org/10.1080/09654313.2014.1003036

McCann, P., Ortega-Argilés, R., 2015. Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy. Regional Studies 49, 1291–1302. https://doi.org/10.1080/00343404.2013.799769

McCann, P., Ortega-Argilés, R., 2016. The early experience of smart specialization implementation in EU cohesion policy. European Planning Studies 24, 1407–1427. https://doi.org/10.1080/09654313.2016.1166177

Morgan, K., 2017. Nurturing novelty: Regional innovation policy in the age of smart specialisation. Environment and Planning C: Politics and Space 35, 569–583. https://doi.org/10.1177/0263774X16645106

Moulaert, F., Sekia, F., 2003. Territorial Innovation Models: A Critical Survey. Regional Studies 37, 289–302. https://doi.org/10.1080/0034340032000065442

New York Times, 2015. 52 Places to Go in 2015. The New York Times.

OECD, 2001. Territorial Outlook. OECD.

OECD, 2013. Innovation-driven Growth in Regions: The Role of Smart Specialisation (preliminary version). OECD/OCDE, Paris.

Pike, A., Rodriguez-Pose, A., Tomaney, J., 2007. What Kind of Local and Regional Development and for Whom? Regional Studies 41, 1253–1269.

Polverari, L., 2017. Smart Specialisation in 2014-2020 ESI Funds Programmes: Not Just a Narrative. European Structural and Investment Funds Journal 5, 20–31.

Regione Lombardia, 2018. Open Innovation [WWW Document]. Lombardia Open Innovation. URL http://www.openinnovation.regione.lombardia.it/eng (accessed 1.31.18).

Spithoven, A., 2013. A bird's eye view, in: Spithoven, A. (Ed.), Annual Report on Science, Technology and Innovation for Belgium - 2013. Brussels.

Thisse, J., 2000. Agglomeration and regional imbalance. Why? And is it bad? European Investment Bank Papers 5.

Uyarra, E., Flanagan, K., 2010. From Regional Systems of Innovation to Regions as Innovation Policy Spaces. Environ Plann C Gov Policy 28, 681–695. https://doi.org/10.1068/c0961

Yeandle, M., 2017. The Global Financial Centres Index 21 (No. 21), Global Financial Centre Index. China Development Institute, Shenzhen-London.