Processing and managing statistical data: a national central bank experience

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In a central bank statistical information sustains many institutional functions and is a strategic resource supporting research and decision-making activities.

In order to pursue this aim, new statistics often have to be created and the existing ones frequently updated.

This complex and dynamic scenario demands comprehensive and flexible IT solutions which can support various kinds of processes and be adapted to new requirements in a very short time.

A typical statistical information management process usually involves micro and macro data and includes some canonical activities such as collection, validation, production and dissemination. All these activities must be supported while providing a holistic view of the full process and fostering data integration.

To achieve these goals, a rigorous and comprehensive information model is required. It should be able to describe all the characteristics of the statistical data: their meaning and properties and the transformation rules used to produce derived data.

In addition, compliance of this information model with emerging international standards is an important issue, as statistical production requires a high level of co-operation among all the stakeholders involved (statistical agencies, users, etc.).

Finally, a technical and applications architecture is needed that is able to foster flexibility and dramatically lower time-to-market in change management.

Banca d'Italia actively contributes to international bodies that define international standards in the field of statistics. In addition, it has recently developed a new IT solution (so called "Statistical Information Management Platform") which exploits all the opportunities coming from ICT technologies in order to provide a comprehensive and flexible support for all the needs related to statistical processing: comprehensive because it covers all the phases of a typical process; flexible because it can handle all kinds of data represented as "cubes" and is easily adaptable to all the nuances that an information management process can present. In addition, this new IT solution is compliant with international standards such as SDMX and with the ESCB Reference Architecture.

The authors will focus on the capability of the Banca d'Italia's statistical information management Platform to represent and perform calculations and controls; it will also examine how this capability can be exploited during different steps of statistical processes.

This ability make wide use of the adopted information model, where dedicated metadata describe links between input and derived data as well as the specific calculus expressions defined using a platform independent language. These definitions are maintained directly by business people and are able to drive IT services included in the platform to perform more sophisticated validations on collected data and to effectively support the production of statistical data. Some use cases are provided.