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Learning opportunities stemming from place-based transformative Smart Specialisation

Examples from Visegrad Group countries

Katerina Ciampi Stancova, PhD

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Contents

Abstract

Smart specialisation (S3) is a place-based agenda for regional economic transformation. To that end, smart specialisation emphasises the importance of strategic thinking, good (multi-level) governance, existence of public institutions that are able to orchestrate fruitful discussion about the region's future development trajectories as well as develop appropriate policy instruments and interventions, and finally engaged stakeholders that are willing to take an active lead in local development. In order to achieve these objectives, public institutions are required to learn constantly – explore, integrate and exploit knowledge acquired by individuals. The proposition of this study is to discuss if and how smart specialisation fosters policy learning and to provide some evidence on implementation of smart specialisation and associated policy learning opportunities in Visegrad Group countries.

Acknowledgements

This study is a result of my seven-year work at the European Commission's Smart Specialisation Platform. As a scientific policy officer, I have been supporting national and regional authorities in countries characterised by less developed innovation ecosystems, mainly the Visegrad Group countries in their effort to develop and implement their Smart Specialisation Strategies. This study would not be possible without close collaboration with my colleagues from the European Commission and with the representatives from Visegrad Group countries. Specifically, I would like to express my thanks to my colleagues from Joint Research Centre, namely (in an alphabetical order): Monika Matusiak and Krysztof Mieszkowski, and the Directorate General Regional and Urban Policy: Tereza Krauzová, Alexandra Olajos Szabo and Jitka Vocásková. Likewise, I am very grateful to the representative of national and regional authorities as well as experts from Visegrad Group countries, namely (in an alphabetical order): Prof. Jiří Blažek, Eva Brožová, Petr Chládek, Veronika Czesaná, Veronika Kramaříková, Petr Očko, Ladislav Šimko, Jan Vozáb and the representatives of the Hungarian national authorities.

Authors

Dr. Kateřina Ciampi Stančová, European Commission, Joint Research Centre

Executive summary

This study aims at exploring and discussing learning opportunites stemming from the development and implementation of place-based smart specialisation. As specific examples, the study considers V4 countries, and asks how can and have public authorities in V4 countries benefitted from smart specialisation development and implementation. In light of the literature review, interviews, data analysis and personal experience from the Smart Specialisation Platform (S3 Platform),[1] it is clear that smart specialisation can provide the V4 countries with an added benefit of policy learning and institutional capacity building. Specifically, smart specialisation brings along opportunities and positive changes mainly when local/national authorities are proactive, open to explore new opportunities and politically and financially endorse innovative initiatives. Moreover, those who are willing to participate in and contribute to joint EU R&I initiatives are able to benefit substantially.

Smart specialisation is conceptualised as research and innovation policymaking encompassed in a holistic place-based territorial view of development. It combines an organisational bottom-up approach with a structural approach, stressing interactions among local and international actors that participate and facilitate reflexive learning processes horizontally and vertically. Smart specialisation advocates for a broad horizontal cooperation among actors in the regional setting, and for the creation of regionally based development coalitions that can contribute to intra- and inter-organisational learning through active participation in EDP and interregional cooperation in smart specialisation domains.

Policy learning within the context smart specialisation is a multi-level and multi-phased process. Smart specialisation has enabled learning processes within country's and region's own innovation eco-systems, encouraging them to undertake Entrepreneurial Discovery Process (EDP); evaluate the strengths and potential of regional innovation systems; identify a limited number priorities for investment; revise governance systems; open up the policymaking process to inputs from partners from the Quadruple Helix (QH); initiate and participate in international partnerships; and monitor and evaluate smart specialisation.

Policy context

In 2010, the Council of the European Union emphasised the concept of smart specialisation[2] and called on the European Commission to assist EU Member States with the development and implementation of Smart Specialisation Strategies. Following the Communication from the Commission on 'Regional Policy contributing to smart growth in Europe 2020' (COM(2010) 553 final), in July 2011 the European Commission established the Smart Specialisation Platform[3] at Joint Research Centre in Seville, Spain. Subsequently, smart specialisation was introduced as a legal precondition, also known as ex-ante conditionality, thematic objective 1, to be fulfilled at national or regional level to access to Research and Innovation budget under the European Regional Development Fund (ERDF). At EU level more then 120 Smart Specialisation Strategies are currently in place and are being implemented, monitored and evaluated. For the programming period 2021-2027 good governance of national or regional smart specialisation strategy will play a key role in delivering on smart growth policy objective 1. To conclude, the European experience with smart specialisation is increasingly recognised worldwide as a suitable approach for the achievement of sustainable development objectives, with a distinctive emphasis on the territorial, local and place-based needs.

Key conclusions

Policy learning is the vehicle to achieve innovation-related goals, such as greater competitiveness, increased innovation potential, and improved quality of life and work. Policy learning can thus address weaknesses of R&I systems in V4 countries including fragmented innovation systems, low collaboration intensity among Quadruple Helix actors as well as across the regions and countries, low entrepreneurial spirit, centralised R&I policy- and decision-making, and weak R&I governance.

Smart specialisation is highly context-dependant and blind copying of policy practices from abroad is not a solution for highly context-dependant R&I issues. Although the transposition of public policies from one context to other very similar ones is very attractive, there are too many variables that may jeopardise the completion of transformative change. Instead, lessons learnt from others must be interpreted, contextualised, and adapted to local need in order to provide the expected benefits. Indeed, policy learning approaches are useful tools in the

1 https://s3platform.jrc.ec.europa.eu/s3-platform
2 Council Conclusions on Innovation Union for Europe, 3049th Competitiveness Council meeting. Brussels, 26 Nov. 2010.
3 See http://s3platform.jrc.ec.europa.eu

transfer of knowledge and training of individuals, yet acquired knowledge is needed in order for wise interpretation and adaptation.

Main findings

Policymakers and officers in V4 countries who are designing Smart Specialisation Strategies and relative instruments collect inputs for their R&I policies within the borders of their eco-systems; this means specifically drawing policy lessons from interactions with the Quadruple Helix stakeholders (intra-system learning). Intra-institutional learning is also important and takes place during the monitoring and evaluation of Smart Specialisation Strategies. Currently, there is a need for a better understanding as to what extent and how smart specialisation policy interventions have been addressing the challenges identified at the beginning of the policy cycle.

Inter-system learning takes place during interregional collaboration and through international networks. International and interregional collaboration enables V4 countries to combine complementary strengths, exploit their competencies in R&I, obtain the necessary research capacity or financial resources, overcome a lack of critical mass or fragmentation, and provide access to global value chains. Yet, the path to interregional learning (learning from abroad) is not necessarily straightforward. Obstacles in terms of low administrative capacity and lack of capabilities to identify, process, and integrate policy-relevant knowledge can hinder policy learning. In addition, managers in public institutions can be reluctant to support individual policy learning due to high public employee turnover, insufficient language skills, the financial and human costs associated with international learning, or simply because they do not believe in international policy learning.

1 Introduction

Grounded in the theoretical concepts of smart specialisation (S3) and learning economies, the study aims at discussing interlinkages between smart specialisation and policy learning as well as explore implementation and associated policy learning opportunities in Visegrad Group countries (V4 countries: Czech Republic, Hungary, Poland and Slovakia). Smart specialisation is examined from the perspectives of individual, institutional, and system policy learning, and the study focuses on the elements, such as policy learning, that occurred in the V4 countries during the preparation and implementation of Smart Specialisation Strategies.

Literature discussing effects of smart specialisation on policy learning in V4 countries is almost inexistent. Current studies focus mainly on general issues of emerging regional innovation systems and R&I strategies (Blažek et al., 2012; Capello & Giovanni, 2013; Radosevic & Ciampi Stancova, 2018; Blažek & Csank, 2016; Vallance et al., 2018), governance of innovation policy (Suurna & Kattel, 2010), or the convergence and cohesion of EU Central and Eastern European countries with EU Western European countries (Płoszajand & Olechnicka, 2015; Foray 2016). Landabaso (2000) discussed largely innovation paradox that refers to the logical need to spend more public resources on R&I in less advantaged countries and their lower capacity to absorb these resources for innovation compared to more advanced regions. Scholars have identified the following causes of the innovation paradox: incomplete structural economic transformation (Vallance et al., 2018); specific socio-cultural settings inherited from communism; the economic and political costs of the subsequent period of turbulent transition (Blažek et al., 2012); low demand for innovation from local firms (Morgan, 1997); divergences in innovation/technology and industrial policies that tend to work in the opposite direction (Oughton et al., 2002); and the lack of a vivid ecosystem comprising specific capabilities and resources (Foray, 2016). Kroll (2017) claims that fragmented and incomplete regional innovation ecosystems in less favoured regions including V4 countries make it difficult for smart specialisation to depart and spur local industrial change. He adds that Entrepreneurial Discovery Process (EDP) procedures at regional level in less favoured regions are inadequate because consultations are dominated by interest groups, with real entrepreneurs and business actors often missing. This opportunistic behaviour can in fact hinder policy learning and thus distort the policy design of innovative programmes. As a consequence, policy intervention in innovation can result in inadequate, expensive, and inefficient policy interventions.

Although Suurna and Kattel (2010) postulate that accession to the EU has had a positive impact on policy development in V4 countries, and EU membership has contributed to the development of new behaviours and practices in R&I policymaking, we know only little about possible impact of smart specialisation on policy learning. Some preliminary propositions on policy learning and smart specialisation in V4 countries have been advanced by the European Commission, Joint Research Centre (Kleibrink, Sorvik & Stancova, 2014; Ciampi Stancova & Sorvik, 2015; Radosevic & Ciampi Stancova, 2015). This study aims at bridging this gap in literature by exploring the relationship between smart specialisation and policy learning from the conceptual point of view as well as by providing evidence on implementation of Smart Specialisation Strategies in V4 countries.

Although the impact of smart specialisation has not been adequately explored and quantitative studies on this subject are missing due to the unavailability of valid data and comprehensive evaluation methods, learning processes in terms of policy learning and behavioural changes that have occurred in relation to the development and implementation of Smart Specialisation Strategies in V4 countries have been observed. It is likely that smart specialisation has stimulated the development of new practices in R&I policymaking and introduced changes in routines and governance practices. Further, smart specialisation has contributed to the development of long-lasting collaborative networks and helped to steer collaborative dynamics.

I argue that the main impact of place-based smart specialisation on V4 countries in terms of policy learning is likely to arise from the Entrepreneurial Discovery Process (EDP) through the knowledge networks built across the Quadruple Helix[4] (learning by interacting by means of participating in intra-regional networks), monitoring and evaluation (learning by doing, from own experience), and interregional and international cooperation in smart specialisation (learning by observing, by interacting, and knowledge exchange through interregional learning networks).

Policy learning is at the core of the most recent regional development theories proposing that innovation and learning are interlinked and are among the main driving forces enabling local development and growth. These include regional innovation systems, learning region, and smart specialisation. Regional learning processes in

[4] Quadruple Helix innovation framework recognizes interactions of actors representing four innovation groups: private sector (industry and companies), public sector (government and administration at different levels of governance), science (university, research centres and knowledge institutions) and society (non-governmental organisations, etcetera).

smart specialisation are based on knowledge factors such as creation, sharing, exchanging, and integrating knowledge by local actors. They have been viewed as networks of economic, social, and organisational relationships determining the ability of regions to learn and develop unique competitive advantages and skills (Organisation for Economic Cooperation and Development [OECD], 2001). Economic geographers have explored the dynamics of learning processes at system level since the 1990s in relation to emergent theories on knowledge management, regional innovation ecosystems, and sustainable regional development. A number of regional development theories have been proposed to address the relationship between innovation, interactive learning, knowledge generation, and regional growth; these include the regional innovation system, learning region and, finally, smart specialisation.

Place-based transformative smart specialisation is concerned with regional development by means of the smart allocation of resources on R&I niches identified through EDP and policy learning is an outcome of EDP, monitoring, and evaluation - as well as interregional cooperation in smart specialisation. Policy learning in smart specialisation can be understood as a process inherent to public sector institutions that are connected via intra- and inter-regional networks and learning through interaction with others as well as from their own policy experience.

The proposition of this study is to discuss two questions: What learning opportunities are associated with the development of place-based bottom-up smart specialisation? How can and have public authorities in V4 countries benefitted from smart specialisation development and implementation? In light of the literature review and experience from the Smart Specialisation Platform (S3 Platform),[5] the hypothesis of this work is that smart specialisation can provide the V4 countries with an added benefit of policy learning and institutional capacity building.

5 https://s3platform.jrc.ec.europa.eu/s3-platform

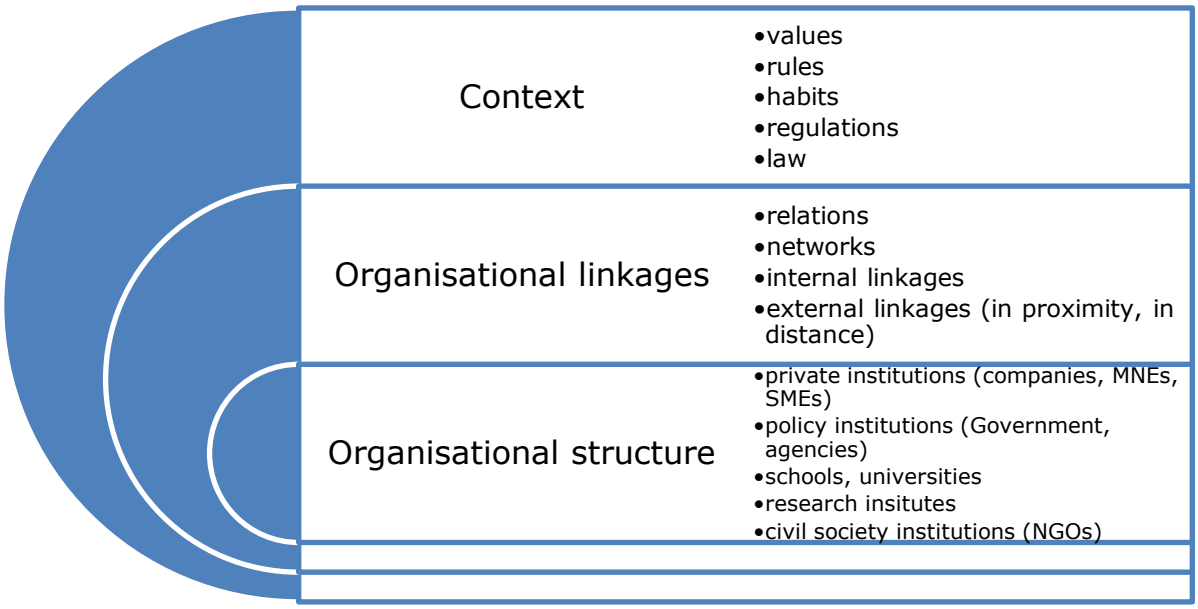
2 Smart specialisation

Smart specialisation is a transformative, bottom-up, place-based approach to regional development that was conceptualised in the 2000s by scholars such as Dominique Foray (Foray & Van Ark, 2007; Foray 2015, 2016, 2017) as well as by the European Commission (Pontikakis, Kyriakou & Van Bavel, 2009; Foray & Goenaga, 2013) and since then it has found large practical application mainly in European regional policymaking. For Radosevic (2017), smart specialisation is a large-scale industrial and innovation policy experiment encompassing all EU regions and countries. Morgan (2017) posits that smart specialisation is the most ambitious innovation policy ever launched on a large geographical scale and refers to it as a concept that envisages strong interrelations between innovation, institutions, and development. Foray (2017) argues that smart specialisation is a "new industrial policy" that describes the tools with which regional and national governments can manage positive structural change and modernise economic structures. Finally, Kroll (2015) considers that one of the main advantages of smart specialisation is its practical contribution to changing the routines and practices of governance, even if there is a lack of understanding of the measurable effects on policy. I argue that one of the main contributions of smart specialisation is a strong emphasis on good, open, local government that constantly learns and integrates knowledge, and that can orchestrate fruitful discussions about the region's future and empower regional stakeholders to take an active lead in socio-economic and sustainable development.

Smart specialisation shares many elements with regional innovation systems theories; it builds on and enriches them. It is a place-based approach to regional development that contemplates a strong, modern, and competitive regional eco-system while addressing socio-economic and sustainability issues and reinforcing an open and democratic society. It is rooted in an endogenous regional development theory that postulates that development is dependent on factors and processes, as well as socio-economic and cultural systems embedded in the territory. The success of the local economy to grow, innovate, and be competitive depends on the interplay of local production factors, entrepreneurial skills and performance, relations among local actors, good governance, and the role of regional actors in decision-making process when undertaking innovation and structural change (Capello, 2009).

Smart specialisation is conceptualised as research and innovation policymaking encompassed in a holistic place-based, bottom-up territorial view of development. It combines an organisational bottom-up approach with a structural approach, stressing interactions among local and international actors that participate and facilitate reflexive learning processes horizontally and vertically (Figure 1). Smart specialisation advocates for a broad horizontal cooperation among actors in the regional setting, and for the creation of regionally based development coalitions that can contribute to intra- and inter-organisational learning (Asheim, 2012) through active participation in EDP and interregional cooperation in smart specialisation domains.

Figure 1. Smart specialisation place-based structural approach

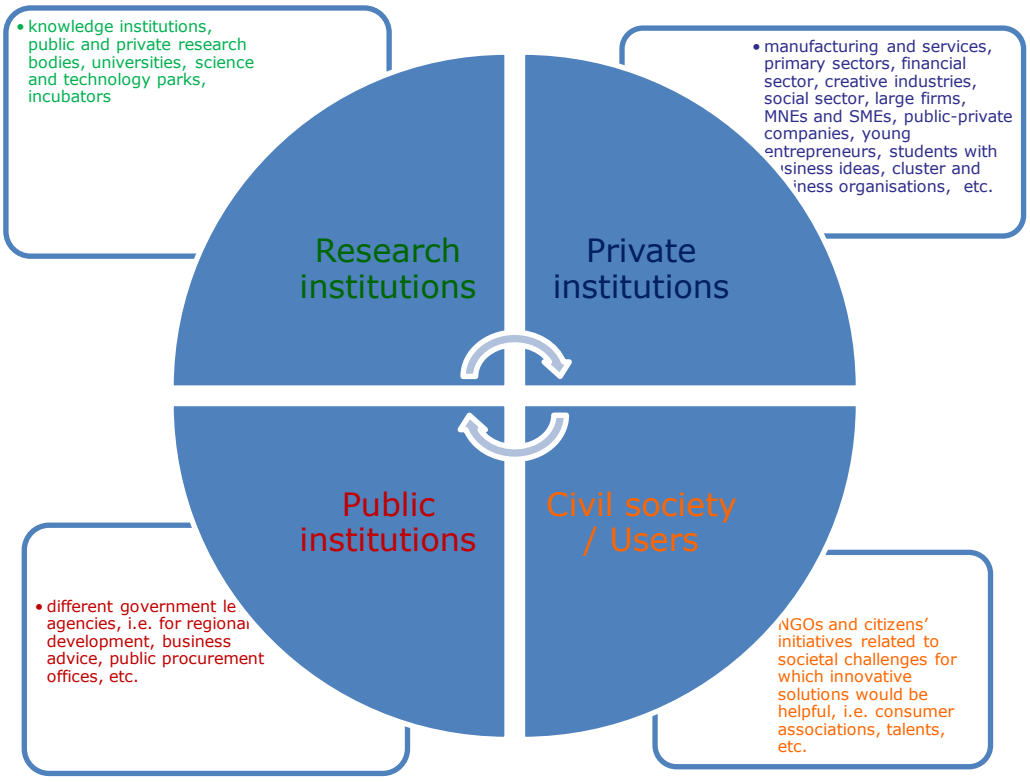


Source: based on Healy & Morgan (2012)

Smart specialisation provides regional and national policymakers with robust and transparent means for nominating new policy activities that enable the exploration of new technological and market opportunities and, as a result, create regional competitive advantages. The smart specialisation methodology does not just offer an approach to identifying hypothetical regional strengths in specific areas, but allows policymakers to understand whether their region should specialise in innovation activities and, if so, in what areas (Foray & Goenaga, 2013). Three elements make smart specialisation a unique concept: first, the Entrepreneurial Discovery Process (EDP), second is prioritisation (concentration of resources on promising R&I areas), and the third concerns interregional and international cooperation.

First, smart specialisation is a dynamic and evolutionary process grounded in the Entrepreneurial Discovery Process (EDP) where governments facilitate and orchestrate discussions with partners across the Quadruple Helix (Figure 2). McCann and Ortega-Argilés (2013) postulate that smart specialisation can be seen as a public-private partnership process of discovery and learning on the part of both entrepreneurs and policymakers regarding the most likely avenues for entrepreneurial opportunities and innovation breakthroughs (p. 27). Smart specialisation requires that all stakeholders located in the territory are engaged in the discussion of regional opportunities and challenges, in addition to the identification of a limited number of smart specialisation priorities. Further, it requires regional partners to be involved in the implementation of the smart specialisation strategy, and thus share the risks and benefits of local growth. In fact, involving a large number of regional stakeholders is a key success factor of smart specialisation. That said, it is challenging for two reasons: first, reaching companies can be difficult because they are not easily mobilised around policy-oriented exercises; and second, reaching an agreement on smart specialisation priorities can be jeopardised by a large number of regional stakeholders with different interests and views. Smart specialisation thus offers a great opportunity, yet responsibility lies with all regional stakeholders to decide on the future development trajectories of their region and country.

Figure 2. Smart specialisation and Quadruple Helix EDP process: ensuring participation and ownership



Source: based on the European Commission's Smart Specialisation Platform work

Second, prioritisation is a process of identifying a limited number of technology-research-economic domains for targeted R&I investments. The concept of smart specialisation requires countries and regions to focus their efforts and resources on a limited number of ambitious yet realistic priorities (niches or activities), through which they may develop excellence as well as compete in the global economy in a sustainable (financially, socially, and environmentally) manner. Smart specialisation underlines the role of a good public authority that is impartial, open to the receipt of valuable information and advice, and makes clever decisions regarding priority selection. The logic behind prioritisation is twofold: (1) avoid the duplication or even multiplication of the research and innovation effort within the European Union, and (2) concentrate limited resources on the most promising areas that can generate economic growth and employment. The objective of prioritisation is thus improving the innovation effort with fewer resources. However, regions can find prioritisation difficult and painful; making choices means picking up some options while excluding others, and also requires predicting the future and deciding on future production trajectories. Finally, the granularity of the priorities – the level at which the smart specialisation domains are defined and supported – can be subject to discussion (Foray, 2015). Therefore, smart specialisation underlines the role of a good regional public authority that is impartial, open to the receipt of valuable information and advice, and makes clever decisions regarding priority selection.

Third, smart specialisation considers relational dynamics among local actors and those located outside the region's territorial area. Radosevic and Ciampi Stancova (2018) claim that the transformative power of smart specialisation can be seen in the capacity of the regions to combine locally accumulated knowledge and technologies with international knowledge and production networks. In fact, smart specialisation pays particular attention to the importance of the so-called 'outward-looking dimension'. A number of factors seem to support the pursuit of interregional collaboration in research and innovation in the context of smart specialisation (Uyarra et al., 2014). This outward-looking perspective means, for example, the continuous analysis of where individual region stands in relation to others in Europe and the development of interregional collaborations in smart specialisation domains. Other motives for opening up smart specialisation include gaining access to wider business and knowledge networks, acquiring the necessary research capacity, reaching out to other markets, expanding business opportunities, combining complementary strengths, and joining global value chains (Rakhmatullin, Stanionyte & Mariussen, 2016).

Uyarra et al. (2018) argue that interregional collaboration in smart specialisation can contribute positively to policy learning and improve local connectivity, competencies, and capabilities. In this relation, Uyarra et al. (2018) note that interregional collaboration in smart specialisation can be particularly relevant for V4 countries for a number of reasons. First, it can help to address the issue of inadequate local skill sets and expertise in knowledge intensive industries. Second, it can provide better access to the pool of financial resources and funding opportunities. Last, and most important in terms of policy learning, it can enable policy learning, particularly between peripheral (of lagging) regions and 'core' regions, and help prevent government and institutional failures associated with myopia, inertia, policy capture (Uyarra et al., 2018, p.4).

3 Policy learning and smart specialisation

Learning is essential for innovation to flourish. In the modern knowledge economy, knowledge is an essential production factor and learning is a process that transforms knowledge in innovation (Morgan, 1997; Rutten & Boekema, 2013). Ludvall (2016) argues that learning is a social activity central to the system of innovation.

Policy learning in the contest of smart specialisation can be defined as a process of acquiring, processing and integrating new knowledge on policies by individuals and public institutions. In other words, policy learning is about the transfer of policy-related knowledge from source to receiver, with the receiver's actions aiming at its acquisition and absorption (Phelps et al., 2012).

Mariussen et. al (2016) contends that placed-based smart specialisation and learning can strengthen the regional eco-system. In other words, learning through collaboration in smart specialisation intra- and inter-regional networks is seen as a resource for regional development (Mariussen & Virkkala, 2013) because it allows regional stakeholders to create, explore, share, convert, adopt, use, and manage valuable knowledge that is a strategic resource for innovation and regional development.

How does policy learning take place in a country or region with smart specialisation and how can public authorities benefit from learning? Policy learning within the context smart specialisation is a multi-level and multi-phased process. Smart specialisation has enabled learning processes within country's and region's own innovation eco-systems, encouraging them to undertake Entrepreneurial Discovery Process (EDP); evaluate the strengths and potential of regional innovation systems; identify a limited number priorities for investment; revise governance systems; open up the policymaking process to inputs from partners from the Quadruple Helix (QH); initiate and participate in international partnerships; and monitor and evaluate smart specialisation (Figure 3).

Figure 3. Smart specialisation and learning through intra-regional network with Quadruple Helix partners

During these processes and associated activities, individuals and public sector institutions participate in knowledge networks; they exchange, collect, process, use, and protect acquired knowledge. Public sector institutions are an integral part of the regional eco-system in which regional stakeholders across the Quadruple Helix are connected in networks via smart specialisation and open to intra- and inter-system learning processes. Public institutions learn by observing the experiences and practices of other institutions across regional borders, and consequently draw lessons to improve their own policies and develop new programmes (Rose, 2002). International networks facilitate knowledge creation because they provide access to production resources. Finally, public institutions learn from their own past errors by means of the monitoring and evaluation of policies. Table 1 summarises agent learning by type of regional stakeholder, learning process, and objectives.

Table 1. Agent learning in smart specialisation region/country

WHO	WHEN	WHAT	OBJECTIVE
Public institutions (authorities)	EDP, intraregional and interregional cooperation, monitoring and evaluation	Information that helps public institutions make informed policy decisions and identify promising R&I priorities for investment. Learn about practices and policies in place. Understand weaknesses and avoid possible failures of public policies.	To design tailor-made policies with maximum impact, create instruments that best fit beneficiaries' needs.
Research institutions	EDP, intraregional and interregional cooperation	Getting to know other stakeholders in the region, extend networks, connect to private and public sector and civil society.	To meet the third mission objectives, stay competitive and relevant. Contribute actively to sustainable local development and supply private and public sector with needed human resources and advice.
Private institutions	EDP, intraregional and interregional cooperation	Getting to know other stakeholders in the region, extend their network, connect to new service/goods providers, gain access to new business ideas (or ideas from different business sectors).	To be more innovative, competitive, predictive and adaptable to international markets and market conditions.
Civil society/users	EDP, intraregional and interregional cooperation	Getting to know other stakeholders in the region, extend their network, connect to public and private actors.	To represent the interest of civil society, gain access to information and influence decision-making.

Smart specialisation positions public institutions in a premium spot compared to other regional actors because they not only orchestrate Quadruple Helix discussions on future R&I trends, but also collect, analyse, and choose valuable information that help them to make informed policy decisions and identify promising R&I priorities. EDP is orchestrated by public institutions that decide on the EDP governance structure, decision-making processes, and frequency of meetings. Public institutions also provide political and economic endorsement for interregional collaboration in smart specialisation, specifically participation in Smart Specialisation Thematic Platforms. Finally, public institutions design, conduct, and analyse the monitoring and evaluation processes of smart specialisation.

In order to make an informed choice around smart specialisation priorities, regional public authorities must have access to full information in addition to possessing the knowledge and capacity to process, choose, and analyse valuable data. As the first aspect is addressed by EDP – we do not have enough knowledge of the later one - it is thus not clear how public authorities deal with numerous quantitative and qualitative inputs, or how they proceed and analyse raw data. Do they have the capacities and knowledge within the region? Are they assisted by technical experts or consultants, or do regional stakeholders provide support? How does the EDP process in general impact on priority selection and regional policymaking? How has the modus operandi of public institutions changed after EDP?

A number of related questions can also be raised about interregional cooperation, as well as the monitoring and evaluation of smart specialisation. Do regional representatives have experience with interregional cooperation in smart specialisation? Has this experience enriched or changed the behaviour of public officers and policymakers? How do public institutions go about the monitoring and evaluation of smart specialisation? What policy lessons are learnt? Are the lessons learnt codified and implemented within the institutional system? Can change in the quality of local governance and policymaking be observed?

4 Modalities of policy learning within the context of smart specialisation

Policy learning in smart specialisation is characterised by a different scope, scale, modality, method, and length. Each of these elements will be addressed separately. First, 'scope' is understood in terms of general objective and motivation for policy learning. It addresses the questions as to what and why is being learned by individuals and institutions. A number of answers as to the 'what' question can be articulated: new and innovative policy approaches, concepts, policy-tools and methods, as well as strategic planning, execution of strategies and policies, etcetera. Similarly, the reasons for policy learning are multiple: to improve performance, innovate processes, address new issues or past errors, explore new ways of policymaking, and acquire new relevant skills and knowledge, etcetera. As a consequence, the effects of policy learning can be multiple and depend on the complexity, dimension, and origin of knowledge transferred. Complex knowledge can combine both tacit and codified knowledge and its location can be multiple. Tacit knowledge is based on experience; it is difficult to verbalise and transfer it from one person to another, i.e. leadership, diplomacy, networking, speaking, and negotiation skills, etcetera. On the other hand, transferring codified knowledge can be easier as this knowledge can be written down, shared, and validated.

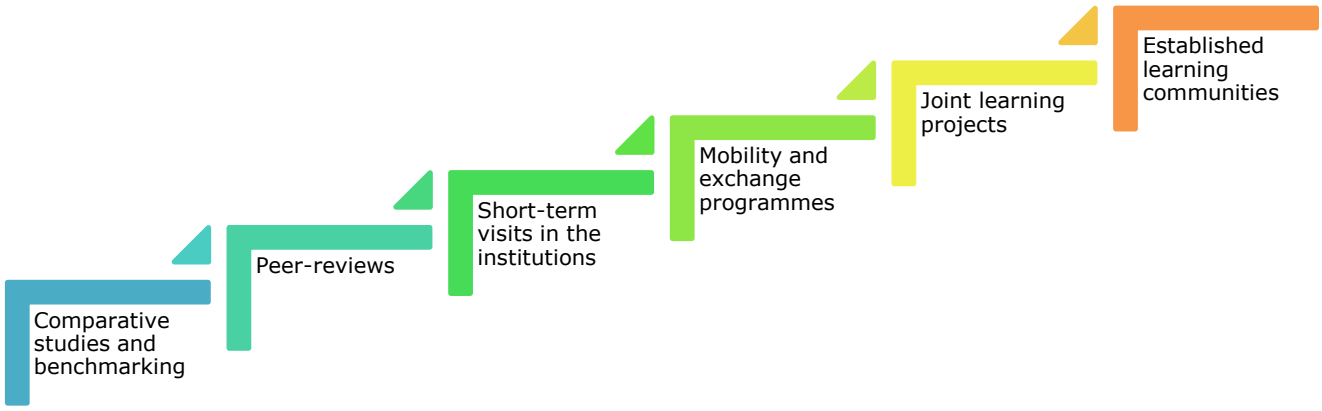
Second, 'scale' refers to the level at which policy learning takes place. Policy learning is a multi-actor and multi-layer process and occurs at the level of systems (e.g. among regional actors in innovation eco-system), institutions (internally at private or public organisations), groups (e.g. different social, cultural or political groups, or interest groups), teams (e.g. teams of researchers or business teams), as well as individuals (individual cognitive learning). It is clear, however, that no institution can learn without the active participation of individuals in formation, and thus individuals are the agents for institutions to learn. Yet, Wang and Pervaiz (2003) argue that individual learning is not necessarily conductive to institutional learning and is a task of the institutions to explore, integrate, and exploit knowledge acquired by individuals. In relation to this, Drejer et al. (2004) postulates that it is critical to disseminate the knowledge acquired by individuals across the institution, and thus institutions should be supportive of the maximum diffusion and use of that knowledge. Some possible ways to do this include: the development of a codification mechanism, organisation of training and workshops, or creation of social spaces conductive to the informal exchange of information. Nauwelaers and Wintjes (2008) propose three different 'scales' of policy-learning: a) intra-organisation learning that involves components of the same institutions and draws mainly on the institution's own policy experience, b) intra-system learning, also known as inter-organisational learning, which takes places among institutions within the same eco-system, e.g. local government and other stakeholders from the Quadruple Helix located in the same eco-system or region, and c) inter-system learning that takes place among different eco-systems, and often in the international arena.

Third, the policy learning 'scale' is closely related to policy learning 'modality'. 'Modality' is a term that can be used to define different forms of knowledge exchange and, thus, learning. Policy learning is context dependant and the person or institution receiving learning inputs must have receptors in order to capture information, facts, or skills in order to process and absorb it. Three modes are most relevant for policy learning in smart specialisation: the first concerns learning-by-doing, while the second is learning-by-interacting, with the third about learning-by-observing. Learning-by-doing is also known as reflexive learning or learning-by-monitoring. It is based the individual's own experience and takes place when people reflect on the outcomes of their behaviour, approach, or actions and eventually decide to take alternative approaches (Nauwelaers & Wintjens, 2008; Wolfe & Gertler, 2002). Learning-by-interacting is linked to networking activities and the exchange of knowledge and information with peers. It can take place within the same institution, as well as among institutions and systems. Finally, observational learning takes place when individuals observe positive or negative behaviour, draw conclusions from observations, and adjust their behaviour or processes accordingly.

Similarly, organisational learning theory suggests three forms of learning: experimental learning, congenital learning and inter-organisational learning (Clarysse et al., 2009). Clarysse (2009) clarifies that experimental learning is based on the repetitive execution of activities and routines, and through an evaluation of the effects of repetition, managers learn experimental lessons. Experimental learning, thus, is learning from the organisation's own experience. Second, congenital learning refers to the implementation of new knowledge or practices as a consequence of activities carried out by the organisation, e.g. the execution of a project or delivery of a service. This learning is dependent on the organisation's absorptive capacity and capacity to identify, process, integrate, and exploit new knowledge. Finally, inter-organisational learning is closely linked with knowledge spill-overs. By means of inter-organisation learning, organisations have access to technological knowledge, business practice, and market strategies developed by other organisations. Inter-organisational learning is defined as the transmission of knowledge between different organisations.

Fourth how people and institutions learn is referred to as 'method'. Policy learning within an institution can be based on an analysis of the monitoring and evaluation of past and current policies, as well financial checks and audits. In terms of intra- and inter-system learning, six learning methods exist (Figure 4).

Figure 4. Six methods for policy learning



Comparative studies and benchmarking are approaches to learning about other policies, programmes, and practices. In the private sector, benchmarking is seen specifically as a method of comparing one's own performance with that of the best performing entities, the evaluation of differences, and the adoption of practices and processes according to the best performer (Nauwelaers & Wintjens, 2008). In smart specialisation, the objective of benchmarking is not to blindly copy practices from well-performing regions and countries, rather it is to explore and learn about the varieties of methods and approaches in innovation policymaking from similar systems. In fact, countries and regions should benchmark themselves with the regions that show similar innovation and economic characteristics including innovation potential, R&I governance, policy and economic drivers, system conditions, business culture, and social capital and culture.

Peer-review methods are designed to help policymakers share their experience and knowledge about complex reality. It reviews policies, approaches, methods, and instruments among peers based on their experience and thus mostly tacit knowledge (Nauwelaers & Wintjens, 2008). To promote policy learning across regional and national borders, the European Commission's Smart Specialisation Platform created two collaborative tools in line with peer-review and participatory leadership methodologies: the first relates to Peer Review Workshops of Smart Specialisation Strategies, while the second concerns Peer eXchange and Learning Workshops. Peer review workshops bring together representatives from EU Member States and regions for the mutual learning and exploration of how Smart Specialisation Strategies can be developed, implemented, and evaluated. In an open and trusted learning environment where practical and conceptual aspects of RIS3 are discussed and explored through the challenges and experiences of individual EU Member States and regions, public authorities are exposed to a very intense learning momentum. Learning is mutual and across national and regional borders and public authorities receive both critical and timely advice. Finally, Peer Review Workshops, similar to mutual learning practices, are based on knowledge factors such as the creation, sharing, exchanging, and integration of knowledge.

An additional method of promoting and supporting policy learning involves participation in short-term visits, mobility, and exchange programmes, e.g. secondment. After programme completion, individuals are asked to return to their institution for a certain period of time in order that return on investment and transfer of knowledge is ensured. In addition, public institutions can develop joint projects aimed at policy-knowledge

exchange or participate in existing international policy learning platforms, such as the Interreg Policy Learning Platform. Finally, public institutions can develop long-lasting policy learning communities comprised of policymakers, officers, practitioners, and experts who can discuss different policy-related issues in a more structured and lasting way.

Learning takes place during a specific time. In fact, the policy learning process takes place when people meet, interact, discuss, and take decisions related to smart specialisation, as well as during the execution of joint projects within and across the region's borders. Therefore, time is also an important factor because depending on the specific needs and objectives of the actors, the policy learning process can be more or less dynamic, rapid, intense, or effective.

Smart specialisation is conducive to policy learning at different scales: individual, institutional, and system level, as well as modalities: learning-by-doing, learning-by-interacting, and learning-by-observing. For example, the Entrepreneurial Discovery Process provides for policy learning lessons to those that interact at intra-system level. In other words, individuals learn by participating in intra-regional knowledge networks built across the Quadruple Helix. Similarly, monitoring and evaluation provides individuals with an opportunity to learn from their own experience and errors within their own institution or the system. And finally, interregional cooperation in smart specialisation stimulates policy learning-by-interacting and observational learning. Table 2 summarises policy learning in smart specialisation. It needs to be underlined that the effects of policy learning in smart specialisation depend on political culture, behaviours, values, and attitudes. Additional variables that can influence policy learning are: type of institutional system, political situation, and stability as well as support provided by managers.

Table 2. Policy learning and smart specialisation

	LEARNING		SMART SPECIALISATION	
SCALE	Intra-institution	Internal evaluation of smart specialisation processes	Coordination of RIS3	Tacit knowledge: leadership, diplomacy, networking, speaking, and negotiation skills.
	Intra-system (intraregional)	Monitoring and evaluation of implementation of Smart Specialisation Strategies in the region, targeted support by the European Commission	Entrepreneurial Discovery Process	Tacit knowledge as above
	Inter-system (interregional)	International peer-reviews on RIS3 implementation and evaluation, comparative studies and benchmarking, visits, targeted support by the European Commission	Interregional thematic collaboration	Tacit knowledge as above
		Learning-by-doing	Learning-by-interacting	Observational learning
MODALITIES				

To summarise, the effects of policy learning can be different depending on scope, scale, modes, method, length, and time as described above. The three most obvious effects are: first, policy learning can change the behaviour of individuals working for public institutions, i.e. officers, policymakers, auditors, etcetera. Second, policy learning can also allow for changes at institutional level. For example, positive intra-institutional learning can spur institution innovation and bring change in institutional practices and routines. Last, policy learning can result in changes at policy level, e.g. the introduction of new policies and new policy instruments or revision of existing policies.

5 Smart specialisation and policy learning in V4 countries

Why should policy learning matter for V4 countries? The answer seems to be quite straightforward: policy learning is the vehicle to achieve innovation-related goals, such as greater competitiveness, increased innovation potential, and improved quality of life and work. Specifically, policy learning can help in addressing some of the weaknesses of national R&I eco-systems including fragmentation of the innovation system, disconnectedness of local innovation actors, low entrepreneurial spirit as well as low industrial diversity. Although V4 countries are very open economies, regional actors struggle to access and participate in R&I networks and improve their position within global value chains, with the result that they suffer from poor connectedness within and outside the regional eco-system. In turn, policy learning can address structural and systemic weaknesses of the V4 countries such as low administrative capacity and lack of capabilities, problem in institutional and policy coordination and, multi-level governance issues.

I argued previously that policy learning takes place during three phases of the smart specialisation process: first, in the Entrepreneurial Discovery Process (EDP) through knowledge networks built across the Quadruple Helix; second, monitoring and evaluation; and third, interregional cooperation in smart specialisation, thus through international networks. I explored each of three above mentioned phases in V4 countries by first interviewing policy officers in the V4 countries and the European Commission representatives, and second by analysing quantitative data on policy support provided to V4 countries by the European Commission's Smart Specialisation Platform. The results of analysis are summarised below.

5.1 Entrepreneurial Discovery Process and V4

In 2012, EDP was a new concept to V4 countries policymakers, and as such it did not raise much interest, it was criticised and not well understood. By making smart specialisation an ex-ante conditionality of the European Structural and Investment Funds (ESIF) for the period 2014-2020 V4 country representatives understood that they had to set up an effective and functioning EDP process and define a limited set of investment priorities in order to unlock their access to ERDF funding. The process took some years and as a novel approach to management of public R&I funding it was faced with critics, resistance and do-nothing. Nevertheless, V4 were able to overcome the initial challenges, set up EDP and finalise successfully their Smart Specialisation Strategies.

In some countries such as Slovakia, EDP became a vehicle for innovation policymaking, being an intensive and trusted process. In other countries such as the Czech Republic, the EDP is a continuous process, but more of informative nature. The Innovation Platforms have in fact been turned into forum in which stakeholders receive information from public authorities, and play a rather passive role. In order to revive the Innovation Platform and get as much as valuable information from the stakeholders as possible, it is planned to engage technical experts as moderators, and ask them to animate the expert discussion and collect technical input for the innovation policymaking. In Poland, EDP success can be seen in a constant involvement of private sector, for-profit companies that are important innovation players and often reluctant to participate in public consultations. The companies are now active actors in EDP and this resulted in improved ERDF Calls, as well as higher quality of proposals submitted in terms of awaited project outputs. Finally, Hungary has followed smart specialisation methodology and set up EDP process, yet its full potential has not been fully explored and exploited.

Generally speaking, EDP has brought three significant changes to V4 countries research and innovation policymaking. First, EDP made the innovation policymaking more open and inclusive, and it counts now with an active participation of Triple Helix partners including private companies, research and education institutions and civil society. By running EDP the policymakers got closer to the innovation actors and can understand better their needs, concerns and interests. Second, EDP was institutionalised in V4 countries and currently there is no or very little discussion about its authority and advantages. Actions are currently taken by the V4 national authorities to evaluate and learn from EDP processes, and integrate lessons learnt internally. Third, EDP opened up a discussion about multi-level governance in some V4 countries, e.g. the Czech Republic. Table 3 summarises essential information on EDP in V4 countries.

Table 3. Smart Specialisation Strategies and EDP in V4 countries

V4 Country	National RIS3	Regional RIS3 with Operational Programmes	Regional RIS3 without Operational Programme	Number of priorities	Institution responsible for RIS3	EDP
Czechia	1	1	13	5 with 10 sub-priorities	Ministry of Industry and Trade	Innovation Platforms
Hungary	1	0	0	8	Ministry for Innovation and Technology	In 2014 two-round consultations, in 2019 National Innovation Forum
Poland	1	16	0	17 priorities grouped into 5 thematic areas	Ministry of Entrepreneurship and Technology	Working Groups
Slovakia	1	0	0	5	Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization	Domain Platforms

In the past, a central top-down approach to R&I planning was a characteristic feature of V4 economies. Most of the V4 countries underwent post-communist economic transformation and administrative reforms, and entered the European Union with newly renovated institutions and local administrative organisation. Yet, the regions in V4 countries, apart from Poland, have been given only limited executive competencies in some policy areas, excluding the area of research and innovation (Blažek et al., 2012).

Interestingly enough, smart specialisation and EDP brought some significant multi-level governance changes, and the Czech Republic is an interesting case to discuss. The Czech Republic complies with ex-ante conditionality Thematic Objective 1 in the 2013-2020 multiannual programming period at national level. The national authority currently responsible for the coordination of the national Smart Specialisation Strategy is the Ministry of Industry and Trade. The Czech Government Office was responsible for the coordination of the Czech RIS3 strategy until summer 2018 and the Czech Ministry of Research, Education, and Sport played a significant role at the beginning of the process.

Although Smart Specialisation Strategy has been prepared at national level, focus on regions is strong because Smart Specialisation Strategy contains 14 regional RIS3 annexes (at the level of NUTS3 regions). The NUTS3 regions do not have legal responsibilities in R&I policy and thus their power and financial resources are almost inexistent. In the past, only the most courageous regions such as South Moravia put forward their initiatives in R&I and financed these from their own resources. With the introduction of smart specialisation, the regions were given the opportunity to explore their regional R&I strengths and weaknesses, reflect upon their regional growth potentials, and connect with regional stakeholders. The decision to choose the national Smart Specialisation Strategy and regional annexes format was taken by national authorities to give the regions an opportunity to define their own priorities based on the Entrepreneurial Discovery Process (EDP) and SWOT analysis. It needs to be noted that the Czech regions were not obliged to define their own regional Smart Specialisation Strategies but in the end all regions finalised the exercise and prepared their RIS3 documents. Involving a wide array of

regional actors in drafting the Smart Specialisation Strategies has been considered a major benefit of the exercise. The regional starting points were different depending on their past activities in the area of R&I, local authority political endorsement, and human resource capacity to carry out the work on Smart Specialisation Strategies. To facilitate the work in the regions, Czech national authorities appointed regional managers and a national Smart Specialisation facilitator. Although regions still do not have formal legal responsibilities in R&I and the ERDF calls are at national level, the regions have been able to define their Smart Specialisation Strategies and manage them thanks to the Smart Accelerator project funded by the European Social Fund. From the informal evaluation of the Managing Authority – the Czech Ministry of Education, Youth and Sport, Smart Accelerator is a successful programme that has helped to enhance regional capacities in R&I filed, has provided for joint learning and knowledge exchange among the regions as well as has helped to develop regional instruments aimed at supporting innovation activities locally. It can be concluded that smart specialisation with its intra-regional interactions and intra-eco-system dynamics triggered policy learning at regional and national levels and in consequence behavioural change in R&I governance.

The case of Slovakia is also illustrative in terms of continuous and effective EDP. Smart specialisation has been supported by the national policymakers, and they understand it as a comprehensive transformative agenda, a way towards economic transition, sustainable growth and digital knowledge society. Over the years, smart specialisation has established itself as a credible and trusted approach to public funding of R&I. In fact, smart specialisation is seen as a comprehensive agenda that is not linked to any specific sector, and thus placed under the responsibility of the Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization. EDP is a bottom-up process with a strong involvement of Triple Helix partners who are seriously committed and responsible. Triple Helix partners see benefits in EDP participation, and they meet on regular basis, discuss and find agreements in a consensual way. This is a big change compare to the past when the eco-system was fragmented, communication and collaboration among the actors was weak, and it was difficult to achieve consensus. In fact, EDP brought about improved communication and cooperation between private sector and universities. In addition, EDP spurred information flow that provided valuable information to public authorities. Specifically, information and evidence that the public authorities have been receiving from Triple Helix partners – potential beneficiaries, is sector-relevant, based on specific needs and of technical nature. In fact, it is assumed that first, EDP contributed to better absorption of ERDF funds, and second it stimulated beneficiaries to submit proposals of high quality. In conclusion, smart specialisation and EDP contributed to overcoming of a number of weaknesses identified in the past such as: fragmentation of the eco-system, low absorption of European Funds, and low quality of proposals.

Hungary is a centralised country when it comes to research and innovation policymaking, and smart specialisation has been seen mainly as a duty to comply with the EU legislation. In consequence, EDP was conducted mainly to meet the legal obligations, and it cannot be considered a continuous process. Consultation workshops in which representatives from science, government, economy and civil organisations participated were organised in 19 counties in 2014. The two-round process involved firstly, formulation of specific priority areas on the basis of the relevant county RDI statistics and the definition of specific sectoral specialisation trajectories. Secondly, the county-level working teams were asked to comment on the National Smart Specialisation Strategy draft. Since then until February 2019 not much activity was observed in terms of EDP. In winter 2019, 26 events known as National Innovation Forum were organised around Hungary to discuss innovation eco-system, and asses needs and demands of the actors. The objective was to gather evidence for the managing authorities and decision-makers, inform policy and improve the Calls. Yet, it needs to be noted that National Innovation Forum cannot be considered identical with EDP.

Poland is the only V4 country with national and regional Smart Specialisation Strategies in place. Regions have competencies in research and innovation, and they are the owners of their regional Operational Programmes – the instruments for the implementation of the Smart Specialisation Strategies. The regions with their Marshal Offices are thus strong players vis-à-vis national government; able to define the strategies, goals and instruments for the territorial socio-economic and sustainable development. Although Polish regions and the national government were experienced in the development of the Operational Programmes and in ERDF management, the design of Smart Specialisation Strategies and EDP were completely new tasks for them. Pressure to comply with the legal obligations and insufficient guidance from the European Commission combined with low institutional capacity led to frustration and confusion both at the regional level as well as at the national level. Yet, the regional Marshal Offices started to work with available information and experts with the objective to design analytical methods, metrics and foresight studies, to set up EDP, to design intervention logic as well as to reflect upon monitoring and evaluation of Smart Specialisation Strategies. Differences among 16 Polish regions

were evident as institutional capacities, innovation potential and stakeholders' engagement varied, but all regions were able to provide new in-depth analysis, as well as insights and diagnostics for better informed policymaking. Both at the regional and national levels, the Polish authorities were able to mobilise and identify key stakeholders experienced in the priority areas pre-selected through the first analytical stage. Similarly, in case of national Smart Specialisation Strategy, the priorities were pre-identified on the basis of analytical and foresight exercises and then discussed within the Working Groups for National Smart Specialisations that were composed of stakeholders identified through a national Call for interest. Definitely, EDP brought about transparency in management of public resources for research and innovation including support to companies, networking opportunities for stakeholders to meet and eventually start a joint project even without public funding, and finally access to sector strategic knowledge specifically for small companies. In parallel, EDP and smart specialisation introduced coordination mechanism known as Regional Forum for Smart Specialisation. The representatives of numerous regional, national and international institutions participate in the Forum, including regional Marshal Offices, the Ministry of Economy, the Ministry of Infrastructure and Development, the Ministry of Science and Higher Education, as well as representatives of the European Commission. The Regional Forum for Smart Specialisation meets regularly twice a year to exchange experience, information and knowledge on smart specialisation. In summary, EDP contributed to the policy learning and improved cooperation and coordination between private and public sectors, yet it unfortunately started from a negative experience, stress and frustration.

5.2 Interregional collaboration in smart specialisation and V4

With the opening of borders and entry to the EU, the representatives of V4 governments have been given the opportunity to draw valuable lessons from abroad by for example participating in the events organised by the European Commission's Smart Specialisation Platform. Yet, the path to international interregional learning (learning from abroad) is not necessarily straightforward. The obstacles in terms of low administrative capacity and lack of capabilities to identify, process, and integrate policy-relevant knowledge can hinder innovation policy learning. In addition, managers in public institutions can be reluctant to support individual policy learning due to high public employee turnover, insufficient language skills, the financial and human costs associated with international learning, or simply because they do not believe in international policy learning.

In 2008 the European Commission, Joint Research Centre organised the first international policy workshop on smart specialisation, in Barcelona. Consequently in 2011, the European Commission set up the Smart Specialisation Platform to build capacities, boost policy learning and provide support to national and regional authorities in field of research, innovation and smart specialisation. Since 2012 Smart Specialisation Platform (S3P) has organised more than 50 events in which representatives from V4 countries have been involved. These events have been of three types: first, smart specialisation peer-reviews (2012-2015) and Peer eXchange & Learning (2015 and 2018-2019); second, thematic workshops to address specific aspects of smart specialisation such as entrepreneurial process of discovery, the role of different actors in smart specialisation, multilevel governance of RIS3, digital growth and smart specialisation, synergies between ERDF and EU competitive funds (e.g. Framework Programmes) as well as macro-regional collaboration in Danube macro-region; and third Smart specialisation Thematic Platforms events.

Between 2012 and 2015, 19 smart specialisation peer-reviews were organised by the Smart Specialisation Platform out of which three took place in V4 countries (in Brno, the Czech Republic; Budapest, Hungary; and Rzeszów, Poland). These workshops allowed 57 regions, 15 MSs, and 1 non-EU region to be reviewed by peers representing most EU MS and a number of non-EU countries. One-fifth of MSs and regions under review came from V4 countries (Czechia 4, Hungary 1, Poland 7 and Slovakia 2). This figure is above the average for EU-28 considering that four countries and 10 regions from V4 countries were peer-reviewed. It needs to be also noted that only Poland has RIS3 both at national and regional levels while Czechia, Hungary and Slovakia have only national Smart Specialisation Strategies. In case of Czechia, Smart Specialisation Strategies of three regions (South Moravia, Moravia-Silesia and Prague) and national RIS3 were peer-reviewed although the Czechia complies with the ex-ante conditionality Thematic objective 1 at national level and that annex containing 14 Smart Specialisation Strategies at NUTS3 level regions is not legally binding. Similarly, Slovak national and Bratislava region RIS3 were discussed by the peers on two different occasions. The participation of Czech and Slovak regions in peer-reviews suggest that R&I is getting a more prominent role in local policymaking, yet it is still a prerogative of only some regions, clearly those more institutional capacities and innovation potential, also known as national innovation hubs.

In terms participations, 954 representatives from EU countries took place in peer-reviews. 22% participants were from V4 countries (Czechia 53, Hungary 41, Poland 96 and Slovakia 15). Representatives from V4 countries took place in 17 peer-reviews (Czechia 8, Hungary 7, Poland 17 and Slovakia 6). Evidence shows similar pattern apart from Hungary that participated at national level only in one peer-review workshop while participation in the thematic platforms at regional level is extensive (table 4).

Table 4. V4 countries and regions that have participated both in Peer-review Workshops and S3P Thematic Platforms

V4 country/Participation	PRW	Thematic Platforms	Same MSs/regions	Number of participations in thematic platforms						
Czechia	4	3	Prague	1						
Hungary	1	13	HU (national)	2						
Poland	7	13	Lubelskie	1	Pomorskie	2	Mazovia	3	Podkarpackie	1
Slovakia	2	1	SK (national)	1						

In 2015, smart specialisation peer-reviews were replaced by Peer eXchange & Learning (one pilot in 2015 and eight events between 2018 and 2019). 29 MSs and regions have discussed the issues related to implementation and monitoring of Smart Specialisation Strategies; apart from two Polish regions no other V4 country or region took part in the events. One of possible explanation can be: V4 countries were interested solely in having their Smart Specialisation Strategies approved by the European Commission, and needed to acquire knowledge about smart specialisation methodology. Currently they seem less interested in participating in methodological events focused on RIS3 implementation.

Between 2015 and 2016, the European Commission set up three Smart specialisation thematic platforms: Agri-food, Industrial modernisation and Energy. These are made of 31 partnerships: 5 Agri-food, 21 Industrial modernisation and 5 Energy. Altogether 175 administrative units (MSs, regions, provinces, etc.) participate in three thematic smart specialisation platforms; 12.5% are from V4 countries (Czechia 3, Hungary 8, Poland 10 and Slovakia 1). Participation of V4 countries and regions in one or more thematic platforms and partnerships is the following: 5.3% of total 76 participate in Agri-food Platform; 5.9% of total 271 in Industrial Modernisation Platform; and 10.3% of total 116 in Energy Platform. Slovakia participates only at the national level, Hungary at national and regional levels and the rest of V4 countries only at regional level. Interestingly enough, in case of Poland, regions active in thematic platforms overlap with those that took an active part in smart specialisation peer-reviews and other S3P thematic events. This suggests that some Polish regions are more pro-active internationally and have more capacities and capabilities to take up on international collaboration and learning. In case of other V4 countries, the evidence shows similar pattern apart from Hungary that participated at national level only in one peer-review workshop while participation in the thematic platforms at regional level is extensive.

Altogether more than 1,000 people, excluding the European Commission officers, took part in 13 Thematic Platforms events since 2016. The most attended were Industrial Modernisation Kick-Off event in Barcelona in November 2016 (188 participants of which 17 from V4 countries), Agri-food Kick-Off event in Florence in December 2016 (217 participants of which 5 from V4 countries), and First Thematic Platforms Joint Event in Bilbao in November 2018 (229 participants of which 12 from V4 countries). In terms of country of origin, Polish and Hungarian representatives were most active among V4 countries (24 attendees from Poland and 10 from Hungary) while Slovak and Czech participation was significantly lacking behind with 5 respectively 2 participations in all events organised by the three Smart specialisation thematic platforms.

To summarise, interregional cooperation in smart specialisation remains weak among V4 countries. The reasons are multiple: one is linked to low institutional capacity and insufficient networking and other individual soft skills. The second reason is linked to the insufficient understanding of interregional cooperation opportunities, as well as poor knowledge of collaborative tools and existing support. Finally, the third factor is linked to a low

entrepreneurial and pro-active spirit of public employees who may be threatened with the need to embark on new, unknown activities, resulting in diminished support for their creative initiatives from superiors.

5.3 Monitoring and evaluation and V4

With respect to monitoring and evaluation, it is difficult to illustrate policy learning with a specific example from the V4 countries. Monitoring and evaluation are two distinctive processes taking place at different stages of the implementation of the smart specialisation strategy. Monitoring is undertaken during the implementation process and its objective is to inform policymakers about the progress, mid-term achievements, and correctness of intervention logic. Evaluation, on the other hand, is undertaken at the end of the policy cycle and aims to assess the content, implementation, and impact of smart specialisation on the economy, employment, education, quality of governance, and the environment. In other words, evaluation helps policymakers to understand to what extent and how policy interventions have addressed the challenges identified at the beginning of the policy cycle. So far, there is limited evidence of policy learning through monitoring and evaluation in V4 countries, and it is mainly linked to the revision of the current Smart Specialisation Strategies and the preparation of new generation Smart Specialisation Strategies for the 2021-2027 programming period.

5.4 Six methods of policy learning in V4

Previously I introduced six methods of policy learning, also known as steps. Clearly, V4 countries are experienced in many of them, mainly the first three have been developed and implemented during the Smart Specialisation Strategy design. Definitely all four countries as well as regions in Poland and the Czech Republic have carried out comparative studies, benchmarking, analysis and foresight studies and eventually developed new metrics and statistical indicators in the field of research and innovation. Also, as showed in the previous chapter, all four countries and some regions have participated in peer-review workshops organised by the European Commission's Smart Specialisation Platform. Moreover, short-term visits took place, often ad-hoc and not in an organised or systematic way between 2013 and 2018. People met during the coordination meetings or meetings organised with the representatives of the Quadruple Helix involved in the EDP process. As a result of networking activities, people were visiting each other or contacting each to consult specific smart specialisation related issues. These policy learning activities were mostly organised to share experience and knowledge. Alternatively, mobility and exchange programmes existed but they had been often developed before the introduction of smart specialisation by the European Commission. The objective of such programmes mostly initiated and funded from the EU technical support was to build institutional and managerial capacity in V4 countries in relation to European Structural and Investment Funds. The fifth policy learning method – joint learning projects, have been developed in the context of INTERREG territorial collaboration. Many joint learning projects on smart specialisation across V4 countries have been funded. Specifically, Polish regions were successful in participating in INTERREG projects on smart specialisation. Finally, we can find a number of permanent learning communities in V4 countries as a result of EDP. In Poland, institutionalisation of Working Groups for National Smart Specialisations at the national level and similar communities in 16 polish regions constitute the basis for continuous EDP and policy learning. Moreover, the Regional Forum for Smart Specialisation, a platform for dialog for EU, national and regional actors involved in smart specialisation was established. Similarly, in the Czech Republic and Slovakia, Innovation Platforms work as permanent learning communities and at the same time inform the discussions for the development of new generations of Smart Specialisation Strategies. Hungary is working towards a permanent and effective EDP structure that could be conceived as a stable learning community.

6 Conclusions

This study aims at discussing opportunities for policy learning stemming from the smart specialisation transformative place-based targeted framework. The conceptual discussion is enriched by evidence from V4 countries showing how these four countries have benefitted from the development and implementation of Smart Specialisation Strategies. The most significant limitation of this study is inexistence of comprehensive evidence consenting in-depth meta-analysis of policy learning practices and experiences based on quantitative data. Moreover, it is premature to evaluate policy learning linked to interregional collaboration and evaluation of Smart Specialisation Strategies due to inexistence of indicators on activities that have been launched short time ago.

It is argued that policy learning is the vehicle to achieve innovation-related goals, such as greater competitiveness, increased innovation potential, and improved quality of life and work. Policy learning can thus address weaknesses of R&I systems in V4 countries including fragmented innovation systems, low collaboration intensity among Quadruple Helix actors as well as across the regions and countries, low entrepreneurial spirit, centralised R&I policy- and decision-making, and weak R&I governance. Policy learning is about exploring, understanding and developing R&I policies that can allow innovation, creativity, business attitude, and research-business collaboration to thrive.

I argue that smart specialisation is highly context-dependant and that blind copying of policy practices from abroad is not a solution for highly context-dependant R&I issues. Although the transposition of public policies from one context to other very similar ones is very attractive, there are too many variables that may jeopardise the completion of economic and industrial transformative change in the territory, including system framework conditions, economic development drivers, entrepreneurial environment, R&I governance, social capital, local culture, etcetera (Nauwelaers & Reid, 2002). Instead, lessons learnt from others must be interpreted, contextualised, and adapted to local need in order to provide the expected benefits. Indeed, policy learning approaches are useful tools in the transfer of knowledge and training of individuals, yet acquired knowledge is needed in order for wise interpretation and adaptation.

Therefore, I suggest that policymakers and officers in V4 countries who are designing Smart Specialisation Strategies and relative instruments collect inputs for their R&I policies within the borders of their eco-systems; this means specifically drawing policy lessons from interactions with the Quadruple Helix stakeholders. Therefore, intra-regional (intra-system) learning that takes place among organisations located in the same eco-system is one of the most important and efficient ways of collecting information for tailor-made innovation policies. In terms of smart specialisation, this kind of learning takes place during effective and continuous Entrepreneurial Discovery Process (EDP).

Second, intra-institutional learning is also important and takes place during the monitoring and evaluation of Smart Specialisation Strategies. Currently, there is a need for a better understanding as to what extent and how smart specialisation policy interventions have been addressing the challenges identified at the beginning of the policy cycle. Therefore, a follow-up research should explore and propose qualitative and quantitative evaluation methods to assess the impact of public policies and investments on local territories, among these input-output analysis, theory-based evaluation, contribution analysis, counter factual impact evaluation, and behavioural additionality.

Last, interregional (inter-system) learning takes place during interregional collaboration and through international networks. As Foray (2016) notes, smart specialisation is a process dependent on interconnectedness and networks. Thus, external knowledge and resources are required and mobilised. International and interregional collaboration enables V4 countries to combine complementary strengths, exploit their competencies in R&I, obtain the necessary research capacity or financial resources, overcome a lack of critical mass or fragmentation, and provide access to global value chains. Yet, the path to interregional learning (learning from abroad) is not necessarily straightforward. As mentioned above, obstacles in terms of low administrative capacity and lack of capabilities to identify, process, and integrate policy-relevant knowledge can hinder policy learning. In addition, managers in public institutions can be reluctant to support individual policy learning due to high public employee turnover, insufficient language skills, the financial and human costs associated with international learning, or simply because they do not believe in international policy learning.

To conclude, smart specialisation brings along opportunities and positive changes, yet only those who assume a proactive, open and inclusive attitude and are willing to participate in and contribute to joint EU R&I initiatives will be able benefit.

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