TERRITORY OF RESEARCH ON SETTLEMENTS AND ENVIRONMENT
INTERNATIONAL JOURNAL OF URBAN PLANNING
34

Designing inclusive urban spaces 2

Federico II University Press
UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II
CENTRO INTERDIPARTIMENTALE L.U.P.T.
fedOA Press
Vol. 18 n. 1 (JUN. 2025)
e-ISSN 2281-4574

TERRITORIO DELLA RICERCA SU INSEDIAMENTI E AMBIENTE

TRIA
TERRITORY OF RESEARCH ON SETTLEMENTS AND ENVIRONMENT
INTERNATIONAL JOURNAL OF URBAN PLANNING

WoS (Web of Science) indexed journal
http://www.tria.unina.it

Università degli Studi Federico II di Napoli
Centro Interdipartimentale di Ricerca L.U.P.T. (Laboratorio di Urbanistica e Pianificazione Territoriale) "*R. d'Ambrosio*"

Responsible Editor in chief: Mario Coletta | electronic ISSN 2281-4574 | © 2008 | Registration: Cancelleria del Tribunale di Napoli, n° 46, 08/05/2008 | On line journal edited by Open Journal System and published by FedOA (Federico II Open Access) of the Federico II University of Naples

TERRITORIO DELLA RICERCA SU INSEDIAMENTI E AMBIENTE
INTERNATIONAL JOURNAL OF URBAN PLANNING

Federico II University Press
fedOA Press

TRIA 34 (1/2025) 241-266/ e-ISSN 2281-4574 DOI 10.6093/2281-4574/12574
www.tria.unina.it - Web of Science (WoS) indexed journal

abstract

Decision Support Tools for Urban Regeneration: Collaborative Approaches and Tools for the Evaluation of Equitable and Sustainable Wellbeing

Francesca Nocca, Martina Bosone, Manuel Orabona, Pasquale Galasso

Abstract

For decades, Gross Domestic Product (GDP) was considered the main indicator for measuring the progress of nations. However, although GDP is useful for analysing economic growth, it is not sufficient to describe the real wellbeing of people and communities. Today, it is increasingly evident that the development of a territory has to consider also socio-cultural, environmental and relational dimensions, going beyond mere economic growth. In this perspective, the concept of Equitable and Sustainable Wellbeing (BES), developed by ISTAT in 2010, assesses people's quality of life through an articulated set of indicators, categorized into 12 domains, capable of representing the complexity of wellbeing.

In this context, the aim of the proposed research is to investigate the community's perceptions about the places it associates with conditions of 'wellbeing' and 'non-wellbeing' and the factors that most influence them. To this aim, starting from a literature analysis on existing approaches and tools for the assessment of wellbeing and from the outcomes of a participatory process involving the local community through surveys and focus groups, this study proposes a multidimensional evaluation framework (called P-BESq, the italian acronym for "Perception of Equitable and Sustainable Wellbeing in Neighbourhoods") consisting of 83 subjective/perceptual indicators to support the existing objective/quantitative ones for the assessment of the quality of life in cities on a neighbourhood scale from the community's point of view.

This framework provides an operational tool to integrate existing evaluation frameworks, based on objective/quantitative data, to support more inclusive urban transformation processes.

Keywords:

Urban Regeneration, Decision Support Tools, Equitable and Sustainable Wellbeing, Multidimensional evaluation, Subjective/perceptual indicators

Strumenti di supporto alle decisioni per la rigenerazione urbana: Approcci e strumenti collaborativi per la valutazione del benessere equo e sostenibile

Abstract

Per decenni il Prodotto Interno Lordo (PIL) ha rappresentato l'indicatore principale per misurare il progresso di una nazione. Tuttavia, sebbene utile per analizzare la crescita economica, il PIL non è sufficiente a descrivere il benessere reale delle persone e delle comunità. Oggi è sempre più evidente come lo sviluppo di un territorio debba considerare anche dimensioni socio-culturali, ambientali e relazionali, andando oltre la semplice crescita economica. In questa prospettiva si colloca il concetto di Benessere Equo e Sostenibile (BES), elaborato dall'ISTAT nel 2010, che valuta la qualità della vita delle persone attraverso un insieme articolato di indicatori, suddivisi in 12 domini, capaci di rappresentare la complessità del benessere.

In questo contesto, l'obiettivo della ricerca qui proposta è quello di indagare le percezioni della comunità rispetto ai luoghi che loro associano a condizioni di "benessere" e "non-benessere" e ai fattori che maggiormente ne influenzano la percezione. A tal fine, partendo da un'analisi di letteratura su approcci e strumenti esistenti per la valutazione del benessere e dagli esiti di un processo partecipativo che ha coinvolto la comunità locale attraverso sondaggi e focus groups, il presente studio propone un quadro di valutazione multidimensionale (denominato P-BESq, acronimo di "Percezione del Benessere Equo e Sostenibile nei Quartieri") costituito da 83 indicatori soggettivi/percettivi a supporto di quelli oggettivi/quantitativi esistenti per la valutazione della qualità della vita nelle città a scala di quartiere dal punto di vista della comunità.

Questo quadro offre uno strumento pratico ad integrazione dei quadri valutativi esistenti, basati su dati oggettivo/quantitativi, a supporto di processi di trasformazione urbana più inclusivi

Parole Chiave:

Rigenerazione Urbana, Strumenti di Supporto alle Decisioni, Benessere Equo e Sostenibile, valutazioni multidimensionali, indicatori soggettivo/percettivi

Decision Support Tools for Urban Regeneration: Collaborative Approaches and Tools for the Evaluation of Equitable and Sustainable Wellbeing

Francesca Nocca, Martina Bosone, Manuel Orabona, Pasquale Galasso

1. Introduction

The quality of the city directly influences the wellbeing of its inhabitants: well-designed spaces can foster physical, mental and social wellbeing, reduce inequalities and promote inclusion (Prescott-Allen, 2001; Stiglitz et al., 2010).

For decades, Gross Domestic Product (GDP) has been considered the primary indicator of a nation's progress. However, while this economic measure is useful for analyzing productive growth, it falls short in describing the real wellbeing of people and communities.

Today, more and more studies and concrete experiences show that the development of a territory cannot be assessed merely based on economic wealth but has to take into account social, environmental, and relational factors. Designing for wellbeing means not only ensuring accessibility and safety, but also creating places that, for example, foster social interaction and promote experiences that enhance quality of life.

The concept of Equitable and Sustainable Wellbeing (herein BES, as the Italian acronym), developed by ISTAT (Italian National Institute of Statistics) in 2010, emerged from the need to measure people's quality of life using a comprehensive set of indicators that encompass health, education, job quality, social cohesion, and environmental sustainability, going “beyond GDP”. This represents a methodological shift and also a cultural transformation that views territories not just as economic units but as socio-cultural ecosystems where wellbeing can be collectively fostered. Addressing this challenge requires public policies that are more people-centered, participatory evaluation tools, and a new vision of progress grounded in sustainable development that balances equity, sustainability, and quality of life.

The aim of this paper is to propose an evaluation framework for assessing the quality of life in cities from a subjective and community-based perspective (on the basis of the Equitable and Sustainable Wellbeing concept developed by ISTAT).

After the literature and grey review (Section 2) on community wellbeing evaluation, the methodology is described (Section 3) and a multidimensional evaluation framework is proposed (Section 4). In Section 5 the proposed evaluation framework is discussed. Then limitations and future steps of the research are discussed (Section 6).

2. Literature review

Several studies show that the daily experience in the city - from travel time, to

leisure opportunities, to the social interactions that the city allows - is reflected in life satisfaction and individual wellbeing. Design and planning “for people” is a topic already emerged in the past century in studies by some important urbanists, architects and police-makers (Lazzati, 1984; La Pira, 2017; Dossetti, 2014; Geddes, 1915) who highlighted the importance of building a “city of man on a human scale”. Gehl (2010) emphasizes the importance of prioritizing the “city for people,” arguing that focusing on human-centered planning fosters more vibrant and inclusive urban spaces, with positive spillover effects on culture and community cohesion.

Integrating the human dimension in the evaluation of wellbeing in cities means recognising that the physical form and social life of cities are inseparable: cities that are designed for people perform better not only in environmental or health indicators, but also in measures of citizen satisfaction and thus overall wellbeing.

Which tools can provide empirical evidence of the relationship between city quality and community wellbeing? Which evaluation tools? These questions are addressed in the following paragraph through the analysis and discussion on the literature review about the evaluation of wellbeing in cities.

2.1. Systematic literature review: the PRISMA method

A systematic literature review on the evaluation of perceived wellbeing in cities by community was conducted as part of this study to identify key aspects and the state of art in this field.

This systematic literature review adopted the Moher et al. (2009) Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method, resulting in a four-step process: identification of studies, screening, eligibility and inclusion (Figure 1).

Figure 1 shows the phases of the systematic search process for the literature review on the evaluation of perceived wellbeing in cities by community. In each step, the number of scientific sources selected is indicated.

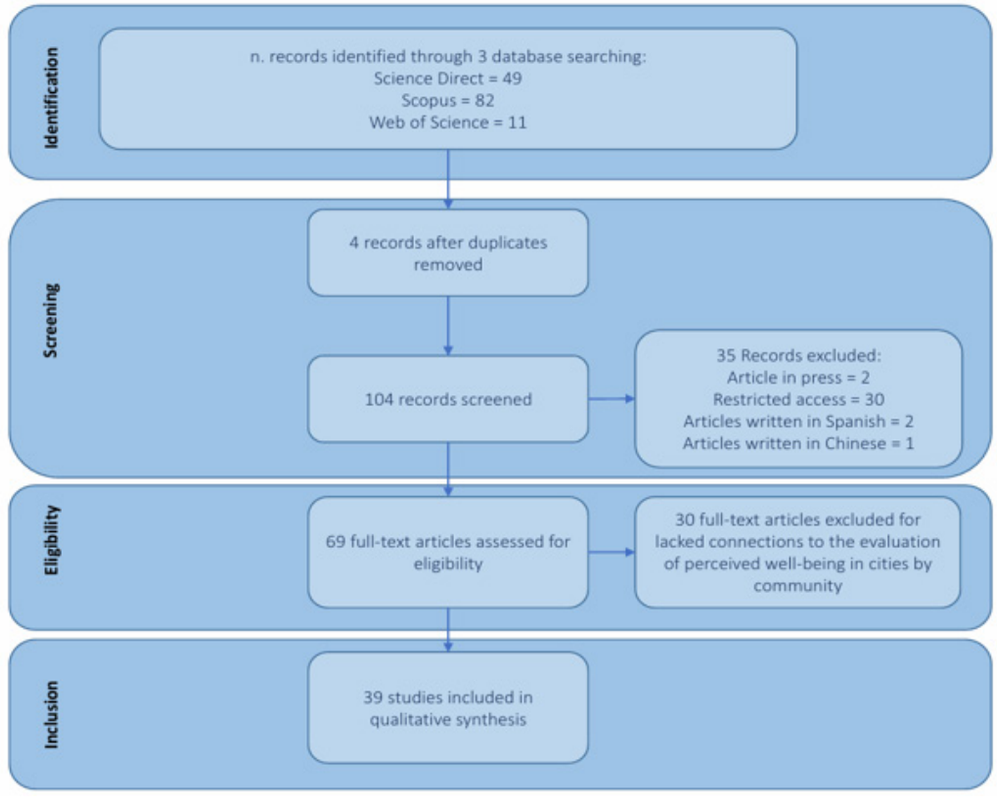
In the identification phase, three mainstream databases, including Web of Science, Scopus and ScienceDirect, were chosen as the research sources. The articles search was performed by title, abstract and keywords, using Boolean operators 'OR' and 'AND'. The keywords used for the articles search were organized in this combination: ("evaluation" OR "assessment" OR "co-evaluation") AND ("community" AND "perception" AND "wellbeing").

In the screening phase, some filters were adopted:

- only article in English are selected;
- articles in press were excluded;
- only open access articles were considered.

No filters were applied to the search for articles based on publication date. In the eligibility phase, all publications were examined by titles, abstracts and keywords. To avoid omitting important knowledge, another analysis was conducted on the content of

Fig. 1 - Systematic review phases: the PRISMA Flow



initially unsuitable articles. Papers unrelated to perception and evaluation of wellbeing were excluded.

Thirty-nine papers were assessed for eligibility and thus included in a qualitative synthesis.

In the inclusion phase, content analysis of these publications was then conducted to elicit relevant topics and perspectives on the evaluation of perceived wellbeing in cities by community. They are discussed in the following section.

2.2 Literature review on the evaluation of perceived wellbeing in cities by community

The evaluation wellbeing in urban areas has gained nowadays increasing attention in the academic and policy debate. The concept of wellbeing goes beyond economic growth and incorporates multiple dimensions, including health, environmental sustainability, and social equity (Stiglitz et al., 2010; Prescott-Allen, 2011; United Nations, 2012). As cities become the primary centers of economic production and population growth, they also generate substantial social and environmental challenges. The need to balance economic activity with ecological preservation and community cohesion has led to the development of multidimensional evaluation frameworks, balancing objective data (e.g. income, health) and subjective dimensions (e.g. life satisfaction, safety

perception) (Diener, 2006; Kangmennaang & Elliott, 2023). This literature review explores key theoretical frameworks and empirical contributions about community wellbeing evaluation, focusing both subjective and objective indicators to assess urban sustainability and inclusivity.

Pioneering efforts like the Stiglitz-Sen-Fitoussi Report and Istanbul Declaration highlighted the necessity of subjective indicators in gauging citizens' lived experiences (Stiglitz et al., 2010; Prescott-Allen, 2001). Frameworks such as BES (ISTAT, 2015; 2024), the OECD Better Life Index, and the Arcadis Sustainable Cities Index reflect this evolution, encompassing domains from health and education to governance, green space access, and subjective wellbeing (OECD, 2011; Arcadis, 2022). In particular, the BES framework developed by ISTAT in 2010, identifies 12 key domains that structure a comprehensive approach to wellbeing evaluation: Health, Education and Training, Work and work-life Balance, Economic wellbeing, Social relationships, Politics and Institutions, Safety, Subjective wellbeing, Landscape and cultural heritage, Environment, Innovation, Research and Creativity, Quality of Services. These domains reflect a recognition that prosperity must be measured in holistic terms, accounting for social cohesion, environmental conditions, and personal fulfillment.

Empirical research shows that physical and social urban environments greatly influence wellbeing. Access to green areas, walkability, and sustainable mobility correlate with improved physical and mental health, particularly among women and the elderly (Vert et al., 2019; Hu et al., 2025). Regeneration efforts like riverfront or cycling infrastructure upgrades increase social cohesion, satisfaction, and physical activity (Vert et al., 2019; Marquart et al., 2022).

Subjective safety, environmental aesthetics, and social capital further impact community resilience and individual flourishing (Ward et al., 2021; McCrea et al., 2019). Perceived environmental deprivation can exacerbate stress, especially in disadvantaged populations (Ho et al., 2020; Elwell et al., 2018). Social infrastructure, such as school support and housing conditions, also plays a protective role (Rodríguez-Rivas et al., 2023; Ward et al., 2021).

Studies emphasise the importance of integrating community perceptions through participatory methods like concept mapping, stakeholder engagement, and community-based interventions (Mehdipanah et al., 2013; Schlemm et al., 2025; Blackwell & Colmenar, 1999). Locally grounded assessments of ecosystem services and wellbeing dimensions ensure more inclusive, culturally relevant urban planning (Tavano Blessi et al., 2016; Adeyemi et al., 2022; Schlemm et al., 2025).

Innovative models like ecotherapy and "edible landscapes" redefine wellbeing by reconnecting people with nature and fostering place-based identity and resilience (Farrier et al., 2019; Isham et al., 2025). Gendered and youth-specific approaches also emerge as key, considering differential impacts of urban design on various groups (Martin-Storey et al., 2018; Blackwell, 2023).

Indices like the Global Liveability Index (The Economist Intelligence Unit, 2025), Mercer's Quality of Living (Mercer, 2024), the Happy City Index (Institute for Quality

of Life, 2025), and Knight Frank's City Wellbeing Index (Knight Frank, 2025) attempt to quantify urban wellbeing across multiple domains but often rely on national data or overlook intra-urban disparities. Participatory GIS, real-time perception surveys, and mixed-method designs help bridge these gaps (Bateman & Muñoz-Rojas, 2019; Schlemm et al., 2025).

Smart city initiatives integrating digital tools, mobility platforms, and inclusive governance mechanisms can further enhance wellbeing if grounded in local realities and equity considerations (Nikitas et al., 2019; Bateman & Muñoz-Rojas, 2019). However, green infrastructure must go beyond aesthetics, offering functional benefits like improved air quality, biodiversity, and emotional refuge (Marquart et al., 2022; Ho et al., 2020).

Finally, wellbeing assessments must go beyond disciplinary silos, integrating subjective insights, ecological metrics, and cultural narratives. A city's capacity to foster wellbeing depends on inclusive governance, resilient infrastructure, and an ability to reflect its inhabitants' values and lived realities (Montgomery, 2013; Greco et al., 2015; Wood et al., 2013).

Integrating objective indicators with subjective evaluation allows for a more comprehensive understanding of urban sustainability and inclusivity. Future research should focus on refining participatory methodologies and developing adaptable wellbeing indices that reflect local contexts and evolving societal needs. By incorporating community perspectives into policy frameworks, cities can move towards the achievement of more equitable and sustainable wellbeing goals. A holistic approach that incorporates health, safety, education, environmental sustainability, and social cohesion is essential for stimulating resilient urban environments that prioritize human flourishing (VanderWeele, 2017). However, today these frameworks are mainly focused on quantitative and objective indicators, neglected the subjective/perceptual aspects which are essential to fully capture the complexity of urban wellbeing.

3. Methodology

The main objective of this research is to develop a framework for evaluating quality of life in urban contexts through a subjective/perceptual, community-based perspective. This approach is intended to integrate existing quantitative frameworks and to support and guide urban transformation processes and projects. The framework builds on the concept BES developed by ISTAT, which defines wellbeing as a multidimensional concept encompassing 12 key domains (see Section 2.1).

Unlike the ISTAT framework, which is designed for application at the national and metropolitan city levels, the evaluation framework proposed here operates at the urban scale, with particular attention to both the city and neighborhood levels (see Figure 2). This dual-level approach acknowledges that wellbeing is shaped not only by conditions at the broader city level, but also—and often more significantly—by the

Fig. 2 - The proposed evaluation framework (P-BESq): territorial scale

local environments in which people live their daily lives.

Neighborhoods represent the most immediate spatial context of individual and collective experiences, and as such, they are fundamental units of analysis for capturing the granular variations in quality of life across different areas of the same city (McElroy et al., 2021). Factors such as access to services, perceived safety, social cohesion, and environmental quality can vary substantially from one neighborhood to another, influencing residents' perceptions of wellbeing.

According to the BES approach, quality of life extends beyond health status and economic conditions, encompassing a wide range of factors that influence everyday life in urban environment. However, as aforementioned, the ISTAT BES framework provides a valuable system of objective (and mainly quantitative) indicators at the national and metropolitan city levels. These indicators alone are not sufficient to fully capture the complexity of wellbeing as experienced within urban environments. Objective metrics - such as air quality, crime rates, or access to services - provide essential information, but they do not account for how such aspects are perceived or experienced by locals. They are necessary, but not sufficient. For example, it is important to know how much green spaces are available in a city, but it is equally important to understand whether and how these spaces are actually used and valued/perceived by the community. Similarly, low crime rates do not necessarily imply a strong sense of safety among locals.

Therefore, a comprehensive evaluation of wellbeing has to combine objective data with subjective/perceptual ones. As highlighted by ISTAT (ISTAT, 2024), wellbeing is about what happens, but also about how people experience and interpret it.

In this perspective, this study proposes an evaluation framework (named P-BESq, Italian acronym of "Percezione del Benessere Equo e Sostenibile nei Quartieri") consisting of subjective/perceptual indicators for supporting the existing objective/quantitative ones (as BES) in the evaluation of the quality of life in cities at neighborhood scale (Figure 3). These indicators represent a parameter for measuring the community perception of wellbeing in relation to many factors (linked to the aforementioned 12 domains) in the city that may influence the quality of life.

Community perceptions - commonly referred to as 'soft' data - provide a critical lens

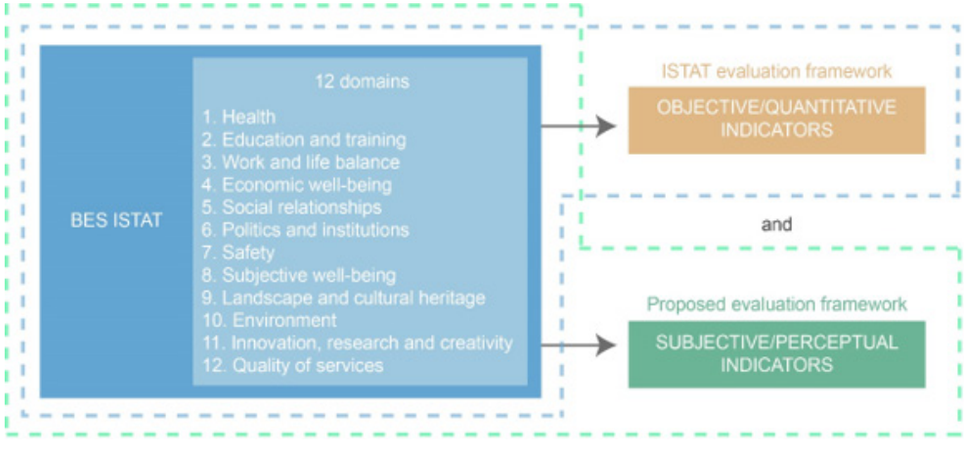
for interpreting real needs and everyday experiences. These insights complement 'hard' data, which is typically quantitative. Integrating subjective and perceptual indicators introduces the human dimension into wellbeing evaluations, enabling a more holistic and context-sensitive evaluation.

The framework is structured around the 12 BES domains and integrates subjective-perceptual indicators identified through both the literature review (see Section 2.1) and a participatory process involving the local community via surveys and focus groups, conducted both in person and online. This participatory component was designed to identify which aspects of urban life are most closely associated with wellbeing, as perceived by the community itself. To support this, a collaborative map (named "BES Co-Mapping" available at https://arcg.is/1T9jrv1) was developed using an online geolocation tool (ArcGIS Survey123). The tool enables the georeferencing of survey responses, providing a spatial representation of the places and factors that residents associate with conditions of 'wellbeing' and 'non-wellbeing' within the urban environment.

4. The proposed evaluation framework

In Table 1, the P-BESq multidimensional evaluation framework is provided including a set of 83 subjective/perceptual indicators grouped in the 12 BES domain. The first column indicates the domain ID, the second column indicates the specific domain to which each indicator refers, providing essential context for understanding the data. The third column is referred to the indicator ID number, a unique identifier assigned to each indicator, which facilitates the cataloging and consultation of the framework. In the fourth column, the indicator itself is reported, representing a concrete measure of an aspect of the analyzed domain. The fifth column indicates the function of each indicator, where the sign 'max' means that a high value of the indicator contributes to a high wellbeing (positive correlation) while the sign 'min' means that a high value of the indicator contributes to a low wellbeing (negative correlation). The unit of measure for each indicator is the Likert scale (Likert, 1932), as this scale allows the evaluation of behaviors and opinions that would otherwise be difficult to capture. However, besides the Likert scale, the binary scale can also be valid, as it allows the assessment of dichotomous situations such as the presence or absence of a certain perception.

Fig. 3 - The proposed evaluation framework (P-BESq): domains and indicators typology



Tab 1 - The subjective dimension of BES: the proposed multidimensional evaluation framework (P-BESq)

Domain ID	Domain	Indicator ID	Indicator	Function
1	Health	1.1	Level of perceived correlation between own physical health condition and the quality of the urban context	max
		1.2	Level of perceived correlation between own psychological wellbeing condition and the quality of the urban context	max
		1.3	Level of trust in the local healthcare system (general practitioner, consulting room, local surgeries)	max
		1.4	Level of perceived correlation between the possibility of being affected by disease in the future and the quality of the urban context	min
		1.5	Level of satisfaction with the supply of local public spaces for outdoor sports	max
		1.6	Level of perceived correlation between presence of local urban gardens (if any) and personal wellbeing	max
		1.7	Level of perceived correlation between taking care of urban gardens (if any) and personal wellbeing	max
2	Education and Training	2.1	Level of satisfaction with the proximity from own home to the education services (i.e. schools)	max
		2.2	Level of satisfaction with the physical accessibility to the education services (i.e. schools)	max
		2.3	Level of satisfaction with the local supply of cultural activities (i.e. cinema, theaters, museums)	max
		2.4	Level of satisfaction with the proximity from own home to cultural activities (i.e. cinema, theaters, museums)	max
		2.5	Level of satisfaction with the physical accessibility to cultural activities (i.e. cinema, theaters, museums)	max

Domain ID	Domain	Indicator ID	Indicator	Function
3	Work and work-life Balance	3.1	Level of satisfaction with the job opportunities offered by the city of current living	max
		3.2	Level of satisfaction with the provision of community-based leisure activities (i.e. artistic laboratory, reading groups, heritage walking, outdoor cinema)	max
		3.3	Level of satisfaction with the availability of spaces for smart working	max
		3.4	Level of satisfaction with the urban environment quality at the workplace	max
4	Economic wellbeing	4.1	Level of satisfaction with the access to the housing market compared to expectations	max
		4.2	Level of perception of fair (economic) access to local public transport (i.e. prices, subsidies)	max
		4.3	Level of perception of fair (economic) access to public local healthcare services (i.e. prices, subsidies)	max
		4.4	Level of satisfaction with the relationship between own income and the quality of public services provided	max
5	Social relationships	5.1	Level of perception of the degree of social cohesion in own neighbourhood (trust, cooperation, mutual respect)	max
		5.2	Level of perception of inclusion in local relationships, resources and opportunities	max
		5.3	Level of concern about being excluded from local relationships, resources and opportunities	min
		5.4	Level of sense of belonging to the local community	max
		5.5	Level of satisfaction with the usability of local public spaces (i.e. parks, squares) as meeting and relationship places	max

Domain ID	Domain	Indicator ID	Indicator	Function
		5.6	Level of trust placed in neighbors for relationships (collaboration, mutual help, and safety)	max
		5.7	Level of satisfaction with the involvement in activities of public interest (i.e. civic events, volunteering)	max
		5.8	Level of perceived correlation between presence of public interest local activities (i.e. civic events, volunteering) and personal wellbeing	max
		5.9	Level of perception of effective cultural/social integration between local communities and minority groups	max
		5.10	Level of willingness to financially support local activities of public interest (i.e. crowdfunding)	max
		5.11	Level of trust in Third Sector organisations active in the territory	max
6	Politics and Institutions	6.1	Level of satisfaction with the degree of citizen involvement in local public decision-making processes	max
		6.2	Level of perception of the effectiveness of policy decisions on urban development (planning, regeneration)	max
		6.3	Level of perceived transparency in decision-making processes of local urban development policies	max
		6.4	Level of perceived accessibility to digital services of public institutions	max
		6.5	Level of perception about the capacity of institutions in receiving citizens needs	max
7	Safety	7.1	Level of perception of safety in the neighborhood by day	max

Domain ID	Domain	Indicator ID	Indicator	Function
		7.2	Level of perception of safety in the neighborhood by night	max
		7.3	Level of perception of safety at pedestrian crossings	max
		7.4	Level of fear of being a victim of crime (i.e. theft, vandalism)	min
		7.5	Level of perceived trust in local law enforcement agencies as guarantors of urban safety and collective wellbeing	max
		7.6	Level of concern about the presence of criminal activities (drug dealing, vandalism, fights)	min
		7.7	Level of perceived correlation between criminal event and public lighting	max
		7.8	Level of perception of safety when walking alone at night in the city	max
8	Subjective wellbeing	8.1	Level of satisfaction with the quality of the neighbourhood's public spaces for relaxation, leisure and socialising	max
		8.2	Level of satisfaction with the accessibility to the neighbourhood's public spaces for relaxation, leisure and socialising	max
		8.3	Level of satisfaction with the proximity of the neighbourhood's public spaces for relaxation, leisure and socialising	max
		8.4	Level of trust in Local Social Plans	max
		8.5	Level of perceived correlation between the effectiveness of Local Social Plans actions and the improvement of quality of life	max
		8.6	Level of perceived alignment between own lifestyle needs and the opportunities provided in the urban context	max

Domain ID	Domain	Indicator ID	Indicator	Function
9	Landscape and cultural heritage	9.1	Level of satisfaction with the state of conservation of local cultural heritage	max
		9.2	Level of satisfaction with the maintenance of the built heritage in the neighborhood	max
		9.3	Level of satisfaction with the care/maintenance of local public spaces (i.e. parks, squares)	max
		9.4	Level of perception of the neighborhood's aesthetic quality	max
		9.5	Level of willingness to attend local cultural events	max
		9.6	Level of satisfaction with participation in local cultural events	max
		9.7	Level of interest in the protection/valorization of cultural heritage in the neighborhood	max
		9.8	Level of willingness to care for the valorization of cultural heritage in the neighborhood	max
		9.9	Level of willingness to care for local public spaces	max
10	Environment	10.1	Level of perception of air quality in the neighborhood	max
		10.2	Level of concern about the local effects of climate change (such as heat waves, flooding, or loss of urban greenery) in relation to the liveability of the neighbourhood	min
		10.3	Level of perceived accessibility to local urban green areas considering architectural barriers	max
		10.4	Level of perceived accessibility to local urban green areas considering physical distance	max

Domain ID	Domain	Indicator ID	Indicator	Function
		10.5	Level of perceived accessibility to local urban green areas considering continuity of pedestrian routes	max
		10.6	Level of perceived equal and fair (physical) access for vulnerability groups to local urban green spaces (children, elderly, people with disabilities, low income families)	max
		10.7	Level of satisfaction with the maintenance of local green areas	max
		10.8	Level of usability of local green areas	max
		10.9	Level of perception of visual pollution (e.g., barriers) in the neighborhood	max
		10.10	Level of perception of noise pollution (e.g., traffic) in the neighborhood	max
11	Innovation, Research and Creativity	11.1	Level of physical accessibility to co-working spaces in the neighborhood	max
		11.2	Level of physical accessibility to innovation spaces (incubators/accelerators, fab labs, etc.) in the neighborhood	max
		11.3	Level of perception of technological training opportunities	max
		11.4	Level of effective participation in innovation, research, and creativity projects	max
		11.5	Level of interest in innovation, research, and creativity projects	max
12	Quality of Services	12.1	Level of satisfaction with the local public transportation	max
		12.2	Level of satisfaction with the distance to the essential neighborhood services	max

Domain ID	Domain	Indicator ID	Indicator	Function
		12.3	Level of perception of equal and fair (physical) access to public transportation	max
		12.4	Level of perceived ease of access to administrative digital services	max
		12.5	Level of satisfaction with waiting times in local public services	max
		12.6	Level of perception of the efficiency of local bureaucracy	max
		12.7	Level of physical accessibility to local emergency and support services (medical, social, psychological)	max
		12.8	Level of satisfaction with the efficiency of the local public healthcare services	max
		12.9	Level of satisfaction with local childcare services (i.e. nurseries, preschools, after-school programs, daycare centers)	max

5. Discussions

The proposed evaluation framework consists of 83 subjective/perceptual multidimensional indicators covering all the BES domains. These indicators were deduced by identifying the corresponding perceptual indicator of each quantitative/objective indicator proposed by BES (where possible) and by integrating additional indicators emerging from a critical analysis of the literature review. This framework aims to complement the quantitative/objective indicators of ISTAT BES with perceptual indicators. It does not aim to evaluate people's quality of life in absolute terms but rather to assess quality of life in relation to the city and urban space. The goal is to understand wellbeing or lack thereof within specific cities and neighborhoods, supporting urban transformation decisions through a human-centered approach.

Each indicator describes an aspect of wellbeing that can be positively or negatively affected by urban organization. In turn, people's perceptions of urban spaces can shape how these spaces are used and influence their transformations, including informal ones. Perceptions are always the result of an integration between objective and subjective elements, which is why the proposed evaluation framework integrates the objective indicators already included in the BES.

While all indicators could fall under the 'subjective wellbeing' domain due to their

perceptual nature, they have been categorized based on the domain of the predominant factor generating the perception.

Most indicators (i.e. “1.5 Level of satisfaction with the supply of local public spaces for outdoor sports”, “2.1 Level of satisfaction with the proximity from own home to the education services (i.e. schools)” and “5.5 Level of satisfaction with the usability of local public spaces (i.e. parks, squares) as meeting and relationship places”) directly describe the relationship between citizens' perceptions and the various factors of urban space that influence them.

Some indicators could belong to more than one domain; however, they are included in the domain deemed most relevant for describing the phenomenon. Classifying the indicators into domains facilitates the analysis of the data, but their real usefulness emerges when they are interpreted in relation to each other. This allows for a more integrated assessment of wellbeing in cities based on the perceptions of their residents. For instance, Indicator 10.4 “Level of perception of fair access to green spaces for all social groups' was included in the 'Environment” domain because of its link with accessibility to green spaces, but it could also be included in the 'Social relationships' domain because of its link with inclusion. Similarly, "Level of perception of the degree of social cohesion in own neighborhood (trust, cooperation, mutual respect)" is included in the "Social relations" domain, but could also be linked to "Subjective wellbeing”.

Additionally, only indicators referring to the natural environment are considered under the "Environment" domain. The built environment is instead included in the "Landscape and Cultural Heritage" domain.

Some indicators are based on assessing the “level of perceived correlation.” Unlike the previous ones, these indicators explore individuals’ perceptions of direct correlations in various contexts. For example, they examine the perceived link between personal wellbeing and the quality of the urban environment, such as the connection between one’s physical health or the risk of future illness and urban conditions context (i.e. indicator 1.1 “Level of perceived correlation between own physical health condition and the quality of the urban context” and indicator 1.4 “Level of perceived correlation between the possibility of being affected by disease in the future and the urban context”). They also investigate the perceived correlation between specific urban features—like the presence of local urban gardens—and individual wellbeing (Indicator 1.6 “Level of perceived correlation between presence of local urban gardens (if any) and personal wellbeing”). Additionally, these indicators consider perceptions of relationships between different urban aspects themselves, such as the link between criminal events and public lighting (i.e. indicator 7.7 “Level of perceived correlation between criminal events and public lighting”). Finally, they assess how people perceive the effectiveness of existing policies in improving quality of life, such as the impact of Local Social Plans (indicator 8.5 “Level of perceived correlation between the effectiveness of Local Social Plans actions and the improvement of quality of life”).

This type of indicator goes beyond merely assessing perceptions of specific urban features; it examines citizens’ awareness of how these features impact their quality of

life. Such indicators are especially valuable as they reveal dimensions that objective measures alone cannot capture. However, it is important to recognize that perceptions of these correlations vary significantly based on cultural, socio-economic, and personal experiences. This variability makes comparisons across different territories challenging unless the data are properly contextualized and supplemented with additional information - gathered through direct engagement with the relevant communities - to accurately interpret their meaning in diverse contexts.

Considering the indicators related to "physical accessibility", such as those included in the domains "Education and training", "Environment" and "Quality of services", the meaning is inspired by that defined by ISTAT, which interprets accessibility as the proportion of a population segment (e.g., residents) relative to the minimum distance to a given service. However, in the P-BESq framework, accessibility is also considered in relation to the concepts of equity and social justice, which translate into aspects that go beyond the purely physical, as in the case of indicators "4.2 Level of perception of fair (economic) access to local public transport (i.e. prices, subsidies)" and "4.3 Level of perception of fair (economic) access to public local healthcare services (i.e. prices, subsidies)", which instead express the possibility of accessing services based on economic availability.

Other indicators related to equal and fair access highlight the possible gap between objective data and perception: it is not just a question of knowing whether an urban green space is physically close to where people live or whether the neighborhood is well served by public transport, but also of understanding whether citizens actually perceive these places as accessible, usable and safe (i.e. indicator 10.6 "Level of perceived equal and fair (physical) access for vulnerability groups to local urban green spaces (children, elderly, people with disabilities, low income families)" and indicator 12.3 "Level of perception of equal and fair (physical) access to public transportation").

It is important to note that perception across domains may have direct implications for both physical and psychological health. The framework is therefore not focused on quantitative behavior data (e.g., hours of sport practiced), but rather on individuals' subjective perception of that behavior (e.g., satisfaction with the availability of outdoor public spaces for sport). The goal is to investigate how people perceive the quality of their experiences and the resulting wellbeing, rather than simply measuring what they do or how often they do it.

The proposed framework is intended for policymakers, local administrations, urban planners, researchers, and community stakeholders seeking a more nuanced understanding of urban quality of life. It targets those moving beyond strictly quantitative assessments by incorporating subjective and perceptual dimensions of wellbeing as experienced by communities. In particular, this framework can be a useful decision-support tool for urban governance and planning actors who recognize the value of integrating citizens' lived experiences into policy design and evaluation, enabling more effective strategies based also on community needs and perceptions, not just economic/quantitative data.

In this perspective, urban stakeholders are seen as community-holders, not just resource users, but resources themselves. The framework can contribute to achieve a more inclusive, responsive, and sustainable urban development providing a tool that allows to integrate objective with subjective/perceptual indicators in decision-making processes. This approach shifts from individual interest to collective interest, where each community member becomes a "prosumer" - a producer of values, not just a user - contributing to co-creation actions (Boeri et al. 2016; Izvercianu et al. 2014).

In this perspective, the community-holder role is essential to ensure active participation and interaction among citizens and with institutions, enabling the identification of shared needs and strategic planning. Each citizen can contribute by leveraging their individual skills, promoting social cohesion (Turchi & Messina, 2019).

Tools for collecting data from community to populate this framework play a central role. By using mobile apps and interactive web tools, for example, a socio-technical network (Lamb et al., 2000) can be developed where citizens co-create shared knowledge to inform urban regeneration efforts aligned with community needs. Geographic Information Systems (GIS) can support this process by collecting and mapping both quantitative and qualitative data (De Toro et al., 2020), ensuring interoperability across heterogeneous databases.

Together with urban data analytics platforms, GIS enables the integration of official indicators (e.g., income, education, health, transport, air quality) with more complex spatial topics, including subjective and perceptual data. This enables a spatially explicit, multidimensional representation of urban wellbeing, which is valuable for scenario analysis and informed decision-making (Goodspeed, 2020; Batty, 2013).

For instance, ArcGIS Survey123 is a mobile and web-based platform that allows the design and administration of tailored surveys, integrating closed and open-ended questions, rating scales, and, significantly, the ability to collect geographic information (e.g., the exact location marked by the user on a map or recorded via GPS). Recent GIS developments move beyond static mapping, offering dynamic and participatory data production. Participatory GIS platforms (PGIS), geo-referenced online surveys, social sensing, and data storytelling tools (e.g., ArcGIS StoryMaps) provide interfaces where objective data and perceptions coexist and reinforce each other. These interfaces help co-create data as a participatory, place-based social process. This feature proved particularly valuable for mapping citizens' perceptions of specific places or neighborhoods, linking responses (i.e. regarding themes such as safety, accessibility to green spaces, quality of services, social cohesion) directly to spatial indicators already present in the BES framework.

Through the use of ArcGIS Survey123, the large-scale data collection (both online and in face-to-face settings) is simplified, thanks to compatibility with mobile devices. Furthermore, this tool directly integrates collected data into GIS environments, accelerating analysis and visualization processes through interactive dashboards and thematic maps.

The user-friendly interface encourages participation and enhance citizen engagement

even among individuals with limited digital skills. The use of ArcGIS Survey123 can enable the transformation of perceptual data into spatial information, thereby improving the territorial analysis and understanding of urban wellbeing. Furthermore, it can facilitate the creation of a shared digital environment where citizens, local administrations, and stakeholders can collaborate and co-produce knowledge that supports effective urban governance.

Combining these tools enables the development of hybrid evaluation systems that integrate quantitative and qualitative data, which are collected, processed, and visualized within shared digital platforms. The results can be presented through interactive dashboards and thematic maps, effectively highlighting priority areas for intervention.

Although this type of evaluation framework involves collecting data directly from individuals, its primary goal is to provide a comprehensive assessment of community wellbeing by aggregating individual responses. This approach ensures that the results accurately represent the needs and expectations of the community within a specific context. It is therefore clear that this approach can produce different results both within the same community (depending on the characteristics of the sample analysed) and between different communities (due to the different urban factors that influence respondents' perceptions).

The statistical quality of the data collected, i.e. their “fitness for use” in terms of user needs, is linked to seven dimensions that provide a structured method for assessing the quality of a particular set of statistics. These seven dimensions are: Relevance, Accuracy, Credibility, Timeliness, Accessibility, Interpretability, Coherence (Siciliani et al., 2015).

Much like any other survey-based measure, it is clear that subjective wellbeing data can be affected by the measurement methods adopted. All measures suffer from errors, even the most objective measures used in “hard” sciences. According to Bradburn, Sudman and Wansink (2004), these errors could be failures in memory, lack of appropriate motivation, failures in communication and lack of knowledge.

This bias can be overcome through a dynamic and evolutionary approach to assessment, i.e. one that can be repeated over time, including more and more users and diversifying their characteristics, but above all providing for processes of sharing and discussing the results with them in order to use the feedback received as input for improving the next assessment step.

The fundamental prerequisite for making the proposed framework operational is the direct involvement of citizens as the target group, who are given an active role as co-producers of knowledge, establishing a continuous dialogue with them in order to gather their perceptions of wellbeing and non-wellbeing in urban contexts.

While objective data derive from available institutional sources, subjective data is collected directly from the community through qualitative and quantitative survey tools.

In this context, data collection may involve both direct interaction between the interviewer and the interviewee through face-to-face interviews (gathering testimonies and observations that may reveal aspects not detectable through the collection of hard data alone) and indirect interaction using digital and interactive tools. Questionnaires

and surveys are key tools for collecting data on citizens' individual perceptions of the various domains of the BES. Through these tools, it is possible to obtain detailed information on aspects such as subjective wellbeing, perceived quality of services, perceived safety and other relevant factors that influence people's daily lives.

To further explore the data collected, focus groups and interviews can be conducted. These qualitative techniques offer the opportunity to explore citizens' opinions and experiences in more detail. By involving community representatives, local associations and other stakeholders, it is possible to contextualise responses and identify priority issues, making the assessment process even more relevant.

6. Conclusions

This study proposes an evaluation framework including subjective/perceptual indicators intended to complement existing objective frameworks for evaluating Equitable and Sustainable Wellbeing (BES) in urban areas. While traditional metrics provide essential data on material conditions - such as infrastructure, air quality, and economic indicators - they often fail to capture how communities actually experience and perceive their urban environment. The proposed framework addresses this gap by introducing 83 subjective/perceptual indicators across 12 BES domains, providing a nuanced understanding of wellbeing that integrates community point of view into urban planning and policy-making.

By systematically collecting and analyzing subjective/perceptual data - through surveys, participatory mapping, and focus groups – the proposed framework enables policymakers to identify hidden challenges and prioritize interventions that align with community needs.

However, as a limitation of the framework, subjective indicators are inherently context-dependent and may require careful calibration to ensure comparability across different neighborhoods or cities.

Of course, other aspects also contribute to people's wellbeing such as, for example, their physical health, satisfaction with their economic condition, their job and their work-life balance. However, these aspects were not included in the evaluation framework as they are not related to a direct influence of urban factors on them. Furthermore, the framework is conceived as a support tool for decision-makers in the elaboration of development strategies capable of considering, and thus satisfying, the needs expressed by citizens. Labour policies or issues related to physical wellbeing require targeted decisions and concern issues that are too specific to be solved by urban-scale strategies.

Additionally, the dynamic nature of community perceptions calls for iterative data collection and adaptive governance models.

The proposed evaluation framework can be enriched and further developed through the elaboration of composite indices capable of concisely expressing complex phenomena, as in this case. The index allows quantitative and qualitative aspects to be aggregated

and can also be visualized through maps

Ultimately, this study highlights the critical need to bridge the gap between quantitative and qualitative approaches in evaluating urban wellbeing. By complementing objective metrics with community perceptions, cities can overcome traditional top-down planning, fostering development that is more inclusive, responsive, and centered on people's lived experiences. This framework offers a practical tool to operationalize the concept of wellbeing extending beyond measurable outcomes to encompass how individuals perceive, experience, and actively shape the places they call home.

This aligns with the broader shift toward a participatory governance, where citizens are not merely beneficiaries of urban policies but active co-creators of their own wellbeing. A next step of the research could b to test and refine this framework in diverse urban contexts.

Acknowledgements

Conceptualisation, F.N., M.B.; theoretical framework: F.N., M.B.; methodology, F.N, M.B., M.O. and P.G; evaluation framework development F.N, M.B., M.O. and P.G; writing—original draft preparation, F.N., M.B., M.O. and P.G.; writing—review and editing, F.N., M.B., M.O. and P.G. All authors have read and agreed to the published version of the manuscript.

References

- Prescott-Allen, R. (2001). The wellbeing of nations; Washington, D.C., United States:Island press.
- Stiglitz, J. E., Sen, A.,Fitoussi, J.P. Report by the Commission on the Measurement of Economic Performance and Social Progress, 2009.
- Lazzati, G. (1984). La Città dell'uomo, Costruire, da Cristiani, la Città dell'uomo a Misura D'uomo; Ave: Roma, Italy.
- La Pira, G. (2014). Le Città Sono Vive; La Scuola: Brescia. Italy; ISBN 8835016029.
- Dossetti, G. (2017). Per la Vita della Città; Zikkaron: Marzabotto, Bologna, Italy; ISBN 9788899720322.
- Geddes, Patrick, Sir (1915). Cities in evolution: an introduction to the town planning movement and to the study of civics. London: Williams & Norgate.
- Gehl, J. (2010). Cities for people; Washington, D.C., United States: Island press.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Bmj, 339.
- United Nations (2012). Rio+20: The Future We Want. Outcome document of the United Nations Conference on Sustainable Development. Rio de Janeiro, Brazil, 20–22 June 2012. Available at: at: https://sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf (last access: 7 June 2025)
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. Psychological Bulletin, 125(2), 276–302. https://doi.org/10.1037/0033-2909.125.2.276
- Kangmennaang, J., Elliott, S. J. (2023). Assessing the psychometric properties of a global
- wellbeing measure in Ghana, Wellbeing, Space and Society, 4, 100141. https://doi.org/10.1016/j.wss.2023.100141
- ISTAT (2015), Il benessere equo e sostenibile in Italia. Istituto Nazionale di Statistica; Roma, Italia. Accessible at: https://www.istat.it/it/archivio/182758 (last access: 23rd May 2025).
- ISTAT (2024), Rapporto Bes 2023: il benessere equo e sostenibile in Italia. Accessible at: https://www.istat.it (last access: 23rd May 2025).
- OECD (2011). Better Life Index. OECD Observer, Volume 2011 Issue 1, OECD Publishing, Paris, https://doi.org/10.1787/observer-v2011-1-en.
- Arcadis (2022). Sustainable Cities Index 2022. Accessible at: https://www.arcadis.com/it-it/approfondimenti/perspectives/global/sustainable-cities-index (last access: 23rd May 2025).
- Vert, C., Carrasco-Turigas, G., Zijlema, W., Espinosa, A., Cano-Riu, L., Elliott, L. R., Litt, J., Nieuwenhuijsen, M. J., Gascon, M. (2019). Impact of a riverside accessibility intervention on use, physical activity, and wellbeing: A mixed methods pre-post evaluation. Landscape and urban planning, 190, 103611. https://doi.org/10.1016/j.landurbplan.2019.103611
- Hu, H., Zhou, H., Cheng, J., & Shu, T. (2025). The effects of green apartment living, neighborhood greenspace exposures and greenspace exposures in activity space on residents' walking behaviors and mental health in China. Applied Geography, 177, 103545. https://doi.org/10.1016/j.apgeog.2025.103545
- Marquart, H., Stark, K., & Jarass, J. (2022). How are air pollution and noise perceived en route? Investigating cyclists' and pedestrians' personal exposure, wellbeing and practices during commute. Journal of transport & health, 24, 101325. https://doi.org/10.1016/j.jth.2021.101325
- Ward, M. C., Milligan, C., Rose, E., Elliott, M., & Wainwright, B. R. (2021). The benefits of community-based participatory arts activities for people living with dementia: a thematic scoping review. Arts & health, 13(3), 213-239. https://www.tandfonline.com/doi/full/10.1080/17533015.2020.1781217
- McCrea, R., Leonard, R., & Walton, A. (2024). Subjective community well-being and resilience in a rural region experiencing rapid change. Chapter 16 in Handbook of Quality of Life Research. Cheltenham, UK: Edward Elgar Publishing. https://doi.org/

10.4337/9781789908794.00025
- Rodríguez-Rivas M.E., Alfaro J., Benavente M., Varela J. J., Melipillàn, Reyes F. (2023). "The negative association of perceived stress with adolescents' life satisfaction during the pandemic period: The moderating role of school community support", Heliyon, 9(4), e15001. https://doi.org/10.1016/j.heliyon.2023.e15001
- Ho H. C., Man H. Y., Wong M. S., Shi Y., & Walker B. B. (2020). Perceived differences in the (re) production of environmental deprivation between sub-populations: A study combining citizens' perceptions with remote-sensed and administrative data. Building and Environment, 174, 106769.
- Elwell T. L., Gelcich S., Gaines S. D., & López-Carr D. (2018). Using people's perceptions of ecosystem services to guide modeling and management efforts. Science of the Total Environment, 637, 1014-1025.
- Mehdipanah, R., Malmusi, D., Muntaner, C., & Borrell, C. (2013). An evaluation of an urban renewal program and its effects on neighborhood resident's overall wellbeing using concept mapping. Health & place, 23, 9-17. https://doi.org/10.1016/j.healthplace.2013.04.009
- Blackwell, A., & Colmenar, R. (1999). Transforming policy through local wisdom. Futures, 31(5), 487-497.
- Bateman, A. M., & Muñoz-Rojas, M. (2019). To whom the burden of soil degradation and management concerns. In Advances in Chemical Pollution, Environmental Management and Protection (Vol. 4, pp. 1-22). Elsevier. https://doi.org/10.1016/bs.apmp.2019.07.001
- Schlemm, A., Mulligan, M., Agramont, A., Ssekamuli, B., Tindimugaya, C., Ogonda, G., van Griensven, A. (2025). Contributions of stakeholder perspectives and biophysical mapping to assess ecosystem services in the Upper White Nile basin, Ecosystem Services, 71, 101688, ISSN 2212-0416. https://doi.org/10.1016/j.ecoser.2024.101688.
- Nikitas, A., Wang, J. Y., & Knamiller, C. (2019). Exploring parental perceptions about school travel and walking school buses: A thematic analysis approach. Transportation research part A: policy and practice, 124, 468-487. https://doi.org/10.1016/j.tra.2019.04.011
- Martin-Storey, A., Marcellin, S., Purtell, K. M., Tougas, A. M., & Lessard, A. (2018). "It's about having money, but also happiness:" A qualitative investigation of how adolescents understand subjective status in themselves and others. Journal of Adolescence, 68, 198-206.
- Blackwell, J. A. (2023). Developing Young Professionals After School: Considering the Social Contexts of Marginalized Youth in an Urban Afterschool Program (Doctoral dissertation, Rutgers The State University of New Jersey, School of Graduate Studies).
- The Economist Intelligence Unit (2025). The Global Liveability Index 2025. Ranking the world's most liveable cities. Accessible at: https://www.eiu.com/n/campaigns/global-liveability-index-2025/ (last access: 23rd May 2025).
- Mercer (2024). The Mercer's Quality of Living Reports. Accessible at: https://www.mercer.com/insights/total-rewards/talent-mobility-insights/quality-of-living-city-ranking/#research-methodology (last access: 23rd May 2025).
- Institute for Quality of Life (2025). #2025 Happy City Index. Accessible at: https://happy-city-index.com/ (last access: 23rd May 2025).
- Knight Frank (2025). The Wealth Report. 19th edition. Accessible at: knightfrank.com/research (last access: 23rd May 2025).
- Tavano Blessi, G., Grossi, E., Sacco, P.L., Pieretti, G., Ferilli, G. (2016). The contribution of cultural participation to urban well-being. A comparative study in Bolzano/Bozen and Siracusa, Italy. Cities (50), pp. 216-226. ISSN 0264-2751. https://doi.org/10.1016/j.cities.2015.10.009.
- Adeyemi O., Chirwa P. W., Babalola F. D. (2022). Assessing local people's perceptions and preference for ecosystem services to support management plan in Omo Biosphere Reserve, Nigeria, Environmental Development, 43, 100738, ISSN 2211-4645 https://doi.org/10.1016/j.envdev.2022.100738
- Farrier, A., Dooris, M., Morley, A. (2019), Catalysing change? A community food initiative's impacts on people and place. Landscape and Urban Planning, 192, 103663.

https://doi.org/10.1016/j.landurbplan.2019.103663
- Isham, A., Jefferies, L., Blackburn, J., Fisher, Z., Kemp, Andrew H. (2025). Green healing: Ecotherapy as a transformative model of health and social care. Current Opinion in Psychology, 62, 102005. https://doi.org/10.1016/j.copsyc.2025.102005
- Montgomery, C. (2014). Happy City: Transforming Our Lives Through Urban Design. New York City, New York: Farrar, Straus and Giroux.
- Greco G., Skordis-Worrall J., Mkandawire B., Mills A. (2015). What is a good life? Selecting capabilities to assess women's quality of life in rural Malawi. Soc Sci Med.,130, 69-78. doi: 10.1016/j.socscimed.2015.01.042. Epub 2015 Jan 27. PMID: 25687242.
- Wood V.J., Curtis S.E., Gesler W., Spencer I.H., Close H.J., Mason J., Reilly J.G. (2013). Creating 'therapeutic landscapes' for mental health carers in inpatient settings: a dynamic perspective on permeability and inclusivity. Soc Sci Med., 91, 122-9. doi: 10.1016/j.socscimed.2012.09.045. Epub 2012 Dec 3. PMID: 23261254.
- VanderWeele, T. J. (2017). On the promotion of human flourishing. Proceedings of the National Academy of Sciences, 114(31), 8148-8156.
- McElroy, E., Ashton, M., Bagnall, A.M. et al. (2021). The individual, place, and wellbeing – a network analysis. BMC Public Health 21, 1621 https://doi.org/10.1186/s12889-021-11553-7
- Likert, R. (1932). A technique for the measurement of attitudes. Archives of psychology 140, 5-55.
- Boeri A., Gaspari J., Gianfrate V., & Longo D. (2017). Tecnologie per l'adattamento e strategie di coprogettazione per rifunzionalizzare gli spazi storici. TECHNE: Journal of Technology for Architecture & Environment, 14.
- Izvercianu M., Şeran S. A., & Branea A. M. (2014). Prosumer-oriented value co-creation strategies for tomorrow's urban management. Procedia-Social and Behavioral Sciences, 124, 149-156.
- Turchi G.P., Messina P. (2019). Interazione sociale per generare coesione sociale: nuove metriche per la misurazione, in Messina, P. (a cura di), Oltre la responsabilità sociale d'impresa. Territori generativi tra innovazione sociale e sostenibilità. Padova: Padova University Press, pp.223-239
- Lamb R., Sawyer S., & Kling R. (2000). A social informatics perspective on socio-technical networks. AMCIS 2000 Proceedings, 1. Association for Information Systems eLibrary. https://aisel.aisnet.org/amcis2000/1
- De Toro, P., Nocca, F., Renna, A., & Sepe, L. (2020). Real estate market dynamics in the city of Naples: An integration of a multi-criteria decision analysis and geographical information system. Sustainability, 12(3), 1211.
- Goodspeed R. (2020). Scenario Planning for Cities and Regions. Managing and Envisioning Uncertain Futures. Lincoln Institute of Land Policy. Accessible at: https://www.lincolninst.edu/publications/books/scenario-planning-cities-regions (last access: 23rd May 2025).
- Batty M. (2013). The new science of cities. Cambridge, MA: MIT press. ISBN: 9780262534567
- Siciliani, L., Moran, V. & Borowitz, M. (Eds.). (2015). What Works? Waiting Time Policies In The Health Sector. Eurohealth OBSERVER. Eurohealth incorporating Euro Observer, 21(4).
- Bradburn, N. M., Sudman, S., & Wansink, B. (2004). Asking questions: the definitive guide to questionnaire design—for market research, political polls, and social and health questionnaires. John Wiley & Sons: Hoboken, New Jersey, Stati Uniti.
- .

Francesca Nocca
Department of Architecture, University of Naples Federico II
francesca.nocca@unina.it

Francesca Nocca is Researcher in Evaluation at the Department of Architecture of the University of Naples Federico II and PhD in "Urban planning and Evaluation". In 2024, she conducted a research period with the Department of Management in the Built Environment - TU Delft. From 2018 to 2020, she was a post-doctoral researcher at DiARC within the PRIN project 'Metropolitan cities: economic-territorial strategies, financial constraints and circular regeneration'. Since 2014, she has been conducting research at the International Research Laboratory on the Creative and Sustainable City (Lead Partner UN-Habitat World Urban Campaign; Lead of UN-Habitat Universities Urban Regeneration HUB).

Martina Bosone
Department of Architecture, University of Naples Federico II
martina.bosone@unina.it

Martina Bosone is Researcher in Evaluation at the Department of Architecture of the University of Naples Federico II and PhD in "Sustainable Technologies, Recovery and Representation of Architecture and the Environment". She is involved in the PNRR RETURN project for the definition of multidimensional and multistakeholder approaches for assessing transformation scenarios in multi-risk urban and metropolitan contexts. She has worked in PRIN and Horizon 2020 projects to develop innovative assessment methods and tools in the fields of cultural heritage functional reuse, participatory governance and cultural tourism in the circular economy perspective.

Manuel Orabona
Department of Architecture, University of Naples Federico II
manuel.orabona@unina.it

Manuel Orabona is PhD student in Artificial Intelligence (PhD-AI) Agrifood & Environment, with research focused on the application of GeoAI for landscape regeneration. He is currently researching abroad at TU Delft, where she deepens the study of peri-urban fringes through a systemic and multidimensional approach. The objective of his research is the development of a model capable of identifying and characterising peri-urban fringes, with the aim of supporting decision-making processes for landscape regeneration.

Pasquale Galasso
Department of Architecture, University of Naples Federico II
pasquale.galasso@unina.it

Pasquale Galasso is a research fellow at the Department of Architecture (DiARC) of the University of Naples Federico II, and holds a Master's degree in Design for the Built Environment (DBE) from the same university. Since 2024 he is involved as a Research Fellow in the PE3 Extended Partnership afferent to the PNRR and called "RETURN -multi-Risk sciEnce for resilienT commUnities undeR a changiNg climate", for the activities of Spoke TS1 "Urban and metropolitan settlements", in which he deals with GIS simulations to support the multidimensional assessment of resilience conditions in urban contexts and the effectiveness of urban risk management policies.