

If the City Could Speak...

What Indicators miss and AI might find

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Introduction and Motivation

Urban systems are complex, dynamic and heterogeneous. They comprise both material and immaterial components, including infrastructure, housing, ecological systems, governance structures, and socio-cultural dynamics (see Fig. 1).

To evaluate and govern these systems, cities rely on indicators to:

- Enable comparability across space and time
- Support monitoring, accountability and benchmarking
- Translate policy goals into operational targets

However, these tools face conceptual and practical limitations:

- They struggle to represent intangible dimensions like community cohesion, cultural life, or ecological interdependencies
- Quantitative indicators tend to privilege measurable, market-aligned outputs, while undervaluing non-monetary or systemic qualities, e.g. well-being, trust, biodiversity, or civic agency

Central Research Problem

How can qualitative factors be further strengthened in urban systems research and design?

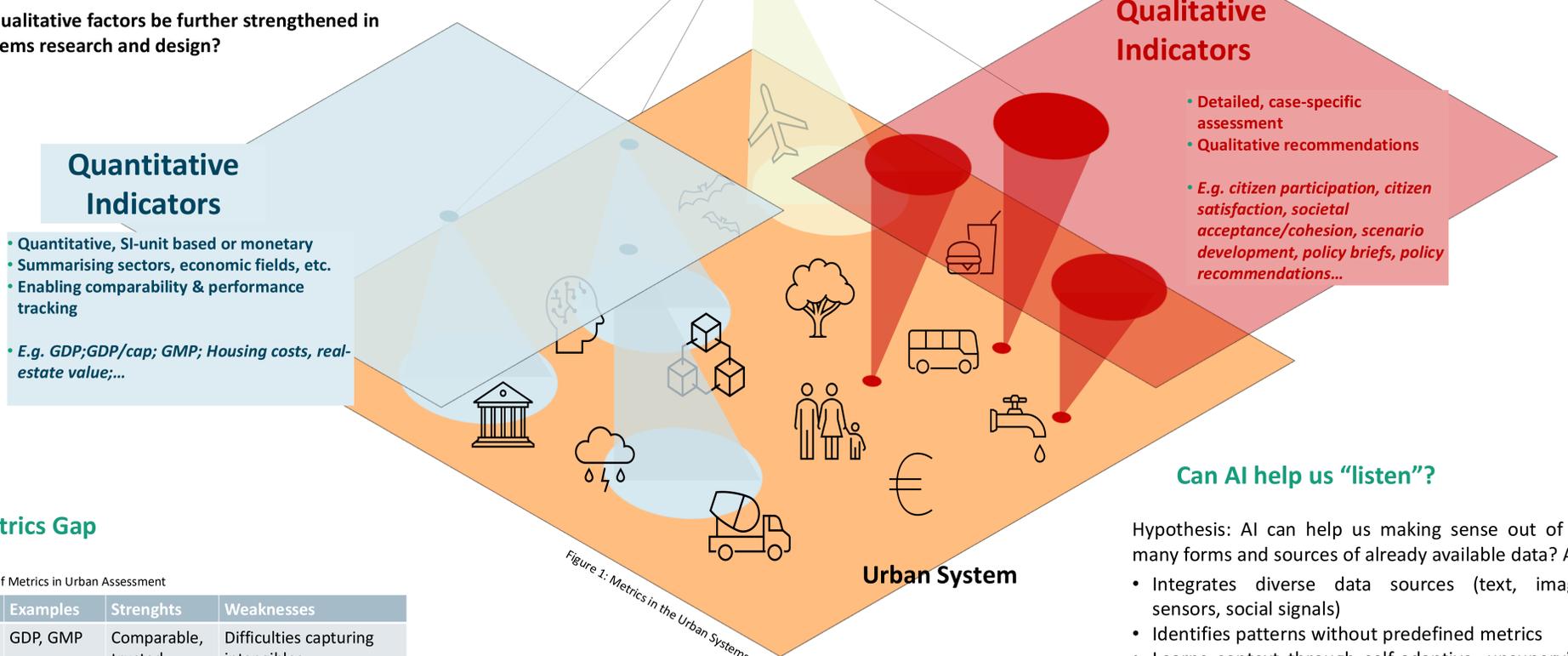


Figure 1: Metrics in the Urban Systems.

The Metrics Gap

Table 1: Types of Metrics in Urban Assessment

Type	Examples	Strengths	Weaknesses
Economic	GDP, GMP	Comparable, trusted	Difficulties capturing intangibles
Complex	HDI, SDGs	Multi-dimensional	Hard to use, fragmented
Qualitative	Interviews, Policy Briefs	Context-rich	Hard to scale

Key Problem: Metrics are either oversimplified or complex, neither captures urban life fully.

The Indicator Spiral

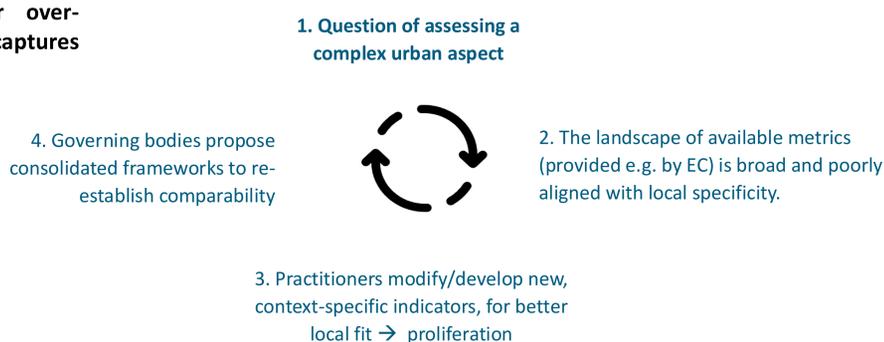


Figure 2: The Indicator Adaptation Cycle

Research Questions

1. Do current indicator systems capture complex, context-specific urban dimensions adequately?
2. Can AI and emerging technologies create evaluation models that move beyond static, metric-driven systems?

The Urban Language Hypothesis

Do cities speak? They already emit a lot of publicly available data...



Qualitative Indicators

- Detailed, case-specific assessment
- Qualitative recommendations
- E.g. citizen participation, citizen satisfaction, societal acceptance/cohesion, scenario development, policy briefs, policy recommendations...

Can AI help us "listen"?

Hypothesis: AI can help us making sense out of the many forms and sources of already available data? AI...

- Integrates diverse data sources (text, images, sensors, social signals)
- Identifies patterns without predefined metrics
- Learns context through self-adaptive, unsupervised methods
- Generates narrative insights further to numeric outputs
- Enables continuous, reflexive assessment of urban systems (?)

Approach

- Review of existing critique and the dominance of quantitative indicator assessments in policy
- Grounded Theory Research on Indicators, their persistence and rationale behind the approach
- Exploration of future visions & developing a conceptual framework for AI-assisted urban assessment methods
- Pilot AI-supported narrative tools

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