# The Public Animateur:

# Mission-led innovation and the 'smart state' in Europe

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### 1. Introduction

Reprising the role of the state in economic development has become de rigueur in the light of new developments in the theory and practice of industrial policy. On the ***theoretical front*** the advent of the "new industrial policy" has triggered a new debate about the scope and limits of the state as an economic actor and this article proposes to examine this debate by offering a critical assessment of the contributions of Rodrik (2004, 2007, 2007, 2014, 2016), Sabel (2004; Sabel and Zeitlin 2012) and Mazzucato (2013a, 2013b), all of whom have advanced a version of the "smart state" hypothesis. Although these three contributions have been positively received in progressive circles, they elide some of the biggest challenges that face the state - and its public sector agencies – such as how the state deals with failure, feedback and learning, and the difficulties and contradictions of achieving multi-scalar coordination. The paper argues that these elisions need to be addressed if a more robust conception of industrial policy is to emerge.

These public sector problems are especially acute on the ***industrial policy front*** in Europe's less developed regions (LDRs), where the regional state is expected to rise to the challenge of Smart Specialisation, the EU's regional innovation programme for the 2014-2020 period (McCann and Ortega, 2014; Foray, 2015; EC, 2012). Smart Specialisation can be considered a mission-led project inasmuch as it aims to overcome the long-standing regional innovation paradox. This paradox refers to the fact that the regions with the greatest need for innovation support are precisely the ones which tend to have the lowest capacity to utilise the public policy instruments available to them, in a way that would significantly alter their growth trajectory (Oughton et al, 2004; Muscio et al, 2015). Therefore, although Smart Specialisation has been described as the biggest and boldest experiment in regional industrial policy anywhere in the world (Radosevic et al 2017), its capacity to transform the fortunes of LDRs has been seriously questioned because the latter are doubly deficient in institutional capacity

and economic resources. Even its official sponsor, the European Commission, has conceded that it faces major institutional challenges, some of which we examine in section 3 (EC, 2017).

The primary aim of this article is to explore the above issues in the following way. Section 2 reprises the debate about the role and competence of the state in innovation and development, focusing on the classical Hayekian critique of the state along with contemporary responses that call for a new kind of industrial policy and a smart state to prosecute it. Section 3 examines the experience of one of the most ambitious mission-led innovation programmes ever launched in Europe, the *Smart Specialisation Strategy* (S3) programme, which is predicated on and informed by the industrial policy ideas examined in section 2. Section 3 also identifies a number of challenges facing the S3 programme, particularly in the LDRs of the European Union, where these challenges are most pronounced. Section 4 presents the conclusions and assesses the implications for theory and policy.

## 2. Debating the State: classical and contemporary perspectives

The neo-liberal critique of the state has dominated western policy-making circles for so long that it borders on being the conventional wisdom for governments whatever their hue (Lowery 1999). This critique has an ideological dimension that can be readily challenged and a theoretical dimension that needs to be taken more seriously. The ideological dimension essentially consists of a zero sum conception of states and markets in which "less state" is construed to mean "more market", the economically crude but politically successful philosophy that informed the privatization programme of successive governments around the world. The theoretical dimension, however, is largely based on Hayek's classic critique of central planning, a critique that continues to resonate today. Although he popularised the argument in many works, most famously in *The Road to Serfdom* (Hayek 1994), the intellectual core of the critique is contained in a short but important article, *The Use of Knowledge in Society* (Hayek 1945).

There he argued that the key problem of a "rational economic order" was the fact that "the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess". In contrast to the neo-classical view that knowledge is readily accessible, Hayek underlined the significance of what we would today call tacit knowledge when he drew attention to that "body of very important but

unorganised knowledge which cannot possibly be called scientific in the sense of knowledge of general rules: the knowledge of the particular circumstances of time and place" (Hayek, 1945: 521). In other words, the fact that knowledge is not given to any single agent in its totality, and because the tacit element could never be fully codified let alone centralised, informed his critique of state central planning and his defence of the market (Kerstenetzky 2007), which he considered to be a form of "decentralized planning by many separate persons". Furthermore, he argued, it was a "fatal conceit" to imagine that central planning, in the form of the state, can substitute for the dynamic processing capacity of the market because the latter, being a decentralised discovery mechanism, is the best way to ensure that knowledge of the particular circumstances of time and place is promptly exploited (Hayek, 1994).

This knowledge-based critique of the state may have been written in the 1940s, when the shadow of central planning loomed large, but its legacy lingers on in a whole series of economic policy conventions, not least the notion that "governments cannot pick winners" because of the incompleteness of their knowledge (Rodrik 2007, 2004). Powerful as it is as a critique of central planning, Hayek's argument has major limitations: it crudely juxtaposes central planning (the state) with decentralized planning (the market), as though these were the only mechanisms for coordinating economic activity; it views the market as the only discovery mechanism, when it is one among others; and, by reducing knowledge to an attribute of atomistic individuals, it neglects social learning and organisational knowledge that are created through learning-by-doing and learning-by-interacting, through associational action in other words (Cooke and Morgan, 1998).

### 2.1 The entrepreneurial state thesis

In recent years Mariana Mazzucato has become an influential public voice challenging the neoliberal critique of the state, both theoretically and discursively. Her book, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*, is "an open call to change the way we talk about the State, its role in the economy, and the images and ideas we use to describe that role" (Mazzucato, 2013a:198). There has never been a more important time to discuss the creative potential of the public sector, she argues, because in most parts of the world we are witnessing "a massive withdrawal" of the state on the purely ideological grounds that it is deemed to be a drag on innovation and economic development. A similar argument is made by Block (2008), who argues that the USA (and Europe) have had for decades what the author calls a developmental network state (DNS), whose goal it is to help firms develop

product and process innovations in new technological fields. It is a network because in contrast to the developmental state in East Asian countries, decisions are made by decentralised public agencies working with a variety of economic agents, rather than by a centralised state authority often working with a small number of large corporations (Amsden 2001). However, while in countries such as Germany or France the actions and logic of the DNS are openly discussed and accepted, in market based economies such as the USA they remain hidden, with political narratives continuously promoting the notion that the state should not intervene in the functioning of market forces (Block 2008). Due to the persistent influence of these narratives, these highly important agencies are constantly under threat, as argued by Mazzucato (2013a).

To counter the stereotyping of the state, Mazzucato is keen to talk up the manifold ways in which the public sector has helped to fashion the knowledge economy. How many people know, for example, that the algorithm that led to Google's success was funded by a public sector National Science Foundation grant? Or that molecular antibodies, which furnished the foundation for biotechnology before venture capital appeared on the scene, were discovered in the public labs of the Medical Research Council in the UK? To emphasise the point, she devotes an entire chapter to "the state behind the iPhone", in which she argues that all the technologies that make Apple's iPhone so "smart" – Internet, GPS, touch-screen display, and the SIRI voice activated personal assistant – were actually the products of public funding, the visible hand of the state as she puts it. This is one among many examples that are used to illustrate the creative role that the public sector has played in nurturing and steering the knowledge economy. In the case of the US, the state has backed the microchip, the Internet, biotechnology and nanotechnology, all of which were handsomely funded through public agencies, especially through DARPA, the NSF and the National Institutes of Health. In short, she argues:

> "This spending worked because it was 'mission-oriented': the state picked
> an idea and supported it, from putting a man on the moon to tackling climate
> change. And when government can pursue missions with big enough
> budgets, it is easier to hire bright minds and to think big – as DARPA did
> with the internet" (Mazzucato, 2013b).

This is a bold and compelling antidote to the negative stereotypes of the state that populate neo-liberal narratives of innovation and development and to this extent it really does "change the way we talk about the state". But it is also marred by a number of problems, particularly: (i)

the ES thesis is predicated on the actions of agencies such as DARPA, a unique mission-led agency, which is not typical of public sector agencies; and (ii), though public sector funding laid the foundations of innovation, it was not the commercial agent of innovation (the technologies were available to all, but only Apple had the organisational skills to integrate the novel technologies with user-friendly designs, for instance).

## 2.2 The experimentalist state

Another response to the neo-liberal critique is the *experimentalist* approach developed independently by Dani Rodrik (Rodrik, 2004; 2007; 2013) and Charles Sabel (Sabel, 2004; Sabel and Zeitlin 2012). Rodrik seeks to establish the intellectual case for a dynamic and enlightened "industrial policy" by addressing two objections that neo-liberal critics invariably employ to discredit state intervention. The first concerns the informational objection, which maintains that states cannot "pick winners" because they can never possess all the necessary information to do so (the Hayekian argument). The second objection is that industrial policy inadvertently encourages corruption and rent seeking behaviour by diverting corporate attention from entrepreneurial activity to lobbying and more noxious activity (Rodrik, 2007). To overcome these problems Rodrik identifies three institutional design features for a smart industrial policy, namely embeddedness, discipline and accountability.

The concept of "embedded autonomy" was first developed by Peter Evans to account for the role of state agencies in South Korea, where they were *embedded* in, but not beholden to, business networks that allowed them to learn about the bottlenecks to innovation and development. Rodrik draws on this concept to argue that the best way to think about it is in terms of "a process of discovery, by the government no less than the private sector (Rodrik, 2014:24). To mitigate the risks of corruption and rent seeking behaviour the industrial policy process needs to incorporate more rigorous forms of *discipline*. In short, "discipline requires clear objectives, measurable targets, close monitoring, proper evaluation, well-designed rules and professionalism. With these institutional safeguards in place, it becomes easier to revise policies and programs along the way, and to let losers go when the circumstances warrant it" (Rodrik, 2013:28).

The third element of the institutional architecture for enlightened industrial policy is public *accountability*. Public agencies need to explain what they are doing and how they are doing it and they must be "transparent about their failures as their successes (Rodrik, 2013:28). As

Rodrik freely concedes, these ideas have much in common with the concept of experimentalist governance, which emphasises the shortcomings of the hierarchical, principal-agent model (Sabel, 2004; Sabel and Zeitlin, 2012). Because the principal-agent model is not well suited to volatile environments, not least because it assumes an ex-ante omniscience on the part of the principal which is unwarranted, what is needed instead "is a more flexible form of strategic collaboration between public and private sectors, designed to elicit information about objectives, distribute responsibilities for solutions, and evaluate outcomes as they appear. An ideal industrial policy process operates in an institutional setting of this form" (Rodrik, 2004:18).

Sabel's concept of experimentalist governance refers to a "recursive process of provisional goal-setting and revision based on learning from the comparison of alternative approaches to advancing them in different contexts", as applied by public sector entities (Sabel and Zeitlin 2012:169). It draws on examples where governments and regulatory agencies, operating from the local to the supra-national levels, have implemented this process to manage issues such as education, water use or the regulation of global trade in food. Due to its focus on learning and the development of public sector capabilities, it has proved highly influential in and beyond the academy, influencing for example the place-based approach of the Barca Report (Barca, 2009) and Foray's conception of industrial policy in S3 (Foray, 2015). The concept of experimentalist governance (EG) was originally developed as a response to the alleged failure of "command and control" regulation in a rapidly changing world. In this latter model, fixed rules written by a hierarchical authority are quickly rendered obsolete on the ground, where front line actors need to find joint solutions to common problems through experimental trial and error processes.

In its most developed form, EG involves a multi-level architecture in which four elements are linked in an iterative cycle: (i) broad framework goals and metrics are provisionally established by central and local units; (ii) local units are given broad autonomy and discretion to pursue these goals in their own way; (iii) as a condition of this autonomy, local units must report regularly on their performance and participate in a peer review in which their results are compared to others who are using different means to the same ends; and (iv) the goals, metrics and decision-making procedures are revised by a widening circle of actors in response to the problems and possibilities revealed by the peer review process, and the cycle repeats (Sabel and Zeitlin, 2012: 169). One of the most controversial aspects of this model is the claim that

hierarchical management and principal-agent governance have been fatally compromised by the advent of strategic uncertainty (Morgan, 2018).

The influence of these ideas is readily apparent in Foray's (2015) conception of place-based industrial policy, especially where he rejects the idea of the omniscient principal who is presumed to possess ex-ante knowledge; where he embraces the idea of experimentation as a collaborative process of joint discovery; and where he uses the notion of embeddedness to explain how governments can acquire the information and knowledge necessary to be a better informed interlocutor of the private sector. Foray (2015) concedes that these are exacting tasks for the public sector: "smart specialisation strategies will not succeed in Europe if policy-making capability at regional level does not reach a high level of competence and commitment. This is no surprise: smart specialisation is part of the so-called *NIP* family that aims at designing and deploying sophisticated instruments to make compatible vertical choices for concentrating resources and market dynamics. The policy challenge is enormous" (Foray, 2015: 88). Although he shares the optimism of his new industrial policy mentors, Foray seems to be more alive to the challenge of implementing these ideas, especially in peripheral regions, where the "lack of entrepreneurial capacities and the weakness of administrative capacities will combine to make this process uncertain and almost impossible" (Foray, 2015: 66). We return to this issue of institutional capacity in the following section.

The ideas of the foregoing authors – Mazzucato, Rodrik, and Sabel– have been remarkably successful in terms of resonating in the worlds of policy and practice, where they have succoured the idea of a "smart state" by establishing the intellectual credentials of NIP. However, while their ideas have been fundamental in challenging the neoliberal narrative, they contain important elisions. To illustrate the point we focus on two major related issues: (i) the different instruments available to national and sub-national governments and (ii) how the public sector deals with key aspects of experimentation, such as failure, feedback and learning for example. These elisions need to be explicitly addressed if a more robust conception of place-based industrial policy is to emerge.

### 2.3 The Elisions of Entrepreneurial and Experimental State Theory

Though the concept of S3 draws on the intellectual legacy of new industrial policy (NIP) (Hausmann and Rodrik 2003, Rodrik 2016, 2005), it is in important ways a distinct approach. This is especially so because NIP draws on policy initiatives primarily implemented at the

national level, whose aim is to change incentives for entrepreneurs and existing firms through fiscal or trade policy (Amsden 2001, Hausmann and Rodrik 2003, Rodrik 2005). The justification for these interventions is that there is a market failure in what Rodrik calls processes of 'self-discovery', because the social benefits of finding a new specialisation are much higher than what any individual entrepreneur can capture (Hausmann and Rodrik 2003). In other words, though the risk of investing in new areas of activity are borne by those who make the initial investments, they will only capture a small share of the total benefits that accrue to a country (or region) when a new specialisation is found. This justifies changing incentives on a scale that reduces risks and encourages experimentation. Additionally, NIP also often relied on the promotion of national champions, though as discussed previously in this paper, it did so through a combination of institutional embeddedness, discipline and public accountability (Amsden 2001; Rodrik 2001).

In contrast, S3 is primarily conceived as a sub-national policy, where both the national and supranational levels are expected to engage as partners, which means that the implementation of policy requires complex systems of coordination (Matti et al 2017). It also means that some of the most important policy instruments identified by NIP scholars are not available to policy makers. The alternative is to rely on governance mechanisms that can, in theory at least, stimulate similar learning processes and encourage strategic technological investments (EC 2016). At the core of these mechanisms is the entrepreneurial discovery process (EDP), where 'self-discovery' happens through stakeholder engagement, and other forms of knowledge generation such as economic analysis, about both revealed and latent specialisations (Foray 2015). In turn, the implementation of these ideas is to be supported by a mix of funds from the EU and national or regional governments, the private sector and third sector entities such as foundations. This difference between NIP and S3 is relevant because it means that the opportunities for policymakers implementing the latter to learn from the experiences discussed in the former are limited. Instead, a specific set of challenges emerge, which have to do precisely with how to govern innovation systems that cut across different levels of government, and how to design policies that can help mobilise public and private funds to deliver structural economic change.

The second issue derives from the idea of the "smart state" that lies at the heart of NIP and that suggests a state that has the competence and the confidence to engage in constant experimentation, trialling and testing various policies and revising them in the light of feedback

from the front line. But such freedom to experiment seems to be at odds with the regulatory reality (Marques and Morgan 2018). In particular it ignores the deep disconnect between the rhetoric of innovation discourse, which calls for a more experimental public sector, and the reality of a public sector compliance culture that is intolerant of mistakes and failure (Morgan, 2016). In EU cohesion policy, for example, the experimentalist ethos that is presumed in place-based industrial policy is stymied by a byzantine and bewildering maze of rules and regulations that is causing ever growing concerns. For example, a recent report from the High Level Group on Simplification concluded by saying: "Over the years, to counter the criticism and eliminate mistakes, more rules have been added at European and national levels which, rather than helping, are now undermining the trust in the ability of beneficiaries, regional and national administrations to manage and use the funds in a sound and efficient manner. The volume of rules for Cohesion Policy alone, including more than 600 pages of legislation published in the Official Journal (more than double that in the period 2007-2013) and over 5000 pages of guidance, has long passed the point of being able to be grasped either by beneficiaries or by the authorities involved" (High Level Group, 2017:2).

While Rodrik and others are surely correct to argue that there should be a higher tolerance of failure in the public sector, because it is part and parcel of experimentation and innovation, they devote too little attention as to how to achieve a more tolerant environment. A similar charge can be levelled at the NIP authors concerning the role of feedback mechanisms. The significance of robust and honest feedback cannot be over-estimated, especially in evolutionary theories of economic development, and yet the barriers to feedback – such as power, hierarchy, fear and the like – are seldom addressed by NIP theorists.  That so-called "whistleblower" laws had to be introduced in EU member states to help public sector employees to find their "voice" clearly demonstrates that feedback faces formidable obstacles in practice, so much so that it should not be assumed to be easily forthcoming (Morgan, 2016).

Finally, the NIP literature extols the role and importance of learning in innovation and development processes as though this was the primary goal of politicians and policymakers. But economists and economic geographers would do well to refer to the work of political scientists who have cautioned against this assumption (Weible and Sabatier 2017). A commitment to learning and innovation needs to be empirically established rather than theoretically presumed since experience and evidence suggest that politicians and policymakers "are not primarily interested in truth, reflexivity, and "what works". Instead, they often seek

power, bureau expansion, popularity, reputation, and other goals, even if there are examples of good practice (see for example Aranguren et al 2017). Knowledge can be used to gain legitimacy for ill-planned policy reforms or to justify prefabricated opinions. For this reason, learning may not be beneficial to politics and public policy-making" (Gilardi and Radaelli, 2012:165). To the extent that learning is a real political priority, the public sector will need to allocate more space, time and resources to *learning* about what works where and why because monitoring and evaluation continue to be seen as Cinderella activities, a far cry from the experimental agents portrayed in the experimental governance model (Marques and Morgan, 2018).

## 3. Smart specialisation as new industrial policy

After discussing the elisions of the concepts presented broadly as part of the NIP family, including the limitations on what can be transposed to the sub-national level, we now examine some of the elements of smart specialisation (S3) that are particularly challenging. We start by explaining the S3 approach and by reflecting on the ubiquitous usage of the 'smart' prefix. Following this we address the issue of multi-level governance and argue that, due to the complexity of the system, actions that seek to improve EU-wide coordination may undermine coordination within individual regions and work against territorial cohesion. This tension will be illustrated by referring to strategies to build organisational capabilities in the private sector and in higher education institutions. We conclude this section by addressing the capabilities in the public sector and the challenges that all regions face (especially the LDRs) in implementing experimental governance.

### 3.1 Smart specialisation

The concept of smart specialisation (S3) was first developed by Foray et al (2009). It is a policy tool that encourages regions and/or countries to concentrate their investments in science and technology in areas where they already have demonstrable strengths. Its aim is to increase the effectiveness of such spending and to prevent the multiplication across the EU of investments in similar areas of activity, thereby undermining the opportunities for any region to achieve sufficient critical mass. Though it is geared towards building on regional strengths, the concept acknowledges that in some territories current specialisations may have limited growth prospects (Foray 2015). In this case, the aim would be to diversify the regional economy for instance by linking investments in advanced knowledge with mature sectors, that could

encourage transformational investments while still building on accumulated capabilities. Furthermore, in order to avoid top-down prioritisation strategies that would ignore the knowledge of regional actors (Barca 2009), the S3 strategy should be informed by an entrepreneurial discovery process (EDP), where policy makers consult with an array of local actors in order to identify the most promising areas for investment (Foray et al 2009). Although the S3 concept was originally informed by research at the sectoral level, there has been since then a significant effort to link it with previous research on regional innovation (Foray 2015; Foray et al 2018; McCann and Ortega-Argilés 2015) and to develop its policy implications (EC 2016).

S3 is also part of a family of concepts and approaches using the 'smart' prefix to classify its approach, which include the aforementioned reference to 'smart state' or to 'smart cities' (Hollands 2008). In these contexts the smart prefix appears to have two related meanings. One is derived from the need to re-establish the role of the state as an important economic entity, which leads some authors to argue that rather than debating whether there should be more or less state, one should understand which capabilities the state needs in order to make good decisions (Rodrik 2004). In this sense, smart is a substitute for a capable state and its use is part of what Lowery (1999) called a neoprogressive challenge to the dominance of public choice theory. Another meaning, more evident in the 'smart cities' literature, is related to the use of new technologies such as ICTs to make more informed decisions and investments that allow a city to improve the management of public goods and increase quality of life for its citizens. Though both meanings are distinct, they are somewhat connected, because the smart state literature is primarily concerned with the role of the state in stimulating technological catch-up and innovation in the private sector. Our goal in this paper is not to defend the use of this term, not least because it risks becoming a somewhat fuzzy concept (Markusen 2003). We use it instead to place our discussion within contemporary debates, where it has become a ubiquitous term. Nonetheless, we do agree with the position of Rodrik and others, who claim that a capable state is essential to address pressing economic, social or environmental challenges.

### 3.2 Challenges of coordinating multi-scalar actions

In the understanding of the EC, as manifested in official documents, S3 is both a strategy for the development of its regions and a strategy to increase productivity in the EU as a whole (EC 2017). This means that there is a dual concern with improving governance mechanisms in individual territories, a key element of stronger regional innovation systems, but also with

improving coordination at the EU level, which is seen as fundamental for the bloc to close the productivity gap with the USA. The problem with this dual concern is that, while the EU might present it as part of an integrated and cohesive industrial policy, in reality it contains three different understandings of governance.

First, according to the EC, the fragmentation of innovation systems between member states prevents a more efficient use of research and innovation resources in the EU and encourages the duplication and redundancy of investments (EC 2017). This fragmentation results from each country having its own *national* research policy, combined with a limited number of instruments to promote cross-border funding. This situation hinders the movement of talented researchers and the emergence of EU-wide industrial collaboration projects. As such, the EC asks for a stronger pan-european governance approach to research policy, which would lead to the coordination of member states in their reforms of national innovation systems (EC 2017).

The second understanding relates primarily to the *sub-national* level, where governance is conceived as a tool to improve the coordination of systemic interactions. The most recent suggestion is that the governance of regional innovation systems should function as a quadruple helix, an idea which builds on the older concept of the triple helix (universities, public sector, private firms) by adding civil society. (EC 2016). It argues that all components are important if the goal is to tap into the place-based knowledge that agents have of the region they inhabit (Barca 2009). This knowledge would allow policy makers to decide on which current specialisations should be prioritised and which new areas of economic activity should receive significant investment.

A third understanding concerns the governance of *multi-scalar* activities, involving the EU level, national states and sub-national entities (EC 2017). The principle of subsidiarity enshrined in the EU constitution would suggest that the Union operates according to an ideal type of governance where each level has clearly defined competencies and where there is virtually no overlap (Hooghe and Marks 2001). However the implementation of S3 has revealed important disagreements (Healy 2016). For instance, through the introduction of an ex-ante conditionality, the EC has sought to enforce the notion of specialisation which some countries reject as an interference in their sovereignty (Howe 2018). There are also conflicts between member-states and their sub-national entities, arising from long-term tensions between advocates of centralisation and decentralisation. These tensions shed light on the complexity of the process and stand in contrast to the experiences of countries discussed in the NIP literature,

who were often (semi-)authoritarian governments that could enforce a developmental strategy over several decades (Rodrik 2005).

Each of these meanings of governance refers to actions at different levels of government, with each presenting unique challenges that cannot be resolved by one type of intervention. More importantly, some of the goals set forward by the EC in this area might be contradictory. Specifically, the pan-european approach to R&I, as outlined in the recent Lamy report (High Level Group 2017), might reinforce territorial disparities, unless it is counterbalanced by substantial investments aimed at innovation in the LDRs (Foray et al 2018). Though it is true that cohesion policy is overwhelmingly aimed at these regions, the persistence of the regional innovation paradox (Oughton et al 2002, Muscio et al 2015) means that policies in these contexts will fail to have the same transformational effects that they have in regions that are better equipped to exploit them (Rodríguez-Pose and Di Cataldo 2015). Furthermore, there is the question as to whether the scale of the investment in LDRs is sufficient. As argued by Charlot et al (2015), investments in R&D have to rise above 2% in order to have an impact on innovation outputs (measured by patents) in LDRs. In turn, the same authors demonstrate that core regions of Europe have a pull effect on knowledge resources, namely human capital. As such, EU level R&I investments are only likely to deliver territorial cohesion if they happen alongside effective place-based policies that can create innovation eco-systems in LDRs of sufficient scale to generate critical mass and to counter the pull effect of core regions (Foray et al 2018).

To fully appreciate these tensions, we will examine the issue of developing organisational capabilities in the private sector, a central policy issue in both NIP and S3. In countries studied in the NIP literature, governments tended to support large firms operating in sectors that were believed to be strategic, sustaining their efforts of technological development and market expansion, to the point when they became globally competitive (Yeung 2016). This option would of course be viable in an EU-wide industrial strategy, but it is far more challenging for regional policy, since a significant number of regions do not host transnational corporations (TNCs) on which to build such a development strategy. The solution for the EC (EC 2017) has been to aim for a value chain approach, where innovation investments are targeted at firms in the different levels of the supply chain. This is of course a topical and timely concern. According to estimates by the United Nations Conference on Trade and Development (UNCTAD), "about 80 per cent of global trade (in terms of gross exports) is linked to the

international production networks of TNCs, either as intra-firm trade...or through arm's-length transactions involving at least one TNC" (UNCTAD 2013, pp. 135). Since 80% of all global trade happens within value chains, it is reasonable to argue that regional development strategies should involve creating conditions that allow SMEs to capture a greater share of the value generated in these chains (or production networks) (Yeung, 2016). Within the EU, this would allow for the strengthening of the bloc's most competitive TNCs while also giving peripheral regions and opportunity to benefit.

There are nonetheless major challenges in this arena. One has to do with the organisational strategies of TNCs, which lead to different forms of regional engagement and which can limit the capacity of local suppliers to capture a larger share of value (Blažek, 2016). In some regions TNCs may choose to embed themselves in local networks, particularly if they can access advanced knowledge (Crescenzi et al 2014). However, there are many contexts where TNCs opt for limited engagement with local suppliers, especially when they are primarily searching for lower labour costs and when there is low trust in the institutional environment of the host country. Furthermore, as argued by Tokatli (2013), upgrading does not always lead to greater value capture by suppliers, in cases where the TNC demands more from the former without increasing its financial compensation. This also explains why in some contexts value chain *downgrading* may actually be the most sensible option for local firms (Blažek 2016), as it allows them to remain a part of the value chain without having to take on new responsibilities. At the extreme, when TNCs decide to divest from a peripheral region, their impact on local firms and regional development can be significant (MacKinnon 2012). One potential answer to these challenges has been provided by the global production networks (GPN) approach, which argues that regions should help SMEs to increase their capabilities and unique assets to make them indispensable to TNCs (Yeung 2016). Though this would be ideal, it is unlikely that all EU regions can become specialised in the production of unique assets, which means that some will continue to be peripheral for the strategies of these corporations.

On the other hand it is questionable whether S3 can provide incentives that would substantially change TNC engagement strategies towards making them more conducive to helping suppliers upgrade their capabilities. NIP does discuss how changing incentives through fiscal and trade policy, plus other initiatives aimed at skill formation and knowledge generation, can facilitate the strengthening of national champions (Amsden 2001; Rodrik 2007, 2005). But such actions are limited in the EU by state-aid rules, which hinder the capacity of nation states to provide

similar support. Furthermore, several of the countries studied in the NIP literature, such as South Korea or more recently China, achieved substantial economic success while also witnessing increasing territorial inequality. As such, there is no guarantee that improving value chains through innovation and research at the EU level would necessarily lead to greater regional cohesion. Instead, the optimisation of value chains could lead to the concentration of high-end activities in the core regions of Europe and of low-end activities in peripheral areas, which would accentuate territorial disparities.

### 3.3 Quality of governance and feedback mechanisms

As we have argued, NIP and S3 need to pay more attention to the feedback mechanisms that allow public policy to have an impact on regional development, while avoiding the traps of corruption and rent-seeking. The concept of experimental governance that we examined in section 2 posits a methodology to develop such mechanisms, but it fails to address a fundamental problem: the regions that would most benefit from high-quality policy initiatives are also the ones where quality of government tends to be lowest (Rodríguez-Pose and Di Cataldo 2015). This has practical implications in terms of policy impacts, but also wider implications regarding how best to understand and address the issue. As before, NIP can be used as a guide, but only to a limited extent, since S3 is a multi-scalar strategy which requires vertical and horizontal policy coordination.

It should be recognised that the governance of innovation systems at the sub-national level has been an ongoing concern in academic and policy debates for many years (Marques and Morgan 2018). Until recently, these debates mostly involved discussing how existing organisations could become better connected in order to support innovation activities (Trippl et al 2016). In this context, governance was not about having one organisation commanding the system, but rather about the coordination of various agents so as to facilitate the emergence of knowledge externalities. S3 adds another dimension to this debate, by asking that stakeholders within an innovation system be capable of identifying new areas of specialisation and of delivering strategic investments in a context of multi-scalar governance arrangements (Foray 2016). The capacity to organise such processes however, both during the design of a strategy and during its implementation, can only be achieved when there are organisations that have the technical skills and social capital to engage with a variety of agents and to maintain a certain level of cohesion between them (EC 2016). Whether this process is primarily led by the public sector,

executive agencies, or third party entities such as cluster managers, these capabilities cannot be taken for granted and are in fact lacking in many LDRs (Marques and Morgan 2018).

To address this issue we need to recognise that low quality of governance is a *political* rather than a technical matter (Marques and Morgan 2018). Recent research in development economics demonstrates that inclusive political institutions and processes are essential for economic growth to be widespread (Hickey et al 2014). This inclusivity is shaped by the behaviour of economic and political elites, who can be committed to strategies that encourage learning, education and innovation. At the sub-national level, quality of governance (QoG) is also positively correlated with dimensions such as innovation (Rodríguez-Pose and Di Cataldo 2015), returns on cohesion spending (Rodríguez-Pose and Garcilazo 2013) or the inclusivity of growth (Di Cataldo and Rodríguez-Pose 2017). This matter is increasingly recognised by the European Commission, which identifies low quality of governance as a major impediment to more effective strategic investments (EC 2017). However there are questions about whether S3, or EU Cohesion Policy as a whole, has the correct instruments at its disposal to intervene in contexts of low QoG and improve the political context. Any answer would have to take into consideration legal issues related to subsidiarity, plus political arguments in defence of national sovereignty, especially in a context where the larger member states are perceived to have an overbearing role in defining EU policy (Dinan 2014).

Furthermore, this multilevel governance matter has to be situated in the realities of policy making in the EU, especially in terms of the three dimensional relationships between EU institutions, member states and regions. At the national level, there have been ongoing debates about whether the construction of the EU's institutions has been led by pan-European ideals or by national self-interest (Dinan 2014, Dyson and Featherstone 1999). While it would be incorrect to deny the importance of idealism in the construction of EU institutions, there is nonetheless a general consensus that national interests remain predominant (Dinan 2014, Clark 2014). In this context, it is not surprising that the design and implementation of S3 strategies have triggered some major conflicts between the European Commission and member-states, since S3 is seen as an EU-driven policy with strict guidelines regarding issues such as prioritisation of investments, which interfere with the principles of subsidiarity and national sovereignty (Bachtler et al 2017, Howe 2018). It also helps to explain why cross-border collaboration remains a challenging endeavour (EC 2017). Although more cross-border collaboration is fundamental, in light of our previous discussion on extended value chains, the

lack of progress in this area has been one of the greatest disappointments to the architects of the S3 programme (EC 2017).

The adequacy of the precepts of experimental governance in the implementation of S3 must take this context into consideration. As an ideal-type model of governance, it is difficult to argue against the need for feedback mechanisms that ensure that monitoring and evaluation are part of the policy process itself, rather than command and control mechanisms that enforce bureaucratic compliance and organisational stasis. The real issue of course is whether they can be implemented in practice, in a situation where the public sector lacks resources (due to structural lack of investment or/and in recent times to austerity cuts), and where the relationships between different levels of government are characterised by conflict, encroachment and power disputes, as much as by attempts to collaborate and coordinate (Hooghe and Marks 2001).

Experimental governance also requires higher levels of tolerance to failure, something which is arguably even more difficult, especially in the public sector. Accepting that some initiatives will fail is however a necessary feature of public sector experimentation and innovation (Rodrik, 2014). The solution in the S3 programme (EC 2016, Foray 2015) has been to broaden the number of actors involved in policy making, to achieve transparency and build wide support for strategic initiatives. It remains to be seen whether this has been an effective approach. Finally, more resources will have to be allocated to implementing effective learning mechanisms. In practice, this means both a constant awareness of the need to dismantle barriers that hinder learning, such as silo structures or high staff turnover, and some degree of stability that allows for continuing monitoring and evaluation to feedback into the system. Although this is a challenging aim, some regions have come closer to achieving it by building dense, yet decentralised, governance systems (Morgan 2017).

### 4. Conclusions

The manifold contributions to new industrial policy (NIP), and to the notion of a 'smart state', have been fundamental in mounting a challenge to the neoliberal narrative (Mazzuccato 2013a, 2013b; Rodrik, 2004; 2007; 2013; Sabel, 2004; Sabel and Zeitlin 2012). Nonetheless, the elisions that we have identified need to be taken more seriously, both within the NIP narrative itself and in the way these ideas have been translated into S3 policy prescriptions in the EU

context (EC 2016, 2017). This paper has also argued that there are two issues which merit more discussion by those concerned with the plight of Europe's LDRs.

First, the NIP literature does not directly address issues of territorial cohesion. As a result, this translates into EU policies that avoid discussing the tensions between improving efficiency for the EU as a whole, which is likely to reinforce territorial disparities, and helping its poorest regions to develop. Without a stronger emphasis on place-based policies, and without the resources to ensure the effective implementation of such policies, NIP in Europe might have unintended consequences which run counter to the ethos of cohesion policy (Foray et al 2018). Recent experience shows that place-based policies have struggled to attract consensus from politicians and the wider public, even if some officials in the Commission have been willing to adopt its principles (Barca 2017). Given the scale and quality of investment needed to address the challenge of LDRs, more political legitimacy and commitment will be necessary to avoid a deepening of regional inequalities in Europe.

Second, S3 needs to enhance its credentials as a multi-scalar policy, combining both extra-regional support with effective autonomy and discretion for regions to act in a more experimental and less constrained manner. A more robust multi-scalar policy would need to respect the principle of subsidiarity (Bachtler et al 2014), to avoid higher level authorities encroaching in a heavy-handed fashion on lower level decision-making, and promoting a culture of collaboration and trust which can lead to stronger feedback mechanisms. These are of course the core elements of an ideal-type mode of governance, which we recognise will never be completely realised in practice, but nor should we forget that ideals are real when "they direct our striving" (Nussbaum, 2013: 383). To that extent they serve to remind us that, even in the least propitious regional environments, the quality of governance can be improved through concerted multi-scalar interventions because governance arrangements are never set in aspic.

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