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Evidence-based public management for circular and sustainable transitions in small and medium-sized industrial cities

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Outline

- Context and motivation
- Evidence-based public management
- Smart cities: concept and frameworks
- Green infrastructure and smart cities indicators
- Challenges of the Brazilian urban context
- Pirassununga: challenges and trajectory
- Strategic alignnent and partnerships
- Opportunities and challenges
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Context and Motivation

- Sustainable transitions require new forms of governance.
- Evidence-based public management accelerates urban transformation.
- Small and medium-sized industrial cities face institutional, financial, and historical constraints.
- Green infrastructure is a key vector in this process and appears explicitly in international frameworks such as ISO 37122 and Giffinger's Smart Environment dimension.
- Pirassununga represents a concrete case of an early-stage governmental transition.

Evidence-based public management

Evidence-based public management is the systematic integration of high-quality data, scientific research, local context, professional expertise and societal needs to guide decisions and improve public outcomes.

- Evidence use depends on organizational culture, analytical capacity, interaction with academia and access to reliable data.
- Decision-making supported by data, indicators, monitoring, and evaluation.
- Increases transparency, legitimacy, and policy effectiveness.
- Integrates scientific knowledge into government processes.
- Essential for municipalities with limited resources and administrative capacity.

Source: Humphries et al., 2014; Sarkies et al., 2017; Yost et al., 2015

Smart Cities: concept and frameworks

No single model or universal definition

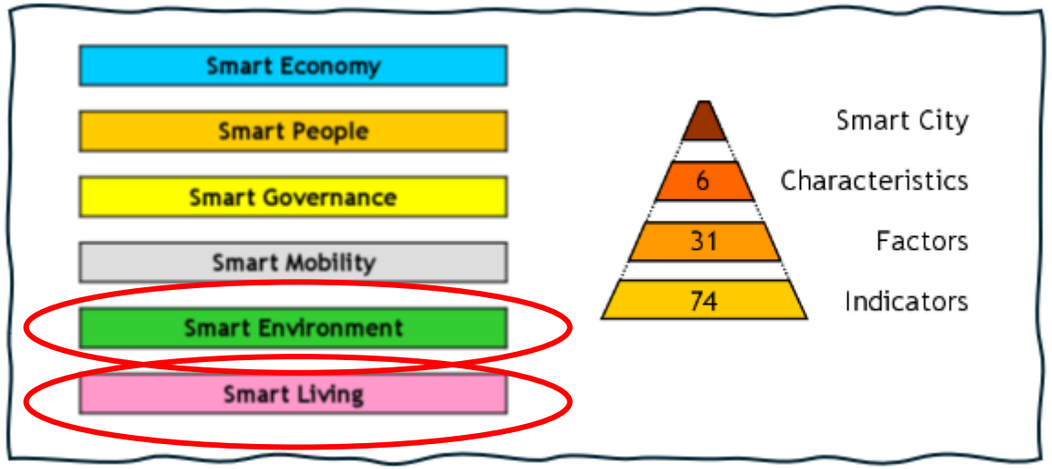
- Use technology to improve citizens' quality of life and increase governmental efficiency.
- Focus on performance indicators to promote sustainable development.
- Use economic, social, environmental, and digital indicators.

Source: O'grady & O'hare, 2012; Oh et al, 2023; Machado Junior et al., 2018

Smart Cities: concept and frameworks

Smart cities seek technological solutions to urban challenges while enhancing government efficiency and citizens' quality of life.

- Giffinger et al. (2007) define six Smart City dimensions
- ISO 37122 - Indicators for Smart Cities offers standardized metrics for example environment, governance and quality of life



INTERNATIONAL STANDARD **ISO 37122**

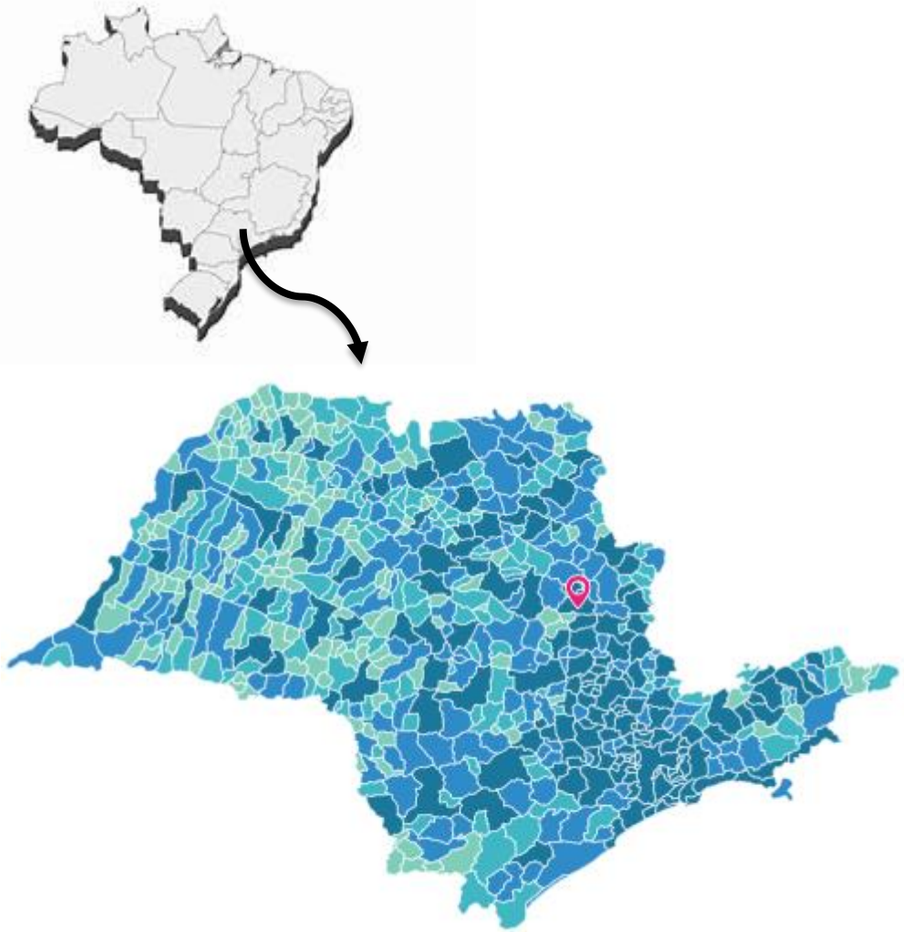
Source: Oh et al., 2023; Giffinger et al., 2007; ISO,2019

Challenges of the Brazilian urban context

- Scarcity of public financial resources.
- Strong competition for federal and state investments.
- Fragmented urban policy landscape.
- Industrial expansion historically conducted without environmental planning.
- Need to strengthen evidence-informed practices.

Pirassununga: a medium-sized city

- Located in the countryside of São Paulo State, Brazil.
- Territorial structure marked by underused areas and environmental liabilities.
- Challenges in mobility, waste management, stormwater, and green areas.
- New administration adopting practices grounded in data and evidence.



Green infrastructure in Pirassununga

- Pirassununga is at an early stage in integrating green infrastructure into urban policy.
- Current challenges: low-quality public spaces, insufficient drainage, uneven tree coverage, underutilized areas.
- The administration initiated surveys, diagnostics and partnerships to support future projects.
- Green infrastructure is conceived as a medium and long-term strategy connected to waste management, climate adaptation and urban health.
- These elements align directly with ISO 37122 indicators* and with Giffinger's Smart Environment dimension.

*green areas per capita, access to green areas, environmental quality, biodiversity, urban planning

Strategic alignment and key partnerships

- PPA 2026-2029 & 2030 Agenda
  - All municipal programs aligned with the SDGs.
  - Integrated planning with indicators and monitoring.
  - Evidence-based planning incorporated
- Smart Cities Program
  - Cross-cutting program proposed by the Government Secretariat.
  - Connects innovation, digital transformation, sustainability, and transparency.
- University Partnerships
  - USP and All4Food: diagnostics and circularity studies.
  - USP and University of Portsmouth: a pilot city for an evidence-based policy evaluation tool.

Opportunities and Challenges

Opportunities

- Faster policy implementation cycles.
- Potential to function as urban living labs.
- Rapid impact of data-driven solutions.
- High potential for replication across similar industrial municipalities.

Challenges

- Limited technical and administrative capacity.
- Institutional resistance and fragmented structures.
- Scarcity of resources and lack of historical data.
- Need for governance continuity to sustain transitions.

Final considerations

- Evidence-based public management is feasible even with limited resources.
- Academic partnerships strengthen governance and innovation.
- Green infrastructure is essential for circular and sustainable transitions.
- Small and medium-sized cities can lead solutions for industrial territories.

Acknowledgements

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UniLaSalle
Institut Polytechnique

"Collaboration is essential for building evidence-informed, sustainable and human-centered cities."

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