



Glocalised Smart Statistics and Analytics of Things — Core Challenges and Key Issues for Smart (Official) Statistics at the Edge

Prof. Dr. Diego Kuonen, CStat PStat CSci *

Statoo Consulting, Berne, Switzerland & Research Center for Statistics, Geneva School of Economics and Management, University of Geneva, Switzerland — @DiegoKuonen & kuonen@statoo.com

The ‘Analytics of Things’ (AoT) corresponds to the analytics layer that occurs with the ‘Internet of Things’ (IoT) devices and their generated big data. As AoT helps turn these big data into useful information and knowledge to retrieve IoT’s business value and related opportunities, the veracity of these big data (and the related quality and correctness of the data) is more important than ever. As such, to succeed, statistical principles and rigour are necessary to correctly collect the ‘right’ data and to make sense out of these big data in the context of data-informed policy making using ‘smart statistics’.

Given the distributed nature of the connected devices and the explosive growth of IoT infrastructures and technologies, it becomes key to execute analytics and related data quality processes on the data-gathering devices themselves, *i.e.* at the edge. For example, in practice, the most efficient way to control data quality is to do it at the point where the data are created, as cleaning up data downstream (and hence centralised) is expensive and not scalable. As such, it is about moving the analytics and the data quality frameworks to the data and not the data to the (centralised) analytics and (centralised) data quality frameworks. To do so, a centralised management of analytics will be needed; consisting, for example, of transparent central model and rule development and maintenance, a common repository for all models and a related model version management.

This clearly will need a paradigm shift in official statistics, along with related considerations of transparency and glocalisation, *i.e.* producing official statistics according to both local and global considerations.

In this presentation I will address the core challenges, opportunities and key issues in the transition of official statistics towards ‘smart statistics’ in the context of data-informed policy making. Moreover, I will illustrate that AoT needs official statistics as much as official statistics need AoT to ensure that ‘National Statistical Institutes’ (NSIs) remain relevant within such a ‘smart’ data ecosystem and the related data economy.

Keywords: analytics of things; big data; edge analytics; official statistics; data-informed policy making.