Leadership and governance challenges in delivering place-based transformation through smart specialisation: Insights and policy implications from a metropolitan innovation leader region

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Leadership and governance challenges in delivering place-based transformation through smart specialisation: Insights and policy implications from a metropolitan innovation leader region

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1. Introduction

The concept of Smart Specialisation (RIS3) entered the stage about a decade ago and anchored itself firmly within the reformed European cohesion policy. Since then, alongside the Europe wide roll-out of RIS3, a large and growing body of literature has investigated both theoretically and empirically the main principles of RIS3 and its applicability in diverse territorial settings (e.g: Morgan 2013; McCann & Ortega-Argilés 2015; Kroll 2015; Grillitsch 2016; Capello & Kroll 2016; Radosevic 2017; Dubois et al. 2017; Pugh, 2018, 2014; Uyarra et al. 2018; Kristensen et al. 2019; Gianelle et al. 2020). The RIS3 approach stands out from traditional industrial policy in two ways: (1) it strongly emphasizes a strategic selection of sectors and activities under the framework of regional development strategy; (2) the strategic selection occurs not by 'picking the winners' but through a dynamic interaction between policy makers, public authorities and private sector – the so-called entrepreneurial discovery process (EDP) (Gianelle et al. 2020).

As European regions move on to the new programming period 2021-2027, certain fundamental issues in relation to Smart Specialisation 1.0 still remain unresolved, especially around the EDP. Esparza-

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Masana (2021) finds that the most critical issue facing policy makers today is the insufficient evidence of past RIS3 1.0 experiences associated with the lack of proper evaluation practices. At the same time, however, he argues that pragmatic modifications to strategic management such as reconsideration of existing governance models along with stakeholders' roles and responsibilities within the EDP can substantially improve the next generation of RIS3 2.0. This echoes Santini's et al. (2016) idea of "collaborative leadership" and gap-bridging between "thinkers and doers" implying more integrated and participatory approaches to the EDP that would enable the involvement of a necessary diversity of stakeholders and better alignment between research inquiry and policy reality. Both studies emphasise the importance of dialogue and multi-stakeholder actions to foster knowledge sharing and mutual learning. Within this frame of reference, governance is understood as "a sophisticated form of shared process management" (Lapore & Spigarelli 2018) where all efforts are "entrepreneurial and geared towards transformation of the economy" (Aranguren et al. 2019). However, achieving sufficient engagement among diverse stakeholders and working together toward a common vision has proved to be a difficult task in the 2014-2020 programming period. According to Sotarauta (2018), this is attributed to the fact that "the EDP and shared vision are not purely technical but essentially social and political processes" (p. 200), which require careful considerations of power relations and interests of different stakeholder groups (Hassink & Gong 2019).

Amongst the empirical observations that have poured in from different regional experiences both within and outside of Europe, a research focus is predominantly placed on peripheral and economically weaker regions, especially in the Nordic countries where our study is set (e.g. Pugh 2014; Asheim et al. 2017; Dubois et al. 2017; Sörvik et al. 2018). This can be explained by the fact that the transformation of local economies brought by EDP in these settings usually is more 'tangible' and explicit while in large metropolitan areas "such a process might very likely resemble a drop in the ocean" (Hassink & Gong, 2019, p. 2057). Indeed, Kristensen and Pugh (2022) demonstrate that the peripheral economies (although innovative), which have recently been subjected to external shocks (e.g. recent decrease in export volumes in certain industry, oil crisis etc.), are much more open to 'entrepreneurial experimentation' than their more urban counterparts. A strong economic base, good

resources and endowments, and a densely networked knowledge and business infrastructure certainly facilitate RIS3 processes: yet, in such seemingly ideal innovation and entrepreneurial circumstances, balancing multi-stakeholder consensus (in terms of interests, competences and capacity) and local embeddedness remains a challenging task.

The presence of diversity among regional actors and the importance of multi-stakeholder governance for territorial transformation is well recognised in smart specialisation literature (Kroll 2015; Sotarauta 2018; Aranguren et al. 2019); however, it is less known to what extent the capacity dimension of actors (particularly those possessing relevant knowledge for EDP) can help facilitate a desired change outcome. The rapidly emerging literature on change agency places increasing focus on the attributes and characteristics of the people and places where change actually happens. Through concepts such as the "trinity of change agency" (Grillitsch & Sotarauta 2020), and "place leadership" (Beer et al. 2019), we have recently gained a more nuanced understanding of how governance and leadership are affecting regional economic development in various global settings. It is within this current academic debate that we place our paper by asking (1) what are the challenges and opportunities of the RIS3 approach in innovation leader and large metropolitan areas; (2) how can the change agency perspective aid our understanding of transformative processes within regional innovation policy and ultimately improve policy regarding leadership and governance for regional economic development.

The reminder of this paper is structured as follows. It begins with a literature review of RIS3 practices in metropolitan regions followed by a presentation of the change agency perspective and already noted policy "traps" in the RIS3 experience. Empirically we investigate RIS3 of Stockholm employing a qualitative research study approach. We conclude by highlighting the lessons and insights regarding change agency and place leadership, and the importance of integrating these into the evolving practice of RIS3 as it enters the next phase of enactment, but which meanwhile hold a universal relevance to the practice of regional innovation policy.

2. Theoretical framing

2.1 RIS3 in metropolitan and leading regions

There exists a large body of academic literature, reports and evaluations that examine smart specialization in a plethora of different regional settings, including critiques of RIS3 and lengthy discussions of the idea's emergence and evolution (e.g: McCann & Ortega-Argiles 2015; Radosevic et al. 2017; Sotarauta 2018). Here, we highlight two aspects of the RIS3 approach that are important for the discussions we present below of our empirical case of Stockholm. The *first* of these is the place-based underpinning of RIS3 (see: Valdmaa et al. 2021; Morgan 2013; Barca et al. 2012). The *second* is the EDP, which stipulates that the selection and prioritization of the specialisation sectors should be an inclusive and bottom-up process carried out by the private, public, academic, and possibly also third sector spheres in the region to mobilize regional stakeholders around a shared vision built on existing strengths and promising future related activities and technologies (Foray et al. 2011; McCann & Ortega-Argiles 2015). The importance of collaboration between different stakeholders in the EDP and wider RIS3 process is emphasised (Müür 2021); however there are profound challenges inherent in mobilizing stakeholders and successfully implementing an EDP process (Kroll 2015; Pugh 2014). These additional elements of RIS3 are intended to make it a less top down and "picking winners" premised way of doing regional innovation policy towards a more bottom-up and place sensitive approach. However, there are inherent tensions clearly involved when we try to combine a regionally differentiated place-based approach with generic principles and strict conditions attached to the funding (Kristensen & Pugh 2022).

Within the empirical RIS3 research to date, there are examples of innovation leader and institutionally thick regions such as in Germany (Kroll et al. 2016; Kroll 2017), the Basque country (Estensoro & Larrea 2016), Helsinki (Muur 2021), Northern Italy (Bertini 2017), even Albany in New York, USA (Wessner & Howell 2017). There is, arguably, surprisingly little studies of RIS3 processes in large metropolitan and capital city regions considering their scale and large populations, and the traditional framing of innovation and economic development as a primarily urban affair (cf. Shearmur 2012). From those studies of larger cities and leading innovation regions, we can gain some insights which could be relevant for our Stockholm case. *First*, providing insights from the neighbouring capital of

Helsinki, Müür (2021) paints quite a rosy picture whereby in this similarly strong innovator metropolitan Nordic region, strong intermediaries function to support collaboration between regional stakeholders, building networks, and managing projects, also helping to maintain a common understanding of the policy directionality and reduce coordination failures. This resonates with the more general claim about the importance of strong networks and collaboration in RIS3 (Carayannis & Rakhmatullin 2014). Another capital region case comes from Flanders, Belgium (Vantillo & Verhetsel 2012), where even though resources and competencies to engage at the sub regional level are quite low historically (Voets & De Rynck 2006), the authors report that various local stakeholders and actors became involved in RIS3. How this local level buy-in has been achieved in a city-region with low historical levels of engagement in policy for innovation and regional development is, however, not revealed.

Notwithstanding few examples such as the Flanders and Helsinki cases discussed above, the RIS3 literature seldom makes reference to sub-regional governments including provincial and municipal governments and little knowledge exists about how the multi-level governance framework inherent in RIS3 should be constructed and managed (Estensoro & Larrea 2016). Perhaps surprising, given its status as an innovation leader region, we find little discussion to date of RIS3 in Stockholm, although Sweden is generally well represented in RIS3 debates when it comes to more peripheral, rural, post-industrial and less densely urbanised regions (e.g: Asheim et al. 2017; Moodysson et al. 2017; Höglund & Linton 2018; Kristensen & Grunfelder 2018; Sörvik et al. 2019). Even in stronger German regions that have a strong history of implementing innovation strategies and competencies in this area as well as a strong economic foundation, Kroll et al. (2016) still found challenges around RIS3, and in particular around how the regions link to the multi-level governance structure within the country, and also some reluctance or cynicism towards the RIS3 approach not all of which has evaporated over time.

High innovative performance of the region does not guarantee successful implementation of RIS3 (Trippl et al. 2020). However, several contributions give us reasons to assume that strong innovator leaders are in a better position for developing and implementing RIS3. In the Stockholm case, the

established high levels of trust and good governance (Charron et al. 2021) should provide for good preconditions to implement RIS3 contributing to the link between good institutions and governance and positive economic growth trajectories (Rodriguez-Pose 2020). Also, the "organisational thickness" of the dense capital region would suggest a plethora of knowledge generating organisations (public and private), and the presence of intermediary and supportive organisations providing a strong base not only for regional innovation and growth but also coordinating participatory policy approaches such as RIS3 (Zukauskaite et al. 2017; Trippl et al. 2019). The basis upon which we may assume a favourable functioning of RIS3 in Stockholm is summarised by the logic presented by Trippl et al. (2020, p.1130):

"Beside the degree of organizational thickness, the nature and level of internal and external connectedness (Thissen, van Oort, Diodato, & Ruijs 2013) and institutional structures, that is, formal and informal incentives to and cultural patterns of innovation and cooperation (Gertler 2010; Zukauskaite, Trippl, & Plechero 2017) will affect the adoption of S3."

Amongst the various critical pieces highlighting some of the issues or tensions present within the RIS3 approach (Capello & Kroll, 2016; Hassink & Gong, 2019), we find a number of pertinent issues highlighted by Sotarauta (2018), whose framework of smart specialisation challenges or "traps" influences our thinking here. In particular, he argues that current research does not sufficiently consider the role of agency in relation to RIS3 and therefore there is a strong urge to develop new forms of leadership in the context of "multi-actor strategy processes to gain additional analytical support for improving the governance capacity and policy capabilities in different European regions to use the new policy approach" (Sotarauta 2018, p. 191). This imperative in RIS3 research leads us to our next theoretical underpinning for this paper: change agency.

2.2 An agency perspective to Smart Specialisation

RIS3 has been framed as a new and potentially more powerful approach to regional innovation policy, exploiting the potential of regional place-based characteristics (Foray 2009, 2011). Yet, RIS3 is also a policy approach that may be more challenging because it demands high engagement of a broad range

of actors. In theory, the EDP is expected to act as "a catalyser to accelerate the process, fostering the participatory approach" (Esparza-Masana 2021). In reality, however, such a process is costly and largely depends on the effectiveness of local incentives, making the EDP "fundamentally uncertain both on the side of the policy-maker, and on the side of the entrepreneurs" (Gianelle et al. 2020, p. 1379). In this context, the role of good governance that goes beyond "traditional" governance models is particularly important (e.g. Muur 2021; Aranguren et al. 2019).

Sotarauta (2018) argues that the design and implementation of RIS3 is difficult because of five traps; traps referring to situations "where actors are misled into acting contrary to their interests or intentions and hence to an unpleasant situation that is hard to escape" (ibid. 194):

- The *institutional conflict trap* refers not only to the more generic notion of good governance as captured for instance by the quality of governance index including low corruption, impartial public services and rule of law (Charron et al. 2021), but also to conflicting conventions and interests between social groups (e.g. various industries, or between industry, academia, regional government, and civil society) present in a region (Grillitsch 2014).

- The *governance trap* captures situations where the governance system is not supportive of the bottom-up processes envisioned by RIS3, which rests on the engagement of local and regional actors. Accordingly, devolved and decentralized systems are thought to provide better preconditions for bottom-up policy processes (Beer 2014; Bentley et al. 2017). A collaborative governance approach to RIS3 as advocated by Lepore & Spigarelli (2018) emphasises the importance of demand-side perspectives in supporting a genuine place-based and participatory policy-making. This approach to entrepreneurial discovery goes beyond the 'usual suspects' and introduces a fourth group to the existing triple helix model namely consumers and innovation users, which can "generate intensive experimentation and discoveries" (Lepore & Spigarelli 2018, p. 4).

- The *capability trap* refers on the one hand to the more central role local and regional government plays in RIS3 processes and on the other hand the difficulty to adequately fill this new role in terms of lack of competent staff, overreliance on external consultants, and lack of ability to coordinate, complex multi-actor processes, where priorities are to emerge by being attentive to signals of entrepreneurs (Kroll et al. 2014).

- The *mobilization trap* captures the ideal of broad participation of different stakeholder groups in the RIS3 process while those stakeholders may not see the importance, or may not be willing to do so. It questions if innovative entrepreneurs are willing to participate in the entrepreneurial discovery process, and points out that selective mobilization or involvement of particular actors may misdirect the RIS3 process and consequently the allocation of resources (McCann and Ortega-Argilés 2014; Benneworth et al. 2017). Following this line of reasoning, Esparza-Masana (2021), suggests a more 'evolutionary' approach to EDP implying a continuous stakeholder involvement in the process of policy making that goes beyond a mere strategy design and extends to the entire policy implementation phase. Accordingly, expanding the stakeholders' range of influence can contribute to more effective and inclusive policy making.

- The *shared vision trap* problematizes the idea that a shared vision can easily be constructed and used for resource mobilization considering the variety of stakeholder groups in RIS3 with particular and often conflicting interests. Hence, deriving a grand shared vision underpinning RIS3 may be illusory and sometimes misleading. Sotarauta (2018, p. 197) thus suggests that RIS3 should rather be seen as an "arena for discussions, battles and quarrels", which may lead to a shared vocabulary, understanding of main challenges, and in turn potentially some common goals. The EDP process is not just about identifying domains and specialisations, it is a socially and politically constructed phenomenon where different group interests and power relations come into play (Sotarauta 2018;Esparza-Masana 2021).

The articulation of the five traps allows for a more concrete analysis of RIS3 challenges in a given context, which is why we draw on it for our theoretical framework in this paper. In general, the argument is that a higher level of capabilities and a better quality of governance in metropolitan innovation leader regions would contribute to effectively implementing RIS3 policies (Trippl et al. 2020), which consequently would allow such regions to surge further ahead. Yet, the traps are more specific. For instance, the institutional conflict trap or the shared vision trap may loom larger in metropolitan regions, where it may be hard to unite many different stakeholder groups. Hence, it is not necessarily so that such regions will be well equipped to implement an RIS3 process.

The framing of RIS3 challenges and traps typically capture regional preconditions for innovation policy making. This risks overlooking the role of actors and human agency in the RIS3 process. There is a burgeoning literature in economic geography and regional studies emphasizing the need to pay more attention to human agency (Asheim et al. 2016; Boschma 2017; Hassink et al. 2019). Grillitsch and Sotarauta (2020) define human agency as "intentional, purposive and meaningful actions, and the intended and unintended consequences of such actions" (p. 707). The agency of a variety of actor types, including firm and non-firm actors, play a role in regional development processes (Isaksen et al. 2019; Rekers & Stihl 2021). The latter include local and regional government, higher education institutes, support organizations, and civil society (Jolly et al. 2020).

These actors engage in different forms and Grillitsch and Sotarauta (2020) foreground three types of change agency as being particularly important in regional development processes. Schumpeterian innovative entrepreneurship is a key driver for change in the economy in general (Shane & Venkataraman 2000), and for regional development in particular (Feldman 2014). The Schumpeterian notion indicates actions of innovative entrepreneurship of a radical nature, i.e. with a high degree of technological or market uncertainty to discover new opportunities (Grillitsch 2019). Schumpeterian innovative entrepreneurship is thought to inform or signal to policy makers which areas of (future) specializations are promising. Institutional entrepreneurship is about changing existing formal (e.g. laws and regulations) or informal (e.g. norms and values) institutions or introducing new ones (Battilana et al. 2009). In the field of regional development institutional entrepreneurship can be

important to prepare the ground for innovative entrepreneurship (Saxenian & Sabel 2008), to break cognitive, and or political-institutional lock-ins (Rekers & Stihl 2021), or to enhance the legitimacy of emerging industrial paths (MacKinnon et al. 2019). Place-based leadership concerns actions aimed at mobilizing actors for joint action, and pooling competences and resources promoting objectives that benefit not only individual actors but the region more broadly (Sotarauta & Beer 2021). Given that RIS3 very much requires mobilizing actors in participatory processes, deciding upon a number of selected specializations, and committing to pooling competences and resources for these specializations, place-based leadership will play a central role in RIS3 processes (Sotarauta 2018).

A human agency perspective suggests that lacking local actors who exercise human agency, the best regional preconditions will not produce a change outcome, which in the context of RIS3 would be the discovery and strengthening of industrial specializations in regions. Furthermore, as Grillitsch and Sotarauta (2020) argue, the ability of actors to make a change depends first and foremost on what they call the "actor-specific opportunity space", referring to the actors' competences, networks, and resources. By leveraging these powers inherent in these actor-specific characteristics, actors can exercise place-based leadership, or any other type of human agency. This implies that i) actors in metropolitan innovation leader regions will be unable to make the intended outcomes of RIS3 possible, if not sufficiently empowered, and ii) actors in regions with weaker preconditions may make such intended outcomes possible, if they can draw on necessary competences, networks and resources. In order to exercise human agency, and thus make it possible that a RIS3 process leads to the discovery and strengthening of industrial specializations in regions, it is thus necessary that sufficiently empowered actors participate in the process (McCann & Ortega-Argiles 2015).

2.3. Introducing the setting: Stockholm

Stockholm is one of the fastest growing metropolitan areas in Europe and is the largest urban area in Scandinavia with current population of 2 408 360 million (SCB 2022). Considering Stockholm's most central geographical location compared to other Nordic capitals, it serves as a magnet for intellectual capital that fuels innovation and generate spillover effects both nationally and internationally (Region

Stockholm 2019). In 2019 Stockholm won Global Smart City Expo World Congress Award and in 2021 it topped the RIS ranking as the most innovative region in Europe (RIS 2021). According to Regional Innovation Scoreboard (2021), it's innovation performance has increased by 17.4% since 2014, particularly well illustrated by the increased rates of knowledge-intensive employment and adult (life long) learning participation, increased number of PCT patent applications and improved SME's product innovation.

Stockholm has a long tradition of actor engagement and public-private cooperation within ICT, production management and life science sectors. It also continues to maintain strong competitive position in the financial service sector (Kristensen & Grunfelder 2018; Region Stockholm & Invest Stockholm report 2020). Stockholm accounts for the largest share (i.e. 54%) of all headquarters present in the Nordics and 85% of them are of foreign origin (Region Stockholm & Invest Stockholm report 2020).

Besides Stockholm is often labelled as the hotspot for tech start-ups in Europe with Spotify, Klarna, Kry, Storytel, and Skype as perhaps the most well-known examples (Björner & Zetterberg 2019). With 10.4% of total employment in Stockholm being concentrated in high-tech sectors, the region has an extensive pool of expert knowledge (Eurostat 2020). Furthermore, the presence of Europe's leading business and technical schools (including Stockholm School of Economics and KTH Royal Institute of Technology), important accelerators and incubators (such as KTH Innovation and Sting), various tech events (e.g. STHLM Tech Fest - Europe's best known startup event) as well as availability of co-working spaces (e.g. Epicentar and Norrsken House) and venture capital firms (e.g. Industrifonden and Creandum) constitute a dynamic and well-organised entreprenurial ecosystem. The attractiveness of the region to foreign businesses is further supported by the presence of top-level collaborative platforms such as Karolinska Institutet Science Park, Flemingsberg Science foundation and Södertälje Science Park. These platforms enable long-term strategic network building, necessary for creating synergies and driving change.

Additionally, government actively supports entrepreneurship at a national level not just through favourable legislation but also by offering entrepreneur-centred assistance for early stage companies. In 2016, Startup Sweden was launched by the Swedish Agency for Economic and Regional Growth with an objective to provide tech startups with necessary tools and networks for entrepreneurial acceleration. Therefore, from this perspective, Stockholm is a perfect case to investigate RIS3 processes, which are driven and supported by a critical mass of innovation and entrepreneurial actors.

3. Method and data

Given the paper's objective to gain a deeper understanding of the role of an agency in shaping and implementing transformative change, this study employs a single-case research design (Baxter & Jack 2008; Yin 2003). The empirical material was collected over a period of three years (2018-2021) through a comprehensive document analysis of the regional strategy documents and reports as well as in-depth interviews. The longitudinal perspective is determined by the explorative nature of this study: understanding how the change process unfolds in a complex institutional and economic context.

In an effort to ensure comprehensiveness and 'longitudinality' of the explored phenomenon, the selection of the interviewees was limited to key informants, directly involved in the process of RIS3 strategy formulation. In total, 12 semi-structured interviews were conducted with the representatives from the regional council, government agencies, universities or research institutes, cluster organisations and knowledge consortia. To ensure confidentiality, we do not specify the roles of the respondents and we use gender-neutral abbreviations. For the same reason we have sometimes integrated quotes into the text in our own words, because of the small group of respondents it was important to ensure we did not "unblind" them via specific statements or information included. The same set of open-ended questions was asked during the interviews to allow respondents the opportunity to reflect and elaborate on their answers. The interview questionnaire guided the identification of the key thematic dimensions, which represent the most essential and most recurrent aspects of RIS3 implementation in Stockholm, aiding our understanding of policy formation/evolution

and decision-making processes. The key themes covered were the following: (1) motivation and RIS3's evolution, stakeholders' composition and roles in the process strategy formulation; (2) engagement, dialogue building and facilitated networking; (3) governance structures and processes; (4) the scope and relevance of RIS3 in a metropolitan context. The interview quotations were collected and thematically organised to produce a comprehensive summary under each dimension. The summarised material represents a view of the key informants on the complexity of the change process in a highly innovative and large metropolitan setting.

4. Empirical findings

4.1 Motivation: things are going well for Stockholm so why bother with RIS3?

The question of RIS3 relevance and applicability in a context of high economic performance and institutional quality remains a matter of debate. It is a challenge to harmonise different opinions and interests 'under one flag' as the added value of the RIS3 process is not immediately obvious for all actors (R1; R2; R8). The case of Stockholm demonstrates this problem perfectly:

"Smaller regions are probably more desperate; Stockholm is doing well. There is a lot of innovation, start-ups, companies and we have á la 'Silicon Valley' culture here, and something that is Stockholm-driven. Therefore, it is understandable that local actors are satisfied and happy. Stockholm is probably not really the right 'target group' in this sense" (R9).

Although Stockholm has never really accepted cluster policy or established proper cluster organisations (due to the fear of falling into 'picking the winner' fallacy), it does host many thematic platforms and collaboration structures within key areas, where various actors have an opportunity to self-organise and establish many contacts without any public intervention (R2; R5; R10). This implies that the rhetoric of strategic priorities and development will not be necessarily understood and accepted by regional actors, especially considering the current high economic and innovation performance of the region. Due to this perhaps complacency around innovation performance and 'the business dynamics of a large city', motivation to embrace RIS3 was quite low (R9).

4.2 Evolution: The unfolding of RIS3 story in Stockholm

The shaping of RIS3 started at the preparation stage of the national regional fund programme for investments in growth and jobs 2014-2020, coordinated by the County Administrative Board of Stockholm (CABS). This was the first effort to incorporate the RIS3 principles into the Stockholm innovation strategy. The mapping of Stockholm's areas of strength in research, industry and commerce, public support measures and development projects was carried out in fall 2014, laying the groundwork for innovation strategy revision to meet the RIS3 requirements (R4; R5; R11). Thematically, the focus was placed on urban sustainable development with targeted incentives towards areas of strategic importance such as life science, healthcare, digitalisation, sustainable production etc. As the result, five themes were identified, namely smart city, sustainable city, attractive city, healthy city, and included city, which combined formed a RIS3 for Stockholm (R5).

In 2019, the reorganization of the CABS took place implying that the regional development tasks were now transferred to Region Stockholm. This put an additional strain on Region Stockholm, which lacked critical mass in terms of both resources and competences to drive the agenda of regional development forward. Additionally, it was difficult to transfer intangible knowledge and competences from one unit to another. At Region Stockholm, it practically meant starting afresh; creating a shared understanding and building an internal knowledge base in line with the rhetoric on strategic economic development at a regional level (R5).

After much internal struggle, in late 2019 the issue of business and regional development was picked up once again. The newly released Regional Development Plan for the County of Stockholm (RUFS 2050) takes a long-term perspective and mainly focused on business development while the 'urgent' questions related to innovation and regional development were not explicitly addressed. It was then decided to have RIS3 'written into' the regional business and growth strategy as a separate chapter, part of RUFS 2050 operationalisation. The updated draft strategy was referred for consultation in 2020. The process is still ongoing and requires time and resources to incorporate all referral feedback

as well as peer-review comments (from authorities) both in relation to RIS3 and the regional fund program in general.

The interviewees agree that this *'journey'*, although not easy, has helped to accommodate RIS3 within a broader framework for Stockholm's business development and growth and *'create order without control'* (R10; R11). It is acknowledged to be a useful method of organising and focusing development policies and strategies (R10) and concretising the *'growth-oriented work'* (R11) in the entire region. However, compared to other smart specialisation cases this represents quite a late harmonisation of RIS3 into the region's business development strategy, and the addition of the RIS3 'chapter' into the strategy is still not approved, writing in late 2021. By any measure, Stockholm has taken a long time to formally integrate RIS3 into its regional development planning.

4.3 Administering RIS3

What emerges clearly from the interviewees is that the RIS3 process in Stockholm has been shaped 'single-handed' with few staff allocated to the task. As expressed by interviewees, co-ordination between different governance levels (national-regional) around this issue was quite fragmented and problematic due to lack of resources, competences and mandates. Part of the problem lies in the task transfer to Region Stockholm, which exacerbated competence and communication problems faced by those tasked with RIS3. The time and efforts invested into building the communication bridges between different levels of organisational management were all wasted after the reorganisation took place (R5).

Despite the inter-organisational task transfer, no immediate internal reorganisation took place at Region Stockholm. The assignment ended up under the responsibility of growth and regional planning committee, which was not led by the regional director (i.e. head of the regional management office that holds the overall responsibility for Region Stockholm's governance) but by the growth and regional planning director who was then assigning tasks to others. This, however, has been changed in April 1st, 2021 (R11).

Another issue, linked to this, is the absence of internal political 'anchoring', leading to the lack of mandate clarity within the RIS3 process (R12). The specialist officials tasked with the responsibility to carry out work on RIS3 are integrated into a hierarchical system that requires higher-level approval when it comes to resource planning and allocation. This resulted in "*no mandate to drive things and no resources to drive them with*" (R11).

By inheriting RIS3 responsibility, the regional management office at Region Stockholm has received a new core-task that requires competency and knowledge mapping as well as clear definition of team roles and responsibilities. Internally, it has to 'land' rhetorically within the organisation and create a common understanding of the process that will enable internal transformation; externally, it requires efficient communicating the importance of RIS3 to different actors in the region with an objective to reach agreement about the future direction in Stockholm's regional development (beyond the next programming period).

What was also surprising to hear from interviewees was how little resources were available for them to undertake regional development work, considering the economic strength and innovation leader status of Stockholm: "*there is lack of basic competence structure to support the work internally*" (R5). Although Region Stockholm (unlike the CABS) as an authority has a capacity to supplement regional development funding with local tax money, the politicians opted out. This is because 'strategic prioritisation' is oftentimes linked to the policy of 'selective favouritisms', which, in their understanding, once implemented could lose them vote (R5). Also, Region Stockholm has an opportunity to participate in competitive tendering from the Swedish government agency (Vinnova), however the outcome of bidding will very much depend on "*national political objectives and how Vinnova prefers to invest within the framework of 'All Sweden shall live!'*" (R11).

Despite the increased interest in innovation promotion and interaction among system elements, the lack of local buy in and co-ordination in Stockholm leads to the RIS3 strategy feeling like something 'invented' by the EU (R6). In fact, in many respects Region Stockholm still maintains the mentality of *'not picking the winners'* and *'the market will fix everything'* (R4; R5). Interviews revealed very little

in terms of the EDP established as such a central premise of the RIS3 approach (R12). There is still a lot of gaps in it, including: *"how the EDP should look like, how it should be implemented, which actors must be involved, which coordinating actors, who can finance, which projects, indicators and goals should be used to measure this"* (R11). This lack of consensus, combined with a lack of leadership roles being taken in the process, led to a very weak RIS3 approach.

4.4 Attempts to unite actors and facilitate networking

The actors entrusted with RIS3 undertook a variety of activities to unite actors and facilitate networks. Yet, neither the mandate of Region Stockholm nor the interest of the majority of stakeholder groups was very strong. Compared to other regions, the role of Region Stockholm in creating and supporting dialogues between different private and public actors is limited (R10). The business environment in Stockholm is very demanding and as a capital city it hosts a large number of international headquarters and is characterised by dynamic cluster settings, implying that local actors feel well capable of building strategic relationships without any public intermediary (R9; R10).

The actors involved in RIS3 acted as a broker shaping and facilitating networks with a broad range of regional stakeholders. These networking efforts or platforms took a form of recurring in-person events, thereby rendering an opportunity to maintain a continuous dialogue as well as exchange knowledge under the umbrella term 'regional development work' (R9). Such events also brought some sense of unity among this diverse bunch with varying interests and perspectives as well as opened the door to dialogues on funding and tender opportunities to jointly promote sustainable regional growth. However, such public funding opportunities tended to awake little interest among actors because of a too low return on investment in an application, and managing and cofounding successful applications. In Stockholm, other non-public funded opportunities were perceived more attractive (compared to other regions where the business environment may be less dynamic, diverse and knowledge-intensive).

It is interesting to point out, however, that after the individuals facilitating the networks 'left the scene', these interactions gradually came to nothing (R9). This demonstrates lack of both interest and

understanding of the work carried out under the flag of 'regional development', but also the importance of individual change agents.

4.5 Concluding the case analysis

The RIS3 process in Stockholm is still ongoing and it is a hard puzzle to put together considering the variety of perspectives, networks, actors, funding opportunities, innovation and research support measures, skills and resources (R11; R12). Some of the stakeholder responses do indeed question the need for smart specialisation in Stockholm. If we view this case as an innovation leader region, with innovation activities and programmes already taking place, but experiencing profound problems in getting the RIS3 approach off the ground and convincing local actors of the need for it, there is a valid question around whether RIS3 really is the right approach and whether it should be pursued arguably against the will of those within the region. On the other hand, perhaps there is a potential for RIS3 to deliver value even in this well-established innovation region: *"it is an interesting strategic approach to how to use the available funds smarter"* (R9).

Other respondents felt that whilst innovation activities do already exist there is scope for improvement, perhaps via RIS3 approaches, to increase collaboration with the private sector on behalf of the public sector (R7; R5). In particular, the challenges that Stockholm faces are related to intra-regional imbalances in a socio-economically divided capital city: incorporating environmental or gender quality issues into the RIS3 strategy might add value to the RIS3 process from a stakeholder perspective (R2). Pragmatically speaking, whether or not RIS3 is the most appropriate regional innovation and economic development policy tool in the Stockholm region, which we can obviously debate, there is a recognized need to resolve the profound governance and communication problems being experienced by those tasked with implementing RIS3 in order to continue to receive the European funds and to be involved with the evolution of the approach and processes going forwards.

5. Policy Implications: Change Agency and Place Leadership – Lessons for RIS3

Using Stockholm as a 'pilot' case, our analysis exposes a number of challenges or policy traps (Sotarauta 2018) that may emerge when RIS3 is implemented in innovation leader and large

metropolitan areas. These 'traps' relate to governance issues generally, and specific difficulties in bringing a complex range of regional stakeholders on board via an EDP process. In Table 1, we employ Sotarauta's 'policy trap' framework as an analytical tool to aid our understanding of the Stockholm case, as well as elucidate more generally the challenges experienced.

Table 1: Brief summary of findings

Policy traps	Shortcomings in the Stockholm case
Institutional conflict trap Governance trap	Fragmented RIS3 coordination causes lack of mandate, clarity across national and subnational levels of government, and results in 'hierarchical' resource planning and allocation decisions, which ultimately impede collective efforts for regional development.
Capability trap	Inter-organisational transfer of regional development tasks require structural modifications and adjustments, which are both time and resource consuming
Mobilization trap	Inadequate stakeholder buy-in because strong and dynamic innovation and entrepreneurial landscape offers many opportunities to network and build strategic partnerships without public intermediary.
Shared vision trap	Recurring in-person events organised under the flag of "regional development work" has brought more understanding of the regional work; however, they turned out to be short-lived to harmonise various interests and enable a common vision building.

Evidence from the literature suggests that the approach to RIS3 is shaped and defined by the existing regional framework conditions. It is often assumed that the leading and institutionally thick regions are in a better position to implement a policy aimed at transformational change, and to maximise benefits from RIS3 (McCann & Ortega-Argilés 2014; Aranguren et al. 2019; Esparza-Masana 2021).

However, the Stockholm case revealed shortcomings in each of the above-mentioned categories and therefore policy traps identified in the case of the RIS3 implementation in Stockholm should not be treated as exclusive. Although capable actors exist they may often lack support from specialists with the right knowledge and resources, for instance access to required regional data. In the Stockholm case, this is largely attributed to inter-organisation task transfer that caused additional practical problems associated with intangible knowledge transfer and competence as well as lack of well-

etablished communication networks (particularly between different levels of management), which are necessary to support the RIS3 process. This interrupted what Karlsen and Larrea (2018, p. 337) have termed 'collective knowing' defined "as the territorial actors' learned collaborative problem-solving capability". The Stockholm case, demonstrated that creating a network in the dense and rich ecosystem of a large metropolitan area and getting "buy in" from the various actors proved highly challenging. The institutional arrangement was not conducive: resources in terms of people-power, funding, and having seniors with power within the organisation involved in RIS3 were all lacking in the Stockholm RIS3 set up.

More broadly, this suggests that even capable individual change agents may be caught in the traps explained above because even in an innovation leader region with on the surface good preconditions for RIS3, individual change agents cannot effectively operate and enact change if they are not placed in a context of adequate capabilities, networks, and institutional arrangements. However, the fact that the RIS3 approach became stuck in the doldrums following the departure of the responsible actors for RIS3 in our case proves that they were the driving force behind the efforts that did happen.

Our study thus demonstrates that the decentralised governance model is not without its challenges when it comes to achieving RIS3 policy integration: how resource mobilisation and discontinuous dialogues across multiple governance structures and sectors may result in 'hierarchical' resource planning and allocation decisions, which obstruct built-up policy design and implementation capabilities and networks and thereby impeding the administration of the RIS3 process. Some of the identified hinders for RIS3 may be typical for metropolitan innovation leader regions. For instance, as our study shows, ensuring the participation of a wide range of actors may be difficult in metropolitan innovation leader regions. The variety of actors and actor groups present in such regions may not see much value-added of engaging in RIS3 processes because the current conditions are already favourable for innovation and entrepreneurship. Such a potentially complacent attitude that the innovation system is already strong enough tend to be less apparent in lagging regions. However, other aspects, we argue, apply equally – or even more so – in regions with less advantageous preconditions. This concerns aspects related to empowering change agents to fulfil their role in RIS3

design and implementation processes, which proved to be a necessary condition for RIS3 to become a driver for transformative change in metropolitan innovation leader regions.

Previous literature has shown that the power and potential for the actors entrusted with leading the RIS3 process to enact change is dependent upon: capabilities (if the actors have experience and training in such participatory policy processes); network positions (if the actors have influence to engage other actors through their formal or informal position in networks); and institutional arrangements (if a governance structure is in place that provides the actors with legitimacy and sufficient resources to drive RIS3 processes). We suggest that endowed with such powers, actors driving the RIS3 process will be more successful in identifying common interest and agree on areas of specializations (i.e. overcome the shared vision trap), and mobilize actors in the formulation and implementation of RIS3 and pool resources to promote these specializations (i.e. overcome the mobilization and capability trap). Furthermore, they will be more able to navigate conflicting institutions and potentially initiate institutional change (i.e. overcome the institutional conflict trap and governance trap). We argue that the above argument holds true in general;yet, there may be place-based variations in the opportunities and challenges to provide these empowering conditions. For instance, it may be more difficult to provide the required capabilities in a small innovation lagging region whereas the need (and thus legitimacy) for RIS3 may be easier to establish in such regions than in metropolitan, innovation leader regions.

As the arguments in the literature on change agency in regional development suggest, it is not enough to have one "hero": regional development is the nexus of the actions and interactions of many actors, and thus the mobilising across actor groups is necessary (Grillitsch & Sotarauta 2020). In the context of RIS3, the public sector needs to take on the role as place-based leader, which entails the capability of mobilising and influencing a wide range of actors in the region (Sotarauta & Beer2021). A more systemic mode of leadership is needed, capable of bringing together various purposive place-based leaderships not only established by governments but also by a range of other actors such as firms, clusters, universities, civil society groups (Aranguren et al. 2014). It also requires building collaborative problem-solving capabilities (Karlsen & Larrea 2016 2018). As regional development

scenarios become more complex, leadership and network management become more important, and whilst this vast complexity cannot be controlled, it can be influenced (Sotarauta 2009, 2010). Furthermore, the capability of public sector actors to affect change depends not only on their capabilities, networks, and resources but also on the wider institutional and economic context, which incentivises or disincentives the engagement of various actor groups. In particular, it requires a clear mandate and institutional arrangements that promote a continuous flow of information between policy makers and different sectors and actor groups thereby establishing the necessary understanding of the regional context. A degree of institutionalization of such networks and exchanges is necessary not only to ensure that efforts are carried further once the involvement of specific individuals ends, but in more general to ensure transparency, accountability, and legitimacy.

6. Conclusion

As Sotarauta (2018) has already explained, there are theoretical benefits to be gained by paying attention to place-based leadership issues in the context of smart specialisation: namely, the additional analytical support we can give to the practice of RIS3 and the potential to improve governance capacity and policy capabilities across European regions grappling with this new approach. In our article, we have heeded this call, and analysed the case of Stockholm RIS3 with a particular attention paid to change agency and place leadership elements to help us explain the challenges experienced in this case and reflect more broadly, which implications arise for metropolitan innovation leader regions and which are of more generic nature.

We add to the body of work exploring the practice of RIS3 "on the ground" in a range of different contexts by adding the experience of a large metropolitan innovation-leader region, of which there are relatively few cases available. Our analysis shows that RIS3 can be a profound challenge to implement even in Europe's top innovator and 'good governance' region. It is clear that challenges abound in this case, around the governance of the RIS3 process, accessing resources to implement the strategy, and securing buy-in from the wide range of stakeholders in the rich capital city setting. Convincing those within and outside of the public sector that RIS3 is necessary and a "good thing",

beyond the obvious financial implications of the fulfilment of enabling conditions, is certainly not straightforward in this case. There are elements of possibilities embracing RIS3 could bring, such as the "green" and social equality dimensions of regional innovation, that stakeholders in Stockholm do see as potentially valuable, but clearly convincing the wider innovation ecosystem of the city of this fact is not straightforward. This also echoes the recent sustainable regional development rhetoric (RIS4) about the innovation policy potential to address complex societal challenges and facilitate regional sustainable transition (Veldhuizen 2020; Laranja 2021). What becomes clear is that it needs further reflection and a clearer articulation of the 'selling arguments' of RIS3 for stronger and metropolitan regions to help those change agents involved in implementing the strategy to disseminate it to their stakeholders and networks. The strategic nature of EDP also proves somewhat problematic when we consider a leading region scenario where impetus and instinct is to continue with the status quo and avoid disruptive or counteractive policy measures that could inadvertently get in the way of the optimal functioning of the innovation system. Instead, we see the potential of RIS3 in these contexts as opening a door to new and alternative kinds of innovation policy, which are more inclusive of all parts of society.

Furthermore, this case shows that even strong preconditions in terms of actor endowments, dense networks, experience with participatory governance processes, and good governance are not sufficient for a successful implementation of RIS3. Also, it does not suffice to task single individuals with RIS processes, even if these individuals are themselves experienced in such processes. The actors need to be empowered through providing access to required resources and networks, and embedding the actors in institutional arrangements that give a strong mandate and legitimacy to the process. Considering the difficulties in implementing RIS3 in Stockholm, we conclude that success rests more on the adequate empowerment of those actors entrusted with RIS3 than on general regional preconditions. We justify this generic conclusion by highlighting that that place-based characteristics show a tendency to manifest in different challenges for such empowerment. Whereas coordination, mobilisation, and legitimacy creation for RIS3 may be particularly challenging in metropolitan innovation leader regions (as shown in our case), building and retaining the necessary capabilities and

good governance practices may be more difficult in smaller innovation lagging regions (Marques & Hassink 2015; Kristensen & Pugh 2022). At the same time, however, it is important to note that these tendencies may not necessarily hold true in all cases, i.e. smaller innovation lagging regions do not necessarily have weak capabilities, and metropolitan innovation leader regions do not necessarily have to suffer from a lack of coordination, mobilisation, and legitimacy for the RIS3 process. The main argument extends the study of RIS3 to the regional studies field more generally: despite being clearly important so far the so-called human element of how policies are designed, including specifically the role of leadership, has been largely overlooked (Collinge & Gibney 2010; Gibney 2011; Karlsen & Larrea 2012; Sotarauta, & Mustikkamäki 2012).

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References

Aranguren, M. J., De La Maza, X., Parrilli, M. D., Vendrell-Herrero, F., & Wilson, J. R. (2014). Nested methodological approaches for cluster policy evaluation: An application to the Basque Country. *Regional Studies*, 48(9), 1547-1562.

Asheim, B., & Grillitsch, M. (2015). Smart specialisation: Sources for new path development in a peripheral manufacturing region (No. 2015/11). Lund University, CIRCLE-Center for Innovation Research.

Asheim, B. T., Grillitsch, M. & Trippl, M. (2016). Regional innovation systems: past–present–future. In: Shearmur, R., Carrincazeaux, C. & Doloreux, D. (eds). *Handbook on the Geographies of Innovation*. Cheltenham: Edward Elgar, pp. 45-62.

Asheim, B., Grillitsch, M., & Trippl, M. (2017). Smart specialization as an innovation-driven strategy for economic diversification: Examples from Scandinavian regions. In: Radosevic, S., Curaj, A., Gheorghiu, R., Andreescu, L., & Wade, I. (Eds.). *Advances in the theory and practice of smart specialization*. Academic Press, pp. 73-97.

Barca, F., McCann, P., & Rodríguez-Pose, A. (2012). The case for regional development intervention: Place-based versus place-neutral approaches. *Journal of Regional Science*, 52(1): 134–152.

Battilana, J., Leca, B. & Boxenbaum, E. (2009). How Actors Change Institutions: Towards a Theory of Institutional Entrepreneurship. *The Academy of Management Annals*, 3: 65-107.

Baxter, P., Jack, S., 2008. Qualitative case study methodology: study design and implementation for novice researchers. *Qual. Rep.*, 13 (4): 544–559.

Beer, A. (2011). Leadership and the governance of rural communities. *Journal of Rural Studies,* 34**:** 254 -262.

Beer, A., Ayres, S., Clower, T., Faller, F., Sancino, A., & Sotarauta, M. (2019). Place leadership and regional economic development: A framework for cross-regional analysis. *Regional Studies*, 53(2): 171-182.

Benneworth, P., Pinheiro, R. & Karlsen, J. (2017). Strategic agency and institutional change: investigating the role of universities in regional innovation systems (RISs). *Regional Studies,* 51**:** 235-248.

Bentley, G., Pugalis, L. & Shutt, J. (2017). Leadership and systems of governance: the constraints on the scope for leadership of place-based development in sub-national territories. *Regional Studies,* 51**:** 194-209.

Bertini, S. (2017). Smart Specialisation, a Strategy to Support the Transformation of a Consolidated Manufacturing System-The Emilia-Romagna Experience. *European Structural & Investment Funds Journal*, *5*(1).

Björner, E. and Zetterberg, O. (2019). *Stockholm. The tale of the unicorn factory. European Investment Bank.* (Vol. 8). European Investment Bank.

Boschma, R. (2017). Relatedness as driver of regional diversification: a research agenda. *Regional Studies,* 51**:** 351-364.

Capello, R., & Kroll, H. (2016). From theory to practice in smart specialization strategy: emerging limits and possible future trajectories. *European Planning Studies*, *24*(8): 1393-1406.

Carayannis, E., & G., Rakhmatullin, R. (2014). The quadruple/quintuple innovation helixes and smart specialisation strategies for sustainable and inclusive growth in Europe and beyond. *Journal of the Knowledge Economy, 5*(2): 212–239.

Charron, N., Dijkstra, L. & Lapuente, V. 2014. Regional Governance Matters: Quality of Government within European Union Member States. *Regional Studies,* 48**:** 68-90.

Collinge, C., & Gibney, J. (2010). Connecting place, policy and leadership. *Policy studies*, 31(4): 379-391.

Dubois, A., Kristensen, I. & Teräs, J. (2017). Outsmarting geography: implementing territorial innovation strategies in sparsely populated regions. *European Planning Studies*, 25(8): 1316-1333.

Estensoro, M., & Larrea, M. (2016). Overcoming policy making problems in smart specialization strategies: Engaging subregional governments. *European Planning Studies*, 24(7): 1319-1335.

Feldman, M. P. (2014). The character of innovative places: entrepreneurial strategy, economic development, and prosperity. *Small Business Economics,* 43**:** 9-20.

Foray D., David P. and Hall B. H. (2009) *Smart Specialisation – The Concept*. Knowledge Economists Policy Brief Number 9, June. European Commission, DG Research, Brussels.

Foray, D., David, P. A., & Hall, B. H. (2011). *Smart specialisation from academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation.* Lausanne: EPFL.

Gianelle, C., Kyriakou, D., McCann, P., & Morgan, K. (2020). Smart Specialisation on the move: reflections on six years of implementation and prospects for the future. *Regional Studies*, *54*(10): 1323-1327.

Gibney, J. (2011). Knowledge in a "shared and interdependent world": Implications for a progressive leadership of cities and regions. *European Planning Studies*, 19(4): 613-627.

Grillitsch, M. (2015. Institutional Layers, Connectedness and Change: Implications for Economic Evolution in Regions. *European Planning Studies,* 23: 2099-2124.

Grillitsch, M. 2016. Institutions, smart specialisation dynamics and policy. *Environment and Planning C: Government and Policy,* 34**:** 22-37.

Grillitsch, M. & Sotarauta, M. (2020). Trinity of change agency, regional development paths and opportunity spaces. *Progress in Human Geography,* 44**:** 704-723.

Grillitsch, M. (2019). Following or breaking regional development paths: on the role and capability of the innovative entrepreneur. *Regional Studies,* 53**:** 681-691.

Hassink, R., & Gong, H. (2019). Six critical questions about smart specialization. *European Planning Studies*, *27*(10): 2049-2065.

Hassink, R., Isaksen, A. & Trippl, M. (2019). Towards a comprehensive understanding of new regional industrial path development. *Regional Studies,* 53**:** 1636-1645.

Höglund, L., & Linton, G. (2018). Smart specialization in regional innovation systems: a quadruple helix perspective. *R&D Management,* 48(1): 60-72.

Isaksen, A., Jakobsen, S-E., Njøs, R. & Normann, R. (2019). Regional industrial restructuring resulting from individual and system agency. *Innovation: The European Journal of Social Science Research,* 32**:** 48-65.

Jolly, S., Grillitsch, M. & Hansen, T. (2020). Agency and actors in regional industrial path development. A framework and longitudinal analysis. *Geoforum,* 111: 176-188.

Karlsen, J., & Larrea, M. (2012). Emergence of shared leadership in the Basque Country. In: Sotarauta, M., Horlings, L. & Liddle, J. (eds). *Leadership and change in sustainable regional development*. London: Routledge, pp. 228-249.

Karlsen, J., & Larrea M. (2016) Collective knowing. In: Garmann Johnsen, H.C., Hauge, E.S., Magnussen, M.-L., & Ennals, R. (eds.). *Applied Social Science Research in a Regional Knowledge System: Balancing validity, meaning and convenience* (1st ed.). London: Routledge, pp. 89-104.

Karlsen J., Larrea M. (2018) Regional Innovation System as a Framework for the Co-generation of Policy: An Action Research Approach. In: Isaksen A., Martin R., Trippl M. (eds.) *New Avenues for Regional Innovation Systems - Theoretical Advances, Empirical Cases and Policy Lessons.* Cham: Springer, pp. 257-274.

Kristensen, I., Dubois, A. & Teräs, J. (2019). *Strategic approaches to regional development: smart experimentation in less-favoured regions*. Oxford: Routledge.

Kristensen, I. & Pugh, R. (2022). Place-based policy with place-based problems: insights on S3 from three peripheral Nordic strong innovator regions. *Regional Studies*. DOI: 10.1080/00343404.2022.2054975

Kroll, H. (2015). Efforts to implement smart specialization in practice – Leading unlike horses to the water. *European Planning Studies, 23*(10): 2079–2098.

Kroll, H., Muller, E., Schnabl, E. & Zenker, A. (2014) From smart concept to challenging practice: How European regions deal with the Commission's request for novel innovation strategies. *Arbeitspapiere Unternehmen und Region* [Online].

Kroll, H., Böke, I., Schiller, D., & Stahlecker, T. (2016). Bringing owls to Athens? The transformative potential of RIS3 for innovation policy in Germany's Federal States. *European Planning Studies*, 24(8): 1459-1477.

Kroll, H. (2017). Smart specialization policy in an economically well-developed, multilevel governance system. In: n: Radosevic, S., Curaj, A., Gheorghiu, R., Andreescu, L., & Wade, I. (Eds.). *Advances in the theory and practice of smart specialization.* Academic Press; pp. 99-123.

Laranja, M. (2021). Translating Smart Specialisation and entrepreneurial discovery into a process-oriented policy, *Regional Studies*, 56(5): 853-865

Mackinnon, D., Dawley, S., Pike, A. & Cumbers, A. (2019). Rethinking Path Creation: A Geographical Political Economy Approach. *Economic Geography, 95*: 113-135.

Marques, P. and Hassink, R. (2015). The innovation paradox in regional innovation policy revisited. In: Hilpert, U. (ed). *Routledge Handbook of Politics & Technology.* Oxford: Routledge, pp.120-131.

McCann, P. & Ortega-Argilés, R. (2014). Smart specialisation in European regions: issues of strategy, institutions and implementation. *European Journal of Innovation Management, 17*: 409-427.

McCann, P., & Ortega-Argiles, R. (2015). Smart specialization, regional growth and application to European Union Cohesion policy. *Regional Studies*, 49(8): 1291–1302.

Moodysson, J., Trippl, M. & Zukauskaite, E (2017) "Policy learning and smart specialization: balancing policy change and continuity for new regional industrial paths." *Science and Public Policy,* 44 (3): 382-391.

Morgan, K. (2013). The regional state in the era of smart specialisation. *Ekonomiaz*, 83(2), 103–126.

https://ideas.repec.org/a/ekz/ekonoz/2013205.htmlovernment in EU Member States: Presenting the 2021 European Quality of thenburg: The QoG Working Paper Series 20.

Müür, J. (2021). Intermediating Smart Specialisation and Entrepreneurial Discovery: The Cases of Estonia and Helsinki-Uusimaa. *Journal of the Knowledge Economy*, 1-33.

Pugh, R. E. (2014). 'Old wine in new bottles'? Smart Specialisation in Wales. *Regional Studies, Regional Science*, 1(1):152-157.

Pugh, R. (2018). Questioning the implementation of smart specialisation: Regional innovation policy and semi-autonomous regions. *Environment and Planning C: Politics and Space*, 36(3), 530-547.
Radosevic, S., Curaj, A., Gheorghiu, R., Andreescu, L. & Wade, I. (2017), *Advances in the theory of Smart Specialization*. Cambridge, MA: Academic Press.

Regional Innovation Scoreboard 2021. Luxembourg: Publications Office of the European Union.

Region Stockholm (2019). *Näringslivs- och tillväxtstrategi för Stockholmsregionen*. Regionledningskontoret, Stockholm.

Region Stockholm and Invest Stockholm (2020). *Stockholm as a global force – The significance of headquarters in the Nordics and the Stockholm region*.

Rekers, J. V. & Stihl, L. 2021. One crisis, one region, two municipalities: The geography of institutions and change agency in regional development paths. *Geoforum,* 124**:** 89-98.

Rodríguez-Pose, A. (2020). Institutions and the fortunes of territories. *Regional Science Policy & Practice*, 12(3): 371-386.

Saxenian, A. & Sabel, C. (2008). . Roepke Lecture in Economic Geography Venture Capital in the "Periphery": The New Argonauts, Global Search, and Local Institution Building. *Economic Geography,* 84**:** 379-394.

Shane, S. & Venkataraman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *The Academy of Management Review,* 25: 217-226.

Shearmur, R (2012) "Are cities the font of innovation? A critical review of the literature on cities and innovation." *Cities*, 29: S9-S18.

Sotarauta, M. & Beer, A. (2021). *Handbook on City and Regional Leadership,* Cheltenham: Edward Elgar.

Sotarauta, M. (2009). Power and influence tactics in the promotion of regional development: An empirical analysis of the work of Finnish regional development officers. *Geoforum*, 40(5): 895-905.

Sotarauta, M. (2010). Regional development and regional networks: The role of regional development officers in Finland. *European Urban and Regional Studies*, 17(4): 387-400.

Sotarauta, M. (2018). Smart specialization and place leadership: dreaming about shared visions, falling into policy traps? *Regional Studies, Regional Science,* 5**:** 190-203.

Sotarauta, M. & Beer, A. (eds.) (2021). *Handbook on City and Regional Leadership*, Cheltenham: Edward Elgar.

Sotarauta, M., & Mustikkamäki, N. (2012). Strategic leadership relay: How to keep regional innovation journeys in motion? In: Sotarauta, M., Horlings, L. & Liddle, J. (eds). *Leadership and change in sustainable regional development*. London: Routledge, pp. 206-227.

Kristensen, I. and Grunfelder, J. Trends and patterns of FDI inflows to the Nordic Region. In: Grunfelder, J., Rispling, L. and Norlén, G. (eds.) *State of the Nordic Region 2018.*

Sörvik, J., Teräs, J., Dubois, A., & Pertoldi, M. (2019). Smart Specialisation in sparsely populated areas: Challenges, opportunities and new openings. *Regional Studies*, 53(7): 1070-1080.

Trippl, M., Zukauskaite, E., & Healy, E. (2020). Shaping smart specialization: the role of space-specific factors in advanced, intermediate and less-developed European regions. *Regional Studies*, 54(10): 1328-1340.

Uyarra, E., Marzocchi, C., & Sorvik, J. (2018). How outward looking is smart specialisation? Rationales, drivers and barriers. *European Planning Studies*, 26(12): 2344-2363.

Valdmaa, K., Pugh, R. & Müür, J. (2021). Challenges with strategic placed-based innovation policy: implementation of smart specialization in Estonia and Wales, *European Planning Studies*, 29(4): 681-698, DOI: 10.1080/09654313.2020.1767541

Vanthillo, T., & Verhetsel, A. (2012). Paradigm change in regional policy: Towards smart specialization? Lessons from Flanders (Belgium). *Belgian Journal of Geography*, *1–2*: 2–16.

Veldhuizen, C. (2020). Smart Specialisation as a transition management framework: Driving sustainability-focused regional innovation policy? *Research Policy*, 49 (6): 103982.

Voets, J., & De Rynck, F. (2006). Rescaling territorial governance: A Flemish perspective. *European Planning Studies*, 14(7): 905–922.

Wessner, C. W., & Howell, T. R. (2017). Smart Specialization in the US Context; Lessons From the Growth of the Albany, New York Nanotechnology Cluster. In Advances in the Theory and Practice of Smart Specialization (pp. 157-181). Academic Press.

Yin, R. (2003). *Case Study Research: Design and Method*s. SAGE.

Zukauskaite, E., Trippl, M., & Plechero, M. (2017). Institutional thickness revisited. *Economic geography*, *93*(4): 325-345.