Sustainable development: from global goals to local implications. The case of Metropolitan City of Florence

Sviluppo sostenibile: dagli obiettivi globali alle implicazioni locali. Il caso della Città metropolitana di Firenze

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Abstract. Sebbene gli Obiettivi di Sviluppo Sostenibile (SDGs), redatti dalle Nazioni Unite nel 2015, siano stati concordati a livello internazionale, la loro effettiva attuazione dipende dal ruolo cruciale svolto dal livello locale. La ricerca mira a capire come il livello locale possa o meno orientare la sostenibilità. Attraverso l'utilizzo di metodi di ricerca qualitativi e quantitativi, intende contribuire all'avanzamento degli studi sulla sostenibilità dei governi locali, descrivendo le implicazioni politiche di un caso studio pilota nel contesto italiano. La metodologia si basa su un approccio di co-costruzione dei dati in tre ambiti chiave: (i) il ruolo e le funzioni degli attori locali nel raggiungimento degli obiettivi di sviluppo sostenibile; (ii) le leve della localizzazione; (iii) gli strumenti operativi per guidare le decisioni di sostenibilità locale secondo i criteri di coerenza. I risultati rivelano che il coinvolgimento dei politici locali è cruciale per la localizzazione dello sviluppo sostenibile, per identificare i punti deboli all'interno della struttura amministrativa. Inoltre, il prototipo di misurazione è uno strumento operativo adeguato per tradurre gli obiettivi globali in contesti locali, consentendo di evidenziare sia i driver sostenibili sia le aree prioritarie di intervento.

Abstract. *Although the Sustainable Development Goals (SDGs), set by the United Nations in 2015, were developed at the international level, their effective implementation depends on the crucial role of the local level. The research aims to understand how the local level can or cannot steer sustainability. Based on qualitative and quantitative methods, the research advances the studies on sustainability at the local level and provides policy implications for a pilot case study in the Italian context. The methodology is based on a data co-construction approach in three key areas: (i) the role and functions of local actors in achieving the SDGs; (ii) the levers of localisation; and (iii) the operational tools to steer local sustainability decisions according to the coherence criteria. The results show that the involvement of local policy makers is crucial for the localisation of sustainable development and for the identification of weaknesses within the governance structure. Furthermore, the measurement prototype is a suitable method for translating global goals into local contexts and makes it possible to highlight both sustainable drivers and priority areas for action.*

Keywords: sustainable development, SDG11, localisation, local government, local measurement

1. Introduction

The concept of sustainable development, which has been rooted in history since 1793, goes back to Hans Carl von Carlowitz's early use of it to define sustainable forestry. Its transformation into a guiding political norm was gradual and characterised by three key historical moments (Bristol-Alagbariya, 2020). The 1987 Brundtland Report of the *World Commission on Environment and Development* emphasised the need to meet the needs of the present without compromising future generations (WCED, 1987); Agenda 21 (1992), one of the outcome documents of the 1992 *United Nations Conference on Environment and Development,* and the UN 2030 Agenda for Sustainable Development Goals (SDGs) consolidated the global role of sustainable development (Salvia et al., 2019).

International cooperation on sustainable development has increased, maximising social, environmental and economic goals (Barbier, 1987; Crabtree, Gasper, 2020; Bolognesi et al., 2018). The nested view of sustainable development is illustrated by the SDGs (2015), which contain 17 goals, 169 targets and 232 indicators aimed at intergenerational equity. These goals are multidimensional, synergistic, but potentially contradictory, especially with rigid ideas (Zeigermann, 2018). Implementing the SDGs requires active participation at different levels and sectors (Bardal et al., 2021; Kanuri et al., 2016), recognising the crucial role of the local dimension (OECD, 2020). Localising the SDGs empowers local actors to translate global goals into locally relevant action.

Localisation involves the adaptation, implementation and monitoring of the SDGs at the local level and recognises the central role of local actors (UN-Habitat, 2016). Approximately 62% of the SDG targets cannot be achieved without involving local actors (OECD, 2020) Localisation strengthens local authorities, stakeholders and civil society, enhances capabilities (Sen, 2000) and harnesses local knowledge. Successful implementation of the SDGs depends on local actors translating the global goals into locally applicable actions.

This paper explores the role of the local level in sustainability governance through three areas: (i) the role and functions of local actors in achieving the SDGs; (ii) the levers of localisation, considering strengths and critical areas; and (iii) operational tools to guide local sustainability decisions based on coherence criteria. An empirical case study, the Metropolitan City of Florence (MCF) in Italy, is analysed to understand the opportunities, critiques and instruments of localisation in new political-administrative realities. Metropolitan Cities (MC) in Italy fulfil a political coordination function in urban areas. The results derived from qualitative and quantitative methods contri-

bute to sustainability studies at the local government level and offer policy implications for the Italian context.

2. The Local Level Matters

The local dimension is important in two respects. The first relates to the role of cities, as more than half of the world's population lives in urban areas (UN-Habitat, 2016). The demographic pressure on cities has a strong impact on ecosystems - pollution, loss of biodiversity - (Maes et al., 2019), but also on the accessibility of all resources and services. Cities are therefore becoming the litmus test for assessing the health of the planet, but also social inequalities. For this reason, they play a crucial role in shaping and promoting sustainability. This is confirmed, for example, by the presence of Goal 11 in the United Nations 2030 Agenda, which concerns the achievement of 'sustainable cities and communities' and emphasises the links between Goal 11 and the other SDGs, such as ending poverty, strengthening equality, ensuring a healthy life for citizens, but also protecting and safeguarding natural resources.

The second way in which the local dimension is significant is that, the transition from the global to the local dimension illustrates how key local issues and challenges shape the priorities within the SDGs, and thus, influence the use of specific tools for policy analysis, monitoring and implementation. Indeed, localisation allows global goals to be translated into local goals and actions, and through urban governance (Pierre, Peters, 2012) to address the controversial, ambiguous and wicked nature of sustainable development (Giddings et al, 2002; Meadowcroft, 2007). In this way, the challenges, complexities and conflicts inherent to a particular context with its own social actors can be addressed.

Thus, moving from the global to the local level, sustainable development struggles with territory-specific goals and a political agenda that reflects culture, visions and interests that do not necessarily coincide with regional, national and international contexts (Salvia et al., 2019). On the one hand, these aspects help to enrich sustainability policies by forming a multi-stakeholder governance that works in synergy to improve sustainability policies and interventions. On the other hand, these multiple features complicate the decision-making process as they clash with the diverse interests of different local stakeholders.

Therefore, benefits and tensions arise in the localisation process, which nevertheless, according to much of the literature (Bardal et al, 2021; Kulonen et al, 2019; Nhamo et al, 2020, Alibašić, 2018; Monkelbaan, 2019; Oosterhof, 2018; Salvia et al, 2019), is a way to territorially embed the concept of sustai-

nable development and highlight the different pathways that can lead to an effective transition to sustainability. The literature basically agrees in identifying three stages of the localisation process (Oosterhof, 2018:5): i) raising awareness and advocacy on sustainable development issues to reach all sectors of society; ii) implementing sustainable development by aligning local and regional plans with the SDGs; ii) monitoring the achievement of results by developing a set of localised indicators.

Regarding the factors that favour localisation, the literature (Bardal et al., 2021; Åkerman et al., 2011) identifies two distinct types: one "financial and technological" in nature, which concerns the presence or absence of economic resources to plan, to collect and analyse data; the second "political-cultural-legal" in nature, which regards spreading awareness about the SDGs and active involvement of all social actors, formalising commitments.

3. Research Goals, Methods, and Stages

This research[1] stems from the general assumption -in the literature- regarding the key role played by the local level of government in SDGs planning and implementation. Starting from this assumption, the contribution attempts to analyse the localisation process, trying to understand its potential, critical issues and to identify practical operational tools to be used, by local governments, for coherent sustainable development policies. Hence, this contribution has two main research goals: understanding the functions and role of local level of governance in the localisation process; and identifying operational tools to steer coherent and sustainable choices.

These aims are to be achieved through quantitative-qualitative research methods orientated towards a co-construction of data approach, to investigate the following:

1. the role and functions of local actors in achieving the SDGs through the localisation process.
2. the levers of localisation, taking into account the strengths and critical areas of intervention.
3. the operational tools for managing local sustainability decisions, according to the criteria of coherence.

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[1] It is part of a broader project called 'Sustainable Communities', a two-year project (2021-2023) that aims to develop a policy coherence index for the Metropolitan City of Florence. The project is structured into three main phases: i) problematization of the concept of sustainable development and its definition at local level; ii) measurement at local level; iii) identification of tools for coherent policies. All three phases are implemented through the direct involvement of academics, stakeholders, policy makers and citizens.

To address these points, various research strategies were used to produce relevant results that reflect the local process behind the SDGs. In order to address points (i) and (ii) in detail, interviews and webinars were conducted with local political and administrative actors, between April 2022 and April 2023. Three webinars, organised and coordinated with the support of the National Association of Italian Municipalities of Tuscany, and 12 semi-structured interviews with policy makers from each municipality considered[2], focusing on how sustainable development is reflected in the local policy agenda and the critical nature of the localisation process. The interviewees and webinar participants were selected for their key role and expertise in the areas of sustainable development, welfare and policy planning, and for their willingness to participate in the research.

In terms of analysis, once the transcripts of the interviews and webinars were completed, the collected texts were analysed using content analysis (Krippendorff, 2004), "*a technique for capturing and analysing the content of texts. Content refers to words, meanings, images, symbols, ideas, themes or any message that can be communicated*" (Neuman, 2003, p. 219). In addition, a computerised text mining technique, whose capability is to extract information and trends from text data (Fuller et al., 2011; Aureli, 2017), has provided an overview of the connections between different texts, in order to draw a common thread between the most discussed concepts, and then, find patterns (e.g. word frequency, connections between words).

The aim of the various analyses was to find a common thread and a basis for the concepts that emerged. The interviews and webinars were examined to shed light on three main aspects of the localisation process (explained in more detail in section 4):

1. *Setting the local SDG agenda:* it outlines the dimensions of sustainability that are considered relevant for local policy and administration actors.
2. *Participatory process of localisation:* it is an analysis of the localisation process that integrates the territorial dimension with the different perspectives of citizens and local actors.
3. *Critical issues and fields of action:* identifying critical points in the process of anchoring the SDGs locally, highlighting specific areas that require intervention.

For the last aim (iii), the focus is on the measurement process to build an operational tool for supporting and guiding local sustainability decisions according to the criteria of coherence. Starting from a focus on SDG 11, the re-

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[2] The research considers 17 of the 41 municipalities belonging to the CM of Florence. The municipalities were selected according to the demographic criteria: from 15,000 residents upwards.

search presents the methodological process adopted for translating and adapting global indicators of this goal at the metropolitan area level. The first step consisted in translating the global indicators to local indicators drawing a mix of official data sources. This operation was conducted following some criteria:

- *Adaptation*: global targets must fit the metropolitan area. Hence targets too general or applicable to other countries, or global indicators that are not yet methodologically defined (according to TIER, IAEG-SDGs classification criteria) are excluded.
- *Populability*: selection of official data available for the municipal level and surveyed for more recent years. Data from ad hoc surveys or discontinued surveys were excluded.
- *Synthesis:* the local indicators are the result of the construction of synthetic indices aligned to the global ones. 12 thematic indicators were derived from 40 elementary indicators collected.

Ultimately, the first stage provides the methodological process adopted for a 2030 Agenda at the municipality level, which is further discussed in Section 5. The second stage consisted of analysing the data underlying SDG 11 to identify the drivers of sustainable development. Starting with the 12 thematic indicators Principal Component Analysis (PCA) was performed to understand which dimensions better explain SDG 11 and the positions of municipalities concerning this goal. A fundamental advantage of PCA lies in a reduction of the metric space in which the variables are projected. As a result, new dimensions (principal components) are obtained as linear combinations of the original variables that maximise variance (Jolliffe, 2002). The resulting Principal components are orthogonal (or uncorrelated) to each other and their order reflects their importance in explaining the variability of the data. Factor analysis was employed as an exploratory analysis to investigate relationships between indicators, obtain a synthesis by reducing complexity arising from observing multidimensional phenomena without losing information, and observe municipalities' behaviours concerning the resulting components. The findings are discussed in Section 6.

4. The role of local actors: the nature of MC and the two main localisation tools

The Italian local government system is characterised by a three-tier structure: municipalities, provinces, and metropolitan cities[3]. Metropolitan

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[3] Three key institutional events marked the shift from a centralised model to a decentralised-federalist one: the creation of fifteen ordinary-status regions in the 1970s, a local institutional reform in the late 1990s, and most notably, the constitutional reform of 2001 (Kuhlmann,

administrations constituted a new type of local authority resulting from the merger of large municipalities and neighbouring municipalities (Lippi, 2011; Bolgherini, Lippi, 2016), also aimed at containing fragmentation by its strategic and territorial planning function, the structuring of coordinated public service management systems and the organisation of public services of general interest in the metropolitan area.

MCs are an *institutional working progress*. Metropolitan regions have not fully replaced the provinces, leading to transformation challenges. Financial constraints limit the role of metropolitan cities, which are similar to provincial structures. On the other hand, municipalities are gaining importance in the management of services compared to metropolitan regions. In addition, the indirect election of metropolitan city councils blurs the boundaries of leadership and responsibility, exacerbating conflicts between areas and reducing overall effectiveness.

Looking specifically at the context of the Florence, four main reasons make the Florence Metropolitan Region (MCF), which consists of 41 municipalities and 4 associations of municipalities, an interesting case study:

a. Florence was the first Metropolitan city (L.56/2014) to adopt a statute and metropolitan policy planning and is therefore an institutional context in which some dynamics can be better observed, such as the strategy adopted to achieve sustainability.

b. Florence is a medium-sized administrative centre where there is a balance between urban and peripheral areas, where the social SDGs require a specific process of localisation that demonstrates different models of sustainability.

c. MCF is one of the first Italian urban economies characterised by a multifunctional and multi-centred economic development e.g. tourism, handicrafts, local productions.

d. the political continuity allows both a focus on sustainability issues and a potentially effective stability in terms of long-term planning (Lah, 2017).

MCF uses two main decision-making tools to implement local actions. The Metropolitan Renaissance (2017) is a planning tool where the linkages with the 2030 Agenda goals are marked. This general strategy has been declined into three specific outlines: i) universal accessibility as a crucial condition for an active participation in social life and the use of spaces and services; ii) substantive capabilities by activating multiple and varied resources/opportunities available in the entire metropolitan area; iii) a concept of the metropolitan territory that enhances the rural territory as an integrated set of well-being lands, in terms of quality of life and eco-systemic balance.

Wollmann, 2014; Lippi, 2011).

The second is the Metropolitan Agenda 2030 for Sustainable Development drafted, in March 2022, using a participatory process that involved experts, local authorities, stakeholders, and citizens, through survey, focus group, round table. This tool mainly allows the MC pathway to be aligned with the different higher levels (regional, national, and global) of sustainability governance, moreover, the involvement and insights of the different local actors allow both to have a systemic knowledge of the territory (its capabilities and criticalities), but also to increase legitimacy and consensus on the local actions to be taken (restraining and handling potential conflicts).

Efforts to measure and monitor the SDGs, at the local level, thus provide a snapshot of the territory. This makes it possible to understand the critical areas where intervention is needed, by adopting policy planning with a long-term and coherent vision of sustainable development policies (Clement et al., 2023). Measurement requires, on the one hand, financial resources and technical expertise and, on the other hand, broad participation of different local actors to ensure a comprehensive representation of different perspectives. In this way, it contributes to a more inclusive approach and helps to overcome the multidimensional challenges of measuring the SDGs. A measurement and monitoring system enables evidence-based decision-making, which is a prerequisite for long-term planning. In other words, planning that goes beyond short-term policy mandates, provides a strategic framework that ensures stability, but also, the flexibility to translate global goals into local targets and actions, as part of a process of localising sustainable development (Bisogno et al., 2023).

4.1. The critical issues of localisation

As UN Habitat (2016, p.7) emphasises, "*the achievement of the SDGs [...] depends on the ability of local and regional governments to promote integrated, inclusive and sustainable spatial development*". Planning and coordination prove to be key areas. It is therefore necessary to examine the strengths and critical points of localisation. To this end, semi-structured interviews and webinars with policy makers were text-analysed and the insights gained were categorised into three key areas:

1. Setting the local SDG agenda: based on an experience-based/local definition of sustainable development, the dimensions of sustainability, which appear relevant for local political and administrative actors, are outlined.
2. Participatory process of localisation: analysis of the localisation process that brings together the territorial dimension with the different perspectives of citizens and local actors.
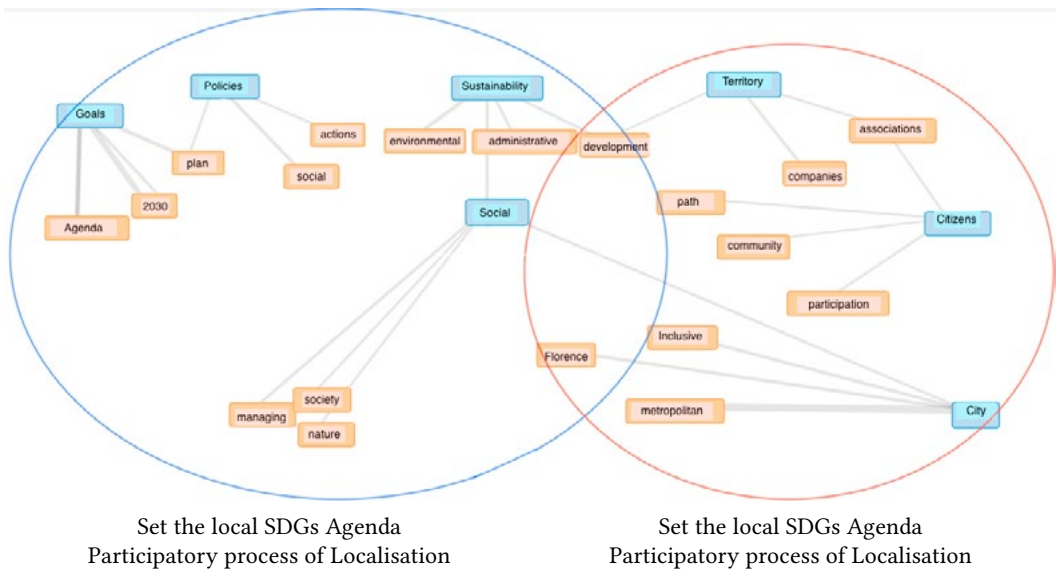
3. Critical issues and fields of action: identification of the critical points of a local anchoring process of the SDGs, and identification of the areas where intervention is needed.

After filtering out stop words from the interviews and webinars, the most frequently cited words that are closely linked to the sustainable development narrative are the following: policies (164 times), sustainability (162 times), "city" (127 times), "social" (126 times), "territory" (112 times), goals (90 times), citizens (82 times). Based on the frequency of the most frequently used words, it is possible to perform a text extraction, in order to establish a link with other key concepts that emerged during the research.

The network graph in Figure 1 shows the most frequently cited words in light blue (goals; policies; sustainability; social; territory; citizens and city), while the words that occur most frequently in the conversation in their proximity, in orange. The results of this study can ideally be divided into two macro-areas: one that emphasises the vision of sustainable development at the local level and its agenda, and the other that concerns the dimension of participation and networking of local actors.

Fig. 1 Network graph of the most frequent words (orange) in the proximity of the keywords (light blue)

Set the local SDGs Agenda   Set the local SDGs Agenda
Participatory process of Localisation   Participatory process of Localisation

The research demonstrates a significant level of awareness and enthusiasm towards SDGs and their implementation through a concrete plan and measures. Sustainable development is presented in the dual guise of a life concept and a political agenda/planning.

> *Not to be a passive guest, but a conscious agent of the consequences of our actions as individuals and as a community* (Interviewee 1, Public Policy Councillor).

A long-term vision to be combined with the global and local dimensions, therefore, without creating oppositions between communitarianism, in which the illusion is created of changing the world through the sum of many micro-changes, and globalism, in which a revealed science is envisioned as imposed and decided from above (Barca and Giovannini, 2020). The solution needs to come from an encounter between the diffuse knowledge, which is local and close to the peculiarities of the contexts but, at the same time, from the encounter of these with the technological frontier knowledge, which must be shaped, as Mazzucato (2021) would say, by "strategic missions" designed to stimulate and inspire "imagination".

Indeed, it is 'imagination' as the capacity to imagine an alternative, a better life for all (Appadurai, 2013), which occurs in the research as a concept highly correlated with "territory" (Pearson coefficient 0.74), but above all, with "policies" (Pearson coefficient 0.84), which are in turn correlated with the concept of "debate" (Pearson coefficient 0.94) and "steering committee" (Pearson coefficient 0.93). Hence, it emerges a role for policies as an arena for debate but also as a decision-making and coordinating hub for sustainable development, which is impermeable to simple solutions (Dehon et al., 2023; Gerlak et al., 2018), therefore requires imagining radically new ways of tackling the problem.

> *Thus, we strongly wanted to link our actions to the issue of environmental sustainability and sustainable development, and we tried to imagine what kind of city we would like in ten years' time. And in this, we closely linked the issue to social sustainability, so how to renovate a city with a cohesive social fabric (…).* (Interviewee 2, Mayor).

Thus, a multidimensional approach to sustainability emerges, with a focus on the social, environmental but also administrative dimensions. Indeed, according to the interviewees, administrative sustainability concerns the ability (inability) of administrations to manage the implementation of actions necessary to achieve the various sustainability goals. Thus, the need to act promptly for projects with a political continuity: "keeping a constant flow in the provision of resources, thus deciding in the drafting of the budget to prioritise the social sector, working towards risk factor management and prevention" (Interviewee 1, Public Policy Councillor).

As previously pointed out, localisation requires an intense process of involvement and debate between the different local actors. The second part of the graph, therefore, shows the participative dimension and the value of

networking. In fact, the key words are "territory" (in terms of private and public associative activities), "citizens" and "city", showing how the active involvement of associations, companies, and citizens in synergy with the metropolitan city, is instrumental to the achievement of an inclusive city and a socially sustainable perspective.

> *The municipality works on urban regeneration, creating more beauty, creating jobs and deeper socialisation* (Interviewee 3, Councillor for Welfare).

> *We have a strong partnership with the volunteering and social-solidarity economy, a partnership that enables networking and allows associations to get to know each other and feel part of the community. Networking also allows us to better manage emergencies, as in the case of Covid with the distribution of food parcels.* (Interviewee 1, Public Policy Councillor).

The network between the several social local actors emerges as a virtuous meeting mechanism, from which, moments of systematic planning and participation can arise. What emerges is a public administration, which interfaces with all those actors dealing with plugging the inequalities which affect the territory. A public administration that interfaces with territories, and with associations that have direct and deep knowledge of critical issues, attempting to meet a wide variety of territory needs: from food poverty, to the problem of high rents, to youth distress.

The research shows not only how change is linked to networking with local actors, and thus, to integrated policies with responses to multiple issues, but also how it is linked to the debate between public institutions and citizens[4].

> *The citizens are involved and have a great awareness of sustainability issues, and this is thanks to the work of the institutions within the territory through the assemblies. Whenever there is a change in habits, a certain conservative attitude, which we all have, is completely understandable. Therefore, change needs time, understanding, and strength from the public administration to bring these initiatives forward* (Interviewee 4, Councillor for sustainable environmental development).

Regarding the last domain through which findings are analysed, i.e., the critical issues and areas for action, seven main critical issues for action emerged from the interviews and webinars: i) the limitation of funding linked to public tenders, especially European ones; ii) Florence's centralising role in

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[4]   The dialogue with citizens is also fostered by moments of co-planning, as in the case of the Municipality of Sesto or Campi Bisenzio, with the participatory budget to redevelop the city's green areas.

planning; iv) administrative sustainability; v) the verticality of policies; vi) hyperregulation; vii) the lack of a real-life snapshot of the territory.

The research highlights how public policies are fascinated by fads and funding, lacking a focus on local characteristics and needs. Thus, local orientations are managed and steered by European funding, e.g., funding for energy efficiency. In addition, planning linked to calls for proposals and funding, runs the risk of fading out in the long run, when the funding ends. Another issue concerns the ability of funds to influence local policies.

> *The National Recovery and Resilience Plan has expanded the amount of budget available to the municipalities, but the administrative machinery has not expanded in equal measure, thus creating problems of management and administrative sustainability*[5] (Interviewee 5, Mayor).

Concerning the leading role played by the City of Florence within the planning of the Metropolitan City, the respondents complained about the difficulty of raising specific issues and the absence of a real debate - at the metropolitan level - which goes beyond urgency (as it was to deal with the migration issue), and has instead the character of planning.

Administrative sustainability is another critical area noted (Krause et al., 2016), which is mainly reflected in a shortage of human resources (exacerbated by early retirements and the hiring freeze in the last two years) properly trained to work in public administrations. In addition, in small and medium-sized local governments, there is a continuous drain of staff, partly due to the unblocking of competitions:

> *It often happens that a newly hired person, who has been in a low category for a few months, and who perhaps has a master's degree, wins a competition in a major institution that may be closer to his or her home or with 100-200 euros more in the paycheck. All the training work goes away, and the public institution has to start over again* (Interviewee 5, Vice-Mayor).

Administrative sustainability and the ability to manage and administer the localisation of SDGs also depends on "*Generational transition in public administration and the continued training of employees*" (Interviewee 1, Public Policy Councillor). In terms of policy capacity, the administrative sustainability can be considered as the presence or lack of those skills, resources, and competences necessary to perform SD policies (Wu et al., 2015).

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[5] Law 56/2014, introducing the metropolitan experience, has provided for a central role for the main municipality. This means that the role of the mayor of the capital city overlaps with that of the mayor of the metropolis. This element has raised a debate on the question of the legitimacy and responsibility of the metropolitan supreme figure (Fedeli, 2017; Guerra, 2022).

Another critical area discussed, is the presence of vertical policies and the absence of transversality, which the respondents consider crucial for the implementation/localisation of the 2030 Agenda (Pearson coefficient 0.88).

> *We are not used to working in cross-cutting policies. Single actions and not systemized. Fiscal actions in favour of the fragile do not have an integrated vision, and there is no capacity to understand the impact of policies* (Webinar, Executive Director for Organisation, Planning and Strategic Control).

Hence, siloed policies emerge, turning into a form of entrenchment in regulations, and thus, into hyperregulation, which is declined in the public administrator's fleeing from the exercise of discretionarily for the sake of protecting himself from potential penalties, while lacking a managerial attitude (Froy & Giguère, 2010).

> *The local administrator is faced with the challenge to require a civil servant to endorse decisions that may expose him to the regional administrative court. He may have a whole range of problems that are not worth his salary or even hours of work. In small administrations, and the lower you get, the more difficult it is, it is harder to find employees with both quality and leadership skills* (Interviewee 5, Vice-Mayor).

These critical issues also translate into the municipalities' failure to have a snapshot of the territory, to identify the areas in which to intervene, and set up policies based on priorities and not just on hoarding/tracking funding.

> *We need to analyse the socio-economic context and understand the negative externalities. Instead, we just compete for European funding. Thus, there is a problem in approaching sustainable development policies* (Webinar, Councillor for Culture and Associations, Youth Policy, Digital Transition).

Concerning this last point, it is becoming increasingly clear how research and measurement and monitoring efforts of SDGs -at the local level- can be useful to policy makers, providing them with a tool for achieving local sustainability, by facilitating the identification of crucial areas of action in which to take coherent action.

5. A proposal tool for achieving local sustainability

The second aim is to develop operational tools that can facilitate the achievement of local sustainability goals. This stems from the *hierarchical* structure of the UN 2030 AGENDA whereby, at the top level, lie general SDGs that are considered *agreed truths*. At lower levels, SDGs are broken into specific

targets that nations must strive to achieve by 2030, each associated with specific indicators for measuring progress in various areas of sustainability. Although this system provides a set of strategic guidelines, it is *legally non-bonding*, allowing governments significant flexibility in deciding whether and how to implement the SDGs (Ansell et al., 2022). In addition, the missing regulatory framework can even lead to policy impasses and hinder timely interventions. Recent studies highlighted the importance of aligning the 2030 Agenda with national development plans (NDPs) to overcome this problem and mitigate the risk of non-implementation (Katramiz, Okitasari, 2021; 2022; Janetschek et al., 2020). In so doing, governments may ensure that goals and targets are not just aspirational, but firmly embedded in their strategic plans (Katramiz, Okitasari, 2021).

Although an alignment process is necessary for prioritising actions and allocating resources, there are currently no adequate tools to support local governments in making *sustainable choices*. Often, the reason lies in a lack of awareness of the system underlying the 2030 Agenda itself, which seems to devolve responsibility to international organisations rather than single countries or regions. In this regard, we argue that such alignment is only possible once meticulous efforts have been made to 'localise' the system of targets and indicators, due to four main reasons:

1. *Adaptation to the local context*: sustainable challenges should align with the features of territories and local communities, including political settings, cultural aspects, socioeconomic and environmental needs. Localising the Agenda means developing solutions that are relevant to the contexts. Adaptation should therefore move from global and country down to the urban level (Ansell et al., 2022).

2. *Engagement and participation of the local community*: the local translation ensures an extensive involvement of policymakers, stakeholders, and citizens thanks to their knowledge of the link between global goals and the local context. A Greater recognition of this link prompts new sustainable development initiatives, increasing active participation in realising SDGs (Reddy, 2016).

3. *Prioritising the actions*: since local contexts have limited resources at their disposal, translating the agenda helps to increase the effectiveness and efficiency of actions. When focusing on the real needs of local contexts, it becomes easier to select and achieve targeted goals timely, optimising the impact of actions (Moallemi et al., 2020).

4. *Local responsibility*: localising the SDGs is a crucial aspect of multilevel governance, involving the participation of local stakeholders and authorities in the decision-making arena. This collaborative approach fosters the capacity of institutions that work synergically on planning and implementing sustainable

actions (Reddy, 2016). Furthermore, it fosters a *sense of responsibility* toward community priorities and needs.

Translating the SDGs is more than a mere methodological exercise as it involves the vision of sustainability of municipalities and the support in planning coherent actions. The following section deals with methods and results on SDG 11 as an explanatory case.

6. From statistical analysis to operational tools for sustainable choices

Several efforts have been made to translate the SGDs indicators to the municipal scale. For instance, *EUROSTAT* has developed a set of indicators to monitor Member States' progress and compare the quality and suitability of data (Berisha et al., 2023; Abastante et al, 2020). Similarly, the Italian National Institute of Statistics (*ISTAT*) has worked on producing measures aligned with the indicators defined by the *Inter-Agency Expert Group*. Additionally, cities and metropolitan areas have made progress in developing their indicators to monitor municipal actions.[6]

Building upon this framework, the article outlines the methodological process adopted to translate the SDGs within the context of the 41 municipalities in the Metropolitan City of Florence (IT), with a specific focus on SDG 11 "*Make cities and human settlements inclusive, safe, resilient, and sustainable*". Starting from the previous research stage, it defined *what* sustainable development means in this urban context through interviews with policymakers, identifying relevant aspects to include in the measurement process. Social actors provided valuable suggestions on the dimensions of sustainability and alternative statistical sources, complementing official ones for specific topics. Subsequently, there was a gradual translation of the content of the global 2030 Agenda targets and indicators to the metropolitan area, while testing the data available at this level. Following the *adaptation* criteria, it was established to include targets of SDGs that are significant at the municipal level, while excluding targets that are too general or applicable to other countries in the world. Furthermore, global indicators conceptually clear, and with methodology or standards availability were considered (according to the TIER Classification Criteria, IAEG-SDGs).

The second criteria refers to populability of data at the municipality level. In this sense, data was acquired from 18 official sources such as ISTAT,

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[6] Eg., the Association of Flemish Cities and Municipalities works with local authorities to translate sustainable development objectives at the local level (*Local Indicators for the 2030 Agenda - Sustainable Development Goals*).

IRPET, open data of several Ministries, Urban Index and so on, preferring to select data available for recent years. Therefore, *ad hoc*, or discontinued surveys were excluded to ensure repeatability over time. In some cases, data were supplemented with other information made available by organisations, social promotion associations, and institutions operating in the territory (e.g., *the number of anti-violence shelters*, *eviction notices*, and f*ood parcels*).

Once data corresponding to each global indicator was collected[7] (see Table 1, Appendix), the next step consisted in operating a synthesis, constructing thematic indices. First, the polarity (+/-) with respect to the examined phenomenon was determined, followed by standardising the indicators for comparability. It is specified that the synthetic indices were composed using an equal-weighting strategy, implying that all elementary indicators contribute equally to the concept (OECD, 2008). Then the *M ZScore* method was used to aggregate the indicators, resulting in the construction of 12 local indicators for SDG 11 (Tab. 2).

Table 2 - Local indicators for SDG 11 - Sustainable Cities and Communities

Global indicators	Local indicators
11.1.1 Proportion of urban population living in slums, informal settlements, or inadequate housing	11.1.1 Housing deprivation
11.2.1 Proportion of population that has convenient access to public transport, by sex, age, and persons with disabilities	11.2.1 Sustainable mobility 11.2.1 *bis* Accessibility
11.3.1 Ratio of land consumption rate to population growth rate	11.3.1 Land consumption
11.4.1 Total per capita expenditure on the preservation, protection, and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, local/municipal)	11.4.1 Protection and Conservation of the Artistic Heritage
11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	11.5.1 Natural hazards
11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities	11.6.1 Urban waste management 11.6.1 *bis* Management costs of the municipal waste
11.6.2 Annual mean levels of fine particulate matter (e.g., PM2.5 and PM10) in cities	11.6.2 Quality of the air
11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age, and persons with disabilities	11.7.1 Quality of the Urban environment 11.7.1 *bis* Actions for improving the urban environment
11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	11.7.2 Anti-violence shelters

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[7] Before building synthetic indices, data was processed with the treatment of missing values and preliminary analysis (e.g., correlation).

The presented methodology has been applied to localise other SDGs as part of the 2030 Local Agenda of the metropolitan city of Florence. The outcome consists of a dashboard in which each SDG (such as poverty, hunger and food system, health and well-being, quality of education, gender equality, industry, innovation, and infrastructure, etc.) corresponds to a set of specific measurement criteria. This empirical approach has potential. On the one hand, it highlights the significance of adapting indicator management to the features and needs of the territories. On the other hand, it consolidates as a delivery tool for municipalities to assist and facilitate their tasks in the sustainable development field. The following section discusses the main findings obtained from an explorative analysis of SDG 11.

6.1. Development drivers for the Florentine metropolitan area

Starting from the 12 thematic indicators, *Principal Component Analysis* (PCA) was performed in order to understand which dimensions better explain SDG 11 and the positions of municipalities for this sustainable goal. As stated above, factorial analysis was used as an explorative analysis to investigate the relations between thematic indicators in the formation of new principal dimensions, and to observe the municipalities' *behaviours* regarding the resulting components. The first output of PCA is the inertia distribution that shows if there are strong relationships between thematic indicators and suggests the number of new dimensions that should be considered in the analysis. On a total of 5 dimensions, we focus only on the first 2 because together they express 34.68% of the total dataset inertia; that means that 34.68% of the total variability is explained by planes 1-2 (axes). Observing the plot of the circle correlation it is intuitive to understand which previous variables (thematic indicators) explained these axes (Fig.2), based on their position with respect to the dimensions 1 and 2, and the relations among them.

Respecting their contribution in explaining axes, we report the values of Cos2 (*square cosine*) that discern the quality of the representation of variables on the factor map. Dimension 1 and dimension 2 are linear combinations of the following thematic indicators:

- Dim.1 = 11.3.1 *Land consumption* (0.61), 11.1.1 *Housing deprivation* (0.43), 11.7.1 bis *Actions for improving the urban environment* (0.39), 11.6.1 *Urban waste management* (0.25), 11.7.2 *Anti-violence shelters* (0.24), and 11.5.1 *Natural hazards* (0.18).
- Dim.2 = 11.2.1 bis *Accessibility* (0.67), 11.2.1 *Sustainable mobility* (0.54), 11.6.2 *Quality of the air* (0.34), and 11.6.1 bis *Management costs of municipal waste* (0.16)

Both principal dimensions evoke urgent issues that are extremely connected to the territories. Helpful indications can be derived on the type of action that must be pursued by reading the relationships existing between the variables projected on the correlation circle (Fig.2). For dimension 1 land consumption is inversely correlated with the other variables placed near the first axis (horizontal): indeed, the gradual loss of land and/or exposure to natural hazards (such as landslides, hydraulic and earthquake risks) not only increases housing discomfort but also denotes the lack of adequate management of the urban environment. On the contrary, acting on social security issues (such as contrasting housing poverty and gender violence), and ecological issues (through proper urban solid waste management) would reduce the anthropic footprint on the environment and make the cities secure. Hence, we renamed dimension 1 as *Management and maintenance of the socio-environmental balance.*

Looking at the second axis (vertical), we see that sustainable mobility (short mobility and mostly by public transport, or slow mobility by foot or bike), and management costs of the urban waste drive the entire reading. These are aspects that, if neglected, directly affect both the quality of the air and in general, the urban environment (bottom quadrant). Clearly, mobility is more sustainable where infrastructure connections and accessibility points to urban, inter-urban, and extra-urban public transport are promoted. Avoiding cars and other private vehicles would help to reduce CO_2 and $PM10$ emissions. Dimension 2 is renamed *Urban Liveability.*

The second output of PCA is the factorial map in which individuals-points (41 municipalities) are projections (Fig. 3). It is necessary to guide the interpretation with the contribution (absolute values) expressed by individuals also for this plot. In the factorial map, the individual's cloud closer to the origin of the axis corresponds to a trending behaviour. As individuals deviate from the centre, they exhibit distinct characteristics that can be attributed to the main dimensions.

Following these indications, we identify two municipality groups corresponding to PCA's main dimensions:

- Management and maintenance of the socio-environmental balance: *Firenzuola* (16.78), *Palazziolo sul Senio* (15.67), *Firenze* (10.51), *Marradi* (6.83), *Scarperia e San Piero* (4.83), *Castelfiorentino* (4.75) and *Vaglia* (4.17).
- Urban Liveability: *Fiesole* (50.50), *Montelupo Fiorentino* (4.94), *Rufina* (3.70), *Londa* (3.64), *Sesto Fiorentino* (3.22), *Calenzano* (2.65) and *Pelago* (2.63).

Within the first group, we identify municipalities that are susceptible to natural hazards. Specifically, Palazzuolo sul Senio, Firenzuola, Vaglia, and Marradi are situated in the Mugello region, a mountainous zone north of Firenze. In this region, there has been a recent surge in land consumption, pri-
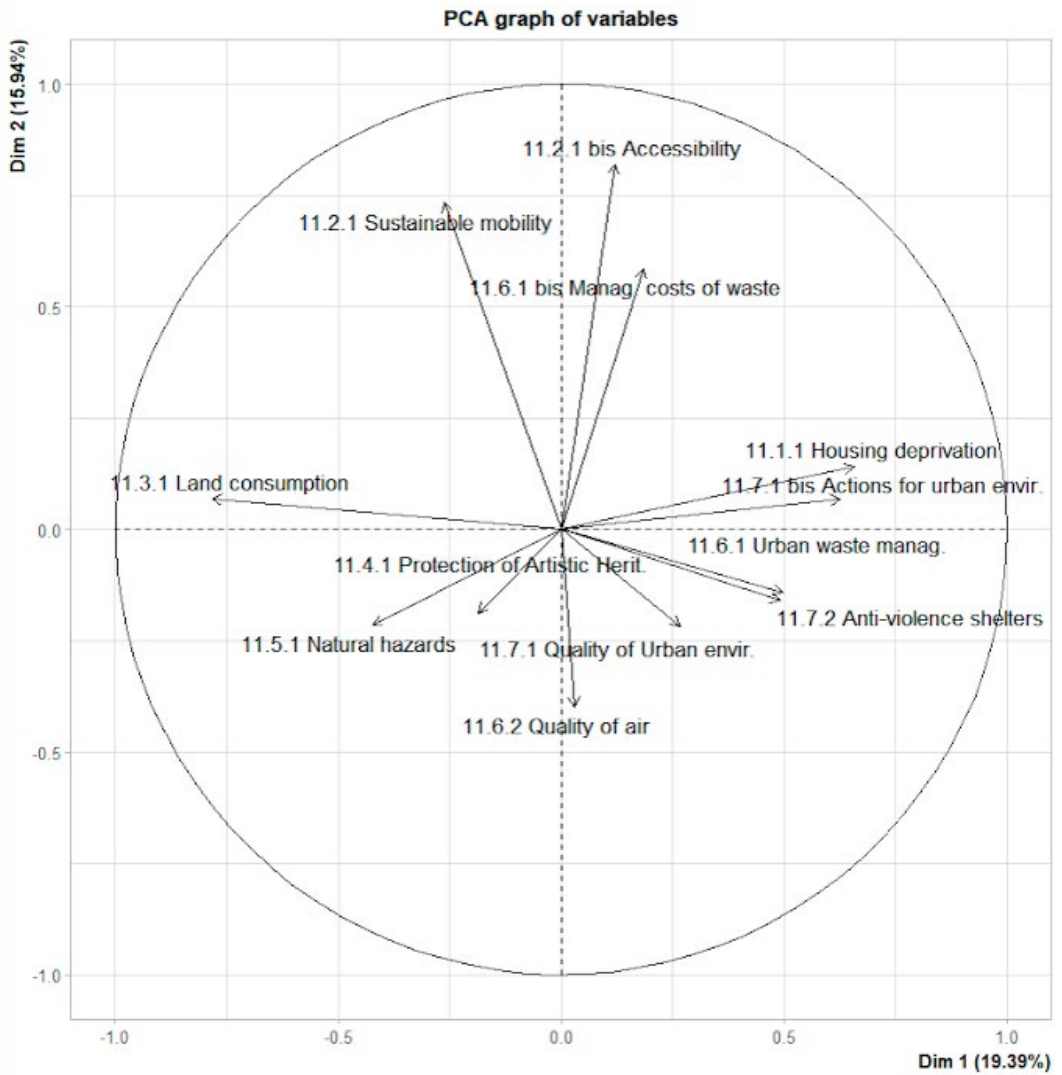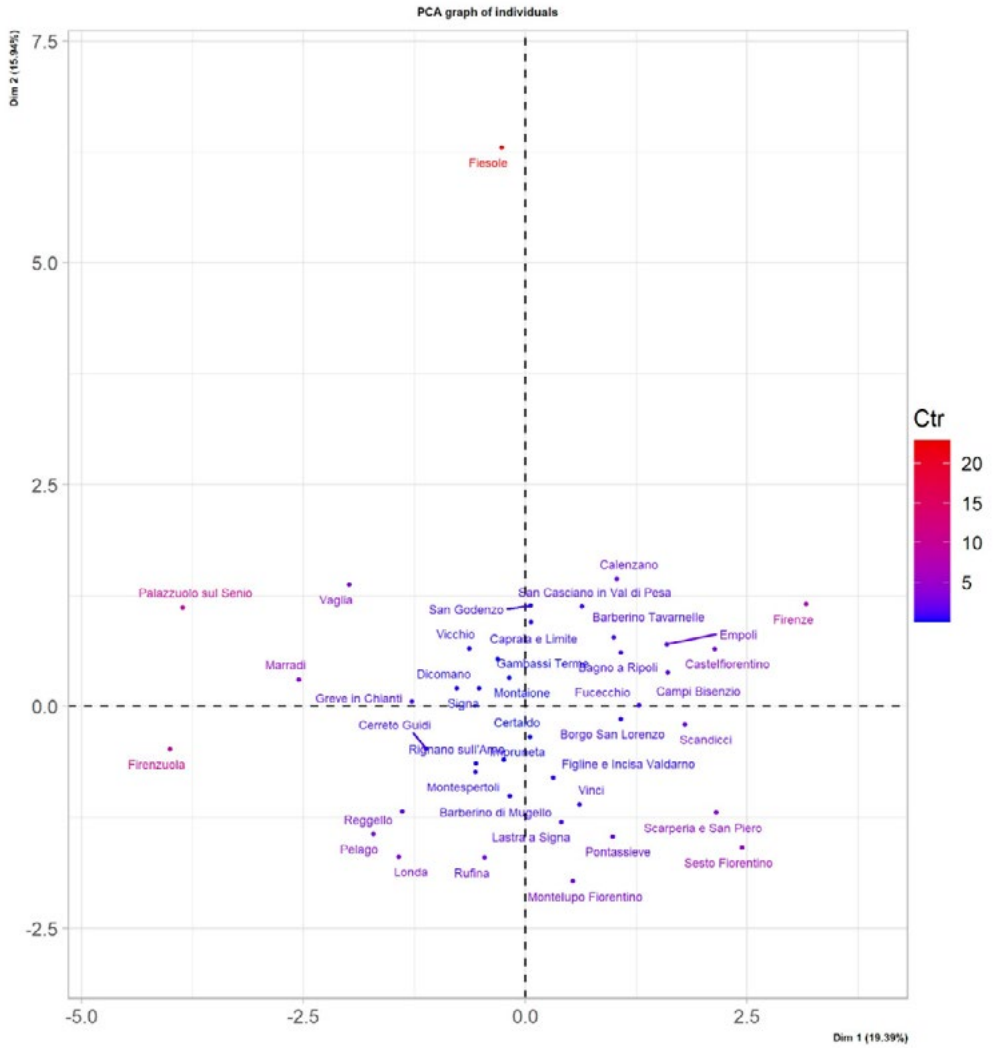
Fig.2 - Thematic indicators correlation

PCA graph of variables

Fig.3 - Municipalities projection on the factorial plane (1-2)

PCA graph of individuals

marily attributed to infrastructure development and construction activities, with an average annual increase of 2.2% documented in 2021, as reported by the Italian Institute for Environmental Protection and Research (ISPRA).

Similarly classified within this grouping are Firenze and Castelfiorentino, both characterised by the central theme of housing deprivation and initiatives aimed at improving the urban environment. Being the leading municipality of the metropolitan area Firenze assumes a pivotal role owing to its rich cultural heritage, dynamic economic branches, and university poles which constantly attract a massive flow of city users. Remarkably, the tourism industry exacerbates the housing issues. The historic city centre caters to the tourist target, thereby transforming dwellings from functional necessities into means for wealth accumulation and exchange (Semi, 2015). Consequently, this transformation yields a diminished availability of housing options and a notable escalation in rental prices across diverse city districts. Such a situation forces inhabitants and long-standing residents to seek alternative housing solutions in peripheral neighbourhoods or neighbouring municipalities.

Instead, Castelfiorentino exhibits positive outcomes concerning urban regeneration endeavours. This achievement can be attributed to Castelfiorentino's distinction as the first municipality within the Empolese region to have received a grant for investment in urban regeneration initiatives spanning the period from 2021 to 2026. The allocation of resources is outlined within the framework of the National Recovery and Resilience Plan (PNR), as stipulated by the decree issued on December 30, 2021, by the Department of Internal and Territorial Affairs. The principal objectives underlying this financial allocation encompass the mitigation of marginalisation and social degradation phenomena, along with the enhancement of urban decorum and the reinforcement of the social and environmental fabric.

The second group of municipalities is associated with the principal component, renamed Urban Liveability, which encompasses aspects such as accessibility, mobility, and air quality. Fiesole stands out for its highly urban liveability, especially in terms of sustainable mobility, characterised by considerable recourse to public transport and slow mobility modes. It should be noted that Fiesole's advantageous proximity to Florence, only 3.4 km away, plays a key role in offering its residents easy access to essential infrastructure and transport networks. In contrast, Montelupo Fiorentino, Rufina, Londa, and Pelago exhibit distinctive characteristics, including morphological factors and lower urban population density. These municipalities are situated in an inner area, resulting in superior air quality and a more favourable urban environment. However, these advantages come at the cost of limited public mobility options and extended distances to major railway stations. Indeed,

mobility emerges as a central concern within these municipalities. For instance, Sesto Fiorentino and Calenzano are actively engaged in discussions regarding the tramway project, which occasionally becomes a focal point of consensus within local administrations. Hence, this latter group underscores the pivotal role of mobility in territorial development. Shifting towards alternative and sustainable modes of both public and private transportation not only has the potential to preserve air and environmental quality but also has the capacity to enhance accessibility and attractiveness for other towns within the metropolitan area.

Ultimately, localization of global indicators permits to monitor situations characterised by *severe* or *weak* sustainability trends over time and across spaces. An additional value-added is the PCA simplifying the observed complexity into a reduced set of key-factors. In turn, this offers an opportunity to target policy interventions towards the areas where the most critical elements nest.

7. Discussion

The main findings of the research are in line with recent literature (Arda et al., 2023; Bisogno et al., 2023; Clement et al., 2023; Croese et al., 2020; Fox, Macleod, 2023), which shows how local actors define the sustainability agenda, and adopt an experience-based approach to sustainable development linked to the needs and critical aspects of the territory. But also, how sustainable development emerges as a continuous process that brings together the different perspectives of different social actors, to find a collective compromise. It follows that, anchoring SDGs in local policies, is a process of 'translating" global goals into the specificities of a territory.

Therefore, this paper has analysed the importance of the localisation process for the effective implementation of the SDGs. The translation of global aspirations into local action plays a key role, as it requires the consideration of local priorities and administrative, political and fiscal challenges, as well as, the translation of an ambiguous, complex and multidimensional concept, such as sustainable development, into concrete local actions and targets.

In particular, this paper fits into the theoretical framework of local sustainability and focuses on the role of the Metropolitan City of Florence as an institutional actor, as a link between the municipal and regional levels for the implementation of sustainability. The localisation of the SDGs is approached from a dual perspective: by gathering the views of local policy makers and administrators to shape the local 'narrative' of sustainability, and by obtaining disaggregated data at the municipal level in line with the AGENDA 2030

framework. The two perspectives draw on different quantitative-qualitative research tools and reveal a significant convergence of findings, essentially a three-part vision of sustainability: social, environmental and administrative.

From the interviews and the webinars, a nested vision of sustainable development emerges, in which the environmental dimension (preserving, enhancing and protecting the territory from environmental risks) is interwoven with the social dimension related to liveable cities (i.e. the urgent issue of renewing the urban environment for a cohesive social fabric), with a focus on the socio-economic vulnerabilities of the population and the role of all local actors as an integral part of the process of defining and implementing the SDGs.

The narrative overview is fairly confirmed by the findings of the Principal Component Analysis, which highlighted two key dimensions for SGD 11 in the metropolitan area of Florence: i) management and maintenance of the socio-environmental balance, and ii) urban liveability. These two dimensions highlight vulnerabilities within territories, depicting a scenario that does not always align consistently with the sustainability actions of local administrators.

The first dimension emphasises the urgent need to improve urban environment management, focusing on natural hazards and those caused by human activities that lead to significant land consumption. It also addresses critical social issues such as inadequate housing and public safety. The second dimension highlights the correlation between urban mobility, air quality, and the urban environment. The lack of harmonisation between conventional and sustainable modes of transport is causing adverse effects on the environment (in terms of CO_2 emissions and high levels of $PM10$).

Both dimensions are embedded in an administrative sustainability that concerns the effective capacity of public administrations (based on their competences, economic, financial and human resources) to implement a coherent sustainable development policy through planning that is not only addressed to the electorate with a wink (in a short-term perspective), but includes a more structured, long-term vision.

Moreover, as also emerged from the interviews, the current administrative structure of the city of Florence seems to be facing weaknesses and a lack of human and financial resources. This jeopardises a structured and long-term vision of sustainable development that moves away from individual, isolated actions without any vision. The study highlights the following critical aspects that need to be addressed: i) development of administrative capacity, ii) strengthening of human and financial resources, iii) development of operational tools.

Firstly, the inability of the administration to adopt a cross-cutting approach to policy design and implementation is due to an outdated modus operandi that perpetuates the segmentation of unconnected areas of competence. To overcome this problem, there is a need to invest in continuous training of administrative staff to improve their skills in management and policy planning related to sustainability and to promote a shift towards more coherent and integrated policy implementation. Secondly, limited financial resources hinder long-term investment in projects and programmes. This challenge can be mitigated by promoting public-private partnerships, accessing European or national sustainability funds and exploring innovative financing mechanisms. Thirdly, sustainable policies require operational criteria and tools to describe the socio-economic and environmental needs in specific territorial contexts.

8. Conclusion

This article makes a significant contribution to the scientific discourse in the field of local sustainability, by providing important insights into how sustainable development permeates public discourse and how it can be put into practise. This study has two objectives: to consider the role of local actors in localising sustainable development, and to provide an operational tool that serves as a strategic guide to identify critical areas and priorities for action. The results show that the involvement of policy makers is crucial to raise awareness of local sustainability issues, describe their role and address the administrative challenges they face in their actions.

From a methodological perspective, the development of a measurement prototype offered the advantage of translating global goals into local targets, systematically organising useful data sources and shedding light on both the sustainability drivers and vulnerabilities of municipalities. However, the localisation process presented in this paper is not without limitations.

Firstly, it should be made clear that the analysis is limited to the experiences of policy makers, and does not take into account other stakeholders and citizens, who contribute to the localisation of sustainable development. In terms of measurement, the focus was on a single thematic area of the comprehensive 2030 Agenda programme, which prevents generalisation of the results to all other areas of intervention.

Secondly, although the decision to measure at the municipal level is relevant for local governments, it is limited by the availability of incomplete data. At this level of observation, data coverage tends to be lower and information can often be inaccurate or incomplete. The selection of official data-

sets, which are frequently updated and have maximum territorial coverage, has led to a reduction in the variables to be included in the analysis. In addition, the theme of Sustainable Cities and Communities (SDG 11) does not include qualitative indicators related to citizens' perception of the quality of life in the municipal reality. However, the integration of these subjective aspects was excluded from the analysis due to the excessive costs and long periods of time required to collect such data.

Finally, it is crucial to emphasise that, while the development of indicators may be methodologically sound, their potential to facilitate accurate understanding can only be realised if they are effectively disseminated to key local stakeholders, especially local political and administrative authorities. Despite these limitations, this study has contributed to the development of an original methodology that aims to translate global goals into relevant measures and indicators at the local level. This methodology could potentially be extended to other national and international metropolitan areas, allowing the development of comparative frameworks for different local contexts.

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Appendix

Tab. 1- SDG 11 Sustainable Cities and Communities		
Target	*Global indicators*	*Local indicators*
11.1 By 2030, ensure access for all to adequate, safe, and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements, or inadequate housing	- *Availability of services in the house*
		- *Type of services in homes*
		- *Size of dwellings by number of rooms*
		- *Incidence of buildings in a poor state of conservation*
		- *Home crowding index*
		- *Residential mobility (a) and foreign residential mobility (b)*
		- *Title to the dwelling*
		- *Type of compendium (Social housing program)*
		- *Incidence of homeless*
		- *Percentage and type of beneficiaries in reception centre*
		- *Presence and capacity for reception centre*
11.2 By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age, and persons with disabilities	- *Number of railway stations by municipality and type*
		- *Bus and trolleybus fleet*
		- *Public mobility (use of collective vehicle)*
		- *Daily mobility for work or study*
		- *Out-of-town mobility for work or study*
		- *Overall infrastructure endowment index*
		- *Index of accessibility to railway stations*
11.3 By 2030, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated, and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate	- *Land consumed per capita*
		- *Residential attractiveness index*
		- *Building expansion index in inhabited centres*
		- *Human density*
		- *Resident population*
		- *Fragmentation index of the urban landscape*
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total per capita expenditure on the preservation, protection, and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, local/municipal)	- *Number of cultural assets*
		- *Per capita expenditure for the protection of artistic assets*
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	- *Resident population at risk in areas with high hydraulic risk - P3*
		- *Resident population at risk in high and extremely high landslide hazard areas - P3+P4*
		- *Seismic risk indicator*
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities.	- *Production of municipal solid waste*
		- *Percentage of differentiated waste management*
	11.6.2 Annual mean levels of fine particulate matter (e.g., PM2.5 and PM10) in cities	- *Annual level of PM 10 compared to the annual limit established by law (40 µg/m3)*
11.7 By 2030, provide universal access to safe, inclusive, and accessible, green, and public spaces, for women and children, older persons, and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age, and persons with disabilities	- *Urban (non-agricultural) green areas per capita*
		- *Index of compactness of urban areas*
		- *Index of accessibility to urban centres*
		- *Area covered by trees*
		- *Expenditure on urban green areas*
		- *Number of Urban Gardens*
	11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	- *Number of anti-violence canters by municipality*