

# Smart City Analytics

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**Abstract.** Accordingly to the "people centered" vision, this article critically examines the currently definitions of city smartness and the corresponding approaches to smart cities benchmarking. After some considerations about the "smartness" that emerges from such benchmarking and the introduction of a model of experience, adapted to the case of Smart Cities, a possible redesign of the "Smart Cities Analytics" grounded on the traces left by individuals is suggested. In particular, here we shall focus on the potentiality offered by automatic text analysis.

**Keywords:** Smart City Benchmarking, City Smartness, Experiential model, Traces Analytics, PCA, Natural Language Processing, Social Emotivity, Concept Maps

## 1 Introduzione

The adoption of a people-centered approach to the design and development of smart cities brings out very clearly the problem of the definition and measure of the smartness of a city.

The centrality of the person [1,2], its characteristics and its experiences pose significant challenges to the evaluation approaches derived from top-down functionalist models of smart cities in which the space of representation has an infrastructural origin [3,4], as is comes out in all evidence when one analyses in the nature of the variables that have been used to derive the indicators that, in turn, define the smartness of a city.

Evaluation approaches of this type, in fact, are very useful to produce in a relatively short time rankings of various kinds but, apart the little consideration for the individuals, the difficulty to go beyond the quantitative data to include the quality of, for example, services and a certain difficulty to highlight the glocal peculiarities [5] of the path chosen by each city to become smart, are also affected by two further problems [6]: (a) the lack of control on the existence of possible correlations among the collected data and the dimensions of the space of representation; (b) the limitation in providing the dynamics of an unavoidably evolutionary framework.

The first problem can be addressed by studying the correlations among the dimensions of the space of representation in order to orthogonalise this latter.

To address the second and, additionally, to take properly into account behaviors, expectations and characteristics of the individuals, or of the community to which they belong, one has to develop appropriate analytics of the traces continuously produced by individuals during their daily activities.

## 2 Approccio sperimentale e analisi delle tracce

Although it may be more appropriate to make emerge in a natural way the space of representation from the analytics of the traces, nevertheless it seems useful to introduce here a model of experience, a multidimensional and flexible space of representation "person in place" based, to offer a framework of reference that can be easily readapted to analyze and benchmark the characteristics of given places and communities.

In the following we shall introduce as one the most promising approaches to perform meaningful qualitative, quantitative and dynamical analysis of some of the dimensions described in the above model, the automatic text analysis. As an example we shall show how by combining text analysis and social network analysis it has been possible to extract the social emotivity of a group, and how from the text-analysis of a survey specifically focused on smart cities it has been possible to extract the list of most significant terms and from these to derive a network of meanings (conceptual map) that can be enriched by additional terms emerging by a comparison with reference corpora. The results of the automatic text analysis will be also compared with a objective-subjective analysis of the same text, in order to highlight limitations and possible improvements.

## 3 Riferimenti

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