Regional Entrepreneurship and Innovation Management: Actors, Helices and Consensus Space

Emanuela TODEVa St. Mary’s University Waldegrave Road, Twickenham, TW1 4SX, London, United Kingdom emanuela.todeva@stmarys.ac.uk

Panagiotis KETIKIDIS University of Sheffield International Faculty, CITY College, Proxenou Koromila 24, 546 22, Thessaloniki, Greece, ketikidis@city.academic.gr

Abstract. European Smart Specialisation (S3) policies aim to mobilise innovation and entrepreneurial capabilities and to deliver job creation and economic growth through inter-regional cooperation. The foundation principles for this policy initiative are: an entrepreneurial discovery process that aims to mobilise all stakeholders throughout all stages from conception to strategy implementation; government led policy initiatives for selecting strategic investment priorities; and building triple helix consensus space for regional policy implementation. However, the key existing gap resides in a proper investigation of such a consensus space that would fulfil the S3 mission. In this context, this paper outlines the key developments in regional innovation and entrepreneurship that have emerged through the process of S3 development and implementation. The discussion starts with an overview of the challenges and barriers and policy response for building place-based consensus space. We look at critical questions that are addressed by national and regional authorities and the localised mobilisation of entrepreneurial and innovation capabilities. Our analysis of the regional innovation and entrepreneurial systems focuses on individual actors within the triple helix model of university-industry and government, and their interaction for building a consensus space. We conclude the paper with recommendations for enhanced facilitation and orchestration of inter-regional value chains.

Keywords: triple helix, consensus, smart specialization, regional innovation system

Introduction

Igniting economic growth through place-led strategy and energising stakeholders at regional level has been at the heart of the new European growth model based on regional smart specialisation. The model was launched by the European Commission in 2013 as a pre-condition for support from the European Structural and Investment Funds, and is seen as an “important concept for better and more targeted innovation policy” in Europe (European Commission, 2016, p. 13). In response, EU member states were compelled to harness the entrepreneurial discovery process (EDP) (Foray & Goenanga, 2013) by mobilising their key stakeholders at regional and national level, in order to identify strategic priority areas for future investment for growth.

European Smart Specialisation policies aim to mobilise innovation and entrepreneurial capabilities and to deliver job creation and economic growth through inter-regional cooperation (Foray et al., 2009). The foundation principles for this policy initiative are: an entrepreneurial discovery process (EDP) that aims to mobilise all stakeholders throughout all stages from conception to strategy implementation; government led policy initiatives for selecting strategic investment priorities; and building triple helix consensus space for regional policy implementation.

The first outcome of this policy initiative is the large scale strategizing activities in Europe, that took place at regional and national level since 2013 (S3 Platform, 2017). The Vanguard initiative for inter-regional collaboration among the most advanced regions in Europe has been leading the process with political commitment, public sector initiative, and active mobilisation of research and innovation.

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leaders, universities, businesses, professional and commercial associations and other boundary spanner organisations and individuals (Reid & Miedzinski, 2014).

Smart specialisation strategies (S3) by the end of 2016 have been submitted by 18 member states and 164 European regions (S3 Platform, 2017). These strategies emerge as a result of comprehensive mapping of innovation capabilities, entrepreneurial activities, SMEs support instruments, and open conversations with large local business players, employers, institutions and knowledge brokers. Although a number of member states have opted out for a national S3, at the stage of implementation it become more clear that location and place-based initiative are more effective in mobilising resources and stakeholders.

This paper outlines the key developments in regional innovation and entrepreneurship that have emerged through the process of S3 development and implementation. The discussion starts with an overview of the challenges and barriers and policy response for building place-based consensus space. We look at critical questions that are addressed by national and regional authorities and the localised mobilisation of entrepreneurial and innovation capabilities. Our analysis of the regional innovation and entrepreneurial systems focuses on individual actors within the triple helix model of university-industry and government, and their interaction for building a consensus space. We conclude the paper with recommendations for enhanced facilitation and orchestration of inter-regional value chains.

Challenges for Smart Specialization and Regional Development in Europe

Although there is an emerging consensus among economic geographers that place-based strategies and policies for regional development offer a superior efficacy in mobilising productive capabilities (compared with sectoral-based policies), the theory indicates clearly that in order to be successful such policies have to be complemented with an industrial component of technological diversification, and value chain integration (McCann and Ortega-Argilés, 2015). Strategic choices based on embeddedness, relatedness and connectivity cannot by themselves deliver positive outcomes and to drive change, unless the fundamental causes for under-development are addressed – such as weaknesses in entrepreneurship and innovation capabilities, variously market failures, such as sectoral, structural, transactional, technological, behavioural, related to resources and capabilities, related to risk and financial flows, related to externalities and also related to commercial and cultural perceptions integration (McCann and Ortega-Argilés, 2015). Addressing these failures is a major concern for government intervention in a traditional sense of normative and regulatory action.

The entrepreneurial discovery process (EDP), which is an essential step towards building smart specialisation strategies, requires stakeholder mapping and detailed knowledge of the key industry players and knowledge providers at regional level, which goes beyond the traditional role of government. Proactive public authorities are building effective triple helix constellations with universities, business enterprises, innovation actors and public institutions - as a prerequisite for the selection of strategic priorities, development of partnerships, and implementation of S3 through interregional cooperation at European level (Foray & Goenaga, 2013). The mapping exercises that have already taken place across European regions demonstrate diversity and lack of consistency. Different categorisations of stakeholders and industry specialisation are emerging through this mapping, where the triple helix model is often used as a guiding principle (Danson & Todeva, 2016; Todeva, 2015).

Mapping of regional capabilities within selected priority sectors and identifying the location of these capabilities within established and emergent European value chains EVC is an essential tool in the implementation of a number of EU policies, among which are: S3 policy, cluster policies (including building inter-cluster partnerships and cluster internationalisation), SME support policy framework, technology policy (including the mobilisation of key enabling technologies, or KETs), research and innovation policy, regional development policy, and inter-regional cooperation networks (Boaventura et al., 2016; Humphrey & Schmitz, 2002). The sections below address the specific development targets for each of these policy frameworks, defined to address major barriers to growth and integration of the single market.
Challenges for Implementation of Smart Specialisation Strategies

The development process of S3 as a new growth strategy within the EU, represent an innovation in government. Public authorities are required to embrace three distinctive roles of Public administration Public policy development, and Public investment strategy development and implementation. As public administrators, regional and national authorities are required to perform their normative function of representing the public interest and governing the democratic processes that underpin the public sphere. As public policy agents, regional and national authorities are required to develop new policy framework conditions that create new incentives for entrepreneurship, innovation and collaboration. As strategy development and implementation agents, public authorities are required to undertake a completely new set of initiatives, such as (McCann & Ortega-Argilés, 2015; Ketels, 2016; Morgan, 2015; McCann & Ortega-Argilés, 2015; Kroll, 2015):

- driving the local entrepreneurial discovery process,
- assessment of localised strategic capabilities as comparative advantage of regions,
- formulating strategic sectoral priorities and activities for development and experimentation,
- identification and development of cross-sectoral, cross-regional and thematic activities,
- building triple helix coalitions with innovation performers, private sector commercial entities, technology entrepreneurs and other strategic organisations and resources, and
- building inter-regional coalitions across the public and the private sector.

The challenge for policy makers and public authorities is to select the right priority areas, where there is existing concentration of capabilities, and where policy intervention can enhance the regional competitiveness in these areas. Statistical analysis rarely gives an insightful picture on regional capabilities. Mapping regional capabilities with firm level data is a new method that empowers cluster, regional and national authorities to see the whole range of stakeholders, what are their strategic capabilities, what is their contribution to economic growth, and what is the scope for policy intervention to enhance the regional competitiveness.

In order to formulate smart specialisation policies, public authorities need to develop and communicate a vision – how their specialisation can integrate with wider European value chains, and how it can connect to global markets. Smart specialisation strategies and implementation process should be driven by facts as well as strategic vision, where the amalgamation of public and private interests has to be carefully orchestrated. Export-led growth is nothing new, and the policy instruments have a long history of application. Value chain connectivity via exports, however, is new and requires a profound understanding of the scope of positioning strategies that can lead endogenous growth (Todeva, 2015).

The challenges to public authorities are not simply to upgrade capacity. Capacity building programmes upgrade skills and competences that are related mainly to the first and mainstream role of government – as a normative institution and an efficient bureaucracy, coordinating public expenditure and the distribution of European structural and cohesion finds. Government employees need to change their mindset and to embrace their second and third roles - as policy makers and strategy implementers. As policy makers, government officials need to identify strengths and weaknesses, opportunities and threats for the socio-economic and innovation systems under their jurisdiction. They are required to design evidence-based policies that create incentives in the right direction of stimulation of entrepreneurial behaviour, innovation, and productivity enhancing investments – among others. Policy makers are also required to develop monitoring and evaluation systems that capture and measure the impact of various polity instruments (Todeva, 2015; Williams et al., 2013).

The challenges for strategy developers and implementers go even further into knowledge, insight, and granularity of engagement. The granularity of intervention is very difficult to achieve if governments do not have detailed knowledge of the structural composition of their priority sectors, or lists of innovation actors, leading entrepreneurs and powerful local stakeholders that are required for building of the consensus space. The use of general statistical indicators and single case studies as examples and anecdotal evidence for the justification of selection choices and illustration of best practices are
insufficient to provide overall transparency in the implementation process. Public authorities are becoming more dependent on business intelligence and intermediary organisations – to provide insights into the structural composition of prioritised sectors, and to facilitate the development and implementation of S3, or inter-regional and public-private sector partnerships.

The entrepreneurial discovery principle requires to obtain a comprehensive list of stakeholders, or actors in all modalities of the triple helix - innovative SMEs, leading technology firms, embedded multinational enterprises (MNEs), large industrial players or public sector organisations that act as attractors for investment, science and innovation. Essential part of the implementation of S3 is a multi-level mapping of concentrations of capabilities and linking capabilities with markets in Europe and abroad, or redesigning value chains. Match-making activities and orchestration of inter-regional industrial partnerships goes well beyond the scope of public administration and public policy remit for government (Todeva & Rakhmatullin, 2016).

The engagement of national and regional authorities with ‘Research and Innovation Strategies for Smart Specialisation’ (RIS3 strategies) resembles a triple helix in action, that builds upon political commitment, clear vision for the comparative advantage of the country / region (defined as strategic priorities), mobilisation of stakeholders and triple helix actors for innovation, experimentation and entrepreneurial discovery (Todeva & Danson, 2016).

The third role of government as orchestrators of the entrepreneurial discovery process cannot be understand by classical public administration theories, and goes beyond the entrepreneurial government thesis (Mazzucato, 2015) for risk taking and risk sharing intervention. It requires strategic leadership, which traditionally is a prerogative of the business sector, and cannot be performed without its leadership. The question and the challenge hence, is under what circumstances government, industry and university can create a consensus space to enable them to act in accord – towards the design and implementation of S3?

**Challenges for Building Cluster Partnerships and Internationalisation**

Recent report from the European Secretariat for Cluster Analysis advocates that cluster organisations should provide additional services to their members, such as: promotion of the cluster location and facilitating media visibility, support for the internationalisation of cluster members, collaborative technology development and technology transfer, matchmaking and networking with external partners (ESCA, 2013). All of these activities require knowing the entire population of firms in the cluster, and targeted promotion of different firms from different strategic value chain groups. Promoting strategic value chain groups rather than individual firms brings a higher value added to clusters and avoids the well criticised ‘cherry picking’, enhancing collaborative advantage for businesses. Innovation dynamics at cluster lever requires that innovation outputs are promoted throughout the entire population of member firms, rather than for champions only.

Smart specialisation priorities at cluster and regional level require co-alignment of firm strategies and incentivising the entire population of firms. A response to this challenge is the development of bespoke datasets of firms which are focused on an area of product / technology specialisation, and which can reveal existing concentrations of specialised capabilities and new networking opportunities. Creating complementarity and synergies among firms along established and emergent value chains is traditionally what large firms are able to achieve through their strategic interactions. SMEs and non-commercial entities do not have the capacity, or even the incentive to explore synergies, as they are focused on niche outputs and services. Clusters, however, recombine commercial and non-commercial actors, and as such, facilitate embeddedness, relatedness and connectivity in a particular location.

The most recent reports on cluster performance and benchmarking, provide insightful observations for specialised clusters, but are not capable to measure the depth of the cluster in terms scale and scope of diversification, or structural position and value chain participation, and hence, cannot offer a reliable method to monitor the long-term position and upgrade of firms and clusters (European Cluster
Observatory, 2014a, b). The smart guide to cluster policy clearly indicates that linkages across related industries are critical for cluster growth, and mapping these linkages within specific location boundaries is essential to mobilising cluster activities and building the necessary critical mass (Ketels, 2013). Most current cluster initiatives require both:

a) knowledge and insight in the underlying value chains within clusters, as well as how they connect to other related industry activities; and
b) detailed and exhaustive list of firms (including SMEs) that have capabilities in a particular specialised area.

Diverse cluster capabilities evolve over time through strategic choices made by individual firms. Government facilitation creates more market distortions rather than efficient inter-firm relationships. Government role, however, provides additional connectivity and promotion of the cluster, enabling small players to connect and integrate with the large firms value chains.

European strategic cluster partnerships and consortia also need value chain mapping and triple helix consensus for effective coordination of collaboration across firms, regions and sectors that constitute interconnected clusters (Todeva & Dnason, 2016; Etzkowitz & Leydesdorff, 2014). Each partnership embraces inter-sectoral business developments that cross and re-combine numerous value chains and requires consensus space at multiple levels. Each partnership, hence, needs to mobilise its stakeholders and to create a shared vision and commitment. Knowing how to accelerate the transformation of traditional value chains and to re-combine with emerging technologies and markets, requires a lot of oversight and value chain intelligence, as well as undertaking a significant risk. Connectivity and integration across regions and fragmented capabilities requires a significant strategic effort, based on business intelligence.

Challenges for SME Support

The main orientation of the policy measures towards supporting SMEs is the development of business friendly environment, providing financial support, encouraging cluster growth, integration of SMEs in clusters, and support for internationalisation (EC Growth, 2016). All these measures require knowledge of the SME capabilities in the first instance, and adapting the policy instruments to accelerate existing entrepreneurial strengths. Mapping the capabilities of SMEs in clusters and regions, hence, is essential to providing support.

A new emergent policy framework suggests that the best way to deliver support to SMEs is if they are organised in clusters (Todeva & Rakhmatullin, 2016). This approach is based on the assumption that clusters are effective forms of organising capabilities and coordinating support measures. The matchmaking events aim at building strategic partnerships, although the methodology of what is matched to whom is still unclear. There is clearly a need to translate the concept of GVC at a cluster, regional, or national level.

Challenges for Technology Policies and the Diffusion of Key Enabling Technologies (KETs)

The Commission defines that the engine for growth in Europe are knowledge intensive sectors around key enabling technologies (KETs). The policy agenda is to support these knowledge intensive sectors and the ‘technology bricks’ that support them and enable a wide range of product application (COM, 2012: 341). The Commission has acknowledged that KETs feed into many different industrial value chains and sectors and provide value along the whole chains. The implementation of KETs technology and investment policy is envisaged through a number of policy tools such as the Commission’s cluster policy and cohesion policy, both of which require inside knowledge of the industry as a key stakeholder (EC KET, 2016). Yet, knowing the industry requires firm-level data, including inter-firm connectivity within value chains. The proposed mapping methodology and the associated with it comprehensive dataset of firms, hence is a key enabler in this process. Encouraging regions and clusters to develop comprehensive maps of the value chains that capture their regional capabilities will enhance all current
policies of the European Executive Agency for SMEs, or policies that support the ‘Industrial Renaissance in Europe’.

In essence, European policies for growth, such as: Industrial policy; innovation and competitiveness; key enabling technologies; industrial sustainability; or internationalisation of firms, all will benefit from a more transparent picture of the concentration of capabilities in strategic value chain groups. Facilitated co-specialisation and collaboration of firms across strategic value chain groups is expected to accelerate the optimisation of resources as well as spill-over effects from bridging.

Global value chains are at the intersection of numerous challenges for Europe 2020. Mapping of KET value chains and in general the value chains of the core European industries will provide a robust body of data in support of the core policy initiatives for growth. Seeking Complementarity across the European technology space requires comprehensive technology maps, as well as how these maps penetrate across firms.

**Challenges for Building of Research and Innovation Systems and Policy Enhanced Research and Innovation (R&I) Performance**

Together the multi-lateral consensus spaces, new constellation of actors and booster multi-way communication among the regional development actors, regional innovation systems as consensus spaces to foster regional innovation and entrepreneurship are facing substantial challenges. It is no longer an issue of policy compliance or tacit policy changes to foster regional research and innovation systems that fulfil regional needs (based on the key regional strengths) while also integrating with national innovation systems. The key challenge at this level is to properly develop the consensus space from regional research & innovation systems where all actors and processes co-create (political commitment, cluster partnership, triple helix & civil society, citizen participation and cluster partnerships) towards the challenge of fostering regional entrepreneurship and innovation. Some of the key challenges (besides the already existing challenges of each actor involved) of regional research and innovation systems towards their transition to consensus spaces for impactful regional development are:

Firstly, research capitalization and iterative innovation channelling to regional and inter-regional innovation systems via the key capacity building delivered through the triple helix science. Open innovation is still posing challenges in a quasi-institutionalized regional innovation system where not all actors are clearly defined. This capitalization can lead to enhanced match-making with the market demand and active involvement of performance-led policy making.

Secondly, institutionalization and institutional development is still a pending task. Decentralization from national innovation systems to regional and inter-regional ones is, often, done at different paces and degrees leading to internal blockers and policy mismatch which affect proper capacity building. In order to ensure a viable consensus space, institutions need to be robust in order to achieve long term continuity. A mind-set adjustment will enhance the viability of the consensus space.

Thirdly, another challenge in regional innovation systems resides in innovation scale-up and multiplication capacity fostered by proper policies. A properly working consensus space would enable such a scale-up, however the main question would reside in who would drive this behaviour (who is the orchestrator).

Lastly, a regional research and innovation system driven consensus would require a proper performance measurement framework that would have the consensus space as key internal validator. New indexes can be developed to capture the interaction of the new constellation of actors.

**Challenges for Inter-regional Cooperation and Networks**

From its inception, the smart specialisation strategy initiative was envisaged to enhance capabilities at regional level. Although for small member states it makes sense to develop a smart specialisation
strategy at a national level, the implementation process requires active regional authorities, pro-actively mobilising local public and private sector actors and adopting a multi-stakeholder approach to policy and strategy implementation. Leading example of effective inter-regional cooperation supported by political commitment at regional level is the Vanguard initiative, whereby a large interregional consortium of over 30 regions follows a 4-step methodology of learning – connecting – demonstration – commercialisation. The success of the vanguard initiative is partially due to its effective institutionalisation of cooperation through specific task groups focused on policy influencing, financial instruments, communication, monitoring and foresight. The entrepreneurial discovery process, however, takes place in substantially different way across connected regions, generating different implementation models. It is recognised the need to develop a more standardised framework to guide the implementation phase.

**Building the Consensus Space and Who Should Drive the Triple Helix**

The new model for entrepreneurial discovery and implementation practice (EDIP) (Figure 1) highlights that the implementation of interregional collaboration strategies and the successful interregional cooperation networks require a new type of government intervention, which some authors call ‘entrepreneurial government’, carrying the risk of developmental policies.

This role create active governments to translate investment strategy into public risk, and business intelligence is essential, including a more detailed mapping of industry and regional capabilities (strategic value chain groups and innovation networks), communication platform for inter-sectoral and cross-border stakeholder engagement that encompass industry-university and government (triple helix), elaborate business models across input and output markets (designing value chains and value added flows), and matchmaking within and across value chains (Figure 1).

![Figure 1. EDIP model for inter-regional cooperation](image)

The new thematic platforms for interregional cooperation clearly put emphasis on the need to enhance:
- knowledge of value chains in established and emerging industries;
- complementarities across regions based on more detailed mapping of regional capabilities;
- matchmaking of partners within and across complementary strategic value chain groups – to accelerate and scale up the development and commercialisation of new products, services and technologies.
Conclusions and Recommendations

This paper outlines a ‘how-to’ approach for building and orchestration of a triple helix consensus space, which can be described as a strategic effort to develop regional entrepreneurial and innovation systems for accelerated growth. The approach includes the following elements:

- **Business Leadership within the Triple Helix Constraints** - mapping regional concentration of capabilities, industry value chains, lead R&D firms and specialised suppliers: Performance Analysis & Value Chain Intelligence Support
- **Political Commitment – sustainable policy framework**
- **Triple Helix & the Civil Society**
- **Consensus Space**
- **Cluster Partnerships**
- **Citizen Participation – transparency & distribution of outcomes**
- **Knowledge Networks**
- **Multi-level Governance**
- **ICT / Data**
- **Entrepreneurial Discovery & Innovation Process EDIP**
- **SMEs & Entrepreneurship**

*Figure 2. The complexity of building and orchestration of triple helix consensus space*

Orchestrating GVCs is also known as governance, or mechanisms for coordination and control of the value added flows and the value extraction process. Managing GVC requires in-depth knowledge of the technology drivers that create cross-sectoral connectivity and facilitate innovation and commercial links. Overall orchestrating value chain connectivity can focus independently on products, technologies, industry segments, or locations, exploring future scenarios, challenging established trajectories, and outlining new investment choices.

The new Smart Specialisation platforms in Agro-food, Industrial modernisation and Energy are among the first hubs for inter-regional thematic partnerships, that facilitate connectivity and integration of European value chains, and translation of innovation outputs into revolutionary technologies for commercial application.

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