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# Localizing the United Nations 2030 Agenda to leverage shared accountability through collaborative governance

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## Abstract

This study examines how collaborative governance and shared accountability, situated within a multi-level and multi-dimensional institutional setting, can advance the localization of the United Nations 2030 Agenda for Sustainable Development. Since localization demands aligning global priorities with local contexts through a nuanced understanding of needs and interests, it calls for innovative institutional mechanisms and collaborative dynamics. Focusing on the Metropolitan City of Bologna and its 54 municipalities, the research adapts an existing framework of collaborative governance to investigate the interplay between multi-dimensional and multi-level institutional arrangements as well as retrospective and forward-looking accountability systems as elements to advance sustainable development in multi-faceted urban settings. The case study reveals how collaboration, shaped by multi-stakeholder dialogue, and exacerbated by consensus-oriented and deliberative processes, strongly influence the ability of stakeholders to have a comprehensive grasp of the underlying functional linkages, focusing not only on their cherry-picked goals but also on evaluating integration efforts seriously, thus encouraging a shared sense of responsibility towards a sustainable future. Nonetheless, challenges related to data availability and interoperability persist, continuing to hinder the symbiotic effectiveness of accounting systems and shared accountability mechanisms.

**Keywords** 2030 Agenda, Localization, Collaborative governance, Shared accountability

## 1 Introduction

Implementing the United Nations (UN) 2030 Agenda for Sustainable Development (SD) requires tailoring the interdisciplinary nature of sustainability to local contexts [1]. The transition from global to local was stressed by the UN Secretary during the High-Level Political Forum on SD in 2019 [2]. Recent scholarly discourse has brought renewed focus to the notion of localization. Nonovic [3], Mthembu and Nhamo [4] consider localization as “a domestication process based on a negotiation of what is possible and useful”. This domestication brings into play a high level of legitimacy, distribution of responsibilities and retrospective accountability [5]. As process-oriented, localization calls upon



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collaborative dynamics and new institutional mechanisms [6]. Specifically, inclusive and deliberative multi-stakeholder governance is demanded to merge global ambitions with local needs and translate the overall framework of priorities into a goal-oriented agenda [7]. To ensure that priorities and goals are converted into actions, and aligned with the SD, roles, duties, targets and indicators become crucial during the policy enactment stage [8]. Thus, governance and accountability emerge as central elements in the localization process of the UN 2030 Agenda [9]. Within the UN 2030 Agenda, these elements are mainly committed to SDG 16—Peace, Justice and Strong Institutions and SDG 17 about partnership and cooperation between governments, civil society and private sectors [10]. In academic literature, a flourishing stream of research has investigated the interplay between governance and SD [4, 11–15]. However, while academics have largely focused on the theoretical rationale behind how various forms of governance can benefit sustainability-oriented policy-making processes [11, 16–19], studies have often overlooked the relationship between governance and accountability [20–24]. Relatedly, the effective enforcement of accountability is found to be missing, non-binding or hindered by data constraints, prompting literature calls for a shift towards more binding, participatory, and context-sensitive accountability practices to close the gap between commitment, endorsement and enactment [5, 25].

In this regard, Peters and Pierre [26] argue that much of current research is based on simplified theoretical assumptions and lacks action-oriented works. When addressed, empirical studies remain practice-oriented, limiting progress in the academic discourse [15, 27]. Nevertheless, empirical findings reveal that clear pathways for a rigorous consideration of SDGs into policymaking are not yet established [28–30]. This is also demonstrated by the recent review study published by the UN [31], which shows a timid policy deployment to SD targets and goals, thereby limiting the transformative potential of the 2030 Agenda in sustainability-oriented policy-making.

That said, extant literature fails to comprehensively address the localization of the 2030 Agenda [32, 33]. This gap is particularly pronounced in sub-national contexts where the closer engagement of civil communities and the deeper understanding of socio-economic aspects and environmental peculiarities could significantly enhance the effectiveness of the 2030 Agenda [33].

Given the relevance of local views in guiding an outcome-oriented process of SD [34], this paper combines literature streams on collaborative governance and shared accountability to examine the dynamics shaping the localization of the 2030 Agenda. Starting from an existing framework [35], multi-dimensional and multi-level institutional settings, collaborative mechanisms and shared accountability systems have been scrutinized.

To address the empirical gaps, the study relies on a case study methodology. While existing studies tend to investigate collaborative governance at the city level [36–40], the present work deals with a peculiar urban context represented by the Metropolitan City of Bologna (Italy), which integrates the City of Bologna with 54 other municipalities. In specific, this paper contributes to the literature by offering an original case-based application of the Ansell and Gash's collaborative governance framework [35], adapted to the localization of the UN 2030 Agenda in a multi-faceted urban context. Its originality lies in the empirical demonstration of how data-informed deliberation, institutional

embedding, and accountability contingencies influence collaborative dynamics, cross-pollinate the SD culture and shape localization processes in a multi-city context.

The article is structured as follows. After this introduction, Section 2 discusses the role of collaborative governance in public management and public management for SD field. A research framework at the basis of the localization of the 2030 Agenda is proposed. Section 3 outlines the research design, relative context, materials, and methods. Section 4 provides findings on the case study while Section 5 finally draws conclusions, limitations of the study and further research agenda.

## 2 Literature review

### 2.1 Collaborative governance: an evolutionary pathway

In the scientific literature, public governance has undergone a significant evolution, shifting from the domain of Public Management and New Public Management [41–44] to New Public Governance [44]. This transition set in motion a deeper reconfiguration of roles, responsibilities, and institutional arrangements in the public sphere, marking a clear departure from hierarchical models, emphasizing instead the co-responsibility of public and private actors in addressing “wicked problems” [45]. This shift calls for a novel governance paradigm, based on wide interaction between state and non-state actors, including the private sector, civil society and citizens [46–49]. Governance starts to be increasingly conceptualized as the result of socio-political negotiations and interactions [49] where the state no longer holds a superior or hierarchical role [50, 51], responsibilities are distributed across a diverse ecosystem of institutions, market actors, civil society, and transnational organizations [52, 53] and synergies are mobilized beyond institutional boundaries [34] and across diverse stakeholder groups [54]. This involves not only the strengthening of different competencies, knowledge, and resources but also the articulation of a shared vision of the future through common language and deliberative understanding of multifaceted problems. While the literature tends to rest on the institutional capacity to set up an agency-driven steering process [55, 56], supported by multi-stakeholder involvement [17], cross-organizational interaction [56], multilateral dialogue [35], with mutual learning, consensus-building [57, 58] and deliberative decision-making [35], all framed within an outcome-based view [36, 59–67]. Incorporating all these elements into a single definition, collaborative governance can be understood as “*the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or public, private, and civic spheres to carry out a public purpose that could not otherwise be accomplished*” [52, 56, pp. 2]. In sum, collaborative governance emerges as a hybrid configuration between informal stakeholder arrangements and formalized engagement processes. Within this framework, agencies act as facilitators by securing political and institutional sponsorship, orchestrating mediation, and ensuring clear ground rules able to facilitate dialogue, build trust, and ultimately sustaining legitimacy and fairness [68, 69]. As pointed out by Sørensen & Torfing [54], although institutional architectures have largely remained confined within existing administrative structures, effective collaboration for the SDGs necessitates a pre-institutional multi-stakeholder arrangement to start. In this regard, Pierre [70] demonstrates that the manner and the extent to which non-state actors are engaged reflect the principle that inclusion is a key determinant of group legitimacy [71]. Regarding the “who”, it is essential to consider stakeholders with

knowledge and expertise in specific domains [72]. Concerning the “how”, Ansell and Gash [35] identify three elements, including power imbalances, incentives to collaborate, and conflict/cooperation management. These conditions are part of a contingency model which articulates the relationships between management practices, collaboration processes, and outcomes [73]. Nonetheless, participation must be as diverse as possible to mobilize the wide-ranging knowledge and expertise required to tackle complex global challenges and local needs. However, expanding the diversity of voices, institutions and actors inevitably leads to the emergence of divergent opinions and associated tensions [74]. In this regard, recent literature discusses the importance of mediating roles and facilitation tasks, often enhanced by face-to-face dialogue and similar mechanisms helping to “break the ice”, build trust and foster open communication among stakeholders [75, 76]. In this way, stakeholders feel more engaged in areas of knowledge that are far from their own expertise, fostering an appreciation of the non-linear nature of challenges as well as the interdependencies and connections among actions [76]. As a result, this process inherently stimulates mutual learning, collective activation on shared issues, and ultimately public value creation [58]. With growing attention towards SDGs [77, 78], and the emergence of mechanisms based on transparency, accountability and legitimacy, policymakers have come to recognize that traditional governance is no longer sufficient to manage SD [79, 80]. Collaborative governance, utterly featured with the multi-layered and dimensional nature of the 2030 Agenda itself, has thus become a key framework to pursue [17, 59, 74, 81]. Meadowcroft [82] introduces the concept of collaborative governance for SD as “*the processes of socio-political governance oriented towards the attainment of SD. It encompasses public debate, political decision-making, policy formation, and implementation, and complex interactions among public authorities, private business, and civil society – in so far as these relate to steering societal development along more sustainable lines*” ([83], pp. 299). Collaborative governance theories have consequently become foundational to policy-making processes in the field of sustainability [84]. It follows that multi-level and multi-dimensional stakeholder configurations and relationships, alongside innovative participatory procedures, constitute the pillars of sustainability-oriented governance [74]. This is particularly evident at the city level, where proximity to local territories and more fluid interaction among institutions, non-governmental organizations and business actors create favorable conditions for collaborative governance [85].

## 2.2 Shared accountability in the field of UN Agenda 2030

The intrinsic nature of the UN 2030 Agenda renders the SDGs holistic and, at the same time, accountable by nature. With 169 targets and a wide array of indicators, the need to share knowledge across multiple domains becomes overwhelming [86]. In participatory governance settings, such indicators do not merely serve as elements for evaluation; rather, they function as boundary objects that enable dialogue across different stakeholder voices and perspectives. By providing a shared reference point, indicators contribute to aligning diverse understandings, enhancing transparency, and reinforcing mutual accountability. Yet, Jönsson and Bexell [5] shed light on the importance of forward-looking and retrospective accountability [87]. As also pointed out by McIntyre-Mills [88] in her climate change-related study, the creation of a retrospective accountability system promotes a deeper understanding of contexts, leading to clearer recognition of

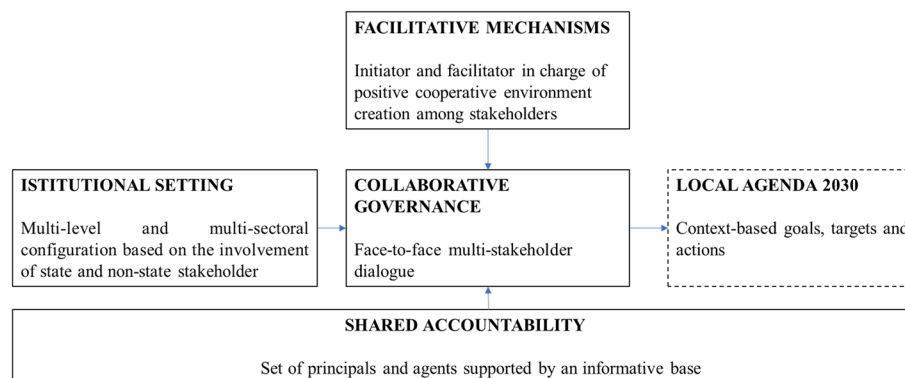
priorities, greater convergence on initiatives and broader agreement on the performance aspects to be evaluated and monitored. It follows that indicators are more effective when employed as informative baselines to guide participants' dialogue and deliberation [7, 89, 90]. Notwithstanding, collaborative governance shows greater potential when complemented by shared accountability: the higher the level of interaction, the broader the understanding of multi-faceted challenges [90–93]. That said, accountability also plays a key role in assessing process outcomes. Indeed, indicators support performance monitoring and reporting, both of which are essential in a target-based localization process as the one promoted by the UN 2030 Agenda [94, 95]. However, outcome-driven processes necessitate robust high-quality data [27]. Unfortunately, the lack of disaggregated and reliable datasets is widely recognized in the literature as one of the major challenges of sustainability-oriented policy-making [7, 27, 96–98]. The absence of interoperable datasets, combined with untimely and incomplete information, inconsistent and unstandardized statistical methodologies, and the lack of common frameworks for inter-goal correlation, continues to raise concerns about the effectiveness of shared accountability in the localization process of the UN 2030 Agenda [39, 99–101]. These concerns further hinder stakeholders' ability to grasp the cross-cutting nature of local needs, understand the interconnection among initiatives, practices, and actions and ultimately, identify potential synergies across SDGs and stakeholders' interests.

### 3 Research design

#### 3.1 Research framework

The successful localization of the UN 2030 Agenda relies on multi-level and multi-dimensional stakeholder arrangements, supported by collaborative governance dynamics. These elements ensure outcomes through shared accountability systems, multi-stakeholder engagement, continuous learning approaches, deliberative processes and adequate assistance on facilitating comprehensive understanding of contrasting voices and perspectives [101]. This collaborative governance is underpinned by the context, the prior institutional design, and the mechanisms that regulate leadership behaviour and foster cross-pollination dynamics [35].

Inspired by the framework of Ansell and Gash [35], informed by the literature on governance for SD, and driven by the goal to advance the discourse surrounding the localization of the UN 2030 Agenda, an adapted research framework [97], has been proposed (Fig. 1).



**Fig. 1** Research framework, adapted from Ansell and Gash's framework [35]

The framework includes: I. an institutional setting grounded in a multi-level and multi-sectoral configuration as a precondition for enabling multi-stakeholder interaction [102–109]; II. a collaborative governance process supported by facilitative mechanisms to shed light on divergences, manage conflicts and foster potential consensus [110, 111]; III. a shared accountability system that function as an informative base to support evidence-informed decision-making, and monitor progress on goals, targets, and action plans.

### 3.2 The case study

A literature review was conducted to explore the interplay between collaborative governance and shared accountability, which was then framed in the context of SD and 2030 Agenda.

The research framework of Ansell and Gash was selected and adapted for this study [35]. Following this, a case study methodology was then adopted [111]. The in-depth case study deals with the localization process of the 2030 Agenda in an Italian metropolitan area. The case was selected because it represented a frontrunner in the application of collaborative governance fueled by a shared accountability system. Furthermore, the choice was driven by the interest in investigating a distinctive urban configuration, exemplified by the Metropolitan City of Bologna.

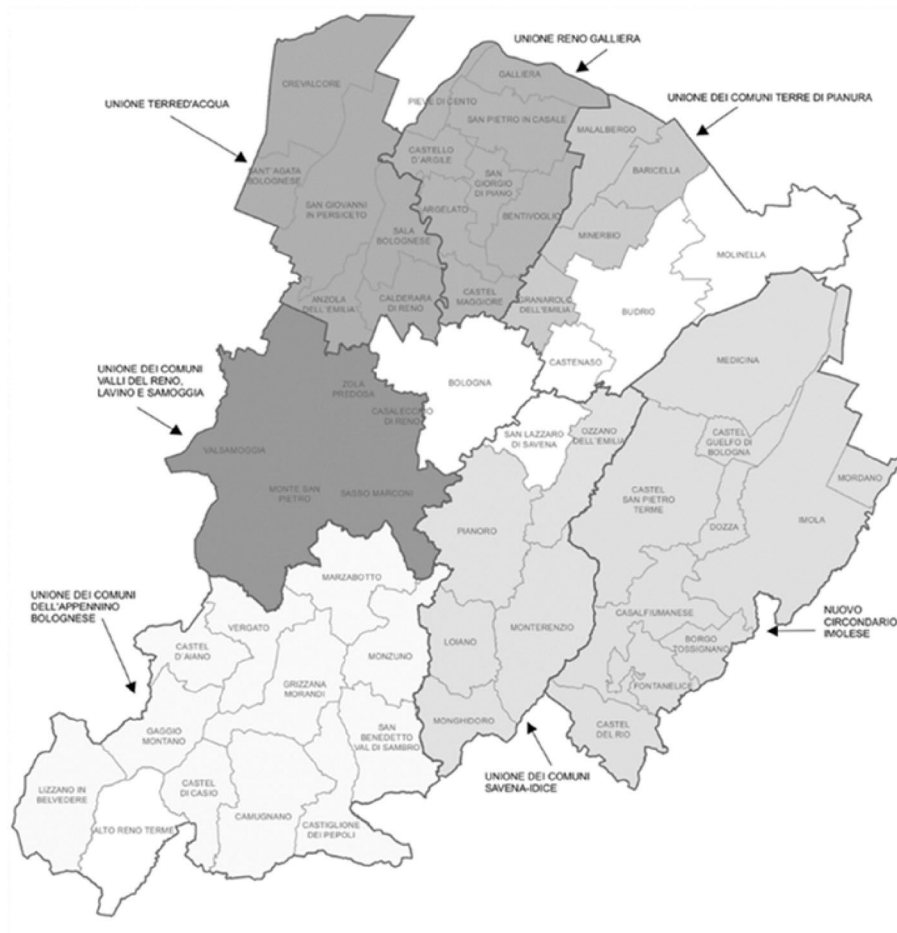
### 3.3 The context

The Metropolitan City of Bologna (Fig. 2) combines the capital city with 54 other municipalities (51 of which belong to seven Unions of Municipalities) and encompasses 1,019,539 inhabitants [112] as of January 1st, 2020. Situated at the southern end of the Po Valley, the area boasts a thriving production sector, ranking first among 14 Metropolitan Cities in terms of employment rate [113] and second in average income [114]. Beyond its growing economic appeal, the area is also renowned for its high quality of life and notable bureaucratic efficiency [115].

Since its establishment in 2015, the Metropolitan City of Bologna has performed its function of governing the metropolitan area [116], placing SD at the core of its relations with municipalities and other local public entities, the private sector, civil society, and citizens. This is demonstrated by Bologna's Chart for the Environment [117], which is a formal agreement signed by twelve Italian Metropolitan Cities during the G7 Environment Ministerial event held in Bologna in June 2017 [118]. This commitment has been translated into local government plans and tools progressively adopted by the governing bodies. To bolster this effort, the 2018 Metropolitan Strategic Plan (called PSM 2.0) set sustainability as its founding pillar, signaling the imperative to integrate SD in local policies. In 2019, as part of the National Strategy for Sustainable Development, the Ministry for the Environment, Land, and Sea issued a call to actions to localise the 2030 Agenda. In response, the Metropolitan City of Bologna initiated the process to define a Metropolitan Agenda for SD.

### 3.4 Materials and methods

Explicitly, the study was based on a) archival data collection, followed by b) an online survey [119], and c) direct observations [120, 121].



**Fig. 2** The Metropolitan City of Bologna, Italy

Archival data collection involved desk research aimed at gathering and analyzing policy programs, strategic plans and budget plans across various administrative levels.

With the aim of identifying and cataloguing practices, initiatives and actions locally implemented to support SDGs, an online survey, in the form of a questionnaire, was subsequently conducted digitally [122]. The survey was structured in three sections, combining multiple-choice and open-ended questions. The first section aimed at classifying stakeholder groups according to their legal status, size, and territorial scope; the second section focused on identifying the main actions, inviting respondents to report up to five key initiatives, or actions along with their characteristics (type of action, content, duration, territorial impact, funding source, impact assessment method) and their link to one or more relevant SDGs; the third section provided respondents the opportunity to report additional actions with up to ten supplementary initiatives, explicitly indicating the SDGs each contributes to.

Specifically, the survey invitation was sent to 122 stakeholders, representing a diverse range of entities, including public and private sectors, associations, the third sector, unions, advisory bodies, academia and higher education institutions (HEIs). Stakeholders were subsequently invited to participate in the institutional setting and join the multi-stakeholder dialogue sessions, as part of the localization process.

Direct observations comprised a series of plenary and focused sessions aimed at laying the groundwork for the Metropolitan Agenda for SD. A total of eight sessions were held over a six-month period, from November 2020 to April 2021. Due to the COVID-19 pandemic restrictions, all sessions were conducted virtually, supported by dedicated technical infrastructure, facilitating plenary virtual meeting rooms and breakout rooms for focused sessions.

Each session was coordinated by a facilitator from the Foundation for Urban Innovation (FIU), along with one research expert assigned to each thematic dimension of SD. Sessions lasted approximately 2.5 h, with participants connecting remotely. The Miro<sup>®</sup> software was employed to collect input and facilitate expression of opinions. Each session began with a brief introductory plenary (30 min), followed by three focused breakout sessions (90 minutes), and concluded with a final plenary session (30 min). Each focused session concentrated on one dimension of SD (environmental, social, and economic), with the fourth institutional dimension managed as cross-cutting theme throughout the process.

## 4 Results

### 4.1 Normative foundation in the Sustainable Development domain

The desk analysis enabled the mapping of normative documents and databases related to SD and UN 2030 Agenda, including two at the international level, two at the European level and five at the Italian level. Two policy documents have been detected at the regional level, while at the metropolitan level, three policy plans were examined. Per each of the 55 Municipalities of the Metropolitan City of Bologna, the programmatic documents, i.e. the Unified Programming Documents (DUP) and the Action Plan for Sustainable Energy and Climate (PAESC), were scrutinized (Table 1).

Results reveal that while the superior levels somehow expressly dealt with SD policies, a comprehensive policy dedicated to SD at the metropolitan level did not exist. Yet, no initiatives have been detected in each of the cities composing the metropolitan area. Such evidence reinforced the need to design a Metropolitan Agenda for SD.

**Table 1** Normative foundation

Document analysis	Level
UN 2030 Agenda for Sustainable Development	Inter-national
Voluntary Review on New York City's implementation of the 2030 Agenda for Sustainable Development	Inter-national
European statistics databases (e.g. EUROSTAT)	European
EU Commission Priorities 2019–2024	European
National Strategy for Sustainable Development	National
Integrated National Energy and Climate Plan 2030	National
Voluntary National Review (VNR)	National
Bologna's Chart for the Environment	National
Annual Report on the State of Art of Sustainable Development in Italy	National
Political Plan of the Regional Government	Regional
Pact for JobsK and Climate 2020	Regional
Metropolitan Strategic Plan	Metropolitan
Metropolitan Deal for Jobs and Sustainable Development	Metropolitan
Strategic Plans of the Unions of Municipalities	Metropolitan
Unified Programming Documents (DUP)	Municipal
Action Plan for Sustainable Energy and Climate (PAESC)	Municipal

#### 4.2 Positioning for the UN 2030 Agenda in the Metropolitan City of Bologna

The survey recorded a participation rate of 62% among the invited entities, reflecting varying engagement levels across stakeholder groups, with 38 participants from the public sector, 11 stakeholders from the private sector, 12 delegates from associations, eight representatives from the third sector, and two experts representing each of unions, advisory bodies and academia and HEIs (Table 2). The survey collected 186 actions in total, of which 98 pertained to the environmental dimension, 53 to the social dimension and 35 to the economic dimension. When actions were reconducted to their corresponding SDGs, results showed a predominant focus on SDG 11 - Sustainable cities and communities, followed by SDG 12 - Responsible production and consumption and SDG 8 - Decent work and economic growth. Relevance was also pointed out by SDG 9 - Industry, innovation, and infrastructure at 12% and SDG 10 - Reduced inequalities at 10% (Fig. 3). This distribution reflects the strong commitment of local actors to the socio-economic aspects that have a direct impact on local stakeholders. In contrast, the area's geographical morphology rendered SDG 14 - Life Below Water largely inapplicable.

Concurrently, an informative system was established to support evidence-based monitoring. In this regard, a set of 77 indicators was selected, applied, and systematically monitored. The targets defined by the UN were then used as a benchmark to evaluate and position the Metropolitan City of Bologna with the Agenda 2030 and to inform the design of measures aimed at ensuring the achievement of the established goals by 2030.

#### 4.3 Towards a multi-level, multi-dimensional institutional setting for collaborative governance and shared accountability

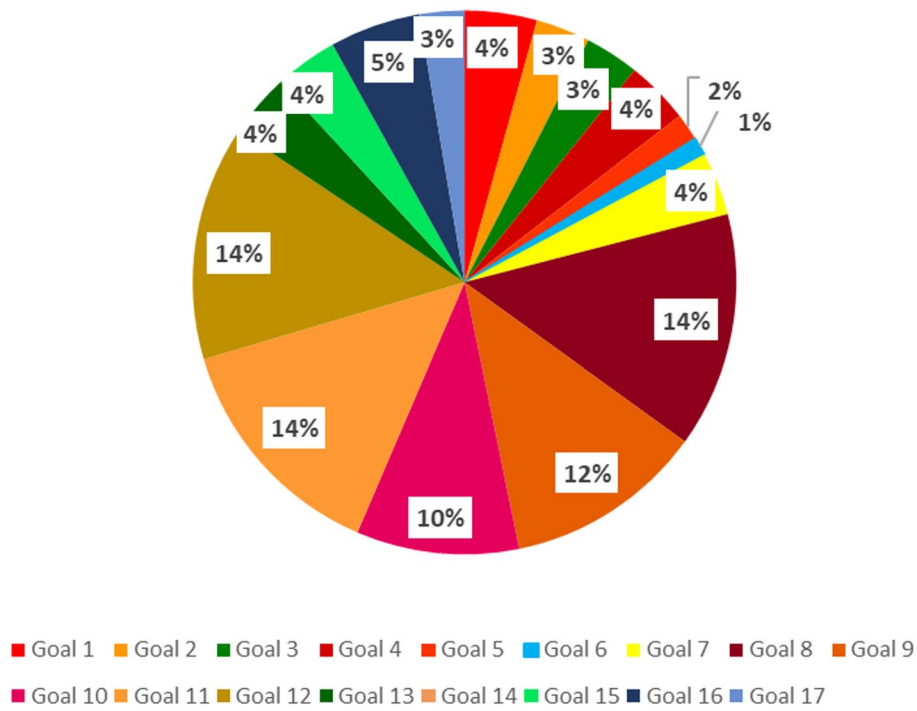
A total of seventy-six stakeholders were invited to form the institutional setting and join both plenary and focused breakout sessions.

The institutional setting was purposely designed to enhance stakeholder participation across multiple levels and thematic dimensions. Thereby fostering both vertical and horizontal dialogue (Fig. 4).

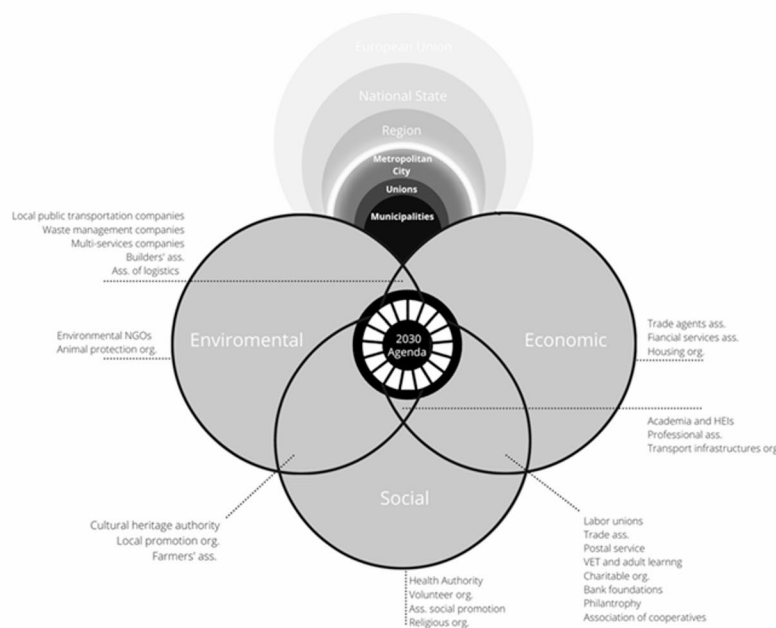
In line with Ansell and Gash [35], stakeholders refer to the participation of both citizens and organized groups. That said, the stakeholders' participation rate varied significantly across stakeholder groups. Specifically, the public sector demonstrated the

**Table 2** Response and participation rate by stakeholder group

Stakeholder group	Response rate–Survey [number]	Participation rate–plenary and focused breakout sessions [%]
Public sector (Metropolitan Authority; Authority of Union of Municipalities; Mayors)	38	70
Private sector (Local public transportation companies; Waste companies; Multi-service companies; Bank foundations; Postal service providers)	11	58
Associations (Association of cooperatives; Farmers' associations; Trade agents' associations; Financial service associations; Builders' associations; Associations on social promotion; Animal protection organizations; Associations of logistics; Housing organizations)	12	51
Third sector (Environmental organizations; Religious organizations; Charitable organizations)	8	34
Union (Labor Unions)	2	60
Advisory bodies	3	40
Accademia and HEIs	2	50



**Fig. 3** Breakdown of actions by SDG



**Fig. 4** Institutional setting for the Metropolitan Agenda for SD.

Source self-designed

highest level of engagement with an average participation rate of 70%, with 51% of participation rate from associations, 34% from the third sector, 60% from unions; 40% from advisor bodies and 50% from academia and HEIs (Table 2).

The process was conducted through an agency-driven, consensus-oriented, and deliberative approach. Indeed, stakeholders initially contributed to outlining the status quo

based on their knowledge, expertise and area of interest, referencing inputs previously provided in the survey, and subsequently connecting their thematic focus with broader, interrelated issues. This approach enabled stakeholders to exchange views, objectives, and perspectives on SD. While focused breakout sessions were dedicated to specific SDGs with the most influential stakeholder groups, the plenary session aimed to explore cross-cutting dimensions across SDGs, engaging the full spectrum of stakeholders. Key issues emerging from the focused sessions included the need for inclusive housing strategies, community-based health services, support for early-childhood and higher education, and gender equality measures, all oriented to improve the quality of life, promote effective work-life balance and reduce social inequalities. Based on these discussions, SDGs 11, 12, and 14 were identified as having the most significant interlinkages. In this regard, it was observed that during their initial participation, stakeholders tended to join the focused breakout session that aligned most closely with their institutional mandate or area of expertise. However, as the process advanced, particularly during subsequent plenary sessions, stakeholders were more likely to spontaneously engage in discussions on dimensions beyond their original scope. This evolution suggests a growing awareness of interdependencies among SDGs and reflects a progressively collaborative dynamic within the process. Yet, it also demonstrates the evolving cross-pollination trend as stakeholders are encouraged to adopt an integrated thinking to advance joint exploration of challenges, thereby examining the interactions and interdependencies among SDGs. In this context, it was interesting to observe the inclination of stakeholder groups towards their own interests, opening room for conflicting situations.

Dissenting views primarily stemmed from the heterogeneous contextual backgrounds of the participants. For instance, in discussions on public transportation, representatives from the mountainous areas emphasized the urgency of addressing long-distance service availability, whereas stakeholders from urban areas concentrated their efforts on the development of intermodal mobility solutions. Agencies were in charge of bringing to light divergences and managing conflicting points of view through negotiation and, when possible, the use of scientific evidence to mediate and reframe opposing viewpoints.

Given the target-based nature of the localization process of the UN 2030 Agenda, the process relied heavily on structured information systems composed of indicators, targets, and goals designed to assess the baseline situation and monitor progress toward SDGs by 2030. Machine learning, time series data, citizen science networks, and remote sensing were used to address data gaps. For the SDGs considered relevant in the Metropolitan City of Bologna, a set of 77 science-based indicators was reported, with changes in trade-offs and synergies being quantified. These indicators largely reflected the areas of major interest initially highlighted through the survey and subsequently reinforced during the multi-stakeholder dialogue. Nonetheless, some SDGs, like SDG 12 and SDG 9, were comparatively underexplored due to limitations in data quality, which were considered inadequate due to insufficiently long time series, outdated information, and missing meaningful disaggregation. For example, while data on ultra-broadband coverage existed, it was only available at the aggregate level for the metropolitan area, with no granularity at the level of each single municipality. This hindered the ability to conduct place-based assessments and formulate tailored policy responses for specific territories.

## 5 Discussion

As highlighted by Van Zeijl-Rozema et al. [16], contextual analysis plays a pivotal role in a goal-setting process, as it helps to frame both normative foundation and baseline situation. Indeed, local 2030 Agendas may differ substantially depending on specific contextual factors and the interests at stake. This underscores the necessity of developing an information system based on reliable data, coupled with the formal recognition of local needs, prior to designing the institutional architecture and establishing the collaborative governance. When addressing normative foundation, alignment with supranational policies becomes essential to effectively link local needs with global ambitions. These alignments stimulated the adoption of both multi-level and multi-dimensional approaches in conjunction with the institutional arrangement. This proved fundamental in the case study, where the diverse configurations of smaller urban units composing the Metropolitan City of Bologna, tended to generate disagreements and divergences, leading to multiple misalignments with the scope of the 2030 Agenda. Thus, the multi-level institutional setting, characterized by the involvement of policy-makers from international to sub-national levels, facilitated the recognition of political priorities across governance tiers, thereby enabling the identification of areas of convergence and potential linkages with the SDGs at the local scale. Concurrently, the multi-dimensional institutional setting, based on the engagement of multi-stakeholders, prompted the uptake of the complex nature of the UN Agenda 2030. However, the institutional setting alone proves to be insufficient to promote the cross-pollinating character of SDGs and the potential inter-linkages among initiatives, practices, and actions. When combined with a collaborative process, the multi-level and multi-dimensional configuration emerges as an enabling factor for dismantling traditional siloed approaches and encouraging interactions among diverse interest areas, thereby facilitating the examination of challenges from multiple viewpoints and perspectives [97]. In this regard, the conflicting views identified in the case study were not suppressed but rather brought to light, with the support of scientific evidence, and the help of public agencies. As observed in the study, conflicting situations may arise due to discrepancies among stakeholder groups, which are reflected in differences in power, interests, or perceived relevance of priorities. In line with Mustajoki et al. [123], the case shows that the participatory leadership capacity of agencies, here expressed by a non-state actor, was fundamental in balancing powers and interests and establishing a deliberative environment. Furthermore, the involvement of multiple stakeholders with diverse knowledge and expertise proved to be fundamental to overcoming potential tunnel vision and embracing a multi-faceted view of local issues.

When addressing the baseline situation, pre-collection of ongoing initiatives, practices, and actions demonstrated to be essential to gain a comprehensive understanding of local needs and interests, thereby positioning the local context in relation to the scope of the 2030 Agenda. While this underscores the consolidated importance of retrospective accountability, forward-looking accountability is increasingly recognized as equally crucial, especially in the localization processes of the UN 2030 Agenda, which is, by definition, goal-dependent. Although retrospective accountability relies on policy documents and historical trends, forward-looking accountability occurs only if connected with collaborative governance. It follows that data collection and integration alone is not sufficient to properly localize the UN 2030 Agenda. Thus, the informative system, combined with the iterative process, further reinforced learning, stimulated discussion,

facilitated the co-production of shared outcomes and, ultimately encouraged a growing sense of shared responsibility towards a sustainable future. Yet, information systems demonstrated to be crucial to boost both retrospective and forward-looking accountability. Specifically, the set of indicators, targets and goals has proven to be essential for taking responsibilities among the diverse stakeholder groups. To sum up, the study reveals that, while shared accountability is essential, it cannot function in isolation. As highlighted by Sørensen & Torfing [54] and Najjar [124], and demonstrated by our case study, accountability is largely contingent upon the empowerment of the different stakeholder groups and their commitment to the collaborative process, as it fundamentally relies on identifying potential convergence among the interests, perspectives and views of public and private actors. Consistent with the existing literature [7], a critical gap remains in data fragmentation, stemming from non-exhaustive informative sources and a relative lack of interoperability. Although information asymmetry was partially mitigated by the expertise of the stakeholders engaged, discussions remained heavily influenced by data availability, leading some goals to appear more acute than others—not due to their lesser importance, but rather because of variations in data reliability. This situation is further amplified by the difficulty of establishing well-defined and well-articulated targets able to simultaneously support both global agreements and local vision of SD.

## 6 Conclusions

The experience of Millennium Development Goals (MDGs) has already demonstrated that merely integrating the social, economic and environmental dimensions of sustainability is insufficient to achieve transformative societal change [108, 125, 126]. Effectively addressing societal challenges, especially when localized, requires a multi-faceted understanding of needs and interests, that can be prompted by multi-stakeholder dialogue and deliberative decision-making processes [127–132]. Although existing literature has extensively examined collaborative governance and shared accountability, research addressing their application within the context of the SD and, specifically, their interplay within the UN 2030 Agenda, is missing. This article contributes to the debate around SDGs by combining institutional arrangements, collaborative governance and shared accountability as mutually reinforcing elements of the localization process of the UN 2030 Agenda, contingent upon their alignment with the multi-level and multi-dimensional approaches of SD. In line with Ansell and Gash [35], results demonstrate that localization requires an appropriate institutional setting that is representative of the needs and interests at stake. Although public agencies are crucial to manage and facilitate discrepancies, these imbalances may have influenced the outcomes of the collaborative process by privileging some priorities rather than others, reinforcing Ansell and Gash's findings [35]. Furthermore, data gaps may also have shaped outcomes, making some goals more attractive than others. However, the use of informative systems and scientific evidence, as well as the stakeholders' engagement on topics beyond their initial positions, sheds light on the role of accountability systems for SD. In line with Karlsson-Vinkhuyzen [133], the study demonstrates the importance of considering both data on input and outcomes and their integration in both retrospective and forward-looking accountability. Yet, the study shows how collaborative dynamics strongly influence the ability of stakeholders to have an understanding of the underlying functional linkages, focusing not only on their cherry-picked goals but also on evaluating integration efforts

seriously, thus encouraging a shared sense of responsibility and public value. Thus, shared accountability is here conceptualized not merely as retrospective reporting but as a contingent construct that emerges from the dynamic interplay between data availability, multi-stakeholder empowerment, and collaborative dynamics. Accountability in our study is enabled through (1) the availability of disaggregated and relevant data in structured informative systems, (2) the stakeholders' capacity to interpret and act on cross-cutting information, and (3) the institutional arrangement that reflect vertical and horizontal structures. These factors are particularly salient under governance-by-goals regimes such as the 2030 Agenda.

This underscores the need to deepen the investigation into the nuanced and often counterbalanced relationship between governance, accounting, and accountability in sustainability-oriented policy-making processes. Although this study represents an important contribution to the discourse around the localization process of the UN 2030 Agenda, deeply investigating policy preparation, it does not sufficiently scrutinize policy development and decision-making [134]. Indeed, the analysis was limited to investigating the enactment of the 2030 Agenda within the metropolitan context, without extending the study to the implementation and monitoring stages. Nonetheless, this limitation opens up avenues for further research aimed at exhaustively examining the whole collaborative process underlying the localization of the UN 2030 Agenda.

#### Author Contributions

Conceptualization, E.F., S.P., and P.F.; methodology, E.F., S.P. and P.F.; validation, A.B. and A.P.; formal analysis, S.P., P.F. and E.F.; investigation, S.P., P.F., A.B., A.P.; data curation, S.P., P.F. and E.F.; writing—original draft preparation, E.F., S.P., and P.F.; writing—review and editing, E.F., S.P., and P.F.; visualisation, E.F. and P.F.; supervision, A.B. and A.P.; project administration, A.B.; funding acquisition, A.B. and A.P. All authors have read and agreed to the published version of the manuscript.

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#### Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

#### Declarations

##### Ethics approval and Consent to Participate

Not applicable. All participants provided informed consent before completing the survey.

##### Consent for publication

Not applicable.

##### Competing interests

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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