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How to evaluate innovation strategies with a transformative ambition? A proposal for a structured, process-based approach

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Abstract

In recent years, policymakers have increased their ambitions to shape the development of national and regional innovation systems. More often than was, innovation strategies now come with the ambition to support economic transformation and societal change in a way that requires the re-arrangement of existing policy mixes. With a view to policy assessment, these developments raise new, so far untackled challenges. Against this background, this article illustrates that standard approaches to programme evaluation must be unfit to assess overarching strategies. It finds that this is not only a function of their complexity but also of the open-ended nature of processes required to translate strategic ambitions into concrete actions. To better grasp those, it puts forward a novel heuristic to structure our understanding of the discursive process preceding the definition of tangible policy measures at three levels: strategy agenda setting, thematic orientation, and instrumentation. Subsequently, it demonstrates how this approach helps localize and clarify instances of failure for later assessment. Based on a detailed case study, it underlines that efforts to ensure the consequential translation of ambitions into corresponding measures will lead to better results than the futile attempt to keep the resulting policy mixes free of any formal inconsistencies.

Key words: policy; implementation; smart specialization; process; actor-based; evaluation

1. Introduction

Over the years, many countries' and regions' innovation policymakers have gone through cycles of favouring cross-sectoral 'laissez-faire' approaches and such making stronger claims towards directed societal change. Despite known limits to policy coordination (Arnold 2004; Molas-Gallart and Davies 2006; Lascoumes and Le Gales 2007; Howlett 2009), recent years have once more seen reinforced attempts towards the latter. Under an increasingly powerful discourse on challenge-orientation and sociotechnical transformation (Kuhlmann and Rip 2018; Schot and Kanger 2018), the current direction of development seems unambiguously clear. Driven by pressing challenges in areas like climate, mobility or social disparities, most governments are moving beyond established notions of 'fixing market and system failure' towards defining priorities in support of societal and economic transformation. In the following, this article will refer to such purposefully prioritizing approaches as 'innovation strategies'.

Against the background of the above said, the debate on 'policy mixes' (Howlett 2005; Borras 2009; Flanagan et al. 2011) has (re)gained momentum, shifting from one exploring 'generically optimal' toolboxes and techniques (Howlett 2011; Kroll 2017) to considerations of support measures' roles in strategic frameworks and complex constellations of innovation governance (Howlett and Rayner 2007; Lanzalaco 2011; Navarro et al. 2014; Magro et al. 2015). Increasingly, contributions place emphasis on policy measures' potential to effect change in light of higher-level objectives as well as the path dependencies and counteracting factors that keep them from doing so (Magro and Wilson 2015; Peters et al. 2018). By and large, however, we lack any agreed-on approach on how to assess central aspect of strategically motivated policy implementation (Peters et al. 2018). In the following, this article will address and propose first steps towards closing this fundamental gap.

Compared to traditional programme evaluation, the combined assessment of innovation strategies and strategically embedded innovation policy mixes poses a substantially more difficult challenge—for reasons more fundamental than mere complexity. As is broadly accepted, political decisions emerge in unpredictable, iterative processes (Kingdon 1984; Edler, 2003; Smits et al. 2010; Edler and James 2015; Colebatch 2017) so that the transfer of grand ideas to concrete instruments constitutes an iterative and in many ways open-ended process of learning in practice (Lindblom 1959; Bennett and Howlett 1992; Howlett et al. 2015, Howlett et al. 2017). In the complex field of societal transformation through innovation,

political strategies address generic objectives (improve 'sustainability' or 'societal inclusion') that cannot simply be 'fit' with measures. Instead, subsequent adaptations of the existing policy mix will evolve gradually through interpretation and negotiation, in a open-ended process of 'policy packaging and patching' (Gunningham et al. 1998; Yi and Feiock 2012; Howlett and Rayner 2013). Not uncommonly, therefore, the resulting adaptation of concrete policy action will from an external perspective either be inadequate or too limited. Hence, any direct pitching of innovation strategies' initial ambitions against their final socioeconomic impact would be based on simplistic assumptions that may often not hold.

So far, however, many evaluations of innovation strategies continue to build on the premise that intervention logics are consciously chosen at the outset and then subsequently 'fitted' with instruments in a more or less technical process. On that basis, it is maintained that strategies could, in principle, be directly evaluated based on the impact they create with respect to their target system (Kleibrink et al. 2018). For certain generic purposes, this may well be accurate. Unless we distinguish between strategic intentions and concrete actions, however, we will never be able to identify at what stage processes begin to deviate from the strategy's original ambition. Without taking a process-oriented perspective, it remains impossible to tell whether an innovation strategy was already flawed in ambition, wrong decisions were taken on thematic areas of action, or if, indeed, one is witnessing a technical failure in the choice of measures. In the following, this article will caution against such simplistic assumptions and, instead, propose a process-oriented approach to assessing innovation strategies that is conscious of the important threefold difference between ambitions articulated, concrete actions taken and effects achieved.

In line with this, this article will contribute by proposing a framework of analysis that clarifies the most important steps between the drafting of strategies and the putting in place of policy measures. Put differently, to provide a tool that allows to gauge whether an adequate concrete manifestation of strategic ambitions, to which later impact assessments could refer, is at all given. Moreover, it will identify key factors that intervene into and shape the multi-actor, multi-motive process of translating ideas into actions (expanding on early notions of Lindblom 1959; Bennett and Howlett 1992; Howlett et al. 2017)—and which could be used to explain bottlenecks found by later studies.

By means of a concluding empirical case study, it will demonstrate the instrumentality of this proposed approach using examples from the European Commission's smart specialization policy agenda—the arguably most comprehensive field study ever with respect to transferring generic, purportedly transformation-oriented innovation strategies from concept to practice.

2. Background and key proposition

In the following, this article will outline basic elements of a process-oriented approach to assess the translation of strategic ambitions into concrete innovation policy actions. Fundamentally, it starts from the assumption that it is not only the initial political decision but, more importantly, its manifestation in administrative acts and support measures that gives political strategies relevance and effectiveness (Peters et al. 2018). For the assessment of innovation strategies, therefore, it advocates to pay more attention to the steps *preceding* the launch of actual measures.

In doing so, it emphasizes that the interactive, recursive and non-deterministic nature of political decision making (Kuhlmann et al.

2010) persists once strategic ambitions leave the domain of 'high-level abstraction' (Peters et al. 2018) to become substantiated by concrete support efforts in practice (Peters 2014). Far from being a 'technical task', most decision-making processes on concrete innovation policy measures are characterized by interpretation and negotiation among diverse players in various arenas. Contrary to prevalent assumptions, moreover, many intervention logics are initially not clearly defined, shared or even understood (Considine et al. 2009, 2014)—and many subsequent discourses and negotiations occur in a contested environment where essential cognitive and managerial capacities for strategy implementation remain lacking (Wu et al. 2010; Rotberg 2014; Wu et al. 2015).

To conceptually position these common impressions from practice, this article suggests that it is both possible and analytically productive to interface two well developed, yet insufficiently connected strands of literature, that on the assessment and evaluation of innovation policies (Arnold 2004; Borrás and Edquist 2013) and that on the dynamics of political decisions on which these policies are founded (Smits et al. 2010, Edler and James 2015; Peters et al. 2018).

In general terms, political science has often acknowledged that complications may ensue in the process of decisions becoming effective, even elaborated on details (Hjern and Porter 1981; Howlett et al., 2006; Peters et al. 2018). However, it has not commonly pursued policy's translation into administrative action as a full-fledged subject of analysis in itself. In contrast to the impact of societal problem articulation on policy making (Kingdon 1984; Seymour-Ure 1987; Barker and Peter 1993), policy 'implementation' is not often specified and analysed as a specific subsystem or 'stream' of practice in its own. Instead, it tends to be considered as a reflection of fragmented decisions taken in windows of opportunity that emerge in the course of the shaping and reshaping of policy streams (Kuhlmann et al. 2010). In that sense, few studies have focused their analysis specifically on the internal logics and rationales *following* the point of strategic decision making in windows of political opportunity or necessity (Kingdon 1984; Edler 2003; Edler and James 2015).

In consequence, political science tends to cede relevant questions of evaluation and assessment to administrative studies, business research or economics, disciplines which, in turn, do not commonly place much emphasis on the strategic decision's or their administrative articulation's emergence. Hence, many evaluation approaches proposed in that context take strategic decisions as given and—implicitly—adequately translated into practice when seeking to 'measure' strategy's effectiveness purely based on their outcomes (Foray et al. 2012; Magro and Wilson 2015; Kleibrink et al. 2018). Thus, the processual analysis of policy implementation remains an analytically somewhat neglected child, a boundary object visible to and mentioned in passing by many, but hardly considered in-depth by either discipline.

Against this background, this article takes an interdisciplinary approach to reconcile established findings from political science with (empirical) insights on the concrete nature of implementation processes established in other fields. While agreeing with Aranguren et al. (2017) and other (Bovens et al. 2008) that assessments should seek to discursively guide transformation rather than merely control it, the author calls to mind that, in parallel, public requests for direct accountability and documentation are constantly rising. Despite all openness, therefore, future policy assessments will need a clear reference framework to orientate their analysis. This becomes more pressing the more often we witness strategic attempts to replaces the continuous stream of idiosyncratic policies that characterized the

1990s and 2000s by concerted efforts to orient and guide the development of national and regional innovation systems.

2.1 Concept

Necessarily, all policy implementation is a function of *two-way* dynamics and frictions at the boundaries between the spheres of politics, administration and the actual socioeconomic contexts in which it becomes effective. Regardless of its original and deep anchoring in the political sphere, policy implementation can therefore not be sufficiently explained by the consideration of political 'rules of the game' alone. In principle, two fundamental points can be made to corroborate that initial generic decisions at the strategy level cannot and should not be equated with decisions no concrete innovation policies that could straightforwardly be evaluated.

First, setting them equal suggests that the locus of initial decision making is identical or close to that of taking corresponding legal or bureaucratic action so that no further processes of negotiation, dilution and reframing were opened up once innovation strategies are agreed. In today's multilevel governance systems (Hooghe and Marks 2001), however, most strategic decisions have to enter interagency consultation before they become final and to be cascaded down administrative or even governmental hierarchies before they are cast into budgets and regulations (Howlett et al. 2015, 2017) to acquire transformative momentum in the 'real world'.

Secondly, setting them equal suggests that once a decision is taken, it can in principle be 'executed' without further interpretation. Most commonly, however, it is not only administratively, but also cognitively impossible to directly cast a generic decision into suitable legislation and measures or to 'objectively' identify suitable target groups (Schneider and Ingram 1993). Much more commonly, first strategic decisions need to be further interpreted in an exchange with real-world stakeholders (Dunlop 2009; Foray et al. 2009) before, eventually, an array of concrete policy actions will be taken to effect change on their basis (Howlett and Rayner 2013; Foray 2014; Kroll 2017).

To assess innovation strategies, it can therefore not be sufficient to review their generic ambitions. To the contrary, it will be essential to review whether the final array of actions taken on their premise still provides convincing evidence of these ambitions—so that it could, in a second step, be evaluated with a view to impact based on more traditional approaches.

2.2 Critique of existing approaches

Much of the recent literature agrees that, where they exist, concerted processes of implementation are complex, involving recursive discussions among multiple stakeholders (cf. Magro et al., 2014, Howlett et al. 2015, Flanagan and Uyarra 2016). Furthermore, it acknowledges that long-standing policy mixes may give rise to their own, independent practices and narratives (Magro and Wilson 2015; Howlett et al. 2017)—creating path dependencies that are not easily broken.

In light of the above said, the translation of new strategic ambitions into innovation policy practice should be conceived as a process of ideation, negotiation and decision-making that is driven and governed by multiple actors. It occurs at the boundaries of politics, administration, the economy and broader society, producing cross-fertilization and friction. As actors from these spheres operate under different incentive systems, they contribute different motivations that may give rise to conflicts and contestation but also productive synthesis and eventually, new arrangements. Against this background, it stands to reason to analyse the translation of innovation strategies into practice from an actor-centred perspective. So far, however, no conceptual approach in that spirit has been put forward, despite relevant contributions to composite elements (Peters et al. 2018).

Instead, many guidelines for innovation strategy implementation (cf. Foray et al. 2012) continue to build on the misleading notion of a sequential 'policy cycle'. More fundamentally than commonly acknowledged, this notion is unfit as a productive basis for innovation policy evaluation. In reality, policy implementation does not happen in a stepwise manner but meets with path dependencies, intervening dynamics, and counteracting forces at different levels and points in time (Flanagan et al. 2011; Valdaliso et al. 2014, Peters et al. 2018). By inappropriately conflating multi-level, multi-actor negotiation processes (Kuhlmann 2001; Edler and James 2015; Howlett et al. 2015; Rogge and Reichardt 2016) into simple, functional steps the 'cycle' heuristic directs our intention away from what is truly important. By suggesting that all builds on each other in a nice, orderly sequence it disregards the fundamental nature of policy and politics. Within administrations, fights for remit and and principal-agent issues play a substantial role (Jensen and Meckling 1976; Bergman and Lane 1990; Braun and Guston 2003). Moreover, many central actors involved in strategy process lack not only an interest, but also required qualifications to professionally execute them in a stepwise, procedural manner (Considine et al. 2014; Wu et al. 2015; Capello and Kroll 2016).

Instead of forcibly framing innovation policy design efforts into a 'policy cycle' framework, therefore, the author suggests to conceive of them as attempts to couple pre-existing policy streams with an independent, *loosely coupled* line of concrete support practices (cf. Fig. 1). As emphasized at the beginning of this article, the majority of such concrete practices will have emerged during preceding laissez-faire periods. In the past, a continuous stream of small idiosyncratic impulses from the political discourse became absorbed into implementation practice in a piecemeal fashion, without ever changing the directionality of the system substantially. As policy makers now attempt to reorient implementation practices in a more coordinated and purposeful manner, implementation practitioners will therefore not immediately be very responsive. In many cases, structures and processes to organise and coordinate the traditionally rather loose coupling between political acclamation and action remain missing and no conventions have yet been established for that purpose. As stated at the beginning, however, formal decisions *against* strengthening the formerly weak link between strategic ambitions and implementation practices will become difficult to defend in a political environment that puts increasing emphasis on societal challenges and at the same time seeks to defend competitiveness at a time of far-reaching industrial transformation.

3. Towards a heuristic for policy implementation

3.1 Central proposition

In essence, this article suggests that the process of the translation of innovation strategies into policy implementation can be conceptualized as the introduction of *a new, high-level impulses into an existing path-dependent system of narratives and support policy practice*, an impulse that will to different degrees result in gradual adaptations (Howlett and Rayner 2013; Rayner et al. 2013). Consequently, strategy implementation is as much about changing cognitive frames, established habits, and recalibrating interest coalitions (Schneider and Ingram 1994; Christensen et al. 2002; Dunlop 2009; Meuleman 2009)
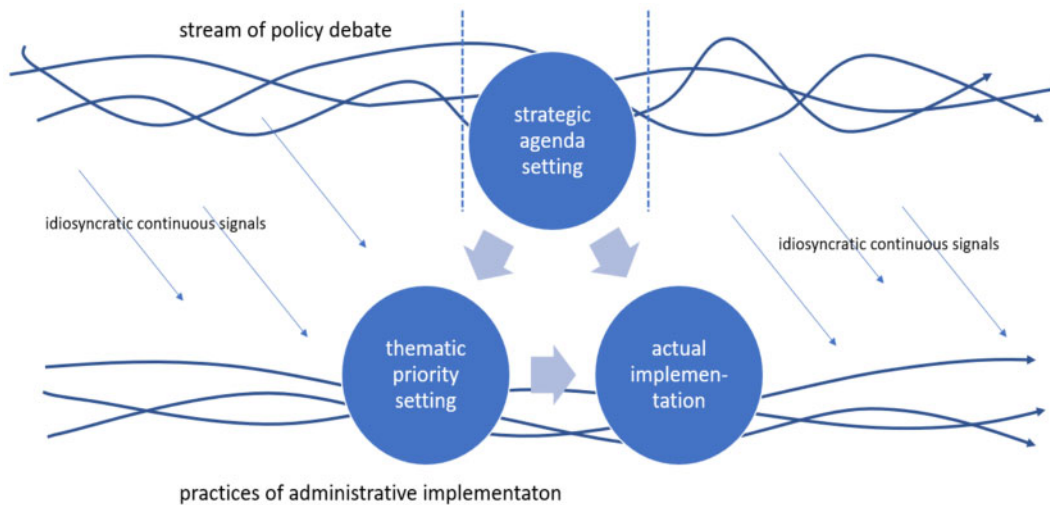
Figure 1. Connecting streams of policy debate and practices of implementation.
Source: Own figure.

Figure 2. Three functional levels of policy implementation.
Source: Own figure.

as it is about finding technically appropriate instruments to reach suitable target groups (Kleibrink et al. 2018). Overall, it is instrumental to distinguish three levels at which prior equilibriums of practice are changed and/or will have to be renegotiated (cf. Fig. 2).

- the level of *strategic agenda setting* on the basis of shared frames and narratives which is anchored mainly in the sphere of politics and political discourse,
- the level of *thematic orientation* and the effective constitution of directionality which is anchored mainly at the level of the political administration,
- the level of *actual implementation* and instrumentation which is anchored mainly at the purely executive level of agencies providing innovation funding to beneficiaries.

In reality, these levels are co-existing functional arenas of discussion that involve overlapping groups of actors including policy makers and 'real world' actors. Some overlaps between exchanges on the different conceptual levels will inevitably result (Howlett 2009;

Considine et al. 2014; Howlett 2014, Magro et al. 2015). Nonetheless, their distinction is analytically fundamental as it enables the differentiation between distinct internal logics, different path-dependencies, and different intervening factors (Howlett et al. 2015, 2017; Peters et al., 2018).

Conceptually, strategic impulses at the level of challenge-driven innovation policy change the established set-up of this system first at the highest level to then be translated down to the level of actual instrumentation step-by-step in a recursive process.

In principle, the proposed concept can be considered in line with Peters et al. (2018) differentiation between 'high-level abstraction', 'operationalisation', 'on-the-ground specification', with the possible difference that those define 'operationalisation' more technically than this article that still considers 'priority setting' as rather political, albeit in a specific way.

In practice, duplications, overlaps, redundancies and other issues that lead to a failure in translating ambitions into actions can be found at all levels (Hou and Brewer 2010; Swanson et al. 2010).
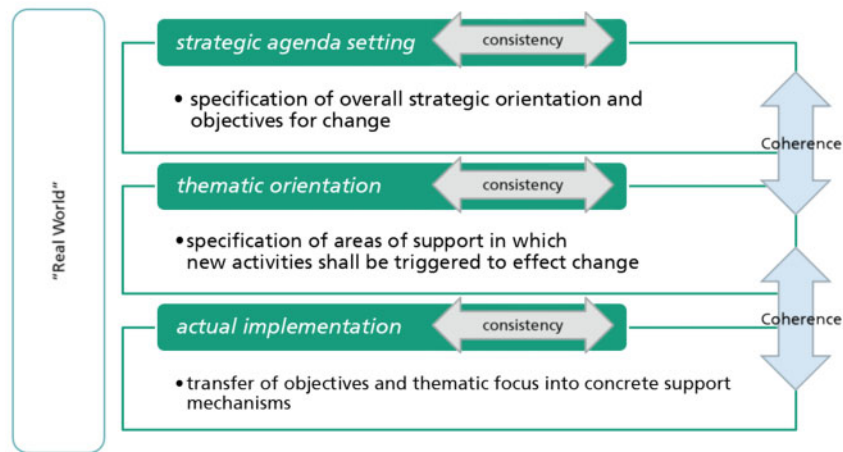
Figure 3. Assessment criteria based on the three-level heuristic.
Source: Own figure.

Consequently, the central benefit of the above heuristic is that it will allow future evaluators to identify at which stage of the translation process results started to deviate from the initial ambition and for what reason. In consequence, analyst no longer have to (mis)take strategic intentions for actions but can consider the preceding effectiveness of design 'autonomously' from the subsequent effectiveness of policy (Peters et al. 2018)—or, more precisely, take the former seriously as an obvious precondition of the latter.

3.2 Levels and logics of negotiation

With a view to internal logics, negotiations and decision making at the level of strategic agenda setting are primarily driven and motivated by issues of societal legitimacy, the representation of new discourses on innovation and, within multi-level innovation systems like the EU, compliance with higher-level decisions. At this level, policymakers have to demonstrate that all relevant actor groups are given a voice and that their strategy resonates with existing dominant narratives for innovation policy (Kuhlmann et al. 2010; Skodvin et al. 2010; Kroll 2017). At the level of thematic orientation, the prevailing logic shifts to the representation of concrete interests and struggles for resources—as in most processes of transformation, at least some of the incumbent parties will most likely lose out. At this level, policymakers have to assign the pursuit of strategic objectives to specific stakeholders, taking into account established claims without forfeiting transitional ambitions (Iacobucci 2014; Boschma 2014; Kroll 2017). Necessarily, this will provoke substantial controversy. At the level of instrumentation, finally, discussions are to a strong extent dominated by administrative and professional logics and cognitive challenges as decisions are reaching a level of granularity too detailed for policymakers and at the same time closest connected to concrete needs and challenges in the 'real-world' innovation domain (Braathen 2007; Considine et al. 2014; Kroll 2017).

4. Assessment criteria and intervening factors

4.1 Assessment criteria

Based on the heuristic outlined above, is it possible to derive two main assessment criteria for the process of implementing political strategies.

First, the *consistency of articulations at specific functional levels* i.e. the logical homogeneity and freedom of contradiction of strategic efforts' documented outcome. Second, the *coherence between documented ambitions and their impact at subsequent levels*, i.e. the question whether *higher-level ambitions have been consequentially translated to lower levels*. Importantly, both assessment criteria are non-normative, i.e. can as such be equally applied to any strategic ambition irrespective of direction or moral substance. As underlined in earlier sections, it is their sole purpose to help determine reasons why stated political ambitions have resulted in concrete *and* adequate actions that justify a further evaluation of the strategies real-world impact—or not.

In concrete terms, consistence refers to the following issues at the three main levels of negotiation: At the level of strategic agenda setting, it refers to the question whether composite parts of the overall narrative or argument contradict each other. At the level of theme setting, it denotes whether the themes are defined at the same conceptual level, with similar breadth and scope and whether they positively reinforce each other. At the level of instrumentation, it refers to the question whether the selected instruments interfere with each other in technical terms.

In a similar manner, coherence between strategic agenda setting and thematic orientation describes whether the selected thematic areas of action correspond to a well-founded understanding of the overall ambition. Between thematic orientation and actual instrumentation, it refers to whether the concrete set of instruments suitably corresponds to the selected themes in that they address relevant target groups and that they do so in a way that is likely to prompt actual change.

4.2 Intervening factors

Initially, two different types of intervening factors should be distinguished that can cause deviations from the ideal of intra-level consistency and inter-level coherence.

First, frictions can result from actions and character traits immediately pertinent to certain actors such as overt self-display, irrational actions, or persistent cognitive barriers. These can typically only be overcome through the reconfiguration of the affected arenas of discussion or—worst case—the removal of certain stakeholders from the process. Generically, such deficiencies could be referred to

as *actor-based challenges*. In most processes, they constitute a form of 'background noise' that remains difficult to categorically assign to distinct levels of negotiation. In principle, they can occur in the form of disputes between ministers as well as individual desk officer's obstructionist tactics in implementation agencies. Consequently, their consideration would not yield additional insights in the context of the proposed approach and will therefore not be pursued further.

Second, however, frictions and inconsistency can result from processes that are by definition pertinent to certain level-specific logics of negotiation which tend to give rise to level-specific frictions—like fights for resources. As such these are perfectly legitimate, but still need to be contained and moderated through improved mediation and management while maintaining the full group of actors involved. They can be referred to as *functional challenges* and constitute the focus of subsequent analyses.

At the level of strategic agenda setting, commonly encountered issues include (overt) concerns for societal acceptance, amenability to trends and policy fashions and, at the same time, hesitation to put in place strategic agendas that may indeed effect transformative change with unknown consequences (Kuhlmann et al. 2010). Moreover, high-level decision-making processes may suffer from a lack of information on existing evidence on actual challenges.

At the level of thematic orientation, discussions on remit on the side of the administration and resources conflicts between interest groups at the stakeholder side occupy centre stage. Furthermore, a lack of access to field specific knowledge and information about available capacities triggers classical coordination challenges as the position of a neutral yet qualified moderator remains difficult to assume against well-prepared interest groups (Iacobucci 2014; Kroll 2017).

At the level of instrumentation, classic principle-agent situations prevail. Policymakers meet cognitive limits when it comes to assessing the efficacy of field specific funding approaches, options to address and involve relevant target groups and possible ways to initiate concrete projects (Yi and Feiock 2012; Considine 2014). This puts applicants and project management authorities in a good position to modify and interpret given frameworks according to their own needs and preferences.

Put more generally, there are substantial interdependencies in the system at multiple levels that will—for different reasons—alter the initial thrust of novel, transformative narratives and ambitions in innovation policy on their way down to implementation (Hood 2007; Mesequer 2006; Capano and Woo 2017; Peters et al. 2018). At the level of strategic agenda setting, new thoughts become amalgamated with existing discourses and narratives out of political opportunity. At the level of thematic priority setting, questions of established remit and pre-existing budgetary allocations to certain fields determine whether new emphasis can at all be set and how comprehensive the momentum of new, challenge-driven strategies can technically become. This does not only refer to the obvious point that new impulses set by one ministry cannot easily affect the spending of others, but also to the fact new support programmes are not introduced on a political 'greenfield' but interact and interfere with an existing support landscape, established and evolved at a different, less directionality-oriented time. Finally, there are a number of proven practices at the level of instrumentation that are—rightly or not—considered 'good practice' and concrete 'success stories' (Howlett and Rayner 2013). As these are governed by expert personnel at the level of project management agencies with close 'real world' connections, it can at times be rather difficult to effectively change them on the basis of abstract strategic notions which do not immediately relate to real-world needs. Finally, legal and technical limitations can prevent the translation of as such uncontroversial ambitions into effective support practice.

5. Method

This methodological section pursues a twofold objective. First, it begins with a recap of the general empirical work that motivated the above conceptual section and literature study as well as the development of the proposed heuristic. Second, it provides more detail on the case study that will be developed to corroborate and illustrate the pertinence of the above assumptions.

In recent years, the European Commission's policy agenda for smart specialisation (Foray et al. 2009; Capello and Kroll 2016) provided a large-scale real-world experiment in which the translation of regional innovation strategies into practice could be studied in various contexts. As its official guidelines (Foray et al. 2012; European Union 2013) required detailed documentation, an unusually broad basis of material became available for desk research and various opportunities resulted for interviews at different stages of the process.

Since 2012, the author conducted various interviews on that topic with German policy makers and funding agencies. More precisely, his involvement in the EU project 'Regional Innovation Monitor' and a study for the German Expert Commission for Research and Innovation enabled him to conduct face-to-face and phone interviews at the level of various responsible heads of units or directorates at regional ministries and—in most cases—relevant subordinate support agencies. Across the years, such interviews were conducted in Saxony-Anhalt, North Rhine-Westphalia, Lower Saxony, Saxony, Bremen, Thuringia, Upper Austria, and Lower Austria. In total, the number of formally documented interviews amounts to more than twenty. Interviews were semi-structured, lasted between one and two hours and were documented in the form of summary minutes. After their documentation, they were discussed with project partners who had conducted similar interviews in other countries. Overall, more than a hundred dedicated interviews were conducted by all project partners. Finally, the conclusions thus drawn for the regional level were put in perspective and validated for the national level based on five internal discussions with senior colleagues involved in national level evaluation and consultancy to national level strategy units.

For the purposes of this article, a concrete case study was developed by going back to a German case first studied four years ago. The object of study is the 2014 'Innovation Strategy of Thuringia' that was developed in response to European Commission's robust, conditional call for the development of innovation strategies for smart specialisation in 2012–13.

In early 2018, a first round of inquiry from 2015 was followed up by the review of new documents produced in the meantime as well as two in-depth interviews at a regional ministry and a relevant support agency in February 2018. For this particular case, a time dimension could thus be added to the abovementioned fundamental cross-section analysis. Based on the abovementioned conceptual thoughts, the document review and interviews were specifically designed to put first drafts of the proposed approach and heuristic to the test.

6. Case study: regional innovation strategies for smart specialization

Following German reunification, the Free State of Thuringia has developed a strategic approach to innovation policy for more than 20 years. Until 2010, however, strategic policy making was largely implicit in governmental discourses and seldom formalized. Following the paradigm of the time, moreover, most general support programmes were technologically open and not grounded in any sort of overarching strategic policy framework. By and large, the policy paradigm could be characterized as incrementalist (Peters et al. 2018). If at all, some directionality was created through specific initiatives and large-scale projects to strengthen lead industries in the region. At the same time, however, Thuringia received substantial structural funding from the European Union so that regional policymakers commanded always quite substantial resources that they could distribute according to their own situational agenda and for which local stakeholders vigorously competed. Against this background, the regional government's factual strategic capacities, interests and inclination towards proactive design of innovation policy were in some respects more developed than formally recognizable.

With a view to the conceptual headings of the proposed heuristic, the findings of the abovementioned interview and desk research-based analysis can be subsumed as follows.

6.1 Consistency of strategic agenda setting

In the abovementioned implicit sense, the Free State of Thuringia pursues broad-based strategies to further economic development and trigger change since the mid-1990s. Based on the combination of European, Federal and Regional funds, the regional government supported the build-up of local clusters of excellence most prominently in the field of optics and lighting, but also in the health sector and other industrially relevant fields such as the area of automation.

Against this background a first formal innovation strategy—the 'Trend Atlas 2020'—was commissioned by the regional government in 2010. For that strategy, Roland Berger analysed more than 300 publications and conducted more than 100 interviews to perform a bottom-up analysis of the Thuringian innovation system and translate its findings into a SWOT analysis. In the end, this study resulted in the identification of numerous 'fields of action' as well as 16 general and 147 detailed recommendations. In general, however, the process remained external to the regional government, involved a fairly limited number of stakeholders in genuine feedback loops and by and large developed limited ownership in the regional administration.

As the existing efforts thus lacked a genuinely inclusive character, a permanent governance framework and any type of monitoring system, the European Commission considered them as inadequate under the ex-ante conditionality for structural funding (European Union 2013). Consequently, the regional government had to relaunch the strategy process in 2013, this time based on a more broad-based and intensive involvement of actual stakeholders, orchestrated from *within* the administration at 'Thuringia ClusterManagement' a management authority subordinate to the responsible ministry. Still, its overarching objective remains as such not very compelling being limited to the statement that based on 'the new Thuringian Innovation Strategy, [the region will bundle its] strengths while focusing on [its] biggest competence: close, networked collaboration among [.] scientific institutions, [.] business community, and [.] policymakers [...] to quickly turn promising

ideas into the reality of innovative products and services'—accompanied by piecemeal ambitions such as to 'by 2020 further improve the region's position within the group of European leaders' (of which it is arguably not really a part) and to take different measures to 'strengthen the involvement of SMEs into the innovation process at large'. On the downside, this overall objective quite obviously lacks a clear statement or narrative of intended transformation while, on the upside, it cannot really be considered as contradictory either.

With a view to the reference system established in this article, this lack of consistency and clear narrative can be attributed of the initial absence of a triggering or precedent discourse at the local level and in consequence a lack of ownership on the side of the regional government. Initially, the drafting of a 'regional innovation strategy for smart specialisation' was an act of compliance vis-a-vis the European Commission. At the same time, it would govern a quite substantive budget under ERDF, so that it raised real issues of legitimacy and representation in the constituency. While, in principle, the regional government would have had the option of focusing it on a specific narrative of e.g. industrial modernization, agricultural transformation or other, sector specific issues it was in practical terms obvious that, from a political perspective, such an approach was out of the question on the highest level. As a result, the strategy's formally stated high-level ambition refers to a smallest common denominator to which everyone could agree without becoming overly specific.

6.2 Consistency of thematic orientation

Despite that initial decision taken, the European Commission's stipulations still required a definition of certain priority domains for support which had to become part of the substance of the eventual strategy (Foray et al. 2012; European Union 2013). During summer 2013, therefore, several working groups were set up to develop first proposals starting from seven initial themes which were in the following consolidated into four vertical fields of action:

- Industrial production and systems
- Sustainable and smart mobility and logistics
- Healthy living and the healthcare sector
- Sustainable energy supply and resource management

as well as 'ICT, innovative and production-related services' as a cross-cutting activity with relevance for all economic sectors. An overview of these fields is illustrated in Fig. 4 below.

Overall, the process of strategy consolidation took about one year including different methodologies like expert consultations, round tables, public communication, inter-ministry coordination and a number of larger-scale communication meetings (cf. Fig. 5). Overall, the consultation involved more than 500 stakeholders and lasted from mid-2013 until mid-2014. Next to everyone with a specific interest or claim, be it administrative or funding related was given the opportunity to contribute to the process and voice his or her preferences and concerns.

Evidently, the outcome is very encompassing on the one hand and less than optimally structured on the other. With a view to the criteria for intra-level consistency mentioned above, it is obvious that fields are not defined at the same level (cross-cutting versus vertical) and of very different breath and scope (industrial production at large versus the rather specific area of healthcare).

With a view to the reference system established in this article, document analysis and impressions from various interviews clearly

Figure 4. The five Thuringian fields of innovation.
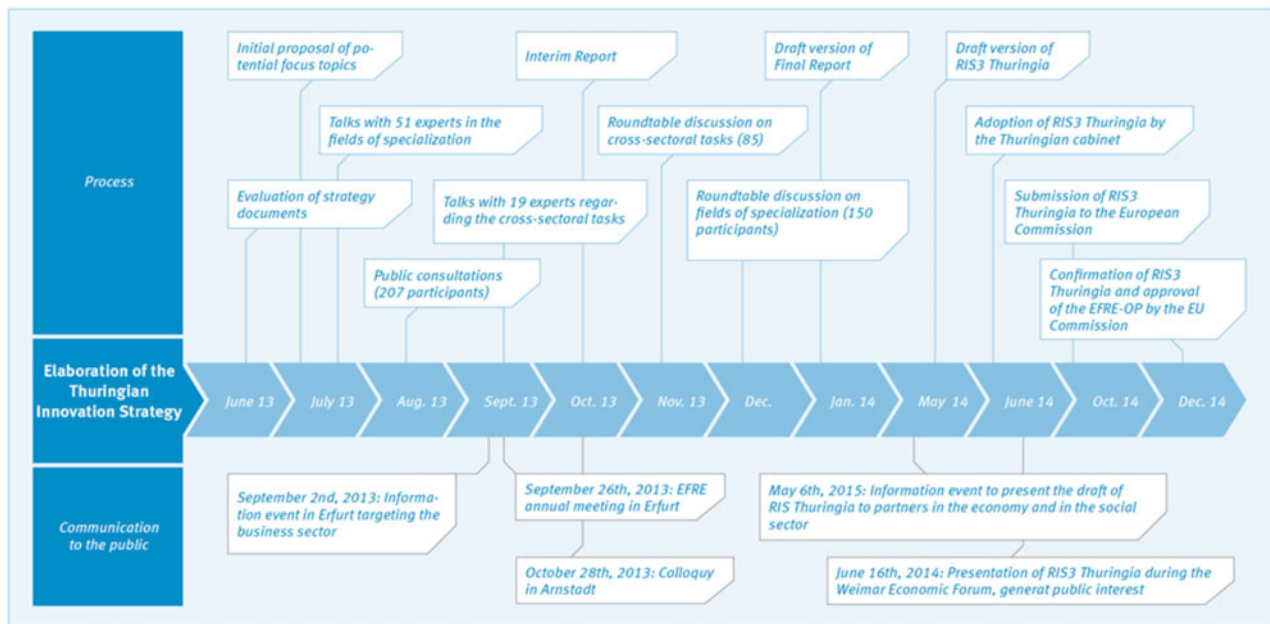*Source*: Thuringian State Government.

Figure 5. Sequence of steps in the process of strategy definition.
Source: Thuringian State Government.

underline that, indeed, discussions on remit and competition between interest groups have caused both the broad coverage and a semantic of focus areas that, from a pure conceptual point of view might have been chosen otherwise. Other than at the level of high-level strategy, taking some sort of position could at this level no longer be avoided, in particular as the European Commission put this as a basic condition for approval. Different from the high-level decision, moreover, the process had to be opened up to a larger circle of stakeholders. In consequence, it not difficult to see how the 'fields of innovation' reflect existing the articulation and negotiation of interests of local associations, key stakeholders and other interest groups.

Moreover, our field research confirms that not only rent seeking as such, but also coordination and information challenges made it discursively difficult to take 'tough' and exclusive choices guided by a strict intervention logic for the next seven years (as the European Commission encouraged and pushed regions to do). This supports earlier findings that if no consistent and compulsory high-level guidance is given initially, conflicts of remit and competition for resources are very likely to negatively affect the logical consistency of the thematic portfolio.

6.3 Consistency of actual implementation

As in many other regions, the implementation of the Thuringian Innovation Strategy is focused on the funds allocated under the ERDF Priority Axis 1 (see also below) for which a total of 416.25 m €[1] are foreseen of which about half will be allocated under the *Directive for the support of Research, Technology and Innovation* (161, 7 m € ERDF funding, i.e., more than 200 m € in total),[2] much of which under competitive procedures in line with the selected fields. Overall, the strategy's effect is thus largely one of patching, while substantial other areas remained technologically open or only formally subject to checks whether they are 'in line with the innovation strategy'. Even though some competitive support procedures were launched under the different innovation fields' headlines and these are clearly delimited, there are substantial remaining overlaps between beneficiaries of traditional funding measures and such developed based on the innovation strategy.

Furthermore, there are a number of offers under the remit of other ministries and from the federal level that cannot at all be traced back to a common source of strategic considerations. Hence, there are broad-based options for potential beneficiaries to source
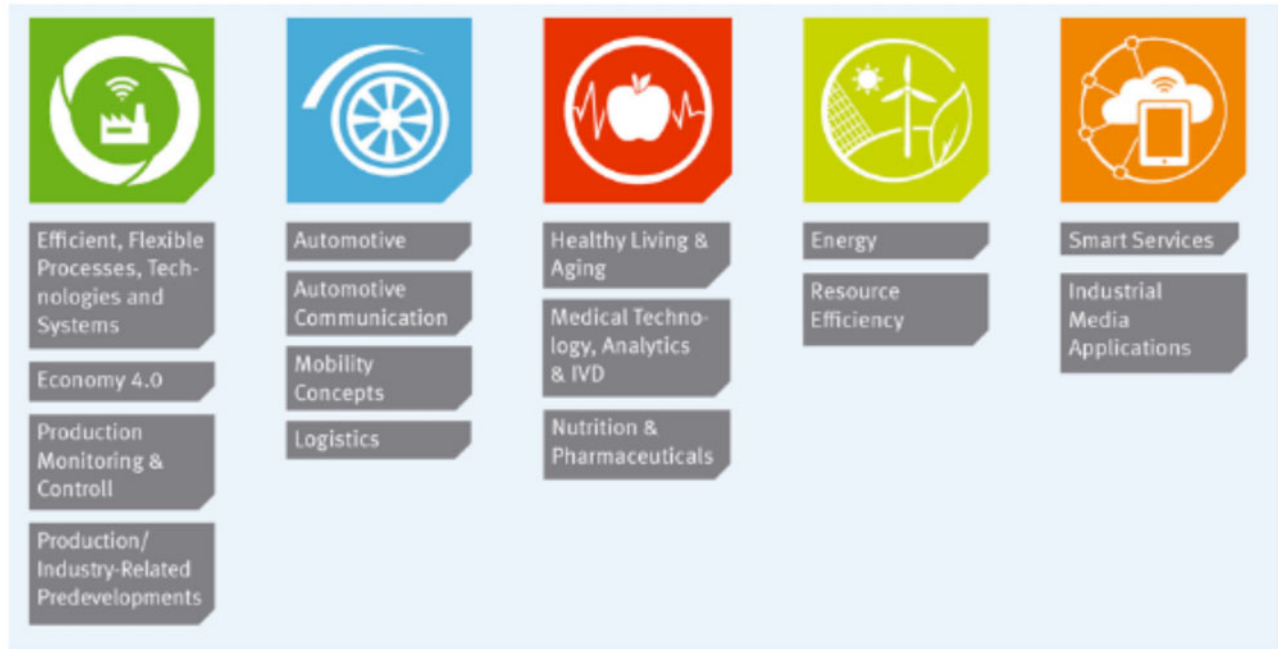
Figure 6. Open fora to discuss proposals for action.
Source: Thuringian State Government.

funding for different aspects of any planned initiative from multiple providers without that being intended or coordinated at a higher political level. In this regard, Thuringia profits from the fact that while there may be various principals, there are by and large one two central agents of implementation, the State Development Corporation of Thuringia (LEG) that helps to develop and prepare initiatives that are later supported and the public Thüringer Aufbaubank (Thuringia Bank for Reconstruction) that formally administers the majority of all funding.

With a view to the reference system established in this article, there is thus indeed evidence of principle-agent issues that prevent consistent alignment. Also, we find specific administrative logics at work that substantially impact on how strategic ambitions materialize without being part of the strategy itself. On the upside, most interviews neither suggested substantial resistance to change at the technical implementation level nor were implementation agencies known to have developed an undue 'life of their own'. Instead, officials considered them as benevolent, capable and much needed translators and intermediaries between policy and practice. In their view, they had mitigated possible inconsistencies by embedding and interfacing new funding approaches into the diversity of already existing one through processes of consultation with potential beneficiaries.

6.4 Coherence between strategy and thematic orientation

For all its breadth and partial inconsistency, the selection of themes is credibly built on the ambition to concentrate future support in those areas where relevant change can be to develop the Thuringian economy and boost SME performance in the manner intended. While conflicts about remit and competition for resource may have affected consistency, they have not broken the overall logic of translation in a sense that a purportedly change-oriented strategy had

defined fields of intervention markedly unfit for this purpose. Evidently, the articulation of claims and personal interest has been contained in a process that was effective in establishing consensus on joint areas of action in which action is to be taken in coming years. Indeed, it reflects the ambition to support specific areas of strength while at the same time aiming to involve SME in the innovation process in a broader manner than today (through the broad industrial and the cross-cutting ICT field).

Overall, this productive spirit of translating ideas from the strategic to the priority setting level was enabled and furthered by support from the highest political levels, constructive participation of stakeholders that limited individual, actor-level conflicts and a well-defined and coordinated process for which a specific governance framework was created. Building on existing capacities, the main office for the coordination of the translation process was set up at the State Development Corporation of Thuringia, the abovementioned versatile intermediary and match-making agency with a broad basis of professional competence in the organization and moderation of consultation processes. Moreover, the specific working groups are governed at the ministerial level, which is not usual and—as mentioned above—allows for decisive final decision making in case of conflict.

Consequently, the process of theme selection was conducted in a deliberate sequence of steps that logically build upon each other, allowing for recursive steps, that promoted a coordinated and subject-driven, rather than chaotic and interest-driven articulation of interests that could in the following more easily be managed. While the figure below gives vivid testimony of the interactive nature of the process, it at the same time demonstrates that such flexibility does not necessarily imply an absence of structure, coordination, and guided discourse.

With a view to the reference system established in this article, these findings suggest that even during the early stages of strategy

definition and translation into concrete fields of activity, coherence cannot not established easily—as it meets with the abovementioned counter-consistency forces at the next lower level. However, it equally underlines that inter-ministerial disputes as well as potential or manifest conflict between stakeholders can be accommodated by structured discourses with hierarchical backing. What is needed to contain centrifugal forces is robust governance to frame those, i.e. a hierarchical anchoring in high-level politics that can at the same draw on the expertise of experienced and capable intermediary organisations.

6.5 Coherence between thematic orientation and implementation

Once the different thematic fields were approved by cabinet, the State Development Corporation moved the process further into the direction of elaborating concrete ideas for funding. To that end, working groups were established within each thematic area to refine 'key objectives' (Leitziele). Guided by these key objectives, the discussion was branched out further into thematically already very specific 'open fora' (Offene Foren) of experts (cf. Fig. 6). These fora were given the task of formulating concrete 'proposals for action' (Maßnahmenvorschläge) to be submitted back up to the working groups. Importantly, these proposals could be of a general nature, proposing ideas in substance rather than already responding to a call for funding. In the end, the working groups decide at their regular meetings which of the proposals go ahead for funding, which are rejected and which are placed on hold for later consideration.

While the groups and for a were expressly encouraged to think broad, unhampered by concrete funding programmes, the TMWWDG did launch a specific, competititive funding programme with notable resources (currently about € 40 m p.a., more than € 200 m in total) to which proposals pertaining to the more general 'proposals for action' could be submitted. Not surprisingly, this provided a substantial incentive to trigger productive considerations in the first place, although, as mentioned above large segments of the Free State's budget for research and technology policy remain allocated under other headings. These include funding those for technology transfer infrastructures and projects closer to research (covering a similar budget than the above programme). Based on the convening function of the fora, however, some of these formally non-directed funding opportunities are effectively inbuilt as composite parts of funding proposals.

With a view to the reference system established in this article, these findings suggest that the chosen structure has quite successfully accommodated potential issues resulting from cognitive barriers and principle agent problems. Due to their high degree of specificity, the fora enabled discussions among experts, avoiding the need of any 'principle' to understand them in detail, before concrete proposals can take shape. In fact, the fora were set up for the precise purpose of bringing experts together to jointly translate their ideas into plans understandable by non-expert principals. At the same time, the need to refer proposals back up to the working groups and eventually the cluster board limits and contains the risk of 'capture by experts' by differentiating the position of the principle, making it more difficult for the agent to steer the process in a coherence-damaging direction.

What this concrete process displayed less, in contrast, was administrative resistance to a take up of new funding programmes in particular fields. If at all, certain fields displayed less activities with regard to the constitution of ideas so that the desired effects could not be achieved. This, however, was already due to frictions with reality. In a final step of implementation step, the Thuringian Reconstruction Bank has launched adequate competitive calls to which organized stakeholders could have responded, so that the strategy's translation can be considered completed. Moreover, the abovementioned process of discussion in the working groups informed the process of designing new competitive calls. Without this expert input, coordinated by the State Development Corporation and aggregated by the Ministry (TMWWDG), the autonomous design for this new type of support programme might indeed possibly have been a challenge for purely executive agency like the Thuringian Reconstruction Bank, and hence met with resistance. As it was, clear specifications were given to those capable of executing them legally and very limited friction was encountered.

7. Summary

In summary, this article emphasizes the 'human component' in the translation of politically driven innovation strategies into practice. As the above sections have outlined, this process must be considered as reflexive and actor-based aiming at the negotiated and renegotiated of new equilibriums in response to external impulses (cf. Peters et al. 2018). That the implementation of ambitious, transformation-oriented innovation strategies will in practice become inconsistent and incoherent in the course of its translation thus lies in the processes' very nature. Nonetheless, it can hardly be considered desirable. Against this background, the proposed heuristic provides a useful, structured approach to determine where main deficits lie and why. In the future, this knowledge about the origin of perceived failure may help to conceive possible remedies.

With a view to empirical corroboration, the case of the Thuringian innovation strategy demonstrates that pre-existing governance discourses and practices indeed play a central role for the process of strategy implementation. In a negative sense, this refers to the fact that a compelling new storyline for economic transformation remained missing while existing claims could be defended and large sections of the support landscape remained formally unaffected. Positively speaking, well-developed capacities to moderate processes of negotiation, high interpretative capabilities and limited cognitive distances between relevant instances of governance (Ministry, State Development Corporation, Reconstruction Bank) enabled an improvement of the initially weak narrative, the swift and effective interpretation of later decisions and their translation into concrete action. In line with the conceptual propositions, all intervening factors that the heuristic suggests could be identified at their respective levels: issues of framing and legitimacy in strategy definition, conflicts about resources and remit at the level of theme setting as well as principal-agent issues and cognitive barriers at the level of implementation. In the analysed case, however, many could be contained from the outset.

While the consistency of agreements and actions at each individual level left room for improvement the degree of coherence between the different levels is high and supported by robust processes that moderate possible tensions. In consequence, the strategy as such may not be highly innovative but the process of building it and governing its implementation can be considered robust and effective. By drawing on the existing experience of established intermediaries, processes and instruments could be developed that allow for the translation of strategic impulses into technically well-crafted policy measures. Overall, the case study confirms that the proposed

heuristic can be instrumental for future analyses. In particular, this is true with regard to the following three aspects.

First, by structuring the analysis of identified deficits by attributing them to certain levels of the process and, hence, the intervening factors that originally caused them. If a strategy fails to deliver results, this attribution helps to understand why this is so, and at which level potential remedies would have to be addressed. Second, by differentiating between consistency and between-level coherence. As the example demonstrates, consistency will close to inevitably be compromised in all translation processes while coherence may remain high. Making this distinction can prevent the dismissal of a strategy processes due to deficits in consistency while they in fact have substantial potential to generate transformative momentum. Third, to identify those elements that prevented the occurrence of expectable deficits and deviations in the implementation process and hence possible sources of learning for third parties pursuing similar ambitions.

8. Conclusion

Concluding, this article has demonstrated that the process of translating high-level ambitions in the areas of innovation policy into effective measures and actions is—more often than not—a complex, multi-actor process of negotiation and interpretation that deserves to be analysed with the available tools of governance and policy analysis. Without improving our understanding to what extent strategic ambitions actually result in practical implementation—and where this fails—it will remain difficult to sensibly evaluate the far-reaching, transformative innovation strategies of which we are seeing more by the day. The presented case study has illustrated that, in practice, many intuitive solutions have been found or grown over time which help to moderate and contain the substantial centrifugal forces like conflicts, coordination failure and principle-agent constellations that occur during the reflexive process of translating political decisions into support measures and actions.

Analytically, however, our understanding of why and how this works and why it fails needs to be improved. Against this background, it cannot convince to intentionally forfeit existing options to assess the evolution of policy in favour of purely discursive evaluation approaches as implicitly suggested in some recent literature. Necessarily, there is a lot of complexity in multi-level, multi-actor processes but, as with all complex problems, the key to pertinent analysis and meaningful findings lies in the reduction of this complexity.

As one simple finding, therefore, the author would like to underline the case study's core message that the transformative potential of innovation strategies should not be gauged according to the consistency of their documentation (alone). Inevitably, there will be counteracting forces that preclude the achievement of 'rational consistency'. More importantly, the coherent translation of new impulses into concrete actions may well make a larger difference with respect to the momentum that strategy processes can help create. Against this background, this article proposes to focus future evaluations of challenge-oriented innovation policies on the coherence dimension.

That said, the proposed heuristic is a first step into so far uncharted analytical territory. For now, it remains a proposition, even if well-justified by a case study that provides a robust stepping stone for further research. If rigorously tested under different framework conditions, it may at some point well prove deficient in one or several of its own assumptions. Until then, there seems ample room for further, not least empirical, research along similar lines.

Notes

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