

Building Trust in Municipal Environmental Data Through Participatory Open Data Ecosystems

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Abstract

Trust is a fundamental precondition for effective governance in municipalities, enabling meaningful citizen participation and legitimate decision-making. Yet theoretical framework that systematically connect trust-building with participatory open data ecosystems remain scarce. Existing models tend to focus either on technical infrastructure or on governance mechanisms but rarely integrate both with community engagement in a comprehensive manner. This paper addresses this gap by asking: How can participatory open data ecosystems be designed and governed to build and sustain trust between municipalities and citizens in the domain of environmental data? Through a comparative theoretical analysis of municipal open data initiatives and drawing on insights from the Smart Transformation and Innovation Consortium Slovakia (STICS) project, we analyse three interconnected dimensions: technical infrastructure, governance mechanisms, and stakeholder engagement, and their relationship to different forms of trust. Building on the psychological literature on trust (particularly Mayer, Davis, and Schoorman, 1995; Lewicki and Bunker, 1996), the Trust-Centred Participatory Open Data Ecosystem (T-PODE) framework is proposed. The framework identifies three pillars of trust-building: data trust through technical transparency, institutional trust through participatory governance, and social trust through community co-creation. Contextualised within the STICS living laboratories operating in three Slovak regions, this paper contributes to the growing body of literature on open data ecosystems by explicitly positioning trust as both the central objective and the binding mechanism of participatory data governance at the municipal level.

Index Terms

Open Data Ecosystems, Participatory Governance, Trust-Building, Environmental Data, Stakeholder Engagement, Living Laboratories, Social Innovation, Psychology of Trust