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EU smart specialization policy between experimentation and accountability: dynamic policy cycle perspective

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ABSTRACT

The key feature of EU Smart Specialization is experimentalist governance, or the idea that policy principals only partially possess the necessary knowledge for policy design and implementation. Instead, discovering policy priorities, designing instruments, and detecting and correcting errors are the responsibilities of a wide range of innovation stakeholders. However, particularly in institutionally less developed countries and regions, there is often a clash between the requirements for experimental governance and the public policy demand for predominantly procedural accountability. Our central argument is that the experimentation dimension cannot be added to the conventional policy cycle without altering it. This results in a trade-off between experimentation and accountability, leading to four disconnected governance regimes: EDP, design, implementation, and M&E. This paper demonstrates this issue in the case of Croatia's S3. Using the concept of a dynamic policy cycle, we critically examine different solutions to experimentation and highlight their deficiencies. Our analysis and conclusions are highly relevant for countries and regions adopting experimental policy approaches.

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1. Introduction

Over 180 Smart Specialization Strategies (S3) developed at regional and national levels in the EU represent a large-scale experimental approach to innovation policy with global significance. However, the EU S3 is not unique; it is one of several approaches currently developed within the new industrial policy (Radosevic 2017). In a very stylized form, and from the perspective of this paper, the most relevant features of new industrial policies are that they are 'smart' in recognizing that the ultimate limits to growth and matching solutions are not known *ex-ante*; they are oriented towards both horizontal and vertical policy instruments, assume either explicitly or implicitly some elements of experimentalist governance, and are guided by the perceptions of not only market failure but also system failure (ibid).

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A key feature of S3, exemplified in the notion of the 'entrepreneurial discovery process' (EDP), is to bridge the gap between policy setting and implementation governance as two autonomous processes (Kroll 2019). Gianelle et al. (2016, 15) state that the 'EDP is the motor of the S3 methodology'. The aim is twofold: first, to ensure that priorities chosen reflect opportunities 'discovered' by entrepreneurs and other stakeholders involved in the EDP, and second, to ensure continuous interaction between implementation and design to promote the transformation of the existing and the emergence of new innovation ecosystems.

As expected, the extent to which the EDP has taken place across EU regions varies significantly (see Capello and Kroll 2016; Radosevic et al. 2017; Gianelle, Guzzo, and Mieszkowski 2020). The challenges have been particularly significant in institutionally 'thin' or 'less thick' regions and countries with weak institutional capacities for collective action. In these environments, the clash between the need for experimentation and the public sector's accountability rules has led to perverse effects, further fragmenting the policy cycle, where each stage is driven by a different governance regime. Compared to the conventional policy cycle, the underlying idea of S3 is that agenda-setting and prioritization should be closely linked to decision-making about the design and implementation of programmes. However, the evidence presented in this paper shows that experimentation cannot be added to the conventional policy cycle by leaving it intact. This leads to a trade-off between experimentation and accountability, resulting in four disconnected governance regimes: EDP, policy design, implementation, and M&E.

The paper demonstrates this issue using the case of Croatia's S3. Based on the concept of a '*dynamic policy cycle*', we critically examine four organizational solutions to experimentation ('diagnostic monitoring', 'stakeholder-driven evaluation', 'accountable autonomy' and 'learning network').

The paper is structured as follows. Section 2 elaborates on our analytical framework, which integrates the four policy cycle stages and their related governance regimes into a 'dynamic policy cycle'. Based on this analytical framework, Section 3 examines the Croatian S3 process and outcomes. Section 4 discusses different organizational solutions for integrating disconnected governance regimes and ensuring that policy embeds experimentation and learning as a continuous process. Section 5 summarizes overall arguments and points to 'learning networks' as potentially viable and the most appropriate solution.

2. Innovation governance and S3: the challenge of dynamic policy cycle

2.1. Innovation governance

In its narrow meaning, governance 'concerns the systems and practices governments use to set priorities and agendas, implement policies, and obtain knowledge about their impacts and effectiveness' (OECD 2005). However, in its broader meaning, governance involves state and non-state actors and their interactions at different levels. More specifically, governance concerned with public policies refers to 'the various institutionalized modes of social coordination to produce and implement collectively binding rules or to provide collective goods' (Risse 2012, 7). The World Bank (2017) defines governance as 'the process through which state and non-state actors interact to design and

implement policies within a given set of formal and informal rules that shape and are shaped by power'. This definition contains two important implications. First, governance is not confined to the state but includes non-state actors such as business organizations (chambers of commerce, industrial associations, NGOs, etc.). Second, governance is based on formal and informal rules that determine the structure of organizational interactions. This broader understanding stems from the nature of innovation processes as activities where boundaries between and within the public and private sectors are blurred (Lundvall 1992). Innovation is not driven by sole inventors but results from the interaction between individuals and organizations involved in collective action. In that context, the government cannot achieve its objectives solely by command or authority but by steering and guiding.

The key function of governance is to generate collective action or outcomes, which individual organizations can only achieve by being part of the governance system. This must be achieved by distributing rights and authority between different layers of government and non-government actors in a specific policy field. An effective governance system requires credible commitment, coordination, and cooperation among organizations (World Bank 2017). To achieve commitment, coordination, and collaboration, any governance system is based on bargaining and the delegation of authority (power) across a governance hierarchy or network. Poorly performing governance systems need more accountability, transparency, and a better representation of stakeholders (Koliba et al. 2019). Governance concerns interdependence, linkages, networks, partnerships, co-evolution, and mutual adjustment (de la Mothe 2001). The key to a good governance system is the interplay between the various actors, i.e. how the whole system works together (Pollitt and Bouckaert 2000). This includes policy design and implementation, i.e. all policy cycle stages (Capano and Pritoni 2020).

Innovation governance comprises organizations directly or indirectly involved in managing innovation processes in the economy. It includes those organizations that are players in the innovation process, the institutions that design and/or implement the rules and regulations, and the linkages among organizations. Organizations like ministries responsible for science and technology or innovation agencies have a specific task to fund knowledge generation activities. However, these organizations operate in a legal and regulatory context, which determines their scope, activities, and modes of conduct. Hence, it is both organizations and the legal, regulatory, and policy framework in which they operate that form the innovation governance structure of the economy. Laranja and Pinto (2023) argue that policy capacity for transformation differs from knowing what to do. It means being able to act and behave in a given context, making sense of existing knowledge, being aware of different values, interests, and perspectives at stake, and managing relationships with all actors. Policy capacity for transformative innovation is, therefore, a combination of knowledge, skills, and attitudes mobilized into action in each context (Laranja and Pinto 2023).

The innovation governance structure is composed of three sub-components: *institutional* (legal and policy frameworks), *organisational*, and *inter-organisational* set-up (framework) for promoting innovation and technology upgrading (Radosevic 2020). When there are mismatches among these three components, as organizations need to interact to improve their mutual understanding of innovation-related issues, we observe *fragmented innovation governance*.

Given its systemic nature, the important feature of governance is its *vertical* and *horizontal* dimensions. Vertical coordination involves steering, where an organization at one level instructs the lower level what to do and receives an upward flow of information. Horizontal coordination is required to ensure that innovation policy is coherent and coordinated across institutional boundaries, i.e. between the ministry responsible for the economy and the ministry responsible for science. However, only 'steering' is insufficient for good governance unless there is an alignment among the objectives of different bodies involved in innovation policy design and implementation**.** This, in turn, requires understanding where failures or mismatches in the governance system are. Governance systems need, therefore, to be sufficiently reflexive to allow such failures to be identified and acted upon. Part of the knowledge gap can be reduced by delegating aspects of policy implementation to other bodies. However, regardless of the degree of delegation, good governance rests on its capacity to monitor and evaluate the system's work.

A good governance system requires distributed intelligence capability or system for monitoring, detecting and remedying failures. Intelligence is essential to good governance to gather and analyse data and exploit it to support policy analysis and deployment. The information produced and exchanged should be open to debate. Whatever the organizational structure of public support is, it must include various organizations that can detect how the system is functioning. A system cannot rely on only one source of intelligence; instead, this intelligence needs to be distributed across different layers of the policy hierarchy. Additionally, a strong argument exists for balance in strategic and operational intelligence capabilities between different layers of the hierarchy.

2.2. S3 governance

The concept of governance in the S3 framework refers to the entire process of designing and implementing S3, 'including who is involved, the structures that are put in place and how decisions are taken' (Gianelle et al. 2016, 37). S3, by definition, takes the notion of governance in its broader sense, i.e. beyond the state hierarchy. Within the S3 activities, the interaction amongst so-called 'quadruple helix' stakeholders should be entrepreneurial and geared towards the transformation of the economy, built around a motivation to innovate and change. This suggests that the key to good S3 governance is vertical and horizontal coordination.

Guzzo and Gianelle (2021) provide insights into the impact of Smart Specialization on the governance of research and innovation policy systems across EU regions and countries. They argue that under the Smart Specialization experience, inter-government coordination has received more attention than in the past and, as a result, new norms and arrangements have been experimented with. However, despite these changes and the general increase in pressure for coordination, the effectiveness of horizontal and vertical coordination is still weak (Guzzo and Gianelle 2021).

Including a wide array of actors in the decision-making process of Smart Specialization programmes and their vertical and horizontal coordination is a non-trivial task (Ghinoi et al. 2021). The 2018 survey results of decision-makers involved in S3 across all European countries and regions show that 48% of them have reported major difficulties in governance, defined as ensuring participation and ownership (ibid). Hence, the statement that 'governance is at the centre of the Smart Specialisation policy concept'

(Guzzo, Gianelle, and Marinelli 2018, 14) is far from an exaggeration. In general, the identification of objectives and priorities has been successful. At the same time, major challenges are experienced in implementation (coordinating M&E, deploying instruments for implementation, and seeking funding from the private sector) (ibid). Difficulties relate to liaising S3 bodies with other government levels, i.e. integrating S3 governance structures into national policymaking. Additionally, credible commitment from the private sector is difficult to achieve. Its financial contribution is possible only if there are well-functioning S3 institutions and partnerships within the triple/quadruple helix (Wostner 2017).

A key novelty of S3 is its experimental nature or ambition to 'discover' specialization areas through the EDP, which can be considered 'distributed intelligence capability'. However, such an ambitious process requires a system for 'discovering' opportunities and monitoring, detecting and remedying failures. This feature of the S3 has been underestimated on a large scale as the M&E has usually been conceived and designed as conventional ex-post M&E. The role of M&E is predominantly perceived in its accountability role ('allocating responsibilities and blames'). At the same time, formative learning and self-correction were not given an adequate role. This is crucial, as S3 conceptually focuses on a limited number of priorities providing directionality, which need to be derived from stakeholder engagement, and updated (when needed) in accordance with the evidence gathered during implementation.

In a nutshell, S3 was designed as a process that starts with the EDP but is then run as *a conventional programme driven primarily by the criteria of procedural accountability*. Benner (2022) has put 'ceremony', 'myth', and 'isomorphism' in organizational fields to the fore to partly explain implementation problems related to smart specialization during roughly the past decade of regional innovation policy in Europe. As argued in the case study (Section 3), in such a context, problem-solving is performed *ad hoc*, while the aim should be to build 'reflection points' throughout all phases and levels of the Programme Cycle (Dexis 2020). This requires conceptualizing the policy cycle as *dynamic*, which we elaborate on in Section 2.3.

2.3. Dynamic policy cycle

The analytical framework of the paper rests on the conceptualization of the innovation policy process, or how the policy cycle is managed and influenced. It is common to differentiate among four stages in the policy cycle: agenda-setting and prioritization; decision-making about policies and programmes; implementation of policies and programmes; and policy evaluation, including monitoring. It is standard practice that the design and legitimation of policy and decisions about programme design are usually conducted by different actors than those implementing the programmes. Hence, the framework distinguishes between policy and implementation governance, with the former referring to governance on the highest strategic level and the latter referring to the governance of implementation mechanisms, i.e. individual programmes. However, S3 strives to be an experimental innovation policy, requiring built-in mechanisms of learning and self-correction in light of acquired experiences or unforeseen challenges. This is expected given the multistakeholder nature of S3 activities where coordination issues, valuation principles, and objectives of different stakeholders naturally differ. The importance of this

stems from the finding that reflection on experience is a more useful learning practice than merely accumulating additional experience (Dexis 2020, 26).

As presented in Figure 1, the dynamic nature of policy rests on four pillars: i) identification of companies' and research and technology organizations' (RTO) strategies and needs, ii) translation of these needs into policy priorities, iii) conversion of policy priorities into corresponding programme design and management structure, and iv) programme delivery and monitoring. It is important to note that the two-way arrows depicted in Figure 1 aspire to show the dynamism of the policy. The linkages are thus not necessarily linear, but rather show that the elements can sometimes feed into each other in both directions. Nonetheless, effective policy governance needs to ensure there are no setbacks in the rotation of the policy cycle, as depicted in the centre of Figure 1. The links between different pillars are the key to a dynamic and effective policy cycle. In Figure 1, these links are represented by the Strategic fit, Conversion fit, Operational fit, and Learning &Feedback Fit. *Strategic fit* refers to how enterprises' and RTOs' strategies and needs are captured and reflected in the policy priorities. The EDP requires the involvement of stakeholders in an organized process of public debates about the priorities and their participation in policy co-creation. *Conversion fit* is how policy priorities are converted into adequate programmes and packages. Conversion is based on EDP activities from the previous stage and requires aggregating individual priorities into the portfolio of programmes and policy packages with transformative potential. *Operational fit* concerns the extent to which policy packages are implemented in an effective, administratively light, and non-discriminatory manner. Compared to the conventional policy cycle, the dynamic policy cycle, which characterizes the S3 policy model, aims to bridge the gap between policy setting and implementation governance as two autonomous processes. The basic motivation for this is that public programmes

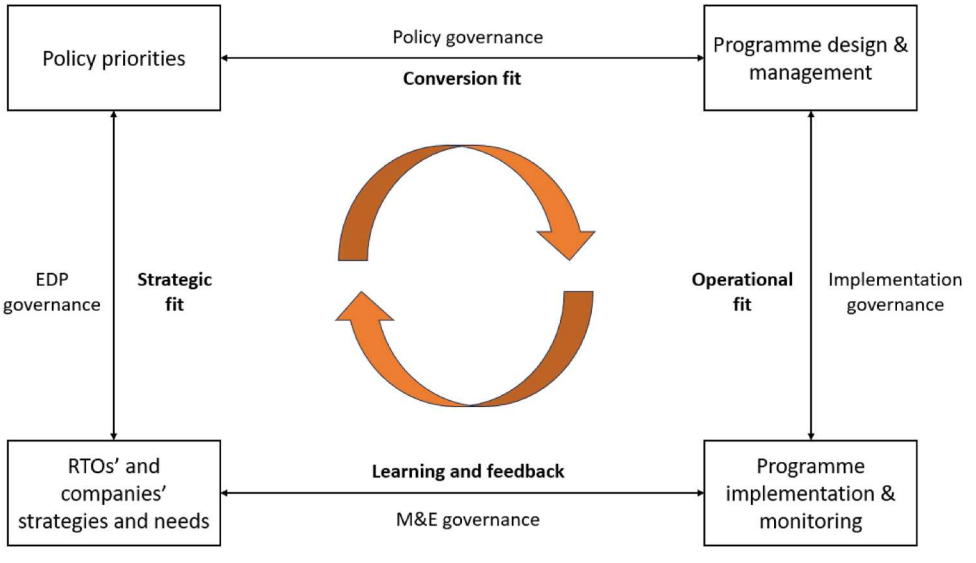

Figure 1. Dynamic Policy Cycle.

Source: Authors developed and adapted based on Tsekouras and Kanellou (2018) and Radosevic, Kanellou, and Tsekouras (2023).

have a weak or non-existent capacity to learn from experiences, i.e. they lack a mechanism of accelerated institutionalized learning (Klijn and Koppenjan 2014). *Learning and feedback* mechanisms must be built to respond to unexpected errors and unforeseen challenges.

In a conventional or static policy cycle, the four stages are organizationally separate; different criteria drive them, and their separation is perceived as a virtue. Separate M&E is necessary to ensure neutrality and objectivity; policy design and implementation are qualitatively different and hence require separation; prioritization should be separate from design so that the most active stakeholders can be kept at a distance to prevent tailoring programmes to their wishes. To some extent, this is indeed desirable in conventional public policy. However, the issue is somewhat different in the case of an experimental type of innovation policy like S3 (see Radosevic, Kanellou, and Tsekouras 2023). As the S3 features the involvement of stakeholders through EDP, it requires alignment of EDP with the M&E function, allowing M&E insights to feed into the strategies and needs of stakeholders and, consequently, into the policy priorities.

There are different potential solutions to experimentation in innovation policy (see for example, Demos Helsinki 2023). This paper covers four approaches: '*diagnostic monitoring*' (Kuznetsov and Sabel 2017), '*stakeholder-driven evaluation*' (Magro and Wilson 2019), '*accountable autonomy*' (Fung 2001; Fung and Olin Wright 2001), and '*Learning Networks*' (Radosevic, Kanellou, and Tsekouras 2023).

Kuznetsov and Sabel (2017) point to the need for problem-solving monitoring, which is continuous rather than *ex-post*, and for a procedure for sharing implementation and design challenges, particularly mistakes and problems. *Diagnostic monitoring* is the 'systematic evaluation of a portfolio of projects or programmes to detect and correct errors as each project evolves (including the weeding out of inefficient ones) in light of experience and new information' (Dutz, Kuznetsov, and Lasagabaster 2014, 113) (Moujaes 2024). It is the process employed by Schumpeterian Development Agencies (SDA) such as the US DARPA. Like SDA, various 'reform teams' or policy delivery units can enjoy substantial temporary autonomy by being protected from vested interests (Criscuolo and Palmade 2008). In both cases, accountability criteria remain those of conventional public policy, which are relaxed through increased autonomy. Breznitz and Ornston (2013) show that SDAs can enjoy increased autonomy if they remain at the periphery of public policy.

In conventional I&I policy, the M&E is primarily used as an 'end of the pipe' mechanism to detect problems but cannot resolve them in time. As stated by Kuznetsov and Sabel (2017), conventional M&E is backward-looking, with the primary task of assigning blame for revealed mistakes. As an alternative to conventional M&E, Magro and Wilson (2019) argue for stakeholder-driven evaluation (Hansen and Vedung 2010), which represents a shift from the accountability role of evaluation, i.e. determining whom to blame or credit for the results, to a formative assessment evaluation. By stakeholder-driven evaluation, they mean that 'the evaluation process itself should be governed in a way that all parties see as being valid and leading to impartial strategic intelligence' (ibid). Stakeholder evaluation is indispensable when there are strong divergences around the intervention to be evaluated, i.e. each stakeholder has a strong point of view (Hansen and Vedung 2010). The objective is to facilitate collective learning, leading to changes in decision-making and experimentation processes (Magro and Wilson 2019).

Based on several cases worldwide, Fung (2001) and Fung and Olin Wright (2001) argue that it is possible *to reconcile accountability with autonomy* in democratic politics. Their notion of '*accountable autonomy*' means independence from central power by increasing the 'discretion of street-level officials concerning formal rules and centralized oversight, while making their actions transparent and open to critique by civilians'. From our perspective, autonomy can be identified with experimentation as it enables the search for local solutions. These solutions are generated by engaging civilians' local knowledge and diffusing insights through best practices benchmarking. They call this governance regime *Empowered Deliberative Democracy (EDD).* EDD is deliberative as participants follow the procedures and norms of deliberation, 'listen to each other's positions and generate group choices after due consideration'. EDD represents the devolution of public decision authority to empower local units that are 'linked to other units and superordinate, more centralized authorities' (ibid).[1] In this way, the EDD overcomes the limits of boundless experimentation or 'anything goes'. In terms of accountability, it combines conventional criteria of programme outcomes success with procedural requirements or what Radosevic, Kanellou, and Tsekouras (2023) call '*deliberation accountability*', where the form but not the content of deliberations like EDP is prescribed.[2]

Radosevic, Kanellou, and Tsekouras (2023) propose Learning Networks (LN) as a solution to the trade-off between experimentation and accountability based on two insights. First, to be effective, experimental I&I policy should be linked to action (experimental) learning, which would ensure immediate feedback about what does or doesn't work and why. Second, LN addresses the accountability issue and should be implementable in conventional public policy through a new form of accountability (deliberation accountability). 'Deliberative' (process) accountability concerns how a particular decision is delivered, while 'substantive' (outcome) accountability pertains to the outcomes of decisions, i.e. whether they have led to the goals sought initially (further see Radosevic, Kanellou, and Tsekouras 2023).

LN are governance mechanisms that include all stakeholders in the I&I policy process; they are formal arrangements with clear and well-defined thresholds for participation; they have an explicit operational structure that provides for regular processes and actions, with the primary target of learning about the experiential I&I policy implementation process enabled by the network, e.g. examining each other's viewpoints and sharing expertise; and assessing learning outcomes that provide feedback on network operation (Tsekouras and Kanellou 2018).

3. Case study

Smart specialization is the primary activity in the Croatian innovation system, profoundly affecting its future impact and effectiveness. S3-based funding dominates both financially and institutionally in Croatian science, innovation, and industrial policy governance. At the same time, the EU Structural and Investment Funds (ESIF) have become the main source of funding, effectively replacing the national I&I policy. Analysis of the Quality and Coherence of the Policy Mix (World Bank 2019), covering Croatian science, technology, and innovation (STI) programmes from 2014-2020, revealed that most of the STI project-based financing (90%) was derived from ESIF, with smaller contributions from the World Bank, bilateral, and national budget funding. Out of the 68 programmes

included in the portfolio, half of all project financing was concentrated in only six programmes, all linked to the S3, and ESIF funding (World Bank 2019).

However, the increased inflow of ESIF funding has proven challenging to implement due to administrative requirements (Karo & Kattel 2015). The pressure on the institutional capacity to effectively absorb increased funds has created a gap between the requirements and the experimental nature of the EDP and the operational style of the public sector. The expectation of distributing a relatively high amount of funds in a limited time, while complying with the complex regulatory system of ESIF, compounded the challenge of monitoring and evaluating these activities in terms of their operational and strategic effectiveness. Essentially, this situation represents a trade-off between the imperative to implement a new style of I&I policy and the need to be accountable and comply with ESIF and national regulations.

The Croatian example illustrates how these opposing requirements have become entangled in the daily reality of 'muddling through' policy processes. The outcome has been *four disconnected policy domains,* each with its respective governance regime and varying levels of sustainability: Policy governance, Policy co-creation or EDP governance, Implementation governance, and M&E governance. 'Policy governance' refers to the National Innovation Council, the main body overseeing S3 implementation in Croatia, along with other supporting bodies governing S3 at an overall 'strategic' level. 'EDP governance' involves formal structures (Croatian Competitiveness Clusters and Thematic Innovation Councils) established by the Croatian Government and consisting of triple-helix stakeholders associated with S3 priority areas. 'Implementation governance' pertains to a separate hierarchy of institutions governing S3 delivery mechanisms, in accordance with ESIF requirements. Lastly, 'M&E governance' involves mechanisms to facilitate learning and feedback within the policy cycle. As summarized below, these four governance subsystems are weakly connected throughout the policy cycle. STI collides with S3 governance at the policy level, S3 implementation governance and EDP governance are weakly connected, and M&E governance is only rudimentary.

This section draws on the results of the World Bank (2021a), an in-depth study on the design and implementation of Croatian S3 governance pursued as part of the S3 mid-term assessment.[3] The assessment involved reviewing the institutions engaged in designing and implementing the S3, their roles, responsibilities, decision-making processes, and the functioning of the governance system as a whole. Insights from these activities and additional World Bank studies (World Bank 2019, 2020, 2021b) provided an extensive analytical basis and evidence about performance in the design and implementation of Croatian S3. Here, we build on these insights and interpret the evidence generated through data analysis, extensive interviews, and focus groups as illustrative of the trade-off between normative commitment to developing an experimental approach to I&I policy and the reality of conventional public policy programme requirements.

The S3 approach, with its EDP activities, assumes that the country or region has developed forms of participatory governance or policy co-creation (Laranja 2022). In Croatia, it seems that the legacy of self-management has disappeared. The transition period has firmly established the government as the major actor in the I&I policy, with poor self-organization of innovation stakeholders. The Government initially established Croatian Competitiveness Clusters for the purposes of the EDP. With the S3 adoption, the

Thematic Innovation Councils were established as another form of organization of TPA stakeholders. However, they were established with a three-year delay. They only participated in the 'narrowing down' of many S3 sub-priorities in the second round of R&D calls and remain without an articulate and active role in the policy process (World Bank 2021a). The initial momentum of the EDP and the subsequent formation of Thematic Innovation Councils were lost, and the capacity for policy co-creation would have to be rebuilt.

Like in many other EU countries and regions, Croatian S3 EDP was a relatively extensive and successful consultation process. However, extensiveness did not lead to established participatory governance due to poor design and quality of consultations. For example, background analysis for consultations was unavailable; discussions were too often ad hoc with varied moderation; and the meetings focused mainly on defining priorities and their scope, with limited time devoted to debating instruments and programmes (World Bank 2021a). Table 1 summarizes key features of EDP governance.

In comparative terms, Croatian S3 has an elaborate governance structure. At the overall policy level, the National Innovation Council is the top S3 authority, supported by three advisory councils: the Innovation Council for Industry (INNOVA), the National Council for Science, Higher Education and Technology Development, and the National Council for Development of Human Potential. The Interministerial Working Group, comprising representatives of the S3 policymakers and the S3 Technical Secretariat, supports S3 coordination at an operational level.

However, the establishment of the National Innovation Council was significantly delayed, occurring more than two years after S3 adoption (World Bank 2021a). Consequently, policy-level coordination was established after the implementation level, leading to disjointed policy versus implementation governance. Even upon its establishment, the National Innovation Council has utilized its decision-making authority to a limited extent and has not managed to fully assume its top governance role (World Bank 2021a). There has been minimal interaction with the advisory councils. The insufficient coordinating function of the National Innovation Council is partly due to a lack of clarity regarding its overall role. For example, the INNOVA Council, as one of the advisory councils and, at the same time, the governing authority for the Croatian Innovation Strategy 2014-2020, holds similar authority over a policy mix that significantly overlaps with S3 instruments.

Table 1. Key features of EDP governance and strategic fit.

EDP governance	Strategic (mis) fit
S3 EDP has successfully involved many stakeholders and participants through four rounds of consultations	Poor design and quality of consultations
Planned continuation of the EDP during the implementation through designated support instruments for Croatian Competitiveness Clusters and Thematic Innovation Councils, and the Science-Technology Foresight project	Underperformance of EDP governance improvement programmes
Partial involvement of Thematic Innovation Councils in the second stage of prioritization	Initial positive momentum to engage stakeholders in policy co-creation has been lost
Inadequate capacity for policy co-creation	Undeveloped participatory governance
Outcome: Undeveloped EDP participatory governance inhibits experimentation, which requires the active involvement of innovation stakeholders	

Source: authors based on World Bank (2021a).

Croatian S3 bases its logic of intervention on individual instruments, rather than individual thematic priority areas (TPAs). TPA is used as a criterion in project selection instead of as the basis for TPA-specific policy mixes. The policy mix is considered at the macro level but not at the level of individual TPAs (World Bank 2021a). There is no link between policy orientation on TPAs and their conversion into an appropriate portfolio of instruments geared to each TPA. A reader should remember that this is not only a Croatian issue but a feature of all weak and undeveloped S3 governance systems (Magro and Wilson 2019). Table 2 summarizes key features of policy governance and challenges of its conversion into programme design.

The Croatian case is interesting because the S3 document planned several 'institutional instruments' to support and sustain the EDP upon Strategy adoption. Strategic projects 'Support to Competitiveness Clusters Initiatives' (CC project), 'Support to the Establishment of Innovation Network for the Industry and Thematic Innovation Platforms' (INI project), and 'Science-Technology Foresight' (Foresight project) were designed to be implemented by S3 policymaker institutions with external advisory services, to provide operational and analytical support to the EDP structures. However, the INI and Foresight projects have been significantly delayed, with the latter also downscaled compared to the initial plan. While the CC project was launched timely and produced an extensive set of analytical reports related to TPAs, the future perspective and sustainability of Competitiveness Clusters remains uncertain as their activity decreased and their role became less clear, particularly with the emergence of the Thematic Innovation Councils (World Bank 2021a).

The S3 instruments are governed by institutions within the ESIF management and control system, adding an additional layer of complexity to the S3 governance structure. With a non-sectoral ministry acting as the ESIF Managing Authority (MA) and Coordinating Body, the S3 policymakers are subordinated in this structure. They are delegated certain implementation tasks in the Intermediate Bodies (IB) role, including programme design. In other words, the MA governs the implementation instruments but not the I&I policy. Finally, implementing agencies act as an additional second layer of IBs to support project implementation. While the MA delegates tasks to IBs, it still holds ultimate responsibility for ESIF programmes and can exercise authority over their design and implementation. Consequently, the MA is primarily concerned with procedural accountability, and the rules of conduct for the IBs are strongly determined by the Common National Rules, representing the 'outer' layer of regulations that determine the rules of engagement for ESIF implementation bodies, including the S3 policymakers.

Table 2. Key features of policy governance and conversion fit.

Policy governance	Conversion (mis) fit
Elaborate policy governance structure with good representation of stakeholders	Undefined division of roles and overlap of authority between the National Innovation Council and INNOVA Council
S3 policy organizationally and financially dominates the national innovation system	National STI policy governance is fragmented, detached, and subordinate to S3 implementation governance
Weak central coordination of the S3 policy process	National Innovation Council utilizing its authority to a limited degree
Inadequate capacity for policy design	TPAs are not converted into TPA policy packages but are only used as a selection criterion in otherwise horizontal programmes
Outcome: Poor conversion of TPAs into the portfolio of policy instruments and no oversight of the policy	

Source: authors based on World Bank (2021a).

A multi-layered system in place led to excessive organizational fragmentation (distribution of programmes across different organizations) and functional fragmentation of governance across the policy cycle. Each phase of the programme cycle involves multiple institutions, including the sectoral authorities. However, the responsibility for designing, implementing, and controlling the S3 instruments, including programme approval, ultimately rests with the non-sectoral MA, the Ministry of Regional Development and EU Funds. This led to blurred accountabilities as the boundaries of duties were not restricted. Also, the system enables the MA to get involved in the activities of IBs not only as a supervisor but also in operational matters, further blurring the boundaries of accountabilities.

As the political imperative strongly drives the entire S3 system to distribute funds, the government has formed implementation units that operate by rules different from those of the conventional public sector. These self-contained units have appropriate management and training support, where employees receive the EU 'top up', which makes a huge difference in staff retention. Furthermore, job expectations are clearly defined by the nature of the activity. Proximity to end users provides prompt feedback on performance. As a result, there is good procedural accountability of implementation bodies despite the implementation complexity. This starkly contrasts with policy design capacity, which is much less developed (see World Bank 2021a). Table 3 summarizes key features of implementation governance.

Experimentation in I&I policy requires a radical rethink of the M&E system, which should be the essential 'eyes and ears' for real-time detection of implementation and design challenges. Croatia has been quite ambitious in this respect. It planned to introduce an IT system for joint monitoring and reporting of the S3 and the Croatian Innovation Strategy 2014–2020 as part of the INI project. While the IT system has been developed, its usage remains limited. However, the monitoring system was not further developed at the TPA level, as was planned in the S3, and the Foresight project has been delayed and further downscaled.

ESIF and S3 M&E are, in practice, two disconnected processes. The existing M&E system is primarily geared towards monitoring the fulfilment of operational objectives, which is expected given the strong dominance of procedural accountability in the S3 system. The Technical Secretariat, designated as the S3 M&E unit, has very limited human resources, and the institutional capacity for 'diagnostic monitoring' of the S3 is absent. The S3 monitoring framework was improved with a revised set of output and

Table 3. Key features of implementation governance and operational fit.

Implementation governance	Operational (mis) fit
A multi-layered ESIF management and control system forms a complex governance structure with overlapping responsibilities and hierarchical relations	Excessive organizational and functional fragmentation of implementation governance
A non-sectoral Managing Authority is the controller and ultimate decision-maker for the S3 instruments	One Managing Authority managing multiple programmes may speed up the flow of information, but it also leads to blurring accountability boundaries and overlaps in responsibility with sectoral authorities
Implementation bodies have measurable objectives	Good procedural accountability of implementation bodies
Outcome: Implementation governance driven by conventional public policy procedural accountability rules applied in a complexly designed implementation system	

Source: authors based on World Bank (2021a).

Table 4. Key features of monitoring & evaluation governance and learning and feedback.

Monitoring & Evaluation governance	Learning & Feedback
Ambitious aim to build policy-relevant intelligence (comprehensive monitoring systems of strategic and operational objectives and foresight)	Failure to develop an M&E system that can assist decision-making beyond monitoring of operational targets
ESIF and S3 M&E are, in practice, two disconnected processes	Lack of feedback and learning effects on S3 outcomes
Inadequate capacity for M&E of the S3	No formalized M&E procedures or a developed formalized system at the S3 level
A revised set of S3 output and outcome indicators was introduced to reconcile the gap between procedural (ESIF) and substantive (S3) accountabilities	Different M&E frameworks are used in different programmes and do not clearly define how the flow and utilization of information are ensured
Outcome: S3 policy does not have built-in mechanisms of learning and mutual adjustment	

Source: authors based on World Bank (2021a).

outcome indicators, but the M&E is performed on an ad-hoc basis. It is fragmented between institutions and based on information systems that do not meet users' needs (World Bank 2021a). Table 4 summarizes key features of M&E governance.

We cannot understand the trade-off between the external requirement to introduce experimental I&I policy as S3 and the need to comply with public policy accountability requirements by assuming that policies are designed by the 'enlightened' policymaker with perfect foresight. Instead, policymaking is adaptive, muddling through a highly political process. The trade-offs between experimentation and accountability have been further magnified by different politics and personalities, EU requirements and deadlines, elections, the imperative to distribute the available funds and limited institutional capacities for a new type of I&I policy.

In summary, Figure 2 presents the key features of what could be described as a 'broken' S3 dynamic policy cycle in Croatia. The capacity for policy co-creation has been developed in fragments but then lost and would need to be rebuilt (World Bank 2021a). M&E governance has not been established as an integrated function into the policy cycle, meaning that feedback and learning activities, which are key to experimentation, are non-existent. The core tension behind this failure is the inability to reconcile the experimental nature of S3 policy with the accountability requirements of conventional public policy. The S3 policy system has not been able to integrate experimentation and learning with the requirements of the public-funded EU programmes. The result is the absorption of funds without improved transformative capacity of the innovation system.[4]

We argue that the external or S3-driven request for experimentation has clashed with the EU and national requirements for the accountability of conventional public policy programmes. The Croatian system could not integrate these competing requirements into one governance regime or closely connected regimes, so the outcome was four disconnected policy areas or regimes. In that respect, our conclusion aligns with the conclusion of the S3 by the World Bank (2020), which describes the situation as 'there appears to be no clear ownership behind the full STI space'.

The Croatian case is not unique and reflects conclusions shared by many countries with institutionally undeveloped innovation governance. As the literature on S3 suggests, it is quite typical in terms of the trade-off between experimentation and accountability and the challenges which the novelty of the S3 governance entails. Cvijanović et al. (2020), Aranguren et al. (2019), and Guzzo, Gianelle, and Marinelli (2018) all point to

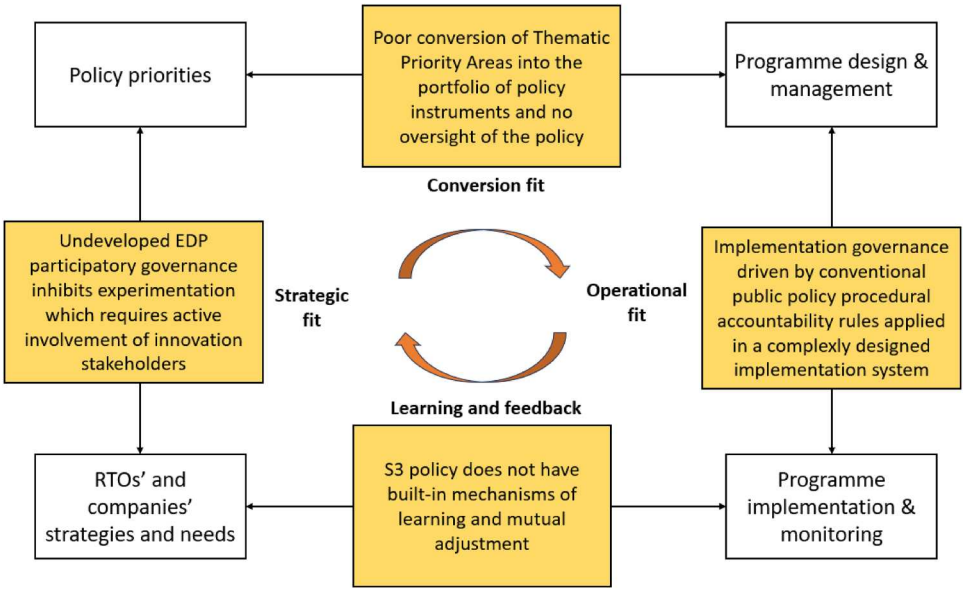

Figure 2. Features of 'broken' S3 dynamic policy cycle in Croatia.
Source: authors.

governance issues of a similar nature. This raises the issue: what is the organizational solution to this trade-off?

4. Organizational solutions to experimentation – accountability trade-off: discussion

In light of this problem framing, we critically examine four potential solutions to experimentation in innovation policy introduced in Section 2: '*diagnostic monitoring*' (Kuznetsov and Sabel 2017), '*stakeholder-driven evaluation*' (Magro and Wilson 2019), '*accountable autonomy*' (Fung 2001; Fung and Olin Wright 2001), and '*Learning Networks*' (Radosevic, Kanellou, and Tsekouras 2023).

We argue that *diagnostic monitoring* addresses the issue of experimentation but not accountability. The autonomous public agency will sooner or later clash with the procedural accountability rules of the public sector funding. Kuznetsov and Sabel (2017) rightly emphasize the need for problem-solving monitoring which is continuous rather than ex-post, and for a procedure for sharing implementation and design challenges, particularly mistakes and problems. However, without reconciling experimentation with accountability, such attempts will be short-lived. In both cases, accountability criteria remain rooted in conventional public policy, which get derogated through increased autonomy. Therefore, we consider diagnostic monitoring an empirically deficient solution as it fails to address the issue of either process or substantive accountability.

We fully endorse the idea that evaluation should facilitate collective learning and be of a formative assessment nature. However, contributors to stakeholder evaluation do not go much further from principles. They do not address how changes based on assessments are embedded into policymaking or reconcile stakeholder evaluation with public policy

rules. By focusing solely on the formative role in the review, they entirely ignore their summative role, or who and what should be done based on assessments. We agree that the objective should be 'to facilitate collective strategic intelligence and learning that leads to changes that improve decision-making and experimentation processes' (ibid, p. 5). However, reconciling this aim with the political nature of the policy process remains unaddressed. In essence, they overlook outcome accountability.

In summary, diagnostic monitoring and stakeholder evaluations are steps forward compared to conventional M&E as the sources of learning and experimentation. The standard M&E system with interim and final assessment is too slow and fails to allow real-time correction. When M&E reports are completed and verified, it is often too late to implement lessons learned and introduce improvements. Such an M&E system can be seen more as learning post-festum, rather than a mechanism that can help improve the activities in progress. Additionally, while diagnostic monitoring and stakeholder evaluations are steps forward in offering solutions that give programme managers autonomy or involve all stakeholders in evaluations, they fail to resolve *how to reconcile independence of the programme managers with public sector accountability rules* or how to embed the learning insights of stakeholders into policymaking.

From this paper's perspective, EDD is a good solution for deliberative (process) accountability. However, its application regarding substance (outcome) accountability and reconciling horizontal with vertical accountability in I&I policy conditions can be challenging. Differences between cases of localized service delivery used as the empirical basis for the relevance of the EDD approach and the much higher uncertainty and fuzziness of the issues involved in the I&I policy suggest this challenge may not be trivial. Experimentation in innovation policy amplifies accountability issues, necessitating either higher tolerance for agency discretion or a broader repertoire of accountability mechanisms (Freeman 1997). While EDD is primarily conceptual, it may not be empirically relevant for I&I policy.

In our case study's context, Learning Networks are proposed as the organizational learning mechanism to enhance the overall policy process's effectiveness. We label it a *real-time M&E* mechanism for S3 policies and funded programmes. Traditional M&E mechanisms focus on compliance, with a linear design process followed by implementation, allowing for 'lessons' only at the end of the programming period when it is too late to make adjustments. The S3 M&E network would circumvent this traditional process by providing a mechanism for continuous, real-time adjustments based on available data and information. It should enable those designing and implementing programmes to identify gaps, simplify processes, enable synergies, and find new solutions. Thus, the S3 M&E network would allow improvements and adaptations to previously agreed processes and procedures as challenges become apparent and new solutions are needed.

The World Bank (2021a) outlined a potential mode of inclusion of a Learning Network in the S3 governance system. The S3 M&E network is conceived as an institutionalized organizational platform, a permanent structure for identifying gaps, challenges, and areas for improvement in the S3 design and implementation process. It explores these issues through a structured deliberation process facilitated and moderated by external neutral representatives (moderator and facilitator) and assisted by invited experts when required. Meetings should occur monthly on fixed days and times.

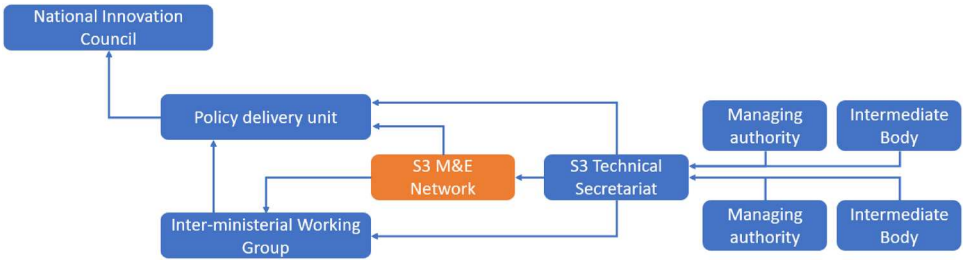

Figure 3. Position of the S3 M&E network in the S3 governance landscape.
Source: authors based on World Bank (2021a)

The S3 M&E network would be a formal part of the governance system (for its proposed organizational position within the Croatian S3 system, see Figure 3). Its members would have the responsibility and authority to adjust procedures as the network detects issues and identifies solutions. Members should be individuals with executive power who can initiate changes in their organizations' procedures to resolve issues identified by the network. The S3 M&E network is composed of the following members (Radosevic, Kanellou, and Tsekouras 2023):

- **Moderator**: Manager and coordinator of the process. This person knows the respective policy area well and commands the respect of the network members. They have received training in learning networks.
- **Facilitator**: Trained methodologist whose duty is to structure network deliberations. They have received training in learning networks.
- **Network members**: Managing Authorities, Intermediate Bodies, users (beneficiaries), the policy delivery unit, and other stakeholders. These individuals are appointed to represent their organizations (stakeholders) and possess executive power. A maximum of 15 people can form one network.
- **Invited experts**: Individuals with extensive experience and qualifications are invited to provide input depending on the issue.

Members of the S3 M&E network may resolve issues directly or escalate them to other S3 governance bodies as needed**.** When network members cannot resolve issues, they should be addressed to the Inter-ministerial Working Group (for operational problems) or the proposed policy delivery unit (for matters related to programme design). Given that members of the Inter-ministerial Working Group are also likely to be members of the M&E network, most operational matters should be resolved within the M&E network. Strategic issues identified by the M&E network can be escalated to the National Innovation Council via the proposed policy delivery unit. The S3 Technical Secretariat could provide logistical and analytical support to the M&E network.

5. Conclusions

A key rationale of this paper is the argument that the experimentation dimension cannot be added to the conventional policy cycle by leaving it intact. Radosevic, Kanellou, and Tsekouras (2023) demonstrate at a theoretical and conceptual level that there is a trade-

off between experimentation and accountability, which cannot be resolved in conventional public policy driven solely by procedural or administrative accountability criteria. In this paper, we build on these insights and explore the issue of Croatian S3 activities through the '*dynamic policy cycle*' analytical framework. This trade-off leads to four disconnected governance regimes: EDP, design, implementation, and M&E regimes.

An adequate system would require built-in collaboration mechanisms, learning, and adjustments. Due to strong functional fragmentation, the current S3 governance system is overloaded by the number of actors and the need for mutual interaction. This excessively slows down the functioning of the system and makes it relatively inefficient. Also, the system does not have an internal mechanism by which detected problems can be quickly identified and resolved. In a nutshell, the system does not have 'built-in' mechanisms of collaboration, learning and adjustments.

We critically examine three solutions to experimentation and point to their deficiencies ('diagnostic monitoring,' 'stakeholder-driven evaluation,' and 'accountable autonomy'). The highly informal nature of collaboration and low problem-solving capacity in the S3 governance system calls for establishing a formalized governance system (network) for cooperation, learning and adjustment. A specific organizational model is secondary to the urgent need to develop such a function in the S3 system. Based on Radosevic, Kanellou, and Tsekouras (2023), we argue that the fourth – 'learning network' – approach may be the most suitable to reconcile the need for experimentation while conforming to the public accountability criteria. We believe the issue is highly relevant for other regions and countries, especially those with weak institutional capacities in I&I policy.

Last but not least, our proposal has its limitations and still unresolved challenges[5,6]. These can be answered only in the real-world process of trial and error. First, the issue is the extent to which the Learning Network decision-making process is genuinely deliberative. Second, how effectively are decisions made through the Learning Network processes translated into real action? Third, can the Learning Network effectively monitor the implementation of its findings or mutual adjustments? Fourth, do learning networks have the capacity for policy co-creation or do they enhance such ability? Fifth, is the Learning Network process more desirable or effective than the classical 'enlightened policy maker' or centralized solution? Sixth, can Learning Network resist being converted into 'window dressing' or 'forum shopping' strategies used by powerful actors when it suits them? Seventh, could Learning Network be marginalized in the policy process by outsiders who can overrule unfavourable deliberative decisions? Eighth, should the time and effort spent on a Learning Network be considered unrealistic for stakeholders or not worth the benefits? Ninth, how can the initial success of the Learning Network be sustained over the policy life cycle? Tenth, are Learning Networks necessary in a well-functioning and rich network of public and private organizations in I&I policy? Finally, could a Learning Network function in the context where the existing institutions in I&I policy are underperforming and have below-required design and implementation capacities?

Notes

1. In that respect, EDD may be considered a democratic political response to 'directed improvisation,' which characterizes the Chinese approach to experimentation in innovation

policy. See Ang (2016) and Radosevic, Kanellou, and Tsekouras (2023) for a comparative analysis of different experimental approaches in I&I policy.
2. O'Riain (2004) finds elements of autonomous accountability in the case of Irish I&I policy. This ensures autonomy from their business constituency through performance requirements placed on the various agencies, centres, and programmes, and is based on the frequent use of external (EU) evaluations.
3. We also benefited from the results of a two-day workshop on 'Using the Power of Learning Networks to Enhance Smart Specialisation,' held on April 12-13, 2018, with Croatian innovation policy stakeholders. The workshop was moderated by Ms. Despina Kanellou and Dr. George Tsekouras and we gratefully acknowledge their input into our thinking about the issue.
4. Transformative capacity refers to the extent to which policy can utilize funds to transform its innovation system, ensuring future technology-based growth and sustainable development.
5. Here, we draw on similar issues raised in the EDD process by Fung and Wright (2001).
6. Some of these challenges should be addressed by the facilitator of the Learning Network.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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