



Measuring multidimensional topics: the case of the Italian Smart Cities

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The definition of a measurement system of smartness comparable at territorial and dynamic level is a very complex goal since there is not yet a shared, operational and empirically testable description of Smart City/Community. Despite the unquestionable glamour of this topic, the measurement aspects of smartness are often mistreated in favour of the dissemination of best practices and projects at local level.

Until now, nearly all the experiments to measure smartness at local level have produced rankings based on economic, social, environmental and technological infrastructures as outputs. This makes it, however, very difficult to overcome the purely quantitative data.

The inclusion of qualitative indicators is however necessary to highlight the originality of the path chosen by each City/Community to become Smart.

Furthermore, all measurements are also affected by other methodological limits such as:

- the lack of control on the presence of possible correlations among the indicators identifying smartness;
- restrictions in providing the dynamics of obviously evolutionary concepts;
- practical and economic obstacles in collecting data at local level;
- outputs exclusively in the form of rankings.

In more details, the outputs represented by city rankings are often highly heterogeneous regarding methodology and objectives. A more elaborated procedure is therefore necessary to focus on the specific profile of a city with its strengths and weaknesses.

In this framework, introducing the use of multidimensional analyses could result particularly useful to better identify the indicators that provide real contributions to the measurement of smartness.

Consequently, the passage to a cluster analysis represents one of the possibilities out of a wider range of procedures for investigating rankings in a more robust way. Clusters, which show specific patterns of cities, are useful to overcome both the superficial aspect indicated by the mere rank obtained and the random comparison between best and worst cities.

In order to compare the degree of smartness for different local contexts, it is also necessary to find a convergence towards a shared measurement system that includes specific local aspects. This system cannot ignore the starting situation of single territories, given both the heterogeneity of the different socio-economic frameworks and also some detailed features that have to be examined in depth.

An additional important issue concerns the essential data set to measure smartness effectively. For this reason it is necessary to implement, develop and improve the existing data bases by transforming their contents and information in a smart way.

This paper intends to carry out a theoretical and empirical experiment in order to verify whether some of the above mentioned methodological innovations can produce improvements in the measurement of the Italian Smart Cities with regard to previous experiences.

Keywords: Italian Smart Cities; multidimensional analyses; smartness; measurement system.