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Organising for Smart Specialisation: hype or institutional change in innovation policy in Lithuania and Poland?

Doctoral dissertation

Summary

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1. Research topic

The topic relates to the field of innovation studies and, more specifically, public support for innovation. The Oslo Manual defines *innovation* as "a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)" (OECD/Eurostat 2018, p. 20). Public intervention aiming to support the generation and diffusion of innovation is commonly known as innovation policy (Edler, Cunningham, & Gök, 2016).

The Austrian-American scholar Joseph Schumpeter (1883-1950) was among the first to discuss innovation-related themes in his works (Fagerberg & Verspagen, 2009). After World War II, innovation was associated with progress and became a *panacea* for various economic problems and a *magic word* (Godin, 2015). The increasing presence of innovation themes in the economic policy agenda boosted academic research, resulting in various models to support governments' endeavours (Fagerberg & Verspagen, 2009; Godin, 2015). Yet, researchers observed rising and subsequently falling popularity of the management concepts that promote specific approaches (Abrahamson, 1991; 1996; Abrahamson & Fairchild, 1999). Innovation policy might be no exception to this rule. Thus, it would be crucial to assess the relevance of proposed models and concepts in the empirical setting to understand possible antecedents and limitations of their applicability.

The dissertation aims to explore under what circumstances adopting specific forms of organising in response to pressures might lead to persistent change in innovation policy practice. The neo-institutionalism perspective serves as a theoretical lens. The neo-institutional theory considers the influence of the existing rules, norms, and cultural aspects on organisations (addressed as institutions). It also concerns how organisations respond to these pressures (addressed as actions). Hence, there is an interaction between institutions and actions (Hall & Taylor, 1996).

Regional Innovation Strategies for Smart Specialisation (S3) represent an approach developed based on the ideas of renowned economists (see: Hausmann & Rodrik, 2003; Rodrik, 2008). It rapidly got on the innovation policy agenda in the European Union (EU) as an *ex-ante* conditionality for accessing the European Structural and Investment Funds (ESIF) during the EU financial programming period 2014-2020. Particular requirements for S3 development and implementation make it suitable to study what potential an academic concept might have to change policy practice.

2. Research background

North defines *institutions* as "… the humanly devised constraints that structure political, economic and social interaction" (North, 1991, p. 97). According to North, taboos, customs or traditions are examples of informal institutions, while, e.g., laws or property rights are formal institutions. "Institutions comprise regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (Scott, 2014, p.56). As Edquist (2005) puts it, institutions are "rules of the game", and organisations are "players or actors". The central question to the institutional analysis is how institutions affect individual actions (Hall & Taylor, 1996). Institutions also provide stability, making them a potential source of resistance when attempting to change the "rules of the game".

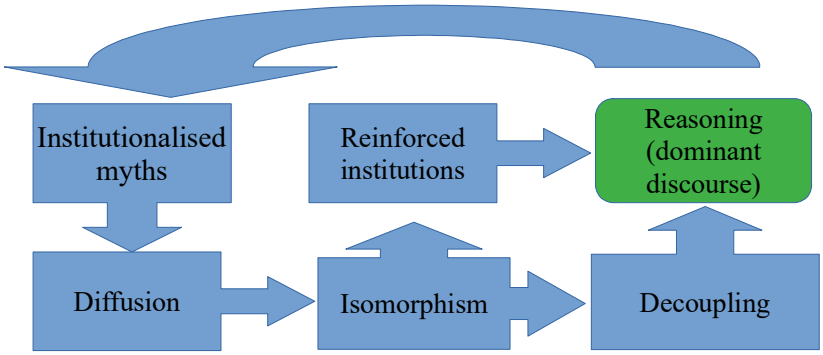
One of the core concepts within the neo-institutional theory is *institutionalisation*, which may refer both to process and state that might change over time (Zucker, 1977; Colyvas, 2007). Institutionalisation implies that an act can be reproduced without changing its meaning and that different actors understand and interpret how things have to be done in the same way (Zucker, 1977). In line with Zucker (1977), institutionalisation should be viewed as a continuum. Hence, actions can be institutionalised to a greater or lesser extent. Researchers have also elaborated on mechanisms that drive the institutionalisation process. *Institutional isomorphism* implies convergence of organisational structures resulting from isomorphic pressures (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). DiMaggio and Powell (1983) distinguish among three sources of institutional isomorphism: *coercive, mimetic,* and *normative*. Coercive isomorphism stems from authority, power, dependence or centralised access to resources, mimetic isomorphism results from copying successful solutions and normative isomorphism - from professionalisation and established criteria and standards (DiMaggio & Powell, 1983). Thus, coercive pressures come from legislative authorities at a national, supranational or regional level, normative pressures originate from the professional and standardisation related actors, while mimetic pressures stem from leading firms and experts (Fuenfschilling & Binz, 2018).

Neo-institutionalism, developed in organisational theory, is rooted within the sociological perspective (Hall & Taylor, 1996). Accordingly, the concept of *rationalised myths* implies that formal organisational structures reflect relational social networks of an organisation established to ensure the efficiency of work and mirror perceptions of society's reality (Meyer & Rowan, 1977). Rationalised myths denote social purposes as technical and define the means to achieve them (Ellul,

Wilkinson & Merton, 1964; Meyer & Rowan, 1977). Furthermore, rationalised myths are institutionalised, and organisations may comply with them, which results in *the decoupling*, meaning that formal structures across organisations become similar, and practices vary (Meyer & Rowan, 1977). Practices are "… particular ways of conducting organisational functions…" (Kostova, 1999, p. 309).

DiMaggio and Powell (1987) introduced *the organisational field* as an analysis unit. Its most simple definition might be "… a constellation of actors that comprise […] central organising unit" (Wooten & Hoffman, 2017, p.56). The conceptualisation of a *field* also allows analysing connections and networks of organisations as a unity, connecting them to macro structures, e.g. sectors or societies (Scott, 2014). Therefore, an organisational field constitutes an organisation's immediate environment, a source of isomorphic pressures. Organisational fields might emerge around specific issues relevant to a group of organisations (Hoffman, 1999). The field boundaries can be conceptualised based on the relevant analysis unit, and an organisation can belong to multiple organisational fields (Scott, 2014). Figure 1 summarises the theoretical assumptions of the thesis.

Figure 1 – *Relationship between diffusion, isomorphism, and decoupling in the institutionalisation process*



Source: own elaboration, based on Boxenbaum & Jonsson, 2017.

Hence, according to Boxenbaum and Jonsson (2017), organisations feel pressure from their environment to comply with institutions, encouraging isomorphism. However, these institutions might reflect rationalised myths, as described by Meyer and Rowan (1977) that do not necessarily enhance an organisation's efficiency in achieving its purpose. Therefore, an organisation might formally adopt required institutions, but in practice, behave differently (Boxenbaum & Jonsson, 2017). Thus, institutional pressures might lead to decoupling instead of institutionalisation of expected behaviour.

The concept of *smart specialisation* emerged in the expert group, *the Knowledge for Growth,* appointed by the European Commission around 2009 (Foray, 2015). Foray (2015, p. 1) defines *smart specialisation* as "… the capacity of an economic system (a region for example) to generate new specialities through the discovery of new domains of opportunity and the local concentration and agglomeration of resources and competences in these domains". Consequently, the *smart specialisation strategy* indicates a coordinated governmental action intended to enact "… a process whereby such a dynamic of new speciality development, related to existing production structures, can be facilitated thanks to punctual and targeted governmental intervention in order to support in a *preferential* way the most promising new activities in terms of discovery, experimentation, potential spillovers and structural changes." (Foray, 2015, p. 2). In the academic literature, both terms are often used interchangeably and abbreviated as *S3* (for smart specialisation strategy), which implies the same as the formal abbreviation RIS3. Therefore, despite an inconsistent use of terminology, most smart specialisation literature refers to the RIS3. The current dissertation adopts the abbreviation S3, dominant in academic sources, except for the expression *RIS3 Guide* — a commonly used reference for the *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)* (see: European Commission, 2012). RIS3 Guide outlines the European Commission's guidelines for S3.

Researchers note that the term *smart specialisation* might also be confusing due to the lack of a common understanding of the concept's nature (Komninos, Musyck & Reid, 2014). Thus, smart specialisation implies a combination of specialisation and diversification (McCann & Ortega-Argilés, 2013b; Cooke, 2016; Boschma & Gianelle, 2014). Similarly, the definition of the *entrepreneurial discovery process (EDP),* which is at the heart of developing and implementing S3, also lacks precision. Thus, EDP is defined as "… an inclusive and interactive bottom-up process in which participants from different environments (policy, business, academia, etc.) are discovering and producing information about potential new activities, identifying potential opportunities that emerge through this interaction, while policy-makers assess outcomes and ways to facilitate the realisation of this potential" (European Commission, n.d.). As will be demonstrated within the theoretical background, understanding of what is participation may vary.

At the time of introducing S3, most comprehensive guidelines for the policy-makers have been summarised in the RIS3 Guide as the *six steps approach,* which includes (1) analysis of regional

context, (2) governance, (3) developing a shared vision, (4) prioritisation, (5) creating policy mix, and (6) monitoring and evaluation (European Commission, 2012).

Despite its novelty, the concept of smart specialisation fits with recent tendencies in developing and implementing research and innovation policies. These focus on the increasing importance of local policies, a bottom-up approach, and tighter collaboration between the public and private sectors (Grotenbreg & van Buuren, 2016). Moreover, S3 derived from the systemic approaches to innovation that emerged at the beginning of the 1980ies. These approaches argued that innovation is not a linear process but involves an interplay among different actors, including business organisations, intermediaries, government, and universities (Liu, Yin, Liu, & Dunford, 2015). It evolved into what is broadly known as the innovation system approach. An innovation system includes "all-important economic, social, political, organisational, institutional, and other factors that influence the development, diffusion, and use of innovations" (Edquist, 2005, p. 182). Scholars distinguish among national, regional, sectoral, and technical innovation systems (Carlsson, 2006; Liu et al., 2015). These concepts have transformed the academic discussion about innovation and innovation policy approaches in the last decades. However, as Edquist (2019) notes, recent research has shown a gap between theoretical development and policy practice. Also, the smart specialisation concept's theoretical foundations have still been lacking at the time of its practical application through innovation policy agendas (Foray, 2015).

3. The research gap

Given the newness of S3, its empirical research is still at the beginning. As for now, probably the most elaborated research stream links S3 to the industry context and knowledge spill-overs between sectors, and particularly the concept of "related variety" (see: Frenken, Van Oort & Verburg, 2007; Boschma & Iammarino, 2009). Empirical evidence on the current outcomes of S3 is still not sufficient (Kroll, 2019a). There is little research aiming to assess what the S3 approach implies for innovation policy in different regional settings and whether it might trigger convergence of theory and practice. Reporting the approaches across regions is primarily descriptive.

In this context, the neo-institutional theory might provide a valuable perspective. The notion that institutional context matters is embedded in the innovation systems and S3 approaches. However, neo-institutional theory with its various concepts explaining change has rarely been adopted in S3 research. While the current research project was ongoing, no empirical studies on smart specialisation adopting the neo-institutional theory perspective had been identified during

systematic scoping of the emerging literature on S3 in the Scopus and Web of Science databases. Only recently a couple of relevant studies emerged (see: Benner, 2019; Henderson, 2020).

This study takes a closer look at two particular countries: Poland and Lithuania. The research adopts a qualitative method and aims to explore the processes which led to the emergence of the official documents called *Smart Specialisation Strategy* in Poland and Lithuania during the preparation phase for the financial perspective 2014-2020 and the initial implementation phase. It also aims to explain why the process delivered the results as they currently are. More precisely, the research focuses on adopting novel innovation policy-making practices in Poland and Lithuania.

4. Purpose of the dissertation and research questions

Working thesis

The official documents of Lithuania and Poland, called *smart specialisation strategy,* do not reflect genuine prioritisation. Consequently, these documents did not result in the consolidation of public support for R&I during the ESIF programming period 2014-2020 in the mentioned countries, despite the initial expectations of the European Commission.

Research purpose

The purpose of the research is to explore the process of defining and implementing smart specialisation strategies in Lithuania and Poland and explain possible reasons for inconsistencies in the implementation with the guidelines defined by the European Commission in these countries.

Research problem

What are the antecedents and reasons for the policy documents labelled as smart specialisation strategies not leading to genuine prioritisation and not ensuring the possibility to consolidate public support for research and innovation (R&I) during the financial programming period 2014-2020 in Poland and Lithuania?

Research questions

Answering the following research questions aim to explore the S3 in Lithuania and Poland and explain the outcomes of isomorphic pressures:

1. RQ1. How did the preparation of the official S3 documents evolve in Poland and Lithuania, including the implementation of the Entrepreneurial Discovery Processes (EDP)?
2. RQ2. How did both countries progress from the S3 planning to the implementation stage?

3. RQ3. What characterised the relationship of different stakeholders to the smart specialisation development process, and how did the relationship evolve?
4. RQ4. Have the *coercive isomorphic pressures* of the European Commission (which required the development of S3 by EDP) resulted in the successful and persistent institutionalisation of this new approach to R&I policies?
5. RQ5. Have there been *mimetic isomorphic pressures* among regions within the same country (Poland)[1] related to the development of S3 by EDP, which resulted in the successful and persistent institutionalisation of this new approach to R&I policies?
6. RQ6. Have there been *mimetic isomorphic pressures* among EU member states related to the development of S3 by EDP, which resulted in successful and persistent institutionalisation of this new approach to R&I policies?
7. RQ7. Have there been *normative isomorphic pressures* on EU regions or member states related to the development of S3 by EDP, which resulted in the successful and persistent institutionalisation of this new approach to R&I policies?
8. RQ8. Has the S3 & EDP approach been institutionalised in Lithuania and Poland, or can decoupling be observed, with a divergence of political declarations and actual implementation?

Studying institutionalisation implies accounting for the context. Therefore, to answer the research questions comprehensively and avoid misinterpretation of the results, the dissertation also addressed S3 issues from the perspective of its external environment (other European regions) and immediate environment in Lithuania and Poland (national context). Systematic literature review on smart specialisation should bridge the theoretical and empirical parts of the study and provide the context for the cases of Poland and Lithuania. The systematic literature review belongs to the theoretical part of the dissertation.

5. Dissertation outline

Chapter two summarises the theoretical stance of neo-institutional theory, focusing on the issues and concepts relevant to the dissertation. Particular attention is given to the research on institutionalisation. However, it also draws insights from neighbouring research, such as fashion theory. Furthermore, the chapter presents an overview of the research on innovation policy. It describes the evolution of the rationales behind public support to innovation in the light of the neo-

1 This research question refers only to Poland because Lithuania did not develop regional S3 documents, but only one nation-wide strategy, while the analysis of Poland allows the researcher to track the diversity of regional approaches to S3 and EDP.

institutional theory. It also discusses the literature on collaborative governance and participative approaches, reflecting various possible interpretations of S3 assumptions. The chapter also discusses implications for the emerging organisational field.

Chapter three provides an overview of the research context. It outlines the S3 guidelines and approaches to S3 across the EU and sets Lithuania and Poland in the context. First, the chapter introduces S3 steps that regions have to follow, based on the guidelines provided by the EC. Second, the chapter addresses the international S3 context and discusses similarities and differences in approaching the S3 exercise, challenges and provides an outlook for possible effects of the S3. Third, it provides a comparative overview of the national S3 context in Lithuania and Poland. The chapter should serve as a contextual background and benchmark information to the cases of Poland and Lithuania.

The **fourth chapter** describes the research method. **Chapter five** presents research findings based on analyses of interviews and documents. **Chapter six** discusses results in light of existing theory and concludes with an empirically rooted model that might be used to analyse S3 and EDP and better understand the outcomes of isomorphic pressures. The concluding **chapter seven** sums up the main findings and presents theoretical and practical implications of the study.

6. Research method

The choice of the qualitative research approach resulted from the topic's novelty, little empirical evidence, and the nature of the research problem and questions. The tradition within a chosen theoretical perspective (neo-institutional theory) and other studies' methodological choices with similar research settings have also determined this choice. Among core values during the research process have been ensuring transparency of the researcher's goals and causing no harm to interviewees.

An inspiration to data collection is the grounded theory approach, developed by Glaser and Strauss (1967) in their work "The discovery of grounded theory: Strategies for qualitative research". Initially, grounded theory assumed that "theory emerges from the data" (Bryant & Charmaz, 2007). Consequently, the researcher had to approach the field without prior knowledge of the literature. However, nowadays, such an approach may lead to reinventing the wheel. Therefore, for this dissertation, data collection and reviewing the literature co-occurred in an iterative process.

The grounded theory approach follows the principle of *constant comparison,* implying a simultaneous data collection and interpretation process (Suddaby, 2006, p. 634). As a result, the sampling process is ongoing, and participants may be added to the study as it evolves, known as *theoretical sampling* (Suddaby, 2006; Bryman & Bell, 2015). The grounded theory implies that the research process may last until *theoretical saturation* is recognised, that is subsequently collected data within a particular category provides nothing new, different dimensions of a category are well elaborated, or the relationships between categories are distinct and valid (Bryman & Bell, 2015, p. 433). In this study, collected evidence has been deemed sufficient to answer the research questions comprehensively and provide an elaborated solution for the research problem. Moreover, the outcome of the study might be a starting point for further inquiries.

This study's data were collected from interviews and secondary data sources relating to the S3 in Lithuania and Poland. There are several reasons for including secondary data in the analysis. Firstly, the data reflect the situation in Lithuania and Poland concerning local preconditions to implement S3 and EDP. Secondly, it provides the context for the data collected through interviews. Accounting for the context of specific actions is essential to correctly interpret the events and avoid misunderstandings of meanings (Miles, Huberman, & Saldaña, 2014). The context might refer to the immediate situation or a broader social system, embedding actors (Miles, Huberman, & Saldaña, 2014). The majority of the included secondary data stem from the organisations that are also engaged in the S3. Other part includes related documents from the peer-reviews, policy learning workshops, or rankings that might be used to assess the progress of specific S3 related themes. Therefore, the data also served as preparatory material for the interviews. Thirdly, the use of secondary data enhances the reliability of research results through data triangulation.

Interviews were conducted face-to-face or remotely, in Polish or Lithuanian, recorded (with beforehand consent of the interviewee) and transcribed. The data collection followed a semi-structured interviewing process, beginning with broader themes, then specified with more detailed questions. This study applied a non-probability sampling and selection intended to maximise the variety. The techniques include purposive sampling and convenience sampling using the snowball technique. Some initial criteria for the sampling have been defined: sampling should be considered separately for Lithuania and Poland and represent different stakeholders. Table 1 presents the sampling frame for the conducted interviews. Data collection through interviews has been pursued in three stages, as presented in Table 2. Secondary data have been collected continuously, parallel to the interviewing. Secondary data also served as supplementary material for the interviews.

Table 1 – Interviewees and their organisations

Organisations	**Interviewees**	**PL**	**LT**
Supporting/consulting organisations (e.g. providers of analyses; strategy advisors, and management consulting)	Policy analysts, facilitators	2	2
Bridging organisations (between government, and business or science and business) (e.g. joint government and business initiatives; technology transfer centres)	Experts, managing directors	2	3
Ministries, coordinating S3 (units related to innovation policy and support)	Managing personnel and experts	3 (1)	4
Implementing organisations, responsible for project evaluation/funding decision (e.g., agencies, supporting business innovation, R&D, and entrepreneurship)	Managing personnel/experts in the support - coordinating units	2	3
Business representing organisations, Clusters, Business Valleys	Managing directors, experts	3	3
Science: Universities	Scientists	(5)	2
Regional level authorities (Poland only)	Managing staff/ specialists in charge of EDP	8	n.a.
Total per country:		**20**	**17**
International experts	Involved in developing EDP concept and supporting infrastructure for experience exchange at EU level	1	
Total:		**38**	

Source: own elaboration

Table 2 – Stages of data collection and analysis

Stage 1 (2016-2018)	Stage 2 (2019)	Stage 3 (2020)
8 Interviews • 4 LT • 3 PL • 1 International	10 Interviews • 3 LT • 7 PL	20 Interviews • 10 LT • 10 PL
Purposes: - Contrast perceptions with versions presented in official documents and other published material; - Identify controversial themes;	Additional purposes: - Explore controversial themes; - Identify repetitive patterns;	Additional purposes: - Saturate selected categories; - Triangulate responses;
Official documents, reports, and other available material (e.g., press releases, published interviews, project descriptions, workshop materials and presentations, available online).		
Preliminary results	Initial results	Revised results
Descriptive-explorative: present different perspectives (stakeholders views)	Explorative-explanative: identify categories and relationships between them	Explanative: identify possible development trajectories and reasons behind them
At this stage, the S3 process has been explored from the perspective of different stakeholders' roles during different steps.	This stage has explored how different steps have been implemented in different regional/national contexts and what possibly led to the current state of S3 in the analysed setting. It has also been explored what solutions to emerging problems have been applied.	At this stage, results from stage 2 have been revised and verified. Additionally, learning processes and resulting avenues for further development of S3 in different settings have been tracked.

Source: own elaboration

Secondary data mainly served as a contextual background. It has been analysed in a "top-down" manner. Categories have been predetermined, and data described these categories. Its analysis has been limited to a descriptive presentation of relevant contextual information through graphs, displays, and tables. Analysis of interviews followed an organic "bottom-up" process, where categories emerged from the data. In the first step, transcripts have been coded using *QDA Miner* software, paragraph by paragraph. Next, a conditional relationship guide has been developed by asking the questions for each category as suggested by Scott (2004, pp. 115-116): *what*, *when*, *where*, *why*, *how*, and *with what consequences*. The list of open codes and their organisation within the conditional relationship guide and reflective coding matrix resulted in an initial framework, organised around the core category, which emerged as a repetitive pattern around different themes and contexts present in the research material. It has been contrasted with existing literature for triangulation and to ensure validity and reliability, identifying relevant theoretical concepts.

7. Findings

7.1. S3 and emerging structures of an organisational field

S3 development in Lithuania and Poland can be described as a process of organising the field, where isomorphic pressures could lead to institutionalisation. An essential element of the organisational field is its structure. S3 structure results from three types of activities, described in table 3.

Table 3 – Activities determining S3 structure

Tasks	**Solutions**
Setting and leveraging the S3 governance system	
1. Balance of responsiveness and synergy in the multilevel governance model (autonomy vs centralisation and standardisation);	1. Coordination work necessary to avoid unaligned administrative capacities;
2. Integration of the sectoral governance component	2. Ecosystem perspective (Moore, 1996) and leadership of anchor-organisations; Clusters as anchors and sources of leadership
Design of the process and setting directions for EDP	
1. Determining the balance between top-down and bottom-up, degree of participation, and means for stakeholder involvement;	1. results from coercive influence and the past approaches;
2. Setting a particular direction for the search, expressed as a priority;	2. Establishing priority boundaries concerning coupling structure between stakeholders, expressed through technological (Carlsson & Stankiewicz, 1991) and sectoral (Malerba, 2002; 2004) innovation system perspectives;
3. Determining appropriate territorial boundaries for each priority;	3. Considering cross-regional and localised approaches through a combination of place-based and industry-based approaches;

Involvement within particular groups of stakeholders	
1. Engagement of the policy-makers, which depends upon their perception of own role and capacity to compensate for the weak organisational structures in other helices;	1a. Seeking help from experts and advisors for particular tasks, which allows increasing legitimacy of decisions but still maintaining ownership of the process and understand the outcomes 1b. Considering to exclude domains if organisational structures are weak and policy-makers are unable to compensate for that;
2. Participation incentives for other stakeholders;	2a. Considering the trade-off between resource dependency and time costs for the participating (the weaker stakeholders' dependency on public resources, the less time-consuming the process needs to be) 2b. Focusing on the relevant time frame and proper strategy perspective
3. Establishment of a coalition between stakeholders	3a. Determining relevant stakeholders through, e.g. mapping exercise, finding whether a shared base for cooperation exists, and organising cooperation (e.g., establishing collaborative platforms, finding spaces to come together, initialising networking events); 3b. Policy-makers could align learning curves of different stakeholders through taking educators' role

Source: own elaboration

Hence, stakeholders need to fulfil different tasks within specific S3 domains, including:

- Leading and organising;
- Monitoring the developing priorities and their implementation;
- Representing the community;
- Maintaining a dialogue with the policy-makers;
- Ensuring visibility in the political arena;

When specific stakeholders do not fulfil their roles, other stakeholders might need to counterbalance them. Stakeholders from different helices may not recognise benefits from collaboration or lack a shared knowledge base, serving as a cooperative background. In such a situation, it might be beneficial in the long run if the policy-makers take educators' role (to convey a shared vision and commit stakeholders to work towards its achievement and strengthen awareness, possibly resulting in the capacity building within particular helices).

Exhibit 1 – S3 as an emerging organisational field: summary of propositions

Proposition 1a:

From the multilevel governance perspective, centralisation to achieve synergies at the expense of local autonomy could inhibit S3 implementation at the lower levels (considered vertically, across territorial levels, i.e., national-regional).

Proposition 1b:

Deficits in the sectoral governance component may cause difficulties in attaining critical mass around a specialisation domain at the mid-level of granularity.

Proposition 1c:

The choice to design S3 and EDP as a continuation of the previous approach or as something new has implications for the process. However, it does not inevitably affect the result (e.g., formulations of priorities in the official documents as broader fields with detailed lists of specified technologies), which depends on the chosen method (in both countries, it has been a foresight-based approach).

Proposition 1d:

EDP in Lithuania and Poland can be characterised as a multi-search process, which runs independently in separate priority domains and within established territorial boundaries (e.g., regional or national). Because of this, the EDP, initialised by the policy-makers, may not fit the natural relational structures between stakeholders that may cross administrative boundaries of the regions, as findings from Poland suggest.

Proposition 1e:

The development of an S3 priority may depend on the fulfilment of the specific tasks (domain structuring, identification of opportunities, democratic legitimation, articulation of interests, image creation). When stakeholders do not accomplish these tasks and policy-makers cannot compensate for this (with their human resources or help from other actors, e.g., consulting companies, universities), the development of the S3 priority could stagnate.

Proposition 2:

Stakeholders' engagement in S3 might depend upon their self-perceived role in the process (varying between being a source of information and co-decider) and embeddedness in the network structures, allowing them to leverage the power and affect governance.

7.2. S3 documents and implementation

Official S3 documents contain priorities and their description. However, not any type of priority might be considered to be in line with S3 assumptions. Analysis of S3 strategies shows that the current approach to priority setting still needs to evolve towards genuine prioritisation, simultaneously avoiding three typical pitfalls:

Table 4 – Pitfalls of prioritisation

Pitfalls	Possible outcome
Setting priorities as goals without specifying means (technological dimension) and target audience (sectoral dimension)	Horizontal policy and duplication of efforts because goals are broadly defined and follow global trends
Identifying technologies and industries in the region, ranking them according to their strengths, but avoiding prioritising investments	Priorities might be perceived as too broad and narrow simultaneously. Extensive work is needed for updating and coordination activities. Strategies become complex, technocratic and possibly science-driven (other stakeholders lack time to engage)
Fragmented priorities due to focus on the specific elements instead of integrating them into the whole	An approach focused on developing specific technologies or sectors might inhibit genuine prioritisation and be perceived as a "picking the winners", resulting in a lack of legitimacy.

Source: own elaboration

Research indicates that successful implementation might tailor support for specific priorities, considering potential beneficiaries' characteristics. Currently, in Lithuania and Poland, the majority of support measures do not differentiate between priorities. Standard calls dominate, and few measures target specific priorities to consolidate projects and funds in the specific domains. Defining and targeting priority in line with S3 would imply precision. However, given broadly defined priorities, with extensive lists of technologies and lacking direction for future development, such an approach would also be unfeasible. Policy-makers might lack the capacity to organise and coordinate dozens of separate initiatives to keep EDP continuously going and facilitate the realisation of the potential simultaneously in all domains. It would require solid organisations and appropriate structures among other relevant stakeholder groups to uptake these roles (which is often not the case in Lithuania and Poland. Otherwise, the support becomes somewhat ad-hoc and punctuated. Promising initiatives might be taken up but left alone too early to stand on their own. To provide the necessary feedback for improving prioritisation, different aspects should be considered for each specific priority. S3 implementation handbook mentions five types of indicators, comprising baseline monitoring system: output of projects, result concerning socio-economic objectives, implementation state, structural change and specialisation, and context (Mieszkowski, Gómez Prieto & Nauwelaers, 2016). Hence, the monitoring system should be simple and automated enough to enable data collection regularly, with particular attention to monitoring cross-sectoral priorities and multiple strategy levels. Thus, it might be beneficial to consider what indicators to monitor to exploit synergy and ensure enough details at respective levels. The most challenging might be defining and collecting indicators to measure structural change and specialisation. Consequently, these might be more priority-specific and defined together with stakeholders involved in the prioritisation process. Stakeholders' organisations (e.g., clusters) might provide the necessary information for qualitative monitoring, substituting for surveying many enterprises. The latter may be less sustainable in the long run if entrepreneurs get "tired" from participating in research activities and answering regularly similar questions. Furthermore, it might be helpful to assess to what extent selected priorities contribute to achieving goals set in the operational programmes and to what extent specific support measures advance the implementation of priorities.

Exhibit 2 – Implementation of S3: summary of propositions

Proposition 3a
If priorities are defined as goals, S3 becomes more horizontal (because a broader range of business activities can fit into them). If priorities are defined as certain technologies or sectors, S3 tends towards a sectoral approach.

Proposition 3b:

There is a lack of serious evidence on whether S3 priorities may develop towards the mid-level of granularity in Lithuania and Poland because the monitoring system does not provide decisive information. Providing such information is challenging because S3 priorities, as they have been defined in the official S3 documents for 2014-2020, do not correspond to the conventional statistical categories, and primary quantitative data for S3 are not being collected.

7.3. S3 actors and interaction mechanisms

The study distinguished two mechanisms that describe the interaction of different actors with the S3 concept with its initial assumptions. The reinforcement mechanism implies that concepts' core assumptions reach all the relevant actors. Moreover, they interpret them correctly and translate them into practice. These assumptions diffuse across horizontal and vertical dimensions.

The horizontal dimension refers to disseminating the concept across different stakeholder groups (helices). In contrast, the vertical dimension concerns different levels (moving from the conceptual level through strategic planning to the operational level and implementation). In practice, unhindered reinforcement would be rare, especially when concerning highly complex concepts as smart specialisation. The reasons for that might arise both from the concept's elaboration degree and the absorptive capacity level and the position on the learning curve of those addressed with the concept (stakeholder groups and relevant actors). Consequently, gaps in comprehensive concept elaboration or the conveyed and appreciated message emerge. Modification mechanism allows for compensating these deficits with one of the following actions: adding new elements, blending existing practices into the new approach, or persisting on the current path.

Exhibit 3 – Actors and interaction mechanisms: summary of propositions

Proposition 4a

The S3 approach and its outcome might depend on an interplay between different stakeholders' interpretation of the concept and possibility for the shared learning.

Proposition 4b

S3 assumptions may diffuse among different stakeholder groups (scope) and reach different levels within the same group of stakeholders (depth), supporting S3 framing, congruent with these assumptions.

Proposition 4c

Clashing interpretations of initial assumptions of S3 might result in modified behaviour of policy-makers and other stakeholders, which compensates for knowledge gaps through adding new elements, blending partial knowledge with existing practices, or ignoring S3 assumptions.

7.4. S3 institutionalisation, isomorphism, and decoupling

The dissertation suggests that coercive isomorphic pressures might lead to institutionalising the initial assumptions of S3 if there is a sound sectoral leadership component. If a system is underdeveloped and lacks the necessary architecture to support S3 (especially appropriate power structure), coercive isomorphic pressures might lead to decoupling. It may be explained by the unbalanced interplay between "systemic" and "episodic" power (terms introduced by Lawrence, Malhotra & Morris, 2012). Furthermore, regions might build "façades" (term introduced by Abrahamson & Baumard, 2008), maintaining legitimacy while masking imperfect practices. Façades are important means to facilitate learning by trial and error but might also support decoupling. Hence, the outcome might be difficult to predict.

Mimetic isomorphic pressures among the regions of the same country (Poland) also have variable results. Initially, much variation could be observed among approaches in different regions. These approaches often resulted from the continuation of previous innovation policy practices, which have been learned from different peers abroad. Such approaches' and established infrastructures' variations lead to differences in regions' absorptive capacities, making imitation difficult. Notably, the World Bank pilot project and Regional Smart specialisation Forum are important sources of mimetic isomorphic pressures between Polish regions. However, specific practices or approaches are recognised as "inspiring examples" or "experiences" instead of as "best practices" to implement step by step. Therefore, it is mostly "incomplete learning", which could be observed across regions in Poland. Moreover, some mimetic influences might work adversely and lead to "decoupled learning", which implies copying widely practised solutions that are not in line with the initial assumptions of S3. Examples include having many priorities or defining priorities at a general level (e.g., healthy society or green economy). Decoupled learning might occur when there is pressure to manage conflicting demands, and there are many examples of deviant practices. It increases mimetic isomorphic pressures, which aligns with the "vicarious learning" concept (Manz & Sims, 1981).

Concerning mimetic isomorphic pressures between different countries, an indispensable factor appears to be institutional proximity, which might refer both to place-specific and industry-specific institutions. Thus, to successfully transfer practices, selected regions have to be similar in economic development or industry structure (similar results and outcomes serve as intuitive proxies for institutional similarity). Learning from the more advanced regions might be easier when it is based

upon a similar institutional base. Such learning is present mainly among business stakeholders engaging internationally (industry-related institutions as a source of absorptive capacity) or academia (if local HEIs are embedded into the global science networks and adhere to international standards). When both place-specific and sector-specific (here, sector-specific implies helix-specific, e.g., government sector, business sector, academia sector) institutions are distant, modification and divergence between what has been imitated and the final results might occur. Hence, it might be crucial to look at who copies what and from whom.

In this context, it is essential to consider different actors and their roles in the innovation system. Thus, different actors (helices) might be viewed as distinct institutional fields, characterised by variable institutional logic (helix or sector-specific institutions). Recalling that in weakly developed innovation systems, some stakeholders might need to compensate for other stakeholders' lacking engagement or capacities, these might imitate solutions from abroad. Exemplary, the government sector attempts to compensate for lacking networks and research infrastructure among business stakeholders, triggers clustering initiatives, and creates business support organisations with public funds. However, these are often less successful and operate differently than their counterparts abroad. In other regions, they possibly adhere to different institutional logic and base their success on tacit knowledge and motivation specific to the business sector. Furthermore, divergence might be fuelled by different place-specific institutions. To conclude, in the context of such complex exercise as S3, there are multiple objects, which might be affected by isomorphic pressures (practices, structures, and content of documents, e.g., priority labels). Moreover, when actors that emanate isomorphic pressures belong to different helix than those who receive them, the transfer may lead to different results because the learning curves are different.

Normative isomorphic pressures stem from standardisation and professionalisation. However, S3 encouraged individual, context-specific approaches, and the RIS3 Guide provided broad indications but lacked details. Notably, regions with little previous experience would have welcomed more detailed guidelines. In contrast, where previous approaches were deemed appropriate, flexibility was valued. Nonetheless, flexibility provides room for interpretation, which may lead to independently emerging standards and variable practices.

If professionalisation or standardisation concentrates on specific aspects (e.g., analysis, project selection, monitoring) but does not concern the whole, it might lead to decoupling because some elements remain underdeveloped while others dominate. Thus, an important condition for the

institutionalisation of S3 through normative isomorphic pressures could be an emerging profession of “boundary spanners”. RIS3 Guide refers to “boundary spanners” as people with interdisciplinary knowledge, able to break extant silos and foster new connections between sectors, disciplines or different organisations (European Commission, 2012). The analysis conducted within this dissertation indicates that the professionalisation of “boundary spanning” activities could help to align learning curves and to establish a shared base between different stakeholders. Thus, it could foster the institutionalisation of S3 while improving consistency and coherence through aligned processes.

To conclude, S3 triggered some institutional change. However, according to its initial assumptions, the approach cannot be assumed to be institutionalised. Firstly, predominating view among policy-makers still deems uniform horizontal policy as more legitimate, fair, and open for new developments and experimentation than more selective and deliberate S3. Despite declared prioritisation, the practice can hardly confirm the consolidation of funds. Moreover, despite reducing their number, priorities often become even broader and less selective in their wording with updating, and many interviewees perceive such development as positive. Secondly, despite declaring continuous EDP in numerous reports and documents, it merely reflects analyses, monitoring activities and updating priorities rather than practical implementation. In that sense, implementation is left to applicants for funding in the general calls, open for all priorities, with little priority-specific support for initialising collective search processes and realising a pool of related projects to build a critical mass in specific domains through enhanced complementarities. In this context, a positive development is a staged smart-panel/ smart-lab approach in Poland. However, there is less capacity to carry out this approach than the scope of Poland’s S3 implies. Thus, the implementing agencies have insufficient capacity to pursue the process in every selected specialisation domain, with all the listed technologies continuously during the whole financial programming perspective. Therefore, even though EDP is continuous and ongoing from the policy-makers perspective, it might appear punctuated concerning particular specialisation. Thirdly, implementation potential also varies across priorities. Thus, stakeholders need much less orchestration and coordination support from the policy-makers to implement priorities when a solid sectoral leadership component is present. Accordingly, it implies a varying degree of institutionalisation across priority domains (due to varying quality of helix coalition).

Exhibit 4 – Isomorphism, institutionalisation and decoupling: summary of propositions

Propositions on coercive isomorphism:

Proposition 5a

The effect of coercive isomorphic pressures on S3 institutionalisation might depend on leadership within specific priorities. For the leadership to emerge, priorities should be defined at the appropriate level of granularity (mid-level) and based upon structures aligned with the structures set by the emerging combinations of industries.

Proposition 5b

Coercive isomorphic pressures in the absence of leadership may also lead to the emergence of façades, which help maintain legitimacy but could result in decoupling.

Propositions on mimetic isomorphism (between regions of the same country):

Proposition 6a

Mimetic isomorphic pressures within the same country might lead to the institutionalisation of S3 when regions share an absorptive capacity base.

Proposition 6b

Different bases of absorptive capacities across regions might lead to path-dependent development and inhibit mimetic learning.

Proposition 6c

Mimetic isomorphic pressures might lead to decoupling when practices that differ from the initial S3 assumptions are easy to implement and ensure the legitimacy of the S3 process on a broader scale.

Proposition on mimetic isomorphism (between regions of different countries):

Proposition 7

Mimetic isomorphic pressures between regions of different countries depend on institutional proximity, considering place-based and sector-based institutions. In the international context, mimetic processes are complex, involve multiple objects, and may cross boundaries between regions and demarcation lines between helices (set by institutional logics, which differ between helices). Therefore, it matters for institutionalisation whether mimesis occurs within a helix or between different helices.

Proposition on normative isomorphism

Proposition 8

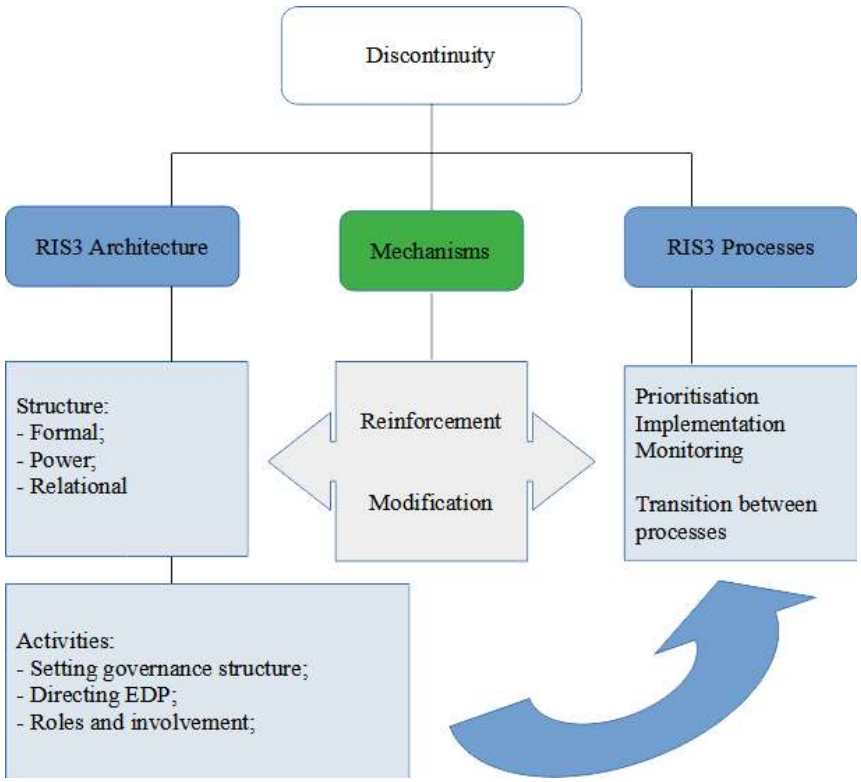
Normative isomorphic pressures might lead to the institutionalisation of S3 when the learning curves of different stakeholder groups get aligned. The emerging profession of "boundary spanners" might support normative isomorphism.

8. Theoretical contribution

The research findings, supported with existing theory, resulted in the model framework (depicted in Figure 2), which outlines the emergence and structuring of an organisational field around S3. The model might serve as a tool to analyse S3 and EDP principles' institutionalisation. The core finding

is that S3 often stagnates and difficulties emerge even if the development started positively. The persistence of such a situation might result in failing institutionalisation of the S3 assumptions and emergence of rationalised myths, consequently decoupling what is practised from what is preached. Reaching such a point has been labelled a "discontinuity" in the process. A discontinuity implies that the process may stagnate due to an interruption, break off, or take a different development path than initially intended. The model distinguishes between S3 architecture, processes, and mechanisms that may affect them (reinforcement and modification).

Figure 2 – *Discontinuity in the process as a theoretical concept explaining variation in the results of isomorphic pressures*

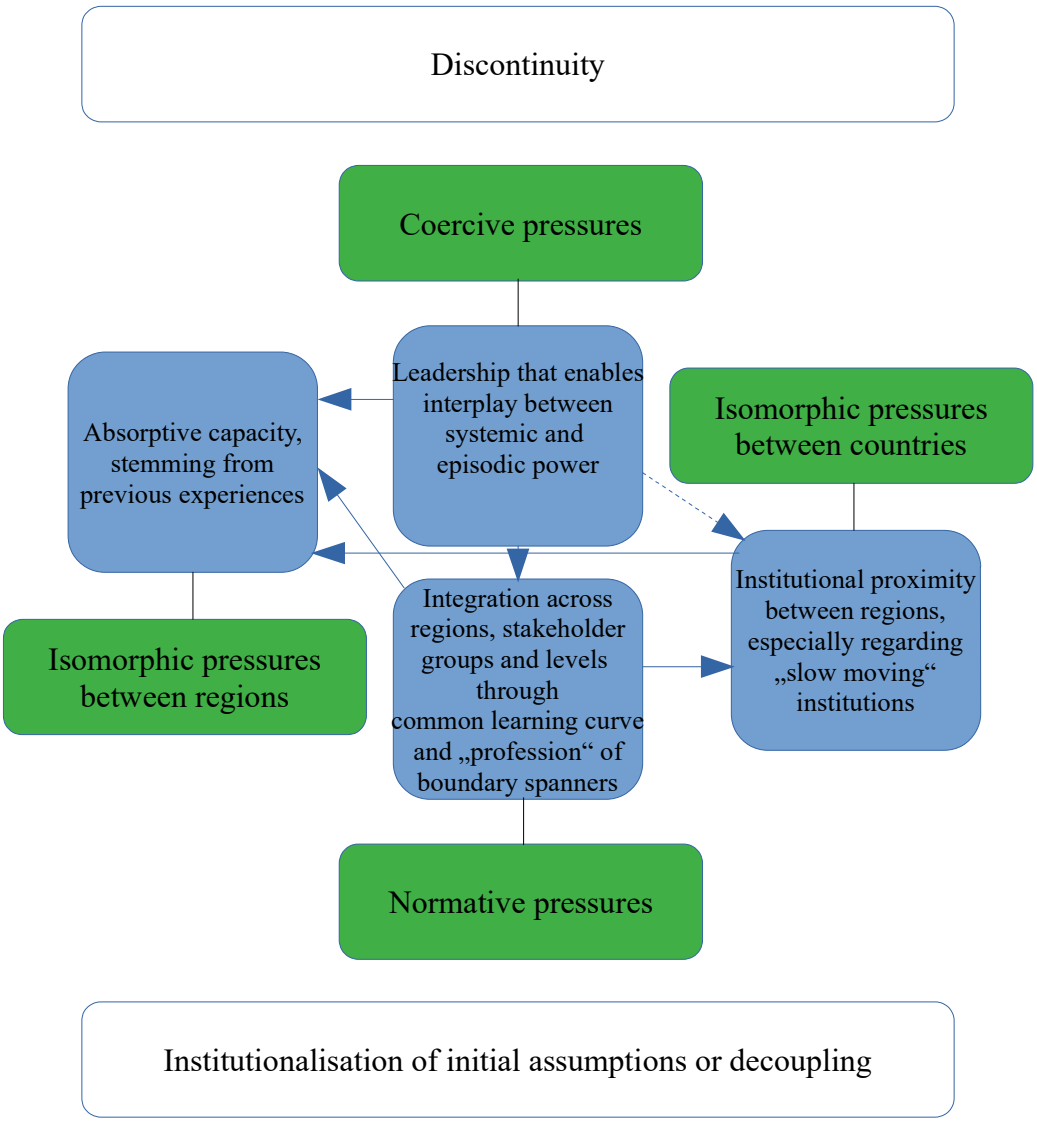


Source: own elaboration

Thus, S3 architecture results from activities that organise the emerging field and set up three types of structures: physical, power, and coupling. Consequently, it affects S3 processes: defining priorities, including their implementation and feedback through monitoring and evaluation, visible in official documents. Hence, S3 architecture and processes are potential sources of discontinuity. They might inhibit the development of the organisational field and distort isomorphic pressures, with consequences for institutionalisation. The mechanisms of reinforcement and modification determine how actors understand and use the S3 concept and its assumptions in practice. As actors interact, they share their interpretations with others. Therefore, the mechanisms affect diffusion objects (assumptions of S3) and may favour the emergence of rationalised myths and decoupling.

Research questions relating to neo-institutional theory allowed decomposing approach to S3 in the regions and analysing of its possible outcomes connected to different isomorphic pressures: coercive, mimetic and normative. Thus, isomorphic pressures might not necessarily lead to the initial assumptions' institutionalisation but, under certain circumstances, might favour decoupling and emergence of rationalised myths. The result is difficult to predict because of the nuanced antecedents and various possible responses. In practice, isomorphic pressures act simultaneously, and the result depends upon their interplay and interaction. The proposed theoretical model allows understanding better how particular antecedents might influence the outcome of specific isomorphic pressures in the context of S3. Figure 3 summarises these influences.

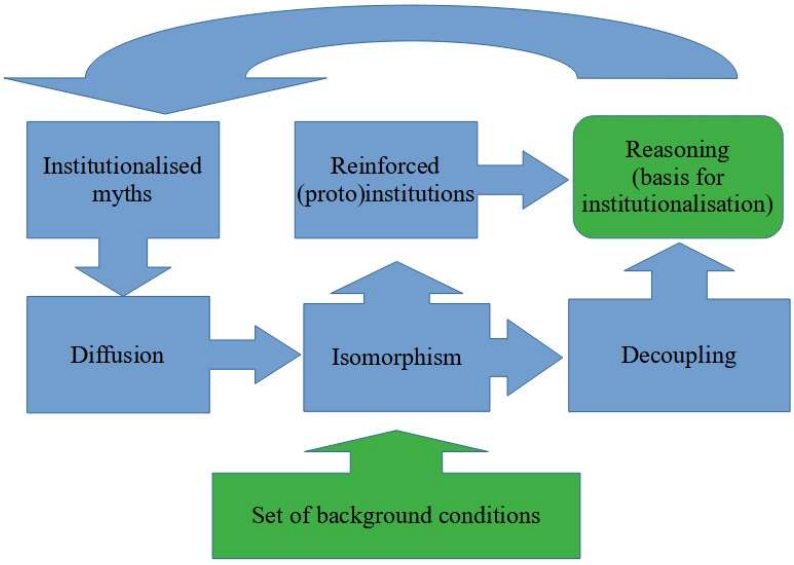
Figure 3 – *Determining conditions whether isomorphic pressures might lead to the institutionalisation of the initial assumptions of S3*



Source: own elaboration

The dissertation contributes to existing theory in different ways. Firstly, it demonstrates that isomorphic pressures might lead to variable results in institutionalising such a complex process as S3, with many actors and elements. The conducted research identified a set of determining conditions that lead to variable outcomes resulting from different isomorphic pressures in the context of S3. Furthermore, it shows the influence of determining conditions in the recipient regions on creating new rationalised myths, as institutionalised "mainstream" practices and "decoupled" practices feed into the reasoning of what is a good practice. Consequently, it implies that rationalised myths are learning entities and change their labels when they have learned enough and the initial assumptions do not hold.

Figure 4 – *Contribution of the dissertation to existing theory*



Source: own elaboration

Secondly, the study connects determining conditions to various well-established concepts in organisational theory. Thus, it attempts to theoretically verify assumptions of S3 and elaborate when and why these might or might not hold. In this sense, it connects S3 to the existing research in management and organisation theory. Thirdly, although still young, research on S3 started developing in few different directions, especially concerning place-based and industry-based perspectives, stemming from different innovation system approaches. The current dissertation accounts for both perspectives, demonstrating their relationship and the consequences for institutionalising S3.

Exhibit 5 – Addressing the research problem

Discontinuities caused by deficits in governance structures have characterised the emerging organisational field around S3. The deficits may stem from poor coordination of multilevel governance, misaligned administrative capacities, weak sectoral governance component, the unbalanced influence of different stakeholders, lack of balance between top-down and bottom-up approaches when designing the process, inadequately pre-defined priority fields or regional boundaries, insufficient engagement of relevant stakeholders, lack of coalition between stakeholders. These deficits appear within distinct priorities, defined in the official S3 documents. Consequently, strategy implementation and monitoring at the level of distinct priorities have been affected, resulting in minor consolidation of funds and predominately horizontal innovation policy.

9. Practical implications

The proposed model framework might serve as a tool to support the systematic identification of potential problems within S3. It enables decomposing the complexity of S3 without decoupling certain aspects from the whole, facilitating a holistic view. Therefore, compared to the six steps approach described in the RIS3 Guide, it might better visualise interactions between different elements and assist in addressing the weak parts while considering the broader context. Moreover, being aware of potential pitfalls, policy-makers might consciously search and analyse specific examples and practices in other regions, considering implementation possibilities in their context.

Firstly, the framework underlines fundamental elements of S3 structure and governance, identifying activities that determine these structures in the context of S3. Therefore, policy-makers can approach these activities in a reflected manner and consider relevant structures from the perspective of selected priorities.

Secondly, the framework shows that structures set through specific activities affect the outcome, including official documents and their implementation. Official documents contain priorities, which often represent broad labels. Comparing priorities across countries, the practice of using broad labels is common. However, the situation in Lithuania and Poland is not directly comparable with the advanced regions. In Lithuania and Poland, industry-based structures (e.g. clusters) are much weaker, and firms rely on public support and funding for their innovation activities. In line with S3, they demand tailor-made solutions. Therefore, it implies that official documents should be much more precise concerning priority definitions because they need to compensate for lacking self-organisation of industries. Ideally, a priority should specify the goal (e.g. cleaner environment), the

means to achieve it (which technological solutions could be used), and the industries addressed to accomplish the transformation. In this context, it is also important to monitor the developments in networks of innovators around specific topics and define priorities at the appropriate level for their implementation (e.g., regional, national).

During the research process, interviewees emphasised that business stakeholders are often concerned with immediate results and show little interest in discussing the region's long-term development. Here it might be helpful to have relatively broadly defined common borders or guidelines at the higher strategy levels representing some vision, while details emerge at the lower aggregation levels as different actors follow the vision or guidelines' direction. Consequently, business stakeholders' involvement might make more sense when discussing implementation-related issues and concrete topics instead of deliberations on priority wording and description of its content. For this purpose, it might be more appropriate to identify core organisations that could organise stakeholders downstream (e.g. clusters, anchor organisations within innovation ecosystems, or other overarching organisations). Furthermore, discuss with them development directions. Suppose solid partners from the business sector are lacking. In that case, it could be feasible to support the emergence of innovation ecosystems around HEIs potential, focusing on entrepreneurial education and commercialising research results. Furthermore, emphasis on non-financial benefits, such as prestige or networking, might enhance stakeholders' engagement.

Thirdly, S3 implies breaking extant structures and silos and fostering new constellations for cooperation. It concerns traditional division into government, academia and business, and the usual classification of industries and sectors (e.g., NACE). Re-combining the boundaries of what is perceived as a homogeneous population of organisations is challenging because each of these populations developed its own "language", rules or codes of appropriate behaviour. Consequently, finding the people who are able to span the boundaries between different stakeholders might be crucial for priorities' implementation.

10. Limitations and further research

Despite theoretical and practical value, the study has several limitations. Firstly, the timeline chosen for the study included the financial programming period 2014-2020. Therefore, longitudinal developments of innovation policy in Lithuania and Poland have been accounted for only partially. However, including extensive longitudinal analyses of previous policy would extend the scope of

the dissertation, with little value for the studying emergence of an organisational field under coercive pressure.

Secondly, the study distinguished determining conditions, indicating whether the intended approach might be institutionalised or decoupling will take place. Accordingly, it elaborates how actors embedded in the specific contexts react to isomorphic pressures. However, these conditions are specific to the context of S3 and cannot be generalised for other study fields.

Possible limitations related to the qualitative method result from the theoretically underdeveloped research topic of smart specialisation. The theoretical evidence necessary for developing a solid model for statistical verification might be insufficient. Consequently, at this point, it might be important to gain an in-depth understanding of the topic from the perspective of relevant organisations and actors. The qualitative study fieldwork allows identifying possible themes and relevant variables from the primary sources. Subsequently, these might be used for quantitative studies, aiming for statistical generalisability of the findings.

The results might also serve as a starting point for further research on different aspects discussed in this dissertation. Especially promising might be further research concerning determining conditions and their impact in another context than Lithuania and Poland. Firstly, there is a theme of leadership in the S3. It would be interesting to compare how priorities evolve when different stakeholders take leadership. A possible research question could be when EDP is led by, e.g., university, cluster, implementing agency or large firm, whether similar domains develop differently. Second, it might be interesting to research how the region's absorptive capacity is built and how stakeholders' embeddedness into different international networks affects its development. Thirdly, a promising research theme might be exploring the emergence of new organisation fields resulting from the convergence of extant fields and influences of institutional proximity and distance on the outcomes of mimetic isomorphic pressures. Fourthly, it might also be interesting to research "boundary spanners", responsible for organising and orchestrating EDP within particular specialisations. Exploring whether a "new profession" with distinct rules and standards might emerge or maybe these will converge with the logic common for some other helix (e.g., due to power relations) could expand the knowledge on developing organisational fields and their institutional arrangements.

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