

Beyond “scaling down” the sustainable development goals: an evaluative framework for assessing subnational sustainability strategies

Valeria Saiu & Ivan Blečić

To cite this article: Valeria Saiu & Ivan Blečić (2026) Beyond “scaling down” the sustainable development goals: an evaluative framework for assessing subnational sustainability strategies, *Sustainability: Science, Practice and Policy*, 22:1, 2678875, DOI: [10.1080/15487733.2026.2678875](https://doi.org/10.1080/15487733.2026.2678875)

To link to this article: <https://doi.org/10.1080/15487733.2026.2678875>



© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 25 Jun 2026.



[Submit your article to this journal](#)



Article views: 94



[View related articles](#)



[View Crossmark data](#)

Beyond “scaling down” the sustainable development goals: an evaluative framework for assessing subnational sustainability strategies

Valeria Saiu  and Ivan Blečić 

Department of Civil and Environmental Engineering and Architecture, University of Cagliari, Cagliari, Italy

ABSTRACT

Achieving the Sustainable Development Goals (SDGs) depends on localization, in which subnational governments translate global commitments into territorially grounded and operational policy frameworks. Empirical research, however, focuses on national alignment or a limited set of leading cities, leaving the intermediate regional and provincial tier underexamined and insufficiently benchmarked. This article addresses this gap by systematically comparing the subnational strategies for sustainable development (SSDs) adopted by Italian regions and autonomous provinces in 2025. Italy provides a testbed because SSDs are mandated nationwide, generating an unprecedented corpus of comparable strategy documents. Using qualitative content analysis and a coding protocol, we assessed seven dimensions of strategy design—including SDG coverage, balance, and density of Key Area (KA)-SDG mappings; implementation provisions; monitoring systems; financial integration; and internal coherence—and synthesized them into two composite indicators: an SDG Framing Index and a Completeness Index. Results show uniformly high nominal SDG coverage but substantial variation in integrated framing and, critically, in operational maturity, with monitoring systems and budget/programming linkages emerging as bottlenecks for feasibility and accountability. A threefold typology (aspirational, structured, and integrated) differentiates rhetorical alignment from strategies embedded in governance routines, budgets, and monitoring frameworks. While territorial disparities persist, several less-advantaged regions suggest that institutional design can partially offset capacity constraints. The study advances a transparent, replicable assessment framework and identifies policy priorities to strengthen vertical coordination, statistical capacity, and alignment with European and national funding streams, highlighting SDG-aligned monitoring systems and budget/programming linkages as key levers to enhance policy feasibility and accountability.

ARTICLE HISTORY

Received 12 September 2025

Accepted 18 May 2026

KEYWORDS

SDG localization;
subnational governance;
monitoring and assessment
tools; multi-level
sustainability frameworks;
policy design evaluation

Introduction

The widespread adoption of the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) has reshaped governance architectures across multiple levels (United Nations 2015). Endorsement has established a shared global reference framework that enables comparison, mutual learning, and the exchange of good practices across territories, while simultaneously underscoring the decisive role of local contexts in achieving effective and durable sustainability outcomes (United Nations 2024a). Although national governments remain formally responsible for SDG implementation, the 2030 Agenda emphasizes that the goals cannot be achieved without the active engagement of subnational authorities—regions, provinces, and municipalities—which account for a substantial share of public investment, service delivery, and regulatory enforcement and operate at the level of government closest to local communities (Mitlin and Satterthwaite 2013; Lucci 2015). Accordingly, translating the SDGs into territorially grounded objectives and operational

CONTACT Valeria Saiu  v.saiu@unica.it  Department of Civil and Environmental Engineering and Architecture, University of Cagliari, Cagliari, Italy.

© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

measures—commonly referred to as SDG localization—has become a central issue in contemporary sustainability governance (United Nations Department of Economic and Social Affairs (UNDESA) 2024b).

Evidence assembled by the Organization for Economic Co-operation and Development (OECD) suggests that more than 65% of SDG targets cannot be achieved without the involvement of local and regional governments (Organisation for Economic Co-operation and Development (OECD) 2020a). Despite this emphasis, global progress remains insufficient. According to a recent assessment, progress is being made on only 16% of SDG targets, while the remaining 84% show limited progress or reversal (Sachs, Lafortune, and Fuller 2024). This performance gap signals the need to better understand the constraints affecting localization and, more specifically, the substantive challenges associated with how localization is conceptualized, designed, and operationalized across heterogeneous territories (GTLRG 2022). A first key consideration is that localization is not a simple “scaling down” of global targets. Rather, it entails complex processes of interpretation, negotiation, and territorial adaptation shaped by institutional capacity, socio-economic structures, and political priorities (United Nations Development Programme (UNDP) 2025). These processes can foster governance innovation and participatory experimentation, but they may also generate fragmentation, uneven progress, and selective prioritization, particularly in contexts characterized by strong territorial disparities (Novovic 2022; Dulak 2023).

Translating the SDGs into local development plans and strategies that remain coherent with national frameworks requires subnational territories to possess adequate capacities and infrastructures for evidence-informed analysis, scenario-building, policy design, stakeholder engagement, and performance management. In the absence of these enabling conditions, localization risks remain symbolic rather than transformative, leading to strategies that are weakly connected to implementation instruments, budgetary and financial planning, and robust monitoring systems (United Nations 2024a). At the same time, SDG localization is inherently a knowledge-intensive and cross-sectoral endeavor: it requires shared interpretive frames (to define priorities and tradeoffs), conjoined technical repertoires (to operationalize targets and indicators), and sustained coordination across departments and governance levels. For this reason, SDG operationalization depends not only on resources but also on the extent to which sustainability ideas are internalized and stabilized within administrative practices and policy networks. This joined-up capacity motivates an interpretive lens grounded in a constructivist account of the role of ideas in institutional persistence and change, particularly in relation to epistemic communities and policy learning (Haas 1992) and discursive institutionalism (Schmidt 2008). From this perspective, SSDs are not only planning documents but also “sense-making” devices through which administrations stabilize shared problem definitions, legitimate tradeoffs, and routinize coordination practices.

Against this backdrop, a central analytical and practical question concerns how to distinguish between symbolic and operational localization. In this article, “operational” strategies are understood as those that translate SDG narratives into implementable policy architectures, including clearly specified governance arrangements, implementation instruments, monitoring systems, and explicit budgetary/financial linkages, while preserving the integrated logic of the 2030 Agenda. Developing a comparative basis for this distinction is essential both for advancing scholarship and for informing capacity-building and multilevel coordination policies.

The regional and provincial scales warrant attention as an intermediate tier between national frameworks and municipal action (Snyder 2001). These authorities can translate overarching commitments into coordinated territorial programs, including non-metropolitan areas often overlooked in city-based studies (Allen, Metternicht, and Wiedmann 2016; 2018; Morton, Pencheon, and Squires 2017; Schmidt-Traub et al. 2017; Khussamov et al. 2020). However, SDG localization research has only partially engaged this scale, limiting comparative benchmarking of strategy design and the identification of institutional conditions that enable strategies to become implementable governance instruments. Available international evidence suggests both opportunities and persistent capacity asymmetries, supporting the need for comparative approaches (OECD 2020b; Government of Spain 2022; Economic Commission for Latin America and the Caribbean (ECLAC) 2025).

The Italian case provides a distinctive and timely contribution to this debate. Italy is among the few countries that formally require all regions and autonomous provinces to elaborate subnational

strategies for sustainable development (SSDs) under the framework of the National Sustainable Development Strategy (Italian Ministry for Environment, Land, and Sea Protection (MATTM) 2017). This mandate has generated a nationwide corpus of comparable strategy documents, offering an unusual opportunity for systematic cross-territorial assessment. The relevance of this empirical setting is amplified by substantial differences among Italian regions in administrative capacity, fiscal autonomy, economic and demographic dynamics, and exposure to environmental risks (OECD 2020b; Italian National Institute of Statistics (ISTAT) 2023), all of which plausibly shape how localities formulate, prioritize, and operationalize SSDs. Building on this “testbed,” this article presents a nationwide comparative analysis of Italian SSDs.

Three research questions guide the analysis:

1. To what extent do Italian SSDs provide comprehensive coverage of the 17 SDGs, reflecting the integrated spirit of the 2030 Agenda?
2. How balanced are these strategies in addressing social, economic, and environmental priorities, and to what degree are they supported by concrete implementation and monitoring mechanisms?
3. How do governance arrangements and institutional capacities shape the operationalization of sustainability objectives?

To address these questions, we developed a structured evaluative framework to assess seven dimensions of policy design, using a transparent coding protocol consistently applied across all official strategy documents to ensure replicability and cross-territorial comparability. These dimensions are organized into two composite indices: (1) an SDG Framing Index, capturing the breadth, balance, and density of SDG integration in strategic framing and (2) a Completeness Index, summarizing implementation, monitoring, financial integration, and internal coherence as a measure of the operational maturity of the governance architecture. Building on these results, the study proposes a typology of subnational strategies—aspirational, structured, and integrated—reflecting different levels of completeness, coherence, operational capacity, and institutional maturity in SDG localization.

From a policy perspective, the analysis identifies design features that enable SSDs to function as actionable governance instruments rather than declaratory plans, thereby mitigating the risk that localization reproduces or amplifies territorial inequalities. More broadly, the study contributes in two ways: it develops a transparent and replicable analytical framework for evaluating SDG localization that is transferable to other subnational contexts, and it situates the Italian case within international debates on multilevel governance by clarifying how capacity asymmetries, institutional design, and territorial diversity shape subnational pathways to sustainable development.

The article is structured as follows. The next section reviews the literature on subnational and mid-level SDG localization, and the third section outlines the methodology. The fourth section presents the comparative results, and the fifth section discusses governance implications. Finally, we conclude with several policy recommendations.

Literature review on subnational SDG localization

Subnational heterogeneity and the role of intermediary governance

Empirical studies show that subnational actors interpret and prioritize SDGs differently depending on socioeconomic conditions, governance arrangements, and perceived responsibilities, generating diverse localization pathways (Jönsson and Bexell 2021; Stoddart, Yang, and Atlin 2023). This research highlights the role of “mid-level” institutions—such as regional governments and territorial authorities—as key intermediaries in translating global goals into context-specific strategies. These intermediaries perform both administrative and cognitive functions: they shape problem definitions, policy framings, and shared narratives about sustainability, thereby influencing what counts as a priority, a feasible action, and legitimate tradeoffs (OECD 2024a).

Comparative evidence indicates heterogeneous trajectories of SDG localization within countries, as regional and provincial tiers adopt differentiated approaches in strategic scope, institutionalization, and monitoring architectures. In Europe, variation across Germany's Länder (states) illustrates how administrative traditions and political leadership shape divergent patterns of SDG mainstreaming, ranging from comprehensive governance frameworks to more declaratory approaches (Scholz, Keijzer, and Richerzhagen 2016).

Initiatives such as the Regional Hubs for Sustainability Strategies (RENNs), coordinated by the German Council for Sustainable Development, further illustrate institutional asymmetries in strategic capacity and coordination, which underline the diversity of institutional arrangements across Länder (Rat für nachhaltige Entwicklung (German Council for Sustainable Development, RNE) 2019). In Spain, official progress reporting highlights the active role of autonomous communities in localizing the SDGs through governance forums and participation mechanisms (Government of Spain 2022). Belgium's federal and regionally differentiated governance architecture provides further evidence of differentiated institutionalization: in Flanders, Vision 2050 and Focus 2030 jointly articulate long-term direction and SDG-oriented implementation, offering an explicit regional design for policy coherence and delivery (OECD 2020c). Devolved administrations in the UK similarly reveal contrasting subnational architectures: Scotland and Wales have embedded the goals within distinct, well-being- and performance-oriented governance frameworks, while Northern Ireland has followed a comparatively less developed, less formalized pathway (Open University 2017; Geraghty 2020).

Comparable patterns emerge beyond Europe. In Latin America, evidence from Brazil and Mexico highlights both experimentation in territorializing the SDGs and persistent constraints linked to technical capacity and fiscal space; in Mexico in particular, state-level disparities in resources and institutional capability condition the feasibility of translating SDG commitments into implementable instruments, with implications for equity across territories (Guerrero et al. 2022; ECLAC 2025). In Asia, India offers one of the clearest examples of within-country divergence at scale: SDG localization is strongly state-led, yet states differ markedly in monitoring infrastructures, indicator systems, and the institutionalization of implementation routines, differences that are systematically rendered visible through benchmarking and peer-learning mechanisms such as the SDG India Index (NITI Aayog 2023). China provides complementary comparative leverage: instrument-oriented analyses examine how policymakers translate SDG-related objectives into policy mixes and governance instruments, while provincial-level studies document marked interprovincial differentiation in SDG-related policy and performance trajectories (Biggeri et al. 2023). Indonesia similarly illustrates differentiated subnational approaches, with evidence on the integration of SDG principles and indicators into regional development plans and planning routines across multiple provinces, as well as policy-oriented analyses of SDG integration at the subnational government level (Asian Development Bank (ADB) 2023; Putra et al. 2024).

Capacity, knowledge conditions, and the governability of SDG localization

Across these cases, a recurring theme is capacity asymmetry, not only in distributive terms (unequal resources) but also in performative terms (unequal “governability” of strategies), understood as the practical ability to translate strategic commitments into coordinated action, routinized implementation, and measurable accountability. Wealthier or more institutionally robust regions are better equipped to develop comprehensive strategies linked to budgets and indicators, while less-resourced territories often generate rhetorical plans with limited implementation potential. This asymmetry raises equity concerns and suggests that, without targeted support, SDG localization may reproduce or exacerbate territorial disparities (Guerrero et al. 2022; Novovic 2022).

In this respect, these risks are compounded not only by structural constraints that subnational authorities frequently face—limited fiscal autonomy, insufficient technical capacity, and weak coordination mechanisms (Mohieldin et al. 2023)—but also by differences in the knowledge conditions that make SDG localization governable. From an epistemic perspective, shared causal beliefs, standards of evidence, and professional norms circulating within expert–policy networks can orient agendas and foster convergence around indicator repertoires and policy templates (Haas 1992; Tichenor et al. 2022).

Whether such shared ideas translate into operational strategies, however, depends on how they are institutionalized within administrations: internal coordination among policy actors can build cross-departmental coherence (e.g., shared baselines, mandates, and monitoring routines), while outward-facing communication and engagement can sustain legitimacy and continuity beyond strategy adoption (Schmidt 2008). Complementary interpretive and participatory perspectives further emphasize how administrative cultures, shared policy beliefs, and community-supported processes of meaning-making and deliberation shape strategic design choices and institutional persistence (Jain, Courvisanos, and Subramaniam 2021; Krsnik, Erjavec, and Klopčič 2022; Fuller et al. 2024).

From this standpoint, SSDs do not merely catalog objectives and actions; they also operate as institutional artifacts through which public actors define future-oriented visions, select salient issues, legitimate priorities, and articulate territorial narratives. In doing so, they shape institutional agency within multilevel governance by stabilizing what is considered “relevant” and “feasible” in each territorial context and by structuring the coalitions and expectations that sustain implementation over time. This interpretive lens helps explain observed differences among SSDs not solely as reflections of unequal administrative capacity but also as expressions of varying degrees of strategic elaboration and institutional learning.

International organizations have translated these debates into operational guidance, notably through OECD’s work on policy coherence for sustainable development (PCSD) and multilevel integration (OECD 2019) and methodological handbooks for SDG planning and reporting developed by UN-Habitat and United Cities and Local Governments (UN-Habitat, and United Cities and Local Governments (UCLG) 2020) and the European Commission’s Joint Research Center (ECJRC) (Siragusa et al. 2020, 2022). However, empirical research continues to document persistent capacity gaps that limit implementation and monitoring at the subnational level (Allen, Metternicht, and Wiedmann 2018; Valencia et al. 2019; Hidalgo, Siragusa, and Proietti 2021). This situation reinforces the need for assessment frameworks that move beyond descriptive mapping to capture operational depth, institutional coherence, and monitoring and accountability architectures, in line with sustainability governance scholarship on policy coherence and goal-based governance in multilevel settings (Biermann, Kanie, and Kim 2017; Nilsson et al. 2016).

The Italian case study

Italy represents a particularly relevant case for the study of subnational sustainability governance due to the country’s combination of a decentralized institutional architecture and pronounced territorial heterogeneity across its 20 regions. This heterogeneity concerns, among other aspects, economic and productive structures, levels of development and administrative capacity, demographic dynamics—notably demographic aging and youth outmigration—and a wide range of environmental vulnerabilities and differentiated climate-related risks.

In light of these differences, and for specific historical and geographical reasons, five regions have special autonomous status (Friuli Venezia Giulia, Sardegna, Sicilia, Trentino-Alto Adige/Südtirol, and Valle d’Aosta), benefiting from distinctive forms of legislative and administrative autonomy as well as differentiated financial arrangements. Trentino-Alto Adige/Südtirol is further subdivided into two autonomous provinces (Trento and Bolzano/Bozen) endowed with extensive competences. This constitutional architecture assigns regions and provinces substantial responsibilities in policy domains directly linked to sustainable development, including healthcare, education, environmental policy, and spatial/territorial planning. As a result, the localization of sustainability policies and objectives is especially challenging, requiring robust multilevel coordination mechanisms and strong capacity to adapt strategic frameworks to local specificities. Against this backdrop, the Italian experience offers a distinctive and timely contribution to the international debate on multilevel governance for sustainability and has been cited as a best practice for multilevel governance and territorial engagement (UN-Habitat 2022).

Following the adoption of a National Sustainable Development Strategy (NSDS) in 2017 and its update in 2023, Italy established a shared national reference framework (MATTM 2017), structured around the five Key Areas (KAs) “Ps” of the 2030 Agenda—People, Planet, Prosperity, Peace, and

Partnership—and three “Sustainability Vectors,” conceived as enabling conditions for the transformative pathway envisaged by the 2030 Agenda. Vector 1, “Policy Coherence for Sustainable Development (PCSD),” addresses the architecture of national sustainability governance and the programming, monitoring, and evaluation of public policies. Vector 2, “Culture for Sustainable Development,” and Vector 3, “Participation for Sustainable Development,” aim to consolidate and expand NSDS implementation across governance levels through coordinated involvement of institutional and societal actors (MASE 2024).

In this process, the Italian Alliance for Sustainable Development (ASviS) has played a key role as a national epistemic community. Established in 2016 to support the implementation of the 2030 Agenda in Italy, it currently brings together more than 300 civil society organizations and networks, universities, and research centers and contributes to policy processes by mobilizing expertise, disseminating evidence, and supporting public administrations through monitoring, advocacy, and capacity-building initiatives (ASviS 2025). To facilitate the translation of different strategic narratives into implementable governance instruments at the subnational level, beginning in 2018, the Italian government launched a nationwide program supporting regions and autonomous provinces in the preparation of SSDs, combining financial incentives with cooperation agreements covering all territories and providing support for capacity-building activities and participatory processes.

The strategy-formulation process has often been institutionally and politically complex, reflecting the need for multi-actor coordination and uneven administrative resources. Regional governments adopted SSDs at different times. Among the 20 SSDs formally approved by early 2025, one region adopted its strategy in 2020, eight between 2021 and 2022, eight in 2023, and two in 2024. Basilicata remains the only region that has not yet formally approved its strategy (MASE 2025a, 2025b). Several regional governments have already revised or updated their SSDs in response to evolving national guidance and shifting European policy priorities, underscoring the dynamic and iterative nature of the framework. From an ideational and institutional standpoint, this heterogeneity results not only from uneven administrative resources but also from differences in the institutionalization of cross-sectoral coordinative discourse and in the density of sustainability-oriented expert-policy networks across regions. Where this cross-sectoral coordination and shared indicator practices are weakly institutionalized, strategies tend to reproduce departmental silos, making it harder to translate SDG narratives into integrated policy architectures.

While this decentralized architecture has enabled place-sensitive approaches, it has also generated substantial heterogeneity in institutional arrangements, strategic scope, and implementation capacity (Cavalli et al. 2020; Saiu and Blečić 2022a), as also highlighted in recent national assessments (MASE 2024, 2025b). A key challenge concerns the development of integrated frameworks capable of coordinating multiple departments and overcoming sectoral fragmentation (OECD 2024b). Many regions continue to operate within siloed administrative structures, which limit the harmonization of data and indicators across policy domains. Consequently, the establishment of robust monitoring systems able to support comparability, learning, and accountability across administrative tiers remains uneven. Stakeholder engagement also varies in depth, continuity, and institutionalization, ranging from structured participatory platforms to more episodic consultation processes.

Despite these constraints, SSDs are increasingly embedded within broader regional planning and programming instruments, including regional development plans, economic and financial programming documents, and sectoral strategies such as Smart Specialization Strategies (S3), which are required within the EU cohesion policy framework to access European Regional Development Fund (ERDF) resources in innovation-related domains. Notably, several regions have sought to align their SSD priorities with the *Documento di economia e finanza* (DEF or Economic and Financial Document), the principal annual planning instrument through which Italian regions define economic policy objectives and outline the financial framework for the subsequent three-year period. This trend signals a shift from strategic declarations toward the progressive incorporation of sustainability objectives into the core routines of public policy and strategic planning. However, the depth of mainstreaming remains uneven across territories, particularly regarding budgetary linkages, monitoring systems, and administrative ownership. Persistent constraints related to technical capacity, data availability, and coordination continue to affect both operationalization and evaluability. Overall,

this heterogeneity reflects tensions between national harmonization and territorial autonomy, while also creating space for experimentation, mutual learning, and the diffusion of transferable good practices.

Interest in the Italian case is further corroborated by a growing body of scholarship, which remains fragmented across objects of analysis, methodological approaches, and territorial scales. A first strand assesses regional progress toward the SDGs primarily through indicator-based approaches and composite indices, providing comparative evidence on territorial performance and disparities (D'Adamo, Gastaldi, and Morone 2022; Rocchi et al. 2023). While analytically robust, these studies focus primarily on outcomes and performance metrics, rather than on the design and governance architecture of SSDs as policy instruments. Recent contributions have refined this perspective by examining the drivers of SDG performance at the local level. Raimo et al. (2025) show that sustainability outcomes in Italian municipalities are shaped by demographic, socioeconomic, and productive characteristics, highlighting the contextual embeddedness of SDG performance and reinforcing the importance of territorial conditions in SDG localization.

This growing attention to local drivers is paralleled by the expansion of urban-level monitoring initiatives, such as SDG indicator systems and city indexes (e.g., Ottobri and Rosenthal 2024), which further highlight the increasing availability of data-driven assessments across territorial scales. However, these initiatives remain primarily focused on performance measurement rather than on the strategic design and operational maturity of subnational sustainability frameworks.

A second strand adopts a governance and institutional perspective, examining the emergence of SSDs, participatory processes, and policy narratives, often through qualitative or case-based approaches (Carlucci 2023). Complementing these contributions, other studies focus on pioneering territories such as Sardinia and Trentino-Alto Adige/Südtirol, highlighting early experimentation, institutional innovation, and distinctive governance practices (Cavalli et al. 2020; Saiu and Blečić 2022b; OECD 2023; Saiu et al. 2023). Further work has examined national-level coordination and monitoring arrangements, clarifying enabling conditions and constraints produced by the central framework (Richiedei and Pezzagno 2022).

Taken together, these strands provide valuable but still partial insights. While they improve understanding of SDG performance, local drivers, and governance dynamics across different territorial scales, they do not yet offer a systematic, instrument-focused comparison of subnational strategies as governance architectures. There is limited evidence on how strategy design choices—such as cross-sectoral coordination, monitoring architecture, implementation mechanisms, and budget linkages—vary across all regions and autonomous provinces using consistent criteria.

Recent scholarship has begun to move in this direction, though it has yet to offer a comprehensive, instrument-focused comparison of operational maturity across the full corpus of strategies. For instance, Saiu and Blečić (2022b) conducted an initial comparative qualitative assessment across selected regions, examining systemic vision, balance across sustainability dimensions, and operationalization mechanisms, emphasizing the role of administrative capacity and institutional learning in shaping SDG localization. More recently, Richiedei, Pezzagno, and Balletto (2024) expanded the empirical base to all Italian regions by combining document analysis with the ECJRC SDG Mapper—the automated text-analysis tool developed by the European Commission's Joint Research Center to assess policy alignment with the SDGs (ECJRC, 2024)—and exploring associations between regional strategy framing and regional competitiveness. Their analysis identifies meaningful correlations—particularly between competitiveness and the prioritization of SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industries, Innovation, and Infrastructure)—and provides a perspective on how economic structures may influence sustainability narratives and priorities (Richiedei, Pezzagno, and Balletto 2024). While novel, these approaches do not yet provide a unified assessment of operational depth, institutional coherence, and implementation/accountability mechanisms embedded in SSDs.

To address this gap, the present study adopts an instrument-focused perspective, shifting attention from SDG outcomes to the design and operationalization of strategies themselves. By applying a consistent evaluative framework across all Italian SSDs, the analysis enables systematic benchmarking of design quality and governance capacity and contributes to broader debates on subnational sustainability governance and multilevel policy integration.

Methodology

Research design

This study adopts a comparative mixed-methods design to analyze the SSDs developed by Italian regions and autonomous provinces. It combines qualitative content analysis with a structured coding protocol and normalization procedures that translate documentary evidence into comparable semi-quantitative indicators. This integration supports systematic cross-territorial comparability across heterogeneous strategies while retaining sensitivity to institutional and territorial specificities. The methodological framework is designed to assess the extent to which SSDs are institutionally structured, operationally developed, and consistent with the integrated logic of the 2030 Agenda. Accordingly, the analysis focuses not only on thematic alignment with the SDGs but also on the robustness of the governance architecture underpinning implementation, monitoring, and financial integration.

Units of analysis and data sources

The unit of analysis is the strategic architecture of each SSD, including strategic areas, objectives, and the operational mechanisms that support them (e.g., implementation tools, monitoring systems, participatory procedures, and financial linkages). This approach prioritizes internal organization and institutional coherence over sustainability outcomes, enabling the assessment of SSDs as governance instruments rather than performance reports. The analysis covers all SSDs formally approved by Italian regions and autonomous provinces as of mid-2025 ([Figure 1](#) and [Tables 1](#) and [2](#)), enhancing the robustness of cross-regional comparison and eliminating selection bias. Primary data sources consist of SSD documents and annexes, regional statistical dashboards, financial planning documents (e.g., DEF, European Union programming), and monitoring platforms. We retrieved all documents from official regional and ministerial repositories.

Analytical framework

The analytical framework evaluates each SSD along seven dimensions, capturing both the structure of SDG framing and the operational maturity of the governance architecture. The analysis begins by coding SSD documents to identify the Key Areas (KAs) that structure each strategy. Building on the identified KAs, all explicit references to the 17 SDGs were systematically coded within each KA.

A “KA-SDG linkage” is an explicit association between a KA and one or more SDGs as reported in the narrative text, action tables, or indicator frameworks of the SSD. These linkages constitute the basic unit of analysis for assessing how the SDGs are embedded in the document’s strategic architecture.

The identified KA-SDG linkages were then organized into a KA × SDG matrix, which operationalizes the relationships between strategic areas and SDG references. The matrix captures: (1) the breadth of SDG coverage across KAs, (2) the balance among social, economic, environmental, and governance goals, and (3) the density of associations relative to the maximum possible number of linkages. This matrix provides the empirical basis for constructing the SDG Framing Index and ensures transparency and replicability in assessing how SSDs employ the SDGs as an organizing logic.

Methodologically, the framework follows three sequential phases (see [Figure 2](#)). The first phase (“Foundations”) consists of document coding, KA identification, and KA-SDG mapping. The second phase (“Dimensions”) derives the structural and operational dimensions of each strategy. Structural dimensions assess the internal architecture of SDG integration through coverage, balance, and density, while operational dimensions evaluate the strategy’s readiness for implementation through implementation capacity, monitoring systems, financial integration, and policy coherence. In the third phase (“Synthesis”), all dimensions are normalized and aggregated into two composite indices: the SDG Framing Index (SFI) and the Composite Index (CI).



Figure 1. Map of Italian regions and autonomous provinces by SSD approval year: cooler colors/blue/green) indicate earlier adopters and warmer colors (yellow/red) later adopters.

The SDG framing dimensions (Cov, Bal, Den) are computed exclusively from explicit KA-SDG mappings to ensure transparency and replicability. The operational dimensions (Imp, Mon, Fin, Coh) are derived from structured qualitative coding of implementation and governance features (Table 3).

1. Coverage (Cov) measures the breadth of SDG inclusion, based on how many of the 17 SDGs are explicitly linked to KAs.
2. Balance (Bal) captures how evenly SDG references are distributed across KAs, detecting concentration and dominance patterns.
3. Density (Den) measures the intensity of SDG mapping, computed as the share of observed KA-SDG linkages relative to the maximum possible linkages given the number of KAs.
4. Implementation (Imp) assesses whether strategic objectives are translated into operational content (actions/projects, responsibilities, indicative timing/resources, governance arrangements).
5. Monitoring (Mon) evaluates the robustness of indicator frameworks (indicators, baselines/targets, update cycles, public reporting).
6. Financial Integration (Fin) assesses the extent to which SSD objectives are explicitly connected to programming and budgeting instruments and to EU/national funding streams, including any routinized mechanisms for financial alignment.

Table 1. The characteristics of the Italian subnational governments.

Subnational Governments	Administrative level	Inhabitants 2025	Surface (km ²)	Density (inh/km ²)	Municipalities (number)	Provinces (number)	GDP 2023 (million €)
Abruzzo	Region	1,268,430	10,828.89	117	305	4	39,419
Basilicata	Region	529,897	10,071.59	53	131	2	14,744
Bolzano	Aut. Province	539,386	7,397.79	73	116	1	32,044
Calabria	Region	1,832,147	15,212.65	120	404	5	38,786
Campania	Region	5,575,025	13,667.85	408	550	5	130,037
Emilia-Romagna	Region	4,465,678	22,501.82	198	330	9	192,663
Friuli Venezia Giulia	Aut.s Region	1,194,095	7,936.83	150	215	4	44,996
Lazio	Region	5,710,272	17,236.49	331	378	5	238,937
Liguria	Region	1,509,908	5,417.71	279	234	4	56,952
Lombardia	Region	10,035,481	23,862.87	421	1,502	12	490,350
Marche	Region	1,481,252	9,344.54	159	225	5	49,276
Molise	Region	287,966	4,459.80	65	136	2	7,746
Piemonte	Region	4,255,702	25,391.67	168	1,180	8	156,061
Puglia	Region	3,874,166	19,541.03	198	257	6	91,635
Sardegna	Aut. Region	1,561,339	24,106.30	65	377	5	41,429
Sicilia	Aut. Region	4,779,371	25,824.33	185	391	9	110,009
Toscana	Region	3,660,834	22,985.01	159	273	10	137,966
Trento	Aut. Province	546,709	6,208.18	88	166	1	25,228
Umbria	Region	851,954	8,463.97	101	92	2	26,095
Valle d'Aosta	Aut. Region	122,714	3,258.61	38	74	1	5,699
Veneto	Region	4,851,851	18,351.49	264	560	7	197,136
	TOTAL	58,934,177	302,069.41	195	7,896	107	2,128,001

Sources: OECD (2024b); ISTAT (2025).

7. Internal Coherence (Coh) evaluates the vertical logic of the strategy by assessing alignment across KAs, objectives, actions, and indicators.

The seven dimensions play distinct analytical roles. Cov, Bal, and Den capture how SDGs are structurally embedded in the strategy architecture (framing dimension), while Implementation, Mon, Fin, and Coh capture the degree to which strategies are operationalized as governance instruments (operational dimension).

Cov, Bal, and Den are aggregated into SFI, while Imp, Mon, Fin, and Coh are combined into the Completeness Index (CI). Together, these indices enable a joint assessment of how strategies frame the SDGs and how effectively they translate them into implementable policy architectures.

Scoring and normalization

This section operationalizes the analytical framework introduced in the previous section by specifying the scoring rules and normalization procedures for each dimension. For each SSD, we assigned raw scores using the coding protocol and then transformed them into a common 0–1 scale to ensure comparability across dimensions. The procedure involved two steps. We first constructed structural indicators based on KA-SDG linkages (Cov, Bal, Den) and then scored the operational dimensions (Imp, Mon, Fin, Coh) and their aggregations into the CI.

- *Coverage (Cov)* captures the breadth of SDG inclusion by measuring how many of the 17 SDGs are explicitly referenced through KA-SDG linkages. We only coded explicit KA-SDG mappings. To avoid absolute extremes, Cov was initially expressed on a 20–90 scale. The score increases linearly with the number of SDGs covered:

$$Cov = 20 + \frac{70}{13} \times (SDGs_{covered} - 4)$$

We set a minimum threshold of four SDGs to avoid assigning near-zero values to minimally articulated strategies; Cov then increases linearly up to full inclusion of all 17 SDGs. Cov was then normalized to a 0–1 range as:

$$Cov_{norm} = \frac{Cov - 20}{70}$$

Table 2. Italian SSDs: date, structure (levels), objectives and actions, and indicators.

Government Region (R)/Aut. Province/Region (AP/AR)	Date	I level Macro areas/Strategic objectives	II level / III Level Sub macro-areas/Strategic choices and objectives	Implementation	Indicators	Source
Abruzzo (R)	February 2024	(1) Digitization; (2) Infrastructures; (3) Green transition; (4) Inclusion; (5) Rebalancing and well-being.	22 Specific Objectives	48 Operational Objectives	77	(Regione Abruzzo 2024)
Bolzano (AP) (part of Trentino-South Tyrol AR)	July 2021	(1) Social Justice and equal opportunities; (2) Greenhouse gas emissions reduction; (3) Nature and Biodiversity; (4) Consumption, production and awareness; (5) Competitiveness of a circular economy; (6) Public services; (7) Transparency and justice.	–	75 Projects	220	(Provincia di Bolzano - Alto Adige 2021)
Calabria (R)	July 2024	(1) Tourism, Landscape, and Cultural, Architectural, and Archaeological Heritage; (2) Climate Change Mitigation, Energy, Natural Resources, and Circular Economy; (3) Labor Market, Employment, Education, Skills, and Inclusion; (4) Territorial Development and Quality of Life; (5) Research, Competitiveness, and Innovation; (6) Quality and Efficiency of Networks, Transport, and Logistics.	39 Specific Cross-cutting objectives	–	n.d.	(Regione Calabria 2024)
Campania (R)	March 2023	(1) Job and inclusion; (2) Development; (3) Communities and Territories; (4) Environment, Climate and Energy; (5) Transport and Mobility; (6) Digital innovation; (7) Efficiency.	39 Cross-cutting objectives	–	n.d.	(Regione Campania 2023)
Emilia-Romagna (R)	August 2021	(1) Knowledge and know-how; (2) Ecological transition; (3) Rights and duties; (4) Work, businesses, and opportunities.	–	4 Cross-sectoral processes 200 Strategic Lines of Intervention	99	(Regione Emilia-Romagna 2021)
Friuli Venezia Giulia (AR)	February 2023	(1) People; (2) Planet; (3) Prosperity; (4) Peace.	12 Macro-Areas: (1) Resources and Biodiversity; (2) Climate Change and Energy Transition; (3) Territorial Resilience; (4) Mobility and Logistics; (5) Tourism; (6) Circular Economy; (7) Productive Systems; (8) Education and Training; (9) Digitalization; (10) Cultural Heritage and Activities; (11) Inclusivity; (12) Public Health.	37 Lines and Sub-lines of Intervention	55	(Regione Friuli Venezia Giulia 2023)
Lazio (R)	March 2021	(1) Climate change and water resources; (2) Sustainable Mobility; (3) Sea Economy; (4) Smart Cities; (5) Circular Economy; (6) Poverty; (7) Education.	–	141 Actions	100	(Regione Lazio 2021)
Liguria (R)	June 2023 (First version: 2021)	(1) People; (2) Planet; (3) Prosperity; (4) Peace.	13 Strategic Choices	–	111	(Regione Liguria 2023)
Lombardia (R)	January 2023 (First version: June 2022)	(1) Health, equality, inclusion; (2) Education, training, work; (3) Development and innovation, city, territory, and infrastructure; (4) Mitigation of Climate Change, Energy, Production, and Consumption; (5) Eco-landscape system, adaptation to climate change, agriculture.	49 Strategic Objectives 26 Areas of intervention 97 Strategic Objectives	–	204	(Regione Lombardia 2022)
Marche (R)	December 2021	(1) Resilience; (2) Climate change; (3) Ecosystem services; (4) Equity; (5) Sustainable Economic Development.	19 Objectives	59 Actions	98	(Regione Marche 2021)

(Continued)

Table 2. Continued.

Government Region (R)/Aut. Province/ Region (AP/AR)	Date	I level Macro areas/Strategic objectives	II level / III Level Sub macro-areas/Strategic choices and objectives	Implementation	Indicators	Source
Molise (R)	July 2022	4 Macro-areas: (1) Smarter; (2) Greener; (3) More connected; (4) More social; (5) Closer to citizens.	7 Strategic Choices: (1) More competitive; (2) Greener; (3) More Connected; (4) More Sustainable; (5) Closer to Citizens; (6) More resilient; (7) More Social. 74 Objectives 27 Priorities 100 Strategic Objectives	157 Actions	28	(Regione Molise 2022)
Piemonte (R)	July 2022	(1) Productive system (Prosperity); (2) Energy and climate change (Prosperity); (3) Cultural and environmental heritage and resilience (Planet); (4) New job skills (Prosperity); (5) Well-being (People); (6) Discrimination, inequalities, illegality (Peace); (7) Health (People).	18 Strategic Choices	354 Lines of action	185	(Regione Piemonte 2022)
Puglia (R)	September 2023	(1) Competitiveness; (2) Work; (3) Technology and Innovation; (4) Knowledge; (5) Equality and participation; (6) Culture and Tourism; (7) Leave no one behind; (8) Health; (9) Climate and green and sustainable economy.	34 Strategic Objectives 104 Lines of intervention	72 Objectives	234	(Regione Puglia 2023)
Sardinia (AR)	October 2021	(1) Smarter; (2) Greener; (3) More connected; (4) More social; (5) Closer to citizens.	40 Specific Objectives	571 Actions	107	(Regione Autonoma della Sardegna 2021)
Sicily (AR)	September 2023	(1) Competitiveness, research, innovation, digital; (2) Environment, natural resources, energy and climate; (3) Work, education, inclusion and protection; (4) Accessibility, transport and mobility; (5) Urban and territorial quality; (6) Efficiency and administrative capacity.	–	–	309	(Regione Sicilia 2023)
Toscana (R)	December 2024 (First version 2020)	(1) People; (2) Planet; (3) Prosperity; (4) Peace; (5) Partnership.	16 Strategic Choices	29 Regional Projects 158 Specific Objectives	15	(Regione Toscana 2024)
Trento (AP) (part of Trentino -South Tyrol AR)	October 2021	(1) Smarter; (2) Greener; (3) More connected; (4) More social; (5) Closer to citizens.	20 Objectives	508 Actions	119	(Provincia Autonoma di Trento 2021)
Umbria (R)	February 2023	(1) People; (2) Planet; (3) Prosperity; (4) Peace.	15 Policy Priorities 46 Strategic Objectives	203 Actions	83	(Regione Umbria 2023)
Valle d'Aosta (AR)	January 2023	(1) Smarter; (2) Greener; (3) More connected; (4) More social; (5) Closer to citizens.	16 Areas of Intervention 46 Strategic Guidelines (directions)	–	107	(Regione Autonoma della Valle d'Aosta 2023)
Veneto (R)	July 2020	(1) Resilience; (2) Innovation; (3) Well-being; (4) Attractivity; (5) Natural Capital; (6) Governance.	39 Lines of Action	101 Plans, Programs, and Actions	120	(Regione Veneto 2020)

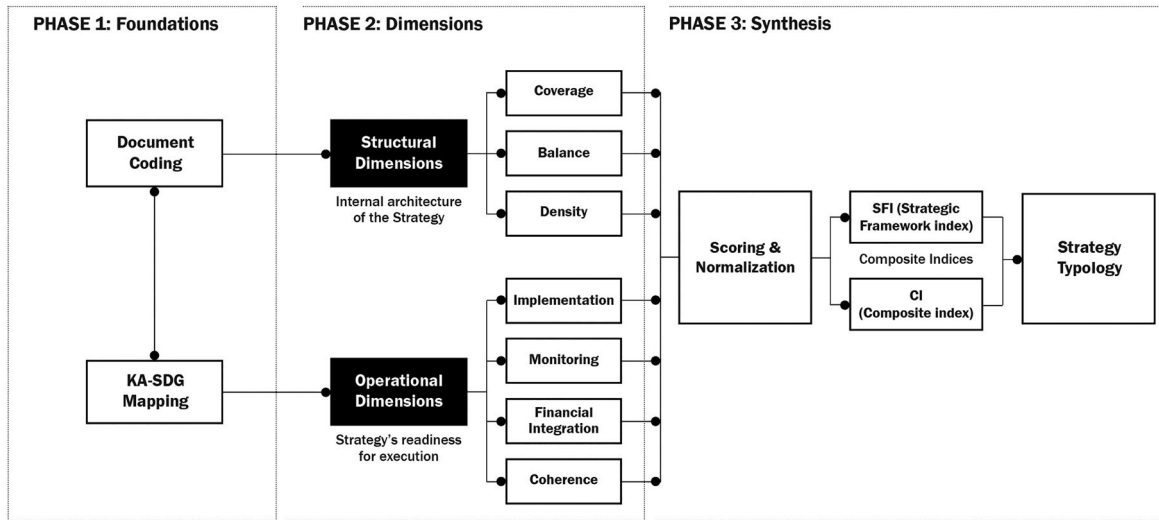


Figure 2. Workflow of the analytical framework linking SSD coding, indices, and typology.

Table 3. Checklist of coding questions and scoring rules.

Dimension	Guiding questions	Scoring rules (see Section 3.4)
(Cov) Coverage	Do the Key Areas explicitly cover the SDGs?	Increases with the number of SDGs explicitly linked to KAs (broader SDG inclusion → higher score).
(Bal) Balance	Are SDG linkages evenly distributed across KAs?	Higher when SDG references are less concentrated and no small subset dominates (more even distribution → higher score).
(Den) Density	How systematic is the KA-SDG mapping?	Higher when explicit KA-SDG linkages are more frequent relative to the maximum possible links (denser mapping → higher score).
(Imp) Implementation	- Are concrete actions/projects included? - Are responsibilities, timelines, or budgets specified? - Is participatory governance foreseen?	Higher when operational elements are clearly specified; intermediate for partial specification; lower when largely absent.
(Mon) Monitoring	- Are indicators explicitly linked to SDGs? - Are baselines, targets, and updates provided? - Are monitoring results publicly available?	Higher when monitoring architecture is complete and explicit; intermediate when partial; lower when weak/absent.
(Fin) Financial integration	- Are sustainability objectives linked to regional budgets? - Are SSDs connected to EU or national funding streams? - Is financial alignment institutionalized?	Higher when financial linkages and routines are explicit; intermediate when partial; lower when absent/unclear.
(Coh) Internal coherence	- Do Objectives derive from KAs? - Are Actions aligned with Objectives? - Are Indicators linked to Objectives?	Higher when the vertical logic (KAs → objectives → actions → indicators) is explicit and consistent; intermediate when partial; lower when weak/inconsistent.

• *Balance (Bal)* measures the evenness of SDG linkages across KAs, identifying dominance patterns whereby a small subset of goals disproportionately shapes the strategy. For each SSD, the number of KAs linked to each SDG was counted (SDG_{links}) and the mean linkage across SDGs was computed:

$$\mu = mean(SDG_{links})$$

The relative dominance ratio was defined as:

$$R_{max} = \frac{\max(SDG_{links})}{\mu}$$

and the number of dominant SDGs as those exceeding a threshold of 1.5μ .

$$N_{dom} = \#\{SDG_i \mid SDG_{links_i} \geq 1.5\mu\}$$

The balanced score decreased continuously from 90 (perfect balance $R_{\max}=1$) to 35 ($R_{\max} \geq 2$), with discrete penalties based on the number of dominant SDGs. This calibration ensures that Bal is within the 20–90 range:

$$Bal = 90 - 55 \cdot \min(R_{\max} - 1, 1) - \text{penalty}(N_{dom})$$

where:

$$\text{penalty} = 0 \text{ if } N_{dom} = 0, \text{ or } N_{dom} \geq 3;$$

$$\text{penalty} = 10 \text{ if } N_{dom} = 1$$

$$\text{penalty} = 15 \text{ if } N_{dom} = 2$$

Bal was normalized as:

$$Bal_{norm} = \frac{Bal - 20}{70}$$

As a robustness check, normalized Cov and Bal were also expressed as z-scores (relative to the national mean and standard deviation) and averaged to obtain a standardized Cov metric:

$$zCov = \frac{Cov_{norm} - \mu_{cov}}{\sigma_{Cov}}; zBal = \frac{Bal_{norm} - \mu_{Bal}}{\sigma_{Bal}}$$

$$Cov \& Bal_{Synt} = \frac{zCov + zBal}{2}$$

Positive values indicate above-average performance on the combined framing metric.

- *Density (Den)* measures the intensity of KA–SDG mapping as the share of realized KA–SDG links over the maximum possible links (number of KAs $\times$ 17 SDGs), thereby distinguishing sporadic from systematic SDG framing. Den was computed directly on a 0–1 scale as:

$$Den = \frac{Links_{tot}}{17 \cdot N_{KA}}$$

- *Implementation, Monitoring, Financial Integration (Imp, Mon, Fin)* were scored on a 20–90 scale, selected to avoid absolute extremes (0 or 100) that would imply either complete absence or perfect integration. Within each dimension, item scores were aggregated and then linearly rescaled to 0–1 as:

$$Score_{norm} = \frac{Score - 20}{70}$$

- *Internal coherence (Coh)* assesses vertical logic across the strategy by coding three linkages: whether Objectives derive logically from KAs, whether Actions are aligned with Objectives, and whether Indicators are linked to Objectives. Each linkage was coded on a 0–2 scale. The overall score ranges from 0 to 6 and was normalized to 0–1 as:

$$Coh_{norm} = \frac{Coh}{6}$$

We operationalized each dimension through the guiding questions reported in Table 3. Coders applied the scoring rules consistently across all 20 SSDs. For Imp, Mon, and Fin, qualitative judgments

(Yes, Partial, No) were directly converted into numerical ranges using the 20–90 scale. For Cov and Bal, the coders recorded explicit KA-SDG linkages and then applied the formulas described above. Coh was coded by assigning 0–2 points to each linkage (from KAs to Objectives, from Objectives to Actions, and from Actions to Indicators), yielding a score from 0–6. All raw scores were then normalized to a 0–1 scale to ensure comparability across dimensions.

Comparative analysis, composite indicators, and typology

We aggregated the coded dataset to provide a comparative overview of subnational SSDs, distinguishing between SDG framing (how SDGs are mapped in the strategy architecture) and operational maturity (how the strategy is equipped for implementation).

- SFI captures qualitative differences in the explicit KA-SDG mapping by combining three structural dimensions: (1) SDG coverage (breadth), (2) linkage balance (distribution across goals), and (3) linkage density (mapping intensity). Given the limited variance observed in Cov, a weighted aggregation mitigates ceiling effects:

$$SFI\ Index = 0.2 \times Cov_{norm} + 0.4 \times Bal_{norm} + 0.4 \times Den$$

- The CIs assess the operational maturity of the SSDs through four implementation-oriented dimensions—Imp, Mon, Fin, and Coh—aggregated into a CI, computed as their arithmetic mean:

$$CI = \frac{Imp_{norm} + Mon_{norm} + Fin_{norm} + Coh_{norm}}{4}$$

CI provides a continuous measure of the robustness and institutionalization of the governance architecture supporting implementation.

- Typology of maturity categories. To complement CI, we classified SSDs into three maturity categories—aspirational, structured, and integrated—reflecting different levels of operational readiness and institutional maturity. Importantly, the typology does not correspond mechanically to CI values. Classification is based on a combined rule that considers both (1) overall performance (the CI average) and (2) minimum acceptable levels in each operational dimension, thus preventing high averages from masking critical weaknesses in a single dimension.

We defined the categories as follows: Integrated: $CI \geq 0.75$ and $\min(Imp, Mon, Fin, Coh) \geq 0.55$; Structured: $CI \geq 0.50$ and $\min(Imp, Mon, Fin, Coh) \geq 0.30$; and Aspirational otherwise.

Under this framework, CI provides a continuous metric of operational robustness, while the typology captures qualitatively meaningful maturity levels by combining average performance with minimum-threshold conditions. Together, these two layers support a nuanced comparative assessment, highlighting both the relative positioning of each territory and the specific bottlenecks—implementation, monitoring, financial alignment, or coherence—that shape the localization of the 2030 Agenda at the subnational level.

Results

The Italian national mandate has produced a unique, comprehensive corpus of comparable SSDs, yet design quality and operational depth vary markedly across territories. Most strategies reference the 2030 Agenda but differ in how far they translate commitments into implementable actions, indicators, and institutionalized governance arrangements. Strategies also adopt heterogeneous organizing frameworks and KA structures, reflecting contextual tailoring and uneven cross-sectoral coordination capacity (Table 2). SDG framing: coverage, balance, and density.

Across the 19 SSDs providing explicit KA-SDG mappings, 118 KAs were linked to the 17 SDGs. SDG 11, SDG 8, and SDG 9 are the most frequently referenced and account for more than half of all KA-SDG associations, while SDG 6, SDG 14, and SDG 17 remain marginal, each appearing in fewer than 30% of KAs (Figure 3). Coverage is generally high, with limited variance (mostly > 0.90;

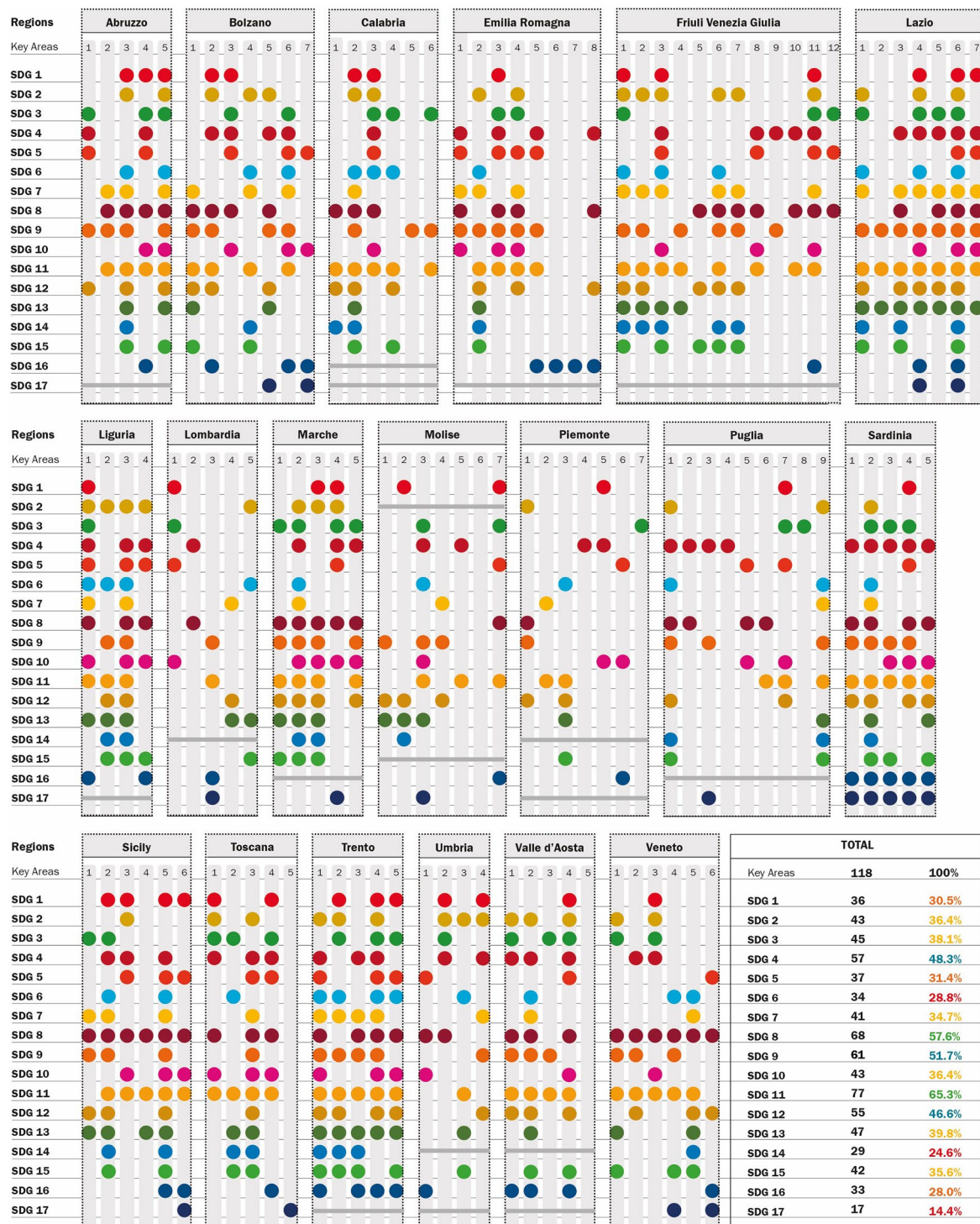


Figure 3. Interrelations between SDGs and Italian subnational strategies: associations of each SDG with Key strategic macro-areas (colored dots), and their overall relevance in absolute numbers and percentages.
 Note: No correlations are reported for Campania.

0.85 in Calabria, Molise, Piemonte, Umbria, and Valle d'Aosta). We were not able to score Campania because the region did not provide explicit KA-SDG linkages.

By contrast, the structure of SDG integration varies sharply. Bal ranges from relatively even distributions (Bolzano and Trento ≈ 0.62 – 0.65) to strong thematic concentration (Lombardia, Friuli Venezia Giulia, Sicilia, and Veneto ≈ 0.00 – 0.05), with Lazio and Sardegna in intermediate positions (Table 4; Figure 4). Den further differentiates strategies by capturing how systematic SDG mapping

Table 4. SDG Framing Index (SFI): subnational scores for Coverage, Balance, and Density (0–1), the resulting composite index (SFI), and standardized SFI z-scores (relative to the national mean).

Region/Province	Coverage	Balance	Density	SFI	SFI z-score
Abruzzo	0.92	0.18	0.45	0.44	−0.02
Bolzano	1.00	0.62	0.39	0.60	1.50
Calabria	0.85	0.14	0.32	0.36	−0.81
Campania	–	–	–	–	–
Emilia-Romagna	0.92	0.16	0.32	0.38	−0.51
Friuli Venezia Giulia	0.92	0.05	0.36	0.35	−0.76
Lazio	1.00	0.38	0.58	0.58	1.32
Liguria	0.92	0.26	0.59	0.52	0.69
Lombardia	0.92	0.00	0.20	0.26	−1.43
Marche	0.92	0.24	0.53	0.49	0.44
Molise	0.85	0.18	0.22	0.33	−1.05
Piemonte	0.85	0.32	0.16	0.36	−0.75
Puglia	0.92	0.21	0.22	0.36	−0.65
Sardegna	1.00	0.42	0.58	0.60	1.45
Sicilia	1.00	0.00	0.47	0.39	−0.29
Toscana	1.00	0.21	0.40	0.45	0.18
Trento	0.92	0.65	0.69	0.72	2.35
Umbria	0.85	0.21	0.29	0.37	−0.67
Valle d'Aosta	0.85	0.21	0.39	0.41	−0.36
Veneto	1.00	0.00	0.37	0.35	−0.61

Note: Campania is excluded from SFI calculations because the region's strategy does not report explicit KA-SDG mappings; SFI z-scores are standardized across the scored SSDs ($n = 19$).

is across KAs, ranging from very sparse mappings (e.g., Piemonte 0.16; Lombardia 0.20; Molise/Puglia ≈ 0.22) to dense, systematic ones (e.g., Trento 0.69; Liguria 0.59; Lazio/Sardegna 0.58). Overall, nominal SDG coverage is widespread, whereas integrated framing depends primarily on balance and density rather than breadth alone. Consistently, the SFI identifies Trento as the strongest case, followed by Bolzano, Sardegna, and Lazio, while Lombardia—and, to a lesser extent, Veneto and Friuli Venezia Giulia—exhibits weaker framing integration despite high coverage (Table 4). Overall, high nominal coverage is widespread, while integrated framing is driven primarily by balance and density rather than breadth alone. SFI z-scores (relative to the national mean) corroborate this pattern: Trento emerges as a positive outlier ($z = 2.35$), followed by Bolzano ($z = 1.50$), Sardegna ($z = 1.45$), and Lazio ($z = 1.32$), while Lombardia shows the weakest framing integration ($z = -1.43$) despite high coverage.

Completeness index: implementation, monitoring, financial integration, and internal coherence

The four operational dimensions underpinning the CI show substantial dispersion and reveal different “profiles” of localization (Table 5; Figure 4). Implementation provisions range from extensive action portfolios (e.g., Sardinia, Umbria, Trento, Piemonte) to strategies that largely rely on high-level orientations or existing sectoral programs (e.g., Campania, Sicilia). Intermediate cases specify responsibilities but provide limited temporal/financial detail, resulting in partial operationalization.

Monitoring is a major axis of differentiation. Emilia-Romagna (0.97), Sardegna (0.95), Bolzano (0.93), Umbria (0.90), and Trento (0.86) stand out for robust indicator architectures and clearer dissemination routines, often supported by dedicated data infrastructures (e.g., Emilia-Romagna's annual SDG monitoring report with quantified targets; Umbria's ISTAT-SDG/BES-aligned indicator baseline; Sardegna's structured SDG indicator set linked to periodic implementation reporting; Trento's SproSS dashboard; Bolzano's ASTAT SDG Tracker supported by ISPAT's SIIS platform). Lombardia (0.79), in particular, is strengthening its monitoring architecture through the INTEGRA project (Integrated Territorial Governance for Regional Sustainability Monitoring), which aims to consolidate SDG-aligned indicators and improve interoperability and update routines (Regione Lombardia 2023). Calabria (0.62) shows an intermediate score, with recent efforts to improve transparency through the S4 digital platform, although full routinization remains in progress. Monitoring remains weak in several cases (e.g., Puglia 0.36; Valle d'Aosta 0.40; Sicilia and Campania 0.29), where indicator linkages and update cycles are partial or underspecified.

Financial integration is uneven and frequently represents a binding constraint, as sustainability objectives are not consistently connected to core financial programming instruments (e.g., DEFR),

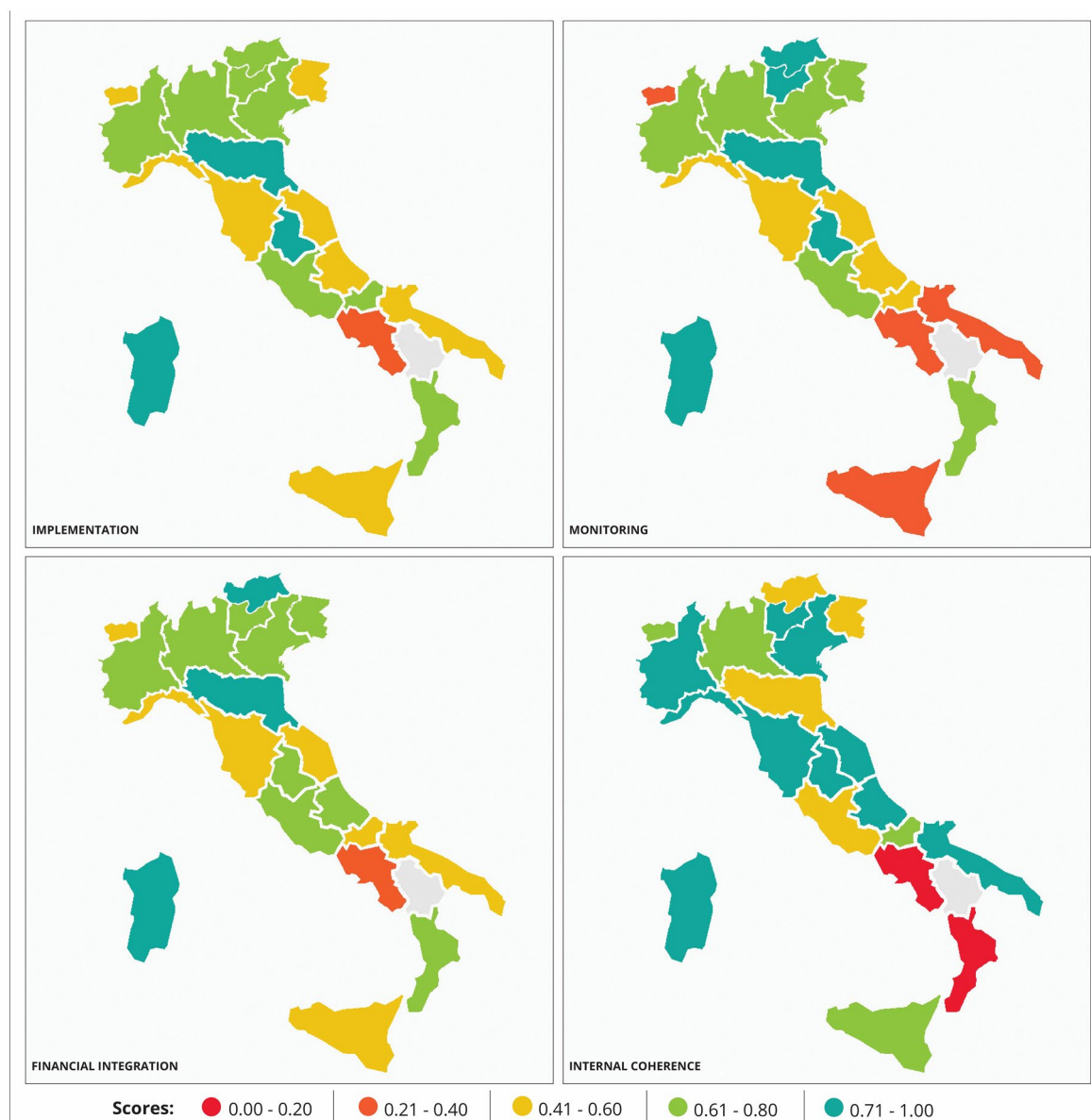


Figure 4. Maps of implementation, monitoring, financial integration, and internal coherence scores (0–1).

EU funds, or national streams (e.g., Italy's Recovery and Resilience Plan (PNRR)). The strongest alignments are found in Sardegna (0.98) and Emilia-Romagna (0.90), where objectives are systematically connected to programming cycles through explicit funding-mapping devices (e.g., Sardegna's matrices linking strategic lines to funding sources) and coordination routines. A second group around 0.79 (Bolzano, Piemonte, Trento, Lombardia) shows more selective but still traceable linkages to budgetary and cohesion/sectoral instruments. Umbria (0.74) also displays structured alignment supported by matrices linking objectives to DEFR/PNRR/cohesion programming. Conversely, several strategies remain weakly linked to budgeting and programming processes (e.g., Campania 0.40; Puglia 0.43; Liguria/Sicilia/Valle d'Aosta 0.45), constraining feasibility and weakening accountability.

Internal coherence is decisive for whether SSDs function as governance instruments rather than compilations of commitments. High-coherence cases (Coh = 1.00 in several SSDs) exhibit explicit vertical logic linking KAs, objectives, actions, and indicators. High coherence is necessary but not sufficient for operational maturity, as logically aligned architectures may coexist with limited implementation, monitoring, or financial integration. By contrast, very low coherence in Calabria and Campania (both 0.08) signals a fragmented architecture in which actions and indicators are not systematically anchored to objectives, undermining evaluability and weakening accountability. Bolzano

(0.42) is also noteworthy: despite high monitoring and financial integration, coherence is lower, suggesting that key components exist but are not fully connected through a traceable vertical chain.

The CI ranges from 0.29 (Campania) to 0.98 (Sardegna), confirming substantial cross-territorial variation in operational maturity (Table 5; Figure 5). Applying the predefined threshold rules yields three maturity categories: Integrated ($n=6$), Structured ($n=11$), and Aspirational ($n=3$). Integrated strategies (Sardegna, Trento, Umbria, Emilia-Romagna, Piemonte, and Veneto) combine high overall maturity with no critical weakness across the four operational dimensions. Structured strategies meet minimum completeness requirements but exhibit bottlenecks—most commonly in monitoring routines, financial linkage, or vertical coherence—highlighting persistent institutional asymmetries even among comparatively developed strategies. Aspirational strategies (Campania, Sicilia, and Calabria) remain predominantly programmatic or institutionally fragmented.

Figure 6 complements these findings by showing that SDG framing and operational maturity are only partially aligned. Several territories combine relatively high CI with weaker SDG framing (e.g., concentrated or sparse KA-SDG mappings), indicating that implementable governance architectures may coexist with selective SDG integration in strategic framing. Conversely, cases such as Trento—and at high levels, Sardegna—combine strong framing integration with high operational maturity, suggesting more fully integrated localization pathways in which SDG mapping and governance architecture reinforce each other.

Discussion

The comparative analysis of Italian SSDs highlights a decentralized policy landscape characterized by both institutional innovation and persistent operational constraints. While SDG uptake is now widespread across regions and autonomous provinces, the analysis documents substantial variation in how strategies frame the SDGs (coverage, balance, density) and, more importantly, in the extent to which they embed SDG localization within implementable governance architectures (implementation provisions, monitoring systems, financial integration, and internal coherence).

The first implication concerns the distinction between formal alignment and integrated framing. High SDG coverage is nearly universal, yet the mapping of SDGs into strategy architectures remains selectively structured: economic and territorial development priorities (notably SDG 11, SDG 8, and SDG 9) dominate KA-SDG associations, while water- and ecosystem-related goals and partnership-oriented commitments (e.g., SDG 6, SDG 14, and SDG 17) are comparatively marginal. This pattern suggests that, in many cases, SDGs are incorporated as a broad reference set but not consistently used as a balanced organizing logic across strategic areas.

Table 5. Completeness Index (CI): subnational scores for implementation, monitoring, financial integration, and internal coherence (0–1), the resulting CI, and the maturity typology.

Region/Province	Imp	Mon	Fin	Coh	CI	Typology
Sardegna	1.00	0.95	0.98	1.00	0.98	Integrated
Trento	0.79	0.86	0.79	1.00	0.86	Integrated
Umbria	0.88	0.90	0.74	0.83	0.84	Integrated
Emilia-Romagna	0.81	0.97	0.90	0.58	0.82	Integrated
Piemonte	0.76	0.69	0.79	1.00	0.81	Integrated
Veneto	0.71	0.67	0.71	1.00	0.77	Integrated
Lombardia	0.71	0.79	0.79	0.67	0.74	Structured
Bolzano	0.74	0.93	0.83	0.42	0.73	Structured
Marche	0.60	0.55	0.57	1.00	0.68	Structured
Abruzzo	0.55	0.55	0.62	0.92	0.66	Structured
Lazio	0.71	0.64	0.69	0.50	0.64	Structured
Toscana	0.45	0.50	0.57	1.00	0.63	Structured
Liguria	0.57	0.48	0.45	0.83	0.58	Structured
Friuli Venezia Giulia	0.60	0.64	0.62	0.42	0.57	Structured
Molise	0.64	0.48	0.50	0.67	0.57	Structured
Puglia	0.45	0.36	0.43	1.00	0.56	Structured
Valle d'Aosta	0.52	0.40	0.45	0.67	0.51	Structured
Calabria	0.64	0.62	0.71	0.08	0.51	Aspirational
Sicilia	0.48	0.29	0.45	0.67	0.47	Aspirational
Campania	0.40	0.29	0.40	0.08	0.29	Aspirational



Figure 5. Maps of Completeness Index (CI) and SSDs typologies.

Second, differences in operational maturity are largely driven by the “hard” dimensions of governance, monitoring routines, and financial linkage. Regions scoring lower in these dimensions systematically display lower CIs, supporting the explanatory value of the framework: where indicators, baselines/targets, reporting cycles, and budget/programming connections are under-specified, SSDs tend to remain weakly actionable regardless of their rhetorical ambition. Several strategies risk remaining at the level of discursive adoption—without being embedded in budgeting and accountability routines—raising the risk of symbolic alignment (“SDG-washing”).

Third, observed heterogeneity plausibly reflects both structural conditions and strategic-institutional choices. Structural territorial disparities documented by OECD (2020b) and ISTAT (2023) may constrain monitoring capacity, budget integration, and cross-sectoral coordination, contributing to uneven operational maturity. At the same time, variation cannot be reduced to preexisting conditions alone: it also captures different conceptions of what an SSD is expected to do, ranging from an instrument for cross-sectoral coordination and administrative innovation to a high-level framework primarily intended to align existing plans.

Fourth, the typology derived from the CI clarifies the spectrum of institutionalization: integrated strategies embed SDG localization within more coherent implementation, monitoring, and (at least partial) financial routines; structured strategies show meaningful progress but retain identifiable bottlenecks in one or more operational dimensions; aspirational strategies remain predominantly programmatic or institutionally fragmented. From a governance standpoint, the main risk is that, in the

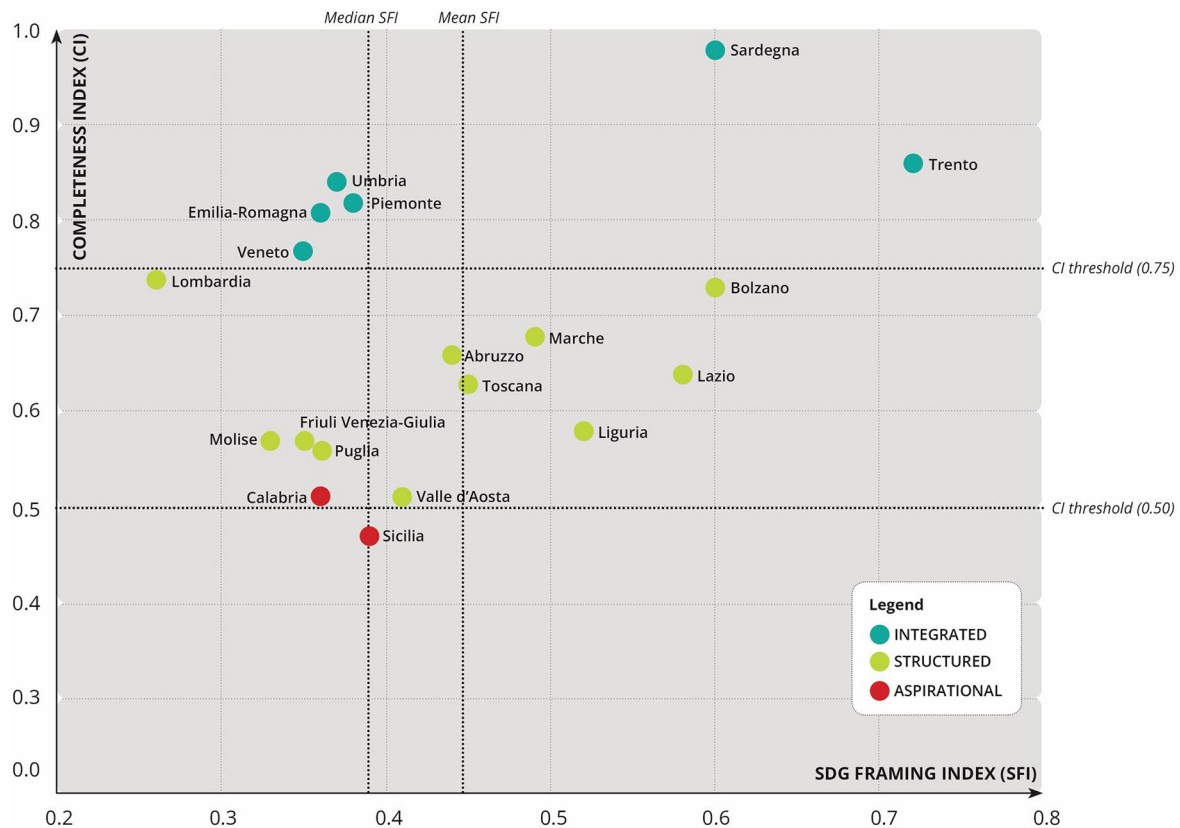


Figure 6. SDG Framing Index (SFI) versus Completeness Index (CI) for Italian SSDs, colored by maturity typology.

Notes: Horizontal lines indicate CI thresholds (0.50; 0.75); vertical lines indicate mean and median SFI. Campania is excluded due to missing explicit KA-0SDG mappings.

absence of monitoring routines and budget/programming linkage, localization may remain symbolic, with limited leverage over resource allocation and accountability.

Fifth, these findings have direct relevance for the governance of sustainability-related investments under the European Commission's NextGenerationEU post-pandemic economic recovery package (NGEU) for the 2021–2026 period and Italy's National Recovery and Resilience Plan (PNRR), which operationalizes NGEU-funded reforms and investments at the national level. While this study does not analyze funding allocations or causal relationships between NGEU resources and sustainability outcomes, the observed variation suggests that governance features captured by the CI—particularly monitoring capacity and the traceability of objectives into programming and budgeting cycles—may condition how effectively regional institutions govern, implement, and report NGEU/PNRR investments. Strengthening monitoring routines and budget/programming linkages within SSDs can therefore enhance the accountability of regional administrations and improve their capacity to track the contribution of NGEU/PNRR-related actions to SDG localization across territories.

Moreover, the results help interpret an empirical pattern highlighted in recent assessments of territorial SDG performance: some Southern regions display comparatively satisfactory sustainability performance despite receiving a relatively lower allocation of NGEU resources. Although this study does not evaluate funding distribution, the evidence suggests that such outcomes may be linked less to the volume of financial transfers and more to governance characteristics captured by the CI—such as clearer strategic integration, more routinized monitoring practices, and stronger alignment with existing EU programming instruments. These institutional features can partially offset funding asymmetries, reinforcing the idea that strategic coherence and administrative capacity remain critical determinants of SDG operationalization in the NGEU/PNRR context.

Finally, the Italian case offers broader lessons for multilevel governance. The national mandate has acted as a catalyst for territorial engagement, but uneven strategy quality indicates that mandates

alone are insufficient. Stronger vertical support is required—technical assistance, statistical capacity-building, and shared monitoring templates—alongside mechanisms for horizontal learning across regions and autonomous provinces. Without these enabling conditions, decentralized localization may reproduce institutional asymmetries, limiting comparability, mutual learning, and convergence.

Regarding the limitations of this study, we highlight three. First, the assessment is based on document analysis and captures only what is formally reported in official SSD texts; consequently, strategies may be underestimated where operational arrangements exist in practice but are not documented (or are reported in ancillary acts not included in the corpus). Second, the CI measures the maturity of governance and accountability architectures (implementation provisions, monitoring, financial alignment, and internal coherence) rather than the actual execution of measures or SDG outcomes, which depend on subsequent political, administrative, and fiscal dynamics. Third, although the coding protocol is guided by transparent rules to enhance replicability, some interpretive judgment remains, especially for implementation-oriented dimensions. Future research could strengthen reliability through systematic double-coding and by triangulating document-based scores with interviews and independent evidence on implementation, monitoring routines, and budget execution.

Conclusions and policy implications

The analysis of Italy's SSDs provides a comprehensive account of how the 2030 Agenda is being localized within a highly decentralized system. Adoption is now universal across regions and autonomous provinces; however, the quality of SDG integration and the operational maturity of strategies vary substantially. This variation reflects both the opportunities and the inherent tensions involved in translating a global framework into territorially grounded policy architectures.

First, SDG localization in Italy remains selective in its substantive framing. Economic and urban development dimensions are consistently emphasized, while equity-related goals and partnerships receive less systematic attention. The prominence of SDG 8 (Decent Work and Economic Growth) and SDG 11 (Sustainable Cities and Communities) points to the centrality of growth-oriented and territorial resilience agendas, while the relative marginalization of SDGs 1 (No Poverty), 5 (Gender Equality), and 17 (Partnerships) suggests weaker coverage of distributive and collaborative dimensions. This pattern is broadly consistent with international evidence that the SDGs are frequently filtered through local policy priorities, which can create blind spots in the overall sustainability narrative.

Second, territorial heterogeneity matters, but not in a deterministic way. Differences in administrative capacity, fiscal space, and demographic pressures plausibly shape the ability of regions to build monitoring systems, integrate budgets, and coordinate cross-sectoral action. At the same time, strategies also reflect institutional choices about their intended function. In some territories, SSDs are used as coordination devices and levers for administrative innovation, while elsewhere they operate mainly as high-level frameworks to align existing plans. This reinforces the need to interpret SSDs not only as outputs of territorial conditions but also as artifacts of strategic learning and institutionalization.

Third, degrees of institutionalization vary substantially. The typology developed in this study—*aspirational, structured, and integrated*—captures a spectrum ranging from symbolic alignment with limited operational components through partially developed governance architectures to strategies that more consistently connect objectives, implementation provisions, monitoring routines, and (at least partial) financial linkages. Although grounded in the Italian case, the typology and the associated coding framework offer a transferable basis for comparative assessments in other decentralized contexts.

Across the operational dimensions, the most persistent bottlenecks concern monitoring and financial integration. Only a minority of SSDs is systematically linked to budgeting and programming instruments and supported by robust, routinized indicator systems. Where these elements are absent or underspecified, strategies risk remaining largely declaratory. Conversely, cases such as Emilia-Romagna, Trento, and Sardegna illustrate that higher levels of integration are feasible when supported by

dedicated monitoring infrastructures, clearer governance responsibilities, and stronger connections to planning and funding cycles.

Policy implications follow directly. First, European and national institutions—particularly the European Commission, the Italian central government, and national technical agencies—should strengthen support mechanisms to prevent capacity asymmetries from translating into systematically weaker localization through targeted technical assistance, statistical capacity-building, and differentiated support for structurally weaker territories. Second, regional administrations should institutionalize financial integration more explicitly within SSDs by linking strategic priorities to budget cycles and to EU and national funding streams. Third, national statistical institutions and regional administrations should further harmonize monitoring architectures to enable comparability and accountability, including shared minimum requirements for baselines, targets, update cycles, and public reporting, potentially building on established national statistical frameworks. Fourth, regional governments should move participation beyond episodic consultation by creating institutional arrangements that sustain implementation over time and broaden ownership across civil society, academia, and the private sector. Where participation is institutionalized through stable platforms, it tends to sustain implementation momentum and reinforce accountability through iterative feedback and cross-sectoral coordination; where it remains episodic, its contribution to strategy execution is more limited. Finally, structured horizontal learning platforms would help diffuse practices from leading regions and autonomous provinces and reduce fragmentation in design quality.

From a broader governance perspective, the Italian experience contributes to debates on multilevel sustainability governance by showing how global frameworks are reinterpreted locally and by highlighting the role of capacity asymmetries and institutional design in shaping operational maturity. The observed variation can also be read as an uneven process of institutional learning and adaptation, through which administrations progressively internalize SDG principles and translate them into context-specific governance arrangements.

Despite these constraints, Italy's experience provides a clear lesson: mandates can catalyze engagement, but effectiveness depends on the supporting infrastructure of monitoring, budgeting, and coordination. As the 2030 deadline approaches, the credibility of SDG implementation will increasingly hinge on subnational delivery. Italian SSDs demonstrate both what is achievable and where persistent gaps remain. Strengthening operational linkages and scaling transferable practices can increase the likelihood that SSDs function as transformative governance instruments rather than symbolic exercises.

Author Contributions

CRedit: Conceptualization, V.S.; methodology, V.S.; formal analysis, V.S.; validation, V.S. and I.B.; investigation, V.S.; data curation, V.S.; writing—original draft preparation, V.S.; writing—review and editing, V.S. and I.B.; visualization, V.S. and I.B.; supervision, V.S.; funding acquisition, I.B.

Disclosure statement

The authors report there are no competing interests to declare.

Funding

This work has been funded by the Autonomous Region of Sardinia – Department of Planning, Budget, Credit and Land Management and the Regional Planning Center (CRP), through the research project: “Collaboration agreement for supporting project communities in developing sustainable mobility policies in urban and inland areas of Sardinia (Addendum rep. 44/2025)” [CUP E29I22001010002].

ORCID

Valeria Saiu  <http://orcid.org/0000-0003-2221-5814>

Ivan Blečić  <http://orcid.org/0000-0002-4446-6705>

References

- Allen, C., G. Metternicht, and T. Wiedmann. 2016. "National Pathways to the Sustainable Development Goals (SDGs): A Comparative Review of Scenario Modelling Tools." *Environmental Science & Policy* 66: 199–207. doi:10.1016/j.envsci.2016.09.008.
- Allen, C., G. Metternicht, and T. Wiedmann. 2018. "Initial Progress in Implementing the Sustainable Development Goals (SDGs): A Review of Evidence from Countries." *Sustainability Science* 13 (5): 1453–1467. doi:10.1007/s11625-018-0572-3.
- Asian Development Bank (ADB). 2023. *Snapshot of Sustainable Development Goals at the Subnational Government Level in Indonesia*. Manila: ADB. <https://www.adb.org/publications/snapshot-sdgs-subnational-government-indonesia>.
- ASviS. 2025. *Alleanza Italiana per lo Sviluppo Sostenibile (Italian Alliance for Sustainable Development)*. Rome: ASviS. <https://asvis.it>.
- Biermann, F., N. Kanie, and R. Kim. 2017. "Global Governance by Goal-Setting: The Novel Approach of the UN Sustainable Development Goals." *Current Opinion in Environmental Sustainability* 26–27: 26–31. doi:10.1016/j.cosust.2017.01.010.
- Biggeri, M., L. Bortolotti, A. Ferrannini, and D. Saccone. 2023. "China's Subnational Policies and the Performance of Provinces toward Meeting the UN's Sustainable Development Goals." *Regional Studies, Regional Science* 10 (1): 439–460. doi:10.1080/21681376.2023.2189455.
- Carlucci, F. 2023. "The Role of Italian Regional Strategies for Sustainable Development as Agents of Change toward More Liveable Cities for All." *Iconocrazia* 1 (23): 39–48. doi:10.15162/2240-760X/1843.
- Cavalli, L., S. Sanna, M. Alibegovic, F. Arras, G. Cocco, L. Farnia, E. Manca, et al. 2020. "The Contribution of the European Cohesion Policy to the 2030 Agenda: An Application to the Autonomous Region of Sardinia." *SSRN Electronic Journal*, October 8. doi:10.2139/ssrn.3706003.
- D'Adamo, I., M. Gastaldi, and P. Morone. 2022. "Economic Sustainable Development Goals: Assessments and Perspectives in Europe." *Journal of Cleaner Production* 354: 131730. doi:10.1016/j.jclepro.2022.131730.
- Dulak, M. 2023. "Contribution of Subnational Authorities to Multilateralism from the EU Perspective: Implementation of the SDGs." *Global Policy* 14 (S2): 13–21. doi:10.1111/1758-5899.13178.
- Economic Commission for Latin America and the Caribbean (ECLAC). 2025. *Territorialization of the Sustainable Development Goals in Latin America and the Caribbean: A Manual for Implementation of Voluntary Local Reviews at the Subnational Level*. Santiago: ECLAC. <https://www.cepal.org/en/publications/81387-territorialization-sustainable-development-goals-latin-america-and-caribbean>.
- European Commission Joint Research Centre (ECJRC). 2024. "SDG Mapper." Luxembourg: European Commission. <https://know-sdgs.jrc.ec.europa.eu/sdgmapper>
- Fuller, J., I. van Putten, M. Kraan, M. Björkan, and D. Dankel. 2024. "Sustainability Is Not a Vegan Coffee Shop: Eliciting Citizen Attitudes and Perspectives to Localize the UN Sustainable Development Goals." *Journal of Environmental Planning and Management* 67 (14): 3480–3501. doi:10.1080/09640568.2023.2223761.
- Geraghty, P. 2020. "Reflections on How the Implementation of Sustainable Development Goals across the UK and Ireland Can Influence the Mainstreaming of These Goals in English Planning Practice." *Town and Regional Planning* 77: 31–41. doi:10.18820/2415-0495/trp77i1.3.
- Global Taskforce of Local and Regional Governments (GTLRG). 2022. *Towards the Localisation of the SDGs: Local and Regional Governments Breaking Through for a Sustainable and Just Recovery*. Barcelona: GTLRG. https://gold.uclg.org/sites/default/files/hlpf_2022.pdf.
- Government of Spain. 2022. *Executive Summary of the Progress Report 2022 of the 2030 Sustainable Development Strategy*. Madrid: Government of Spain. <https://www.dsca.gob.es/sites/default/files/derechos-sociales/RE-IP22-EDS-2030Ingles.pdf>.
- Guerrero, O., G. Castañeda, G. Trujillo, L. Hackett, and F. Chávez-Juárez. 2022. "Subnational Sustainable Development: The Role of Vertical Intergovernmental Transfers in Reaching Multidimensional Goals." *Socio-Economic Planning Sciences* 83: 101155. doi:10.1016/j.seps.2021.101155.
- Haas, P. 1992. "Introduction: Epistemic Communities and International Policy Coordination." *International Organization* 46 (1): 1–35. doi:10.1017/S0020818300001442.
- Hidalgo, S., A. Siragusa, and P. Proietti. 2021. *SDG Localisation and Multi-Level Governance*. Luxembourg: Publications Office of the European Union. <https://op.europa.eu/en/publication-detail/-/publication/a6c9084b-b84c-11eb-8aca-01aa75ed71a1/language-en>.
- Italian Ministry for Environment, Land, and Sea Protection (MATTM). 2017. *Strategia Nazionale per lo Sviluppo Sostenibile (National Strategy for Sustainable Development)*. Rome: MATTM. https://www.mite.gov.it/sites/default/files/archivio_immagini/Galletti/Comunicati/snsvs_ottobre2017.pdf.
- Italian Ministry of the Environment and Energy Security (MASE). 2024. "Enabling Conditions for Sustainability: Localization, PCSD, Culture, Participation." Rome: MASE. <https://www.mase.gov.it/portale/enabling-conditions-for-sustainability-localization-pcsd-culture-participation>.
- Italian Ministry of the Environment and Energy Security (MASE). 2025a. *Strategie Territoriali Approvate (Approved Territorial Strategies)*. Rome: MASE. <https://www.mase.gov.it/pagina/strategie-territoriali-approvate>.

- Italian Ministry of the Environment and Energy Security (MASE). 2025b. *Strategie Regionali e Provinciali per lo Sviluppo Sostenibile (Regional and Provincial Strategies for Sustainable Development)*. Rome: MASE. <https://www.mite.gov.it/pagina/strategie-regionali-e-provinciali-lo-sviluppo-sostenibile>.
- Italian National Institute of Statistics (ISTAT). 2023. *Rapporto Annuale 2023: La Situazione del Paese (2023 Annual Report: The State of the Nation)*. <https://www.istat.it/produzione-editoriale/rapporto-annuale-2023-la-situazione-del-paese-2>
- Italian National Institute of Statistics (ISTAT). 2025. *Italian Population Data*. Rome: ISTAT http://dati.istat.it/Index.aspx?DataSetCode=DCIS_POPRES1.
- Jain, A., J. Courvisanos, and N. Subramaniam. 2021. "Localisation of the Sustainable Development Goals in an Emerging Nation." *Public Administration and Development* 41 (5): 231–243. doi:10.1002/pad.1960.
- Jönsson, K., and M. Bexell. 2021. "Localizing the Sustainable Development Goals: The Case of Tanzania." *Development Policy Review* 39 (2): 181–196. doi:10.1111/dpr.12497.
- Khussamov, R., E. Galiy, E. Anisimov, L. Ershova, and D. Nemkov. 2020. "National Strategies for Sustainable Development G-7: Trends 2010–2020." *E3S Web of Conferences* 208: 06015. doi:10.1051/e3sconf/202020806015.
- Krsnik, S., K. Erjavec, and M. Klopčič. 2022. "Impact of Citizens' Personal Values, Knowledge, Awareness, Informing, Advertising, and Truth of Environmental and Climate Challenges in Support of the Sustainable Development Goals." *Sustainability* 14 (12): 7333. doi:10.3390/su14127333.
- Lucci, P. 2015. *"Localising" the Post-2015 Agenda: What Does It Mean in Practice?* London: Overseas Development Institute.
- Mitlin, D., and D. Satterthwaite. 2013. *Urban Poverty in the Global South: Scale and Nature*. London: Routledge.
- Mohieldin, M., S. Wahba, M. Gonzalez-Perez, and M. Shehata. 2023. "The Role of Local and Regional Governments in the SDGs: The Localization Agenda." In *Business, Government and the SDGs: The Role of Public-Private Engagement in Building a Sustainable Future*, edited by M. Mohieldin, S. Wahba, M. Gonzalez-Perez, and M. Shehata, 105–137. Cham: Springer.
- Morton, S., D. Pencheon, and N. Squires. 2017. "Sustainable Development Goals (SDGs), and Their Implementation: A National Global Framework for Health, Development and Equity Needs a Systems Approach at Every Level." *British Medical Bulletin* 124 (1): 81–90. doi:10.1093/bmb/ldx031.
- Nilsson, M., D. Griggs, and M. Visbeck. 2016. "Policy: Map the Interactions between Sustainable Development Goals." *Nature* 534 (7607): 320–322. doi:10.1038/534320a.
- NITI Aayog. 2023. *SDG India Index Report 2023–24*. Delhi: Government of India. <https://sdgindiaindex.niti.gov.in/#>.
- Novovic, G. 2022. "Can Agenda 2030 Bring about 'Localization'? Policy Limitations of Agenda 2030 in the Broader Global Governance System." *Development Policy Review* 40 (4) doi:10.1111/dpr.12587.
- Open University. 2017. *Universal Goals, Devolved Powers: The Sustainable Development Goals and the UK's Response*. Milton Keynes: Open University. https://university.open.ac.uk/ikd/sites/www.open.ac.uk.ikd/files/files/SDG_report_FINAL.pdf.
- Organisation for Economic Co-operation and Development (OECD). 2019. *Policy Coherence for Sustainable Development 2019*. Paris: OECD. https://www.oecd.org/en/publications/policy-coherence-for-sustainable-development-2019_a90f851f-en.html.
- Organisation for Economic Co-operation and Development (OECD). 2020a. *A Territorial Approach to the Sustainable Development Goals: Synthesis Report*. Paris: OECD. https://www.oecd.org/en/publications/a-territorial-approach-to-the-sustainable-development-goals_e86fa715-en.html.
- Organisation for Economic Co-operation and Development (OECD). 2020b. *A Territorial Approach to the Sustainable Development Goals: Synthesis Report*. Paris: OECD. https://www.oecd.org/en/publications/a-territorial-approach-to-the-sustainable-development-goals_e86fa715-en.html.
- Organisation for Economic Co-operation and Development (OECD). 2020c. *A Territorial Approach to the Sustainable Development Goals in Flanders, Belgium*. https://www.oecd.org/en/publications/a-territorial-approach-to-the-sustainable-development-goals-in-flanders-belgium_cb4fb76b-en.html
- Organisation for Economic Co-operation and Development (OECD). 2023. *A Territorial Approach to the Sustainable Development Goals in Bolzano-Bozen, Italy*. https://www.oecd.org/en/publications/a-territorial-approach-to-the-sustainable-development-goals-in-bolzano-bozen-italy_fb8e8ee0-en.html
- Organisation for Economic Co-operation and Development (OECD). 2024a. *Localising the SDGs in a Changing Landscape*. Paris: OECD. https://www.oecd.org/en/publications/localising-the-sdgs-in-a-changing-landscape_a76810d7-en.html.
- Organisation for Economic Co-operation and Development (OECD). 2024b. *OECD Regions and Cities at a Glance 2024*. Paris: OECD. https://www.oecd.org/en/publications/oecd-regions-and-cities-at-a-glance-2024_f42db3bf-en.html.
- Ottobrini, C., and E. Rosenthal. 2024. "The SDSN Italia SDGs City Index for a Sustainable Italy: Where Are We in Achieving Full Sustainability?" SSRN, March 30. <https://papers.ssrn.com/abstract=4775772>
- Putra, A., H. Hasibuan, R. Tambunan, and L. Lautetu. 2024. "Integration of the Sustainable Development Goals into a Regional Development Plan in Indonesia." *Sustainability* 16 (23): 10235. doi:10.3390/su162310235.
- Raimo, N., V. L'Abate, A. Marrone, and F. Vitolla. 2025. "Toward Sustainable Cities: Assessing Drivers of SDG Performance in Italian Municipalities." *Sustainable Development* 33 (1): 554–564. doi:10.1002/sd.3141.

- Rat für nachhaltige Entwicklung (German Council for Sustainable Development, RNE). 2019. *Regional Hubs for Sustainability Strategies (RENNs): Building Bridges for the 2030 Agenda*. Berlin: RNE. <https://www.nachhaltigkeitsrat.de/en/projects/renn>.
- Regione Lombardia. 2023. *Strategia Regionale per lo Sviluppo Sostenibile (Regional Strategy for Sustainable Development)*. Milan: Regione Lombardia. <https://www.svilupposostenibile.regione.lombardia.it/it/strategia-regionale/la-strategia>.
- Richiedei, A., and M. Pezzagno. 2022. "Territorializing and Monitoring of Sustainable Development Goals in Italy: An Overview." *Sustainability* 14 (5): 3056. doi:10.3390/su14053056.
- Richiedei, A., M. Pezzagno, and G. Balletto. 2024. "Critical Interpretation of SDGs Strategies at Regional Scale: Are There More Important Goals for Italy?" In *Computational Science and Its Applications – ICCSA 2024 Workshops: Proceedings*, Part VII, 325–340. Berlin: Springer-Verlag. doi:10.1007/978-3-031-65308-7_23.
- Rocchi, L., L. Paolotti, A. Tiralti, P. Stranieri, and A. Boggia. 2023. "The Italian National Strategy for Sustainable Development and the Covid-19 Impact: A Regional Analysis." *Aestimum* 82: 19–38. doi:10.36253/aestim-14374.
- Sachs, J., G. Lafortune, and G. Fuller. 2024. *2024. The SDGs and the UN Summit of the Future: Sustainable Development Report*. Dublin: Dublin University Press.
- Saiu, V., and I. Blečić. 2022a. "Sustainable Development Goals (SDGs) Evaluation for Neighbourhood Planning and Design." In *New Metropolitan Perspectives: NMP 2022. Lecture Notes in Networks and Systems*, edited by F. Calabrò, L. Della Spina, and M. Piñeira Mantiñán. Cham: Springer. doi:10.1007/978-3-031-06825-6_93.
- Saiu, V., and I. Blečić. 2022b. "SDGs Implementation in Italy: A Comparative Assessment of Subnational Strategies for Sustainable Development." In *Computational Science and Its Applications – ICCSA 2022 Workshops*, edited by O. Gervasi, B. Murgante, S. Misra, A. M. Rocha, and C. Garau, 627–638. Cham: Springer. doi:10.1007/978-3-031-10545-6_42.
- Saiu, V., I. Blečić, G. Cocco, and I. Meloni. 2023. "Urban Sustainability and SDGs Implementation Between Regional Strategy and Local Practice: Case of Sardinia." In *Implementing the UN Sustainable Development Goals – Regional Perspectives*, edited by W. Leal Filho, M. Dinis, S. Moggi, E. Price, and A. Hope, 157–188. Cham: Springer. doi:10.1007/978-3-031-17461-2_64.
- Schmidt, V. 2008. "Discursive Institutionalism: The Explanatory Power of Ideas and Discourse." *Annual Review of Political Science* 11 (1): 303–326. doi:10.1146/annurev.polisci.11.060606.135342.
- Schmidt-Traub, G., C. Kroll, K. Teksoz, D. Durand-Delacre, and J. Sachs. 2017. "National Baselines for the Sustainable Development Goals Assessed in the SDG Index and Dashboards." *Nature Geoscience* 10 (8): 547–555. doi:10.1038/ngeo2985.
- Scholz, I., N. Keijzer, and C. Richerzhagen. 2016. "Promoting the Sustainable Development Goals in Germany, Discussion," Paper No. 13, German Institute for Development Policy. Bonn: German Institute for Development Policy. <https://www.econstor.eu/handle/10419/199476>.
- Siragusa, A., I. Stamos, C. Bertozzi, and P. Proietti. 2022. *European Handbook for SDG Voluntary Local Reviews*. Luxembourg: Publications Office of the European Union. <https://op.europa.eu/en/publication-detail/-/publication/2fddfb0e-f5c2-11ec-b976-01aa75ed71a1/language-en>.
- Siragusa, A., P. Vizcaino, P. Proietti, and C. Lavallo. 2020. *European Handbook for SDG Voluntary Local Reviews*. Luxembourg: Publications Office of the European Union. https://op.europa.eu/publication/manifestation_identifier/PUB_KJNA30067ENN.
- Snyder, R. 2001. "Scaling Down: The Subnational Comparative Method." *Studies in Comparative International Development* 36 (1): 93–110. doi:10.1007/BF02687586.
- Stoddart, M., Y. Yang, and C. Atlin. 2023. "Regionalizing the Sustainable Development Goals: Interpretations of Priorities and Key Actors for Creating Sustainable Island Futures." *Ecology and Society* 28 (2): Article 4. doi:10.5751/ES-13728-280204.
- Tichenor, M., S. Merry, S. Grek, and J. Bandola-Gill. 2022. "Global Public Policy in a Quantified World: Sustainable Development Goals as Epistemic Infrastructures." *Policy and Society* 41 (4): 431–444. doi:10.1093/polsoc/puac015.
- UN-Habitat, and United Cities and Local Governments (UCLG). 2020. *Guidelines for Local Voluntary Reviews: A Comparative Analysis of Existing VLRs*. Barcelona: UCLG. https://www.uclg.org/sites/default/files/uclg_vlrlab_guidelines_2020_volume_i.pdf.
- UN-Habitat. 2022. *Multilevel Governance for SDGs Localization*. Nairobi: UN-Habitat. https://unhabitat.org/sites/default/files/2023/05/mlg_for_sdg_localization_final_report.pdf.
- United Nations Department of Economic and Social Affairs (UNDESA). 2024b. *Inter-Agency Policy Brief: Accelerating SDG Localization to Deliver on the Promise of the 2030 Agenda for Sustainable Development*. New York: UNDESA. <https://sdgs.un.org/publications/inter-agency-policy-brief-accelerating-sdg-localization-deliver-promise-2030-agenda>.
- United Nations Development Programme (UNDP). 2025. *SDG Localization*. New York: UNDP. <https://www.undp.org/governance/sdg-localization>.

- United Nations. 2015. *Resolution A/RES/70/1: Transforming Our World: The 2030 Agenda for Sustainable Development*. New York: United Nations. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.
- United Nations. 2024a. *Inter-Agency Policy Briefs on Accelerating Progress on the 2030 Agenda from Local to Global Levels: The Critical Importance of SDG Localization*. New York: United Nations. <https://sdgs.un.org/sites/default/files/2024-08/Inter-agency%20Policy%20Briefs%20on%20Accelerating%20Progress%202030%20-%20080124.pdf>.
- Valencia, S., D. Simon, S. Croese, J. Nordqvist, M. Oloko, T. Sharma, N. Buck, and I. Versace. 2019. "Adapting the Sustainable Development Goals and the New Urban Agenda to the City Level: Initial Reflections from a Comparative Research Project." *International Journal of Urban Sustainable Development* 11 (1): 4–23. doi:10.1080/19463138.2019.1573172.