# *Editorial Presentation*

## *Perspectives on innovation governance: challenges and dilemmas*

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Innovation governance has risen to prominence as a central theme in nurturing and framing contemporary debates surrounding innovation policies. This Special Issue features contributions that critically examine the "complexities of governance and the governance of complexity" (Jessop, 2020), aiming for a deeper understanding of innovation governance processes. The selected papers build on some discussions from the inaugural international *NOvation* Online Forum (held from 15 to 17 September 2021) around innovation policies and governance practices. The issue focuses on a critical approach to dilemmas and challenges associated with innovation governance in the context of sustainability transformations and its intricate relationships with ethical, social, economic, and environmental concerns.

Despite the abundant literature on the concept of governance, the term governance of innovation or innovation governance becomes diffuse and used in many different ways and perspectives. Some authors refer to innovation policy governance (Kuhlman, 2000; Fagerberg & Hutschenreiter, 2020), and "innovation" usually appears as part of the governance of STI and as a less visible guest into the governance of science and technology, and the governance of change of socio-technical systems (Borrás & Edler, 2014, 2020).

Innovation governance can be understood as a response to the multiplied innovation forms embedded in an intensified social complexity (Edwards-Schachter, 2021). In the praxis arena, governance of innovation refers to a plethora of governing styles and practices involving actors from private, public, and third sectors in a context of multiple and intertwined changes between different modes of state intervention and societal autonomy

(Lindner *et al.*, 2016; Borrás & Edler, 2020). Overall, it can be seen under the lenses of specific forms of collective reflexivity embracing innovation processes and practices strongly interlinked with "the ability of a society to develop and implement collective choices" (Pierre & Peters, 2001). In that sense, the notion encompasses changes in governing either in a new government process, policy, or regulatory framework, or the development of policy instruments that creates the conditions for collective action (Rhodes, 1996; McGuinnis, 2011). More specifically, innovation governance represents a system to align goals, allocate resources, and assign decision-making authority for innovation, which entails the generation of structures, models, and practices marked by complex interdependence at multiple sectors and levels, i.e., local, national, or international (Stocker, 1998; Jessop, 1998, 2020).

Over the past few decades, the concept has gained significant traction, particularly in the corporate sector, as organizations seek to enhance their innovation governance practices. This shift reflects a broader trend toward proactive and anticipatory policymaking designed to effectively address complex challenges and uncertainties (Stoker, 1998; Diercks *et al.*, 2019; Tõnurist & Hanson, 2020). Prominent examples include the emergence of Claims to Responsible Innovation (RI) and Transformative Innovation Policy (TIP), both of which are regarded as essential tools for addressing societal issues and driving systemic change toward sustainability (Diercks *et al.*, 2019; Ludwig & Macnaghten, 2020). Additionally, there is a growing emphasis on enhancing civil society participation through a surge in Public Engagement (PE) initiatives. These endeavors are connected to the proliferation of governance labs and methods aimed at fostering optimistic discussions on participatory citizenship within public policy and innovation processes (e.g., the role of governance labs and Public Sector Innovation Laboratories, PSIL).

However, some critical voices have raised concerns about the political and ideological dimensions of the governance discourse, questioning to what extent prevailing neoliberalism and pro-innovation biases shape public narratives and governance perspectives (e.g., Godin *et al.*, 2021). More than a decade ago, Newman (2005) highlighted how Western and European governments contributed to the gradual dismantling of the traditional social contract between the state and citizens, paving the way for collaborative governance that emphasizes citizen responsibility. More recently, Kuhlmann & Ordonez-Matamoros (2017) and Ordonez *et al.* (2021) have drawn attention to biases and governance imbalances in emerging economies, highlighting numerous barriers linked to the non-neutrality of transformative policy innovation and the politicization of policy decisions.

In summary, innovation governance encompasses a wide spectrum of perspectives on innovation, mostly focused on innovation systems and interrelationships and the conditions that facilitate thriving innovation. It involves the establishment of decision-making processes and structures that support the management of innovation activities, encompassing the definition of clear roles, responsibilities, and guidelines for innovation, as well as ongoing monitoring and evaluation of innovation performance.

The following papers provide different aspects of governance that are not generally taken into account in the literature, paying attention to the barriers and conundrums that arise in innovation processes and practices.

In the first paper, Centeno & Pinzón-Camargo (2022) bring to the fore the dilemmas and limitations of innovation governance in the Latin American context that emerge from the acritical uptake of theoretical perspectives deeply rooted in scholar traditions in the global North. By examining three in-depth case studies the authors critically assess the underlying assumptions of the dancing metaphor as a heuristic to study the interplay between innovation practice (I), policy (P), and theory (T) in Colombia (Kuhlmann *et al.*, 2010; Kuhlmann & Ordóñez-Matamoros, 2017). They identify gaps in the metaphor and provide insights into who controls the "music" of innovation, the relationships between different actors, the potential exclusion of grassroots innovation movements, and the influence of established industrial actors.

The lessons drawn from the cases highlight the significance of time in the innovation policy dance. Long-term processes show shifts between second-order learning and first-order learning, altering the dynamics of debate and the prevailing policy objectives. In some instances, like Cases 1 and 2, newcomers initially engage in second-order learning but eventually transition to a first-order learning process as they become more familiar with the dance. The persistence of certain policy goals and music over extended periods can indicate stability or institutionalization, but it can also reflect conflicting path-dependent situations that hinder deeper learning. Additionally, the cases underscore the multi-level nature of the policy dance, revealing alignment and misalignment patterns across different levels within the realms of policy, theory, and innovation practice. Tensions within the policy domain often arise, impacting the coordination of policy goals and competencies across levels due to misalignment between national policy objectives and local innovation practices. The interactions among innovation policy, theory, and innovation practice across various governance levels highlight the role of politics in shaping these interplays and learning processes. Otherwise, actors associated with P, T, and I are not confined to their

respective realms and they can shift roles or belong to multiple realms simultaneously. For instance, in Case 2, policy actors and theory actors took on the role of practice by implementing STI projects funded by royalties. Conversely, in Case 3, policy was carried out by actors with strong academic backgrounds, blurring the lines between academia and policy. These cases reveal the complexity and intertwining of roles when actors are called upon or invited to participate in the dance. This dynamic nature of actors in the innovation dance means that they can readily switch from theory to practice to policy, or even assume different roles simultaneously. Overall, the paper provides new insights into grasping the specific dynamics of innovation governance in emerging economies, shedding light on some crosscutting opportunities and gaps for the innovation policy dancing metaphor across different innovation I-P-T situations.

Aligned with this critical perspective, the second paper (Pinzón-Camargo *et al.*, 2023) analyses the appropriation and implementation of the transformative innovation policy (TIP) approach in Colombia. Such policy framework is acquiring prominent popularity within scholar and policy circles in the Global South, with an active diffusion and impulse given by global partnerships such as the Transformative Innovation Policy Consortium (TIPC) composed of innovation policy agencies from Colombia, Finland, Mexico, Norway, South Africa and Sweden, and coordinated by the Science Research Policy Unit (SPRU) at the University of Sussex in the United Kingdom and its sister project Deep Transitions coordinated by SPRU and the Centre for Global Challenges of University of Utrecht.

TIP refers to a comprehensive approach aimed at driving significant and long-term changes in sociotechnical systems, encompassing institutions, practices, infrastructures, networks, and other elements that underpin the intersection of society and technology. These innovations are designed to not only transform unsustainable production patterns but also promote essential cultural and behavioral shifts.

The article focuses on the process of adoption of the transformative STI policy approach and the Sustainable Development Agenda by the National STI governmental agency in *El Libro Verde 2030* in 2018. The analysis considers both the vision of a sustainable and inclusive future and transformations in broader institutions, practices, infrastructures, and networks, among other elements that sustain those realms where society and technology are embedded in the Global South (Ordoñez-Matamoros *et al.*, 2021). The authors identify the set of public actions and tools employed to facilitate and mobilize resources toward the creation, diffusion, and utilization of knowledge and innovation, with a focus on achieving long-term sustainability and inclusivity. The case reveals the existen-

ce of enablers, barriers, and constraints in its practical implementation in Colombia, as well as the contrast between policy as "political business" and the aspiration of transformative STI to effectively foster major long-term changes in sociotechnical systems.

A third contribution from Völker *et al.* (2023) tackles the problem of translation of the Responsible Research and Innovation (RRI) concept into practice and challenges of innovation governance raised from a territorial perspective. The authors put in value a shift towards evaluative inquiry, moving away from the concept of "implementation" and towards "translation." In this view, RRI is seen as a general principle that must be translated to function effectively and make sense within diverse scales and contexts. It acknowledges that RRI practices and principles need to be adapted and contextualized to suit different situations, rather than assuming a one-size-fits-all approach.

Based on the concept of "maintenance" that builds on the "maintenance work" of pre-existing networks, relationships, and repertoires of collaboration, they realize a comparative analysis focusing on various territorial RRI projects situated in three clusters in Lombardy, Catalonia, and Brussels-capital regions. The analysis explores how RRI is translated and implemented, examining the organizational and institutional context that influences their execution through different key approaches: a) Participatory and Deliberative Governance, where RRI is interpreted as modes of governance that emphasize participation and deliberation, aiming for transformative change; b) Citizen Science, where RRI takes the form of citizen science projects, involving citizens in scientific research activities, and c) Participatory Agenda Setting and Citizen Assembly, where RRI is enacted through participatory agenda setting and plans for citizen assemblies.

The analysis also delves into the changing concepts of citizenship brought about by these translations, highlighting the challenges and dilemmas associated with them. Additionally, the text underscores the significance of "maintenance" work in innovation discourses and practices, emphasizing that this often overlooked aspect is essential for enabling certain translations of RI. The study shows how contrasting translations of RRI are entwined in different regional clusters, how these innovation ecosystems contribute to shaping the particular translations, and how –in turn– they themselves are reshaped in the process. This perspective allows for a deeper exploration of the diverse conceptualizations of impact by different actors. The paper gives useful insights on processes to find a balance between transformation and maintenance with different methods to strengthen deliberative democracy in the development of territorial innovation strategy.

The fourth paper from Özbek *et al.* (2023) takes a novel approach to examining the use of procurement as a means of governance, focusing on the practical implementation of Public Procurement of Innovation (PPI). They propose a practice-based critique that emphasizes the dynamic and relational aspects of PPI, enabling a critical assessment of the work performed by public buyers to achieve the aims and expectations of public procurement policies and strategies. Drawing on the conceptual framework of constructive market studies by economic sociology and science and technology studies (STS), the authors challenge the notion that economic markets are pre-existing entities. Instead, they view markets as outcomes constructed through various elements such as rules, regulations, technical devices, discourse, and infrastructure. Within this framework, PPI is examined as part of concerned markets, where market components like choice, competition, and price are used as solutions to collective interest issues, particularly in sectors like healthcare. To illustrate their approach, the authors analyze a specific PPI case study involving the procurement of radiation therapy equipment for a university hospital in Stockholm, Sweden. They accentuate the discussion on the little attention paid to procurement-induced innovation and institutionalization of PPI as a complex process involving multiple actors. The study shows the complexities that stem from the particular requirements of the demand and the suppliers, the articulation of different actors' perspectives, motivations, and practices, the search for consensus and normative alignment around a particular health problem as well as the intended and unintended consequences of PPI—more specifically, different actors' claims about the value of PPI realized in practice. In doing so, the study overcomes the dominant discourse in the innovation policy literature on PPI and opens up for broader questioning of the potentiality of market-based instruments such as PPI to govern innovation, without delimiting an analysis of its consequences to a simplified dichotomy between success or failure (cf. Aschhoff & Sofka, 2009; Guerzoni & Raiteri, 2015).

This case study reveals the extensive efforts made by contracting authorities to implement PPI and highlights the disparities between initial expectations and the actual value of innovation achieved. Additionally, the paper offers a fresh perspective on PPI by focusing on its practical implementation and its impact on innovation governance, contributing to a deeper understanding of the complexities and challenges associated with using procurement as a tool for innovation.

In the fifth contribution, Falardeau (2023) considers the influence of historical elements on the governance dynamics of mountain territories and tourism innovation. By presenting a multiple case study of innovation governance in protected areas in three touristic regions (Aspen (United States), Mont-Orford (Canada) and Banff (Canada), the

author examines the duality between conservation and development, showing how the territories' characteristics contribute to or constrain social innovation -as identification of societal needs- and vice versa, how social innovation contributes to territorial dynamics. The paper shows that touristic and protected mountain territories are not "on the fringes" of innovation; rather, their characteristics (rugged relief, relative eccentricity, exceptional character) make them the breeding ground for distinctive social innovation confronted with the leitmotif of innovation "at any cost", imbued with the prevailing pro-innovation bias.

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