The PolisGnosis Project: Enabling the Computational Analysis of City Performance

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Abstract: Cities use a variety of metrics to evaluate and compare their performance. With the introduction of ISO 37120, which contains 100 indicators for measuring a cityís quality of life and sustainability, it is now possible to consistently measure and compare cities, assuming they adhere to the standard. The goal of this research is to develop theories, embodied in software, to perform longitudinal analysis (i.e., how and why a cityís indicators change over time) and transversal analysis (i.e., how and why cities differ from each other), in order to discover the root causes of differences. The first phase of this project focuses on the creation of standard representations of city knowledge (i.e., Vocabularies and Ontologies) that can be used to represent indicators and their supporting data and publish them on the Semantic Web. The second phase focuses on the development of consistency axioms that automate the determination of whether a city's indicators and supporting data are consistent with the ISO 37120 definitions, and whether they are longitudinally and transversally consistent. The third phase focuses on the development of diagnostic algorithms that identify the root causes of longitudinal and transversal differences. Due to the heterogeneity of the supporting data, the applicability of classical diagnostic techniques is limited. This seminar will summarize the progress to date of all three phases.