

New vision and traceability of European Official Statistics: consequences for Quality Managerial Tools

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Abstract: According to the European Commission, next ten years will be full of changes in the field of European Statistics, but also in the behaviour expected from National Statistical Institutes (NSIs). From an industrial organisation based on production lines, survey by survey, the NSIs will change to a service organisation based on user needs, sources merging and re-use of information. In addition, an enhanced attention will be put on the traceability and transparency of collecting data procedures. This new paradigm seems to imply an enrichment of the parameters usually used in quality assessment and traditional managerial tools should be re-considered.

Key words: Supervisory and Control System, Planning, Statistical Processes, Risk Management

1 The production method of EU statistics

A recent document, *Communication from the Commission to the European Parliament and the Council on the production method of EU statistics: a vision for the next decade*² [1] is an excellent starting point for this paper and the successive ones in this session.

The *Communication* changes the traditional idea of statistics production and is addressed to National Statistical Institutes (NSIs) and to any other participant to the European Statistical System (ESS). The main point is the proposal to evolve from “numerous parallel processes, country by country and domain by

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² The communication is dated 10.8.2009.

domain, following the traditional stovepipe model... to a new business architecture of the ESS...”.

As the title of the Communication says, it is the vision for next decade, but some NSIs have already started implementing these changes at internal level and efforts and best practices should be disseminated.

“Within each NSI, the production of statistics operates through the various production lines or processes of the different statistical domains. The whole of the production processes of a statistical office is referred to as its business architecture. At present, the business architecture of most EU NSIs is still mainly based on product stovepipe model. In such a model, every single product stovepipe corresponds to a specific domain of statistics, together with the corresponding production system. For each domain, the whole production process from survey design over data collection and processing to dissemination take place independently of other domains, and each has its own data suppliers and user group.”

The stovepipe model is the outcome of a long historic process and it has a number of advantages: the process is tailored to the product requested; it is flexible; it is under the control of the statistics responsible for the process or the domain and the architecture is of low-risk, as a problem in one of the production processes should normally not affect the rest of the production¹.

On the other side, the stovepipe model shows its own weakness in the matters of burden on respondents, difficulty to cover multiple dimension, such as globalisation, climate changes, wellness measurement, possibility to achieve relevant gain in terms of cost reduction and quality improvements.

In very definitive terms, the stovepipe model

... does not make use of standardisation between areas... Redundancies and duplication of work, be in development, in production or in dissemination, are unavoidable. These inefficiencies and costs for the production of national data are further amplified when it comes to collecting and integrating regional data, which are indispensable for the design, monitoring and evaluation of some EU policies.

1.1 Which is the new paradigm?

The basic idea of the new vision is that statistics for specific domains are no longer produced independently; instead they need to be produced as *integrated parts of comprehensive production systems* (the so-called data warehouse approach) for clusters of statistics. Into the data warehouse would be stocked data coming from three kind of sources: direct data collection, administrative data repository and other external sources. At the same time the search for

¹ The statement has some exception, first of all a lack in providing data for National Accounts could be not a minor risk.

how information from different sources can be merged and exploited for different purposes will be stressed at any European level.

Is it a new proposal? The new model is, partly, an old one. The idea is not so new. At the end of nineties, it was largely proposed by some NSIs, where reengineering processes were carrying out¹. In the area of R&D, many successive programme have been launched with the scope to reduce burden and change channels to collect data from firms and economic system. The MEETS programme² seems to be the main visible result and, at the same time, an anticipation of the new model. As example of the European strong finalisation to the new vision, the collaborative networks (ESSnet) for Data Integration and for the Use of Administrative and Accounts Data in Business Statistics should be also recalled.

Finally an Eurostat quite new Committee has been held on methodological matters, with the scope to achieving better results in terms of harmonisation and integration of Official Statistical processes, both into the NSIs and from NSIs to Eurostat³.

The basic idea comes from the “Statistical Law” [3], but also from the “Code of Practice of European Statistics [4], and other framework documents [5,6].

What is changed from the end of nineties?

According to the *Communication*, new technologies, budget constraints, increasing burden on respondents, incapacity to catch new phenomena, monstrous amounts of available data⁴, on one side, and rigidity of traditional statistical channels, in the other, are the factors driving and urging to a new approach.

Which consequences for the statistical quality?

The new approach could change the concepts of statistical quality. Survey by survey, indicators can easily establish the quality of collecting data, editing, data processing, dissemination at a very deep level. A number of these indicators will be useful in an integrated approach, too; but others could become necessary and another group should be given up.

¹ New Zealand and Netherlands Statistical Offices were the first Institutes promoting changes in that direction. For a recent overview on Statistics Netherlands see [2].

² Decision n. 1297/2008/EC of 16 December 2008 on a Programme for the Modernisation of European Enterprise and Trade Statistics (MEETS).

³ Directors of Methodology Committee (DIME)

(http://epp.eurostat.ec.europa.eu/portal/page/portal/pgp_insite/pge_estat/tab_statistics#2)

⁴ See also [7].

Moreover, the project of a survey in an integrated approach should have in mind that its results could be merged with other data and be re-used to investigate other phenomena.

In conclusion, the European Commission Communication on the statistics production method (or vision) seems to sign a change from a traditional, inefficient and no more respondent to modern needs of information industrial organisation (a survey as a chain of activities), to a post industrial organisation, where final products are relevant, but also every interim production is planned as part of an integrated and flexible system.

The feasibility of this system and its success or failure is the challenge for the future.

2 The Supervisory and Control System

A second point of attention for Official Statistics is on the floor in Europe. It is the intervention of two new subjects, besides Eurostat, in the area of National Accounts statistics. The two new subjects are the European Court of Auditors and the Internal Audit Service (IAS) of the European Commission. Both are non statistical bodies, but their duty is so near to the assessment of quality of Official Statistics, mainly in National Accounts area, that a common initiative was launched: the Supervisory and Control Systems (SCS) for National Accounts purposes¹.

The focus of a seminar held in Luxembourg last December was not data and methods of National Account statistics, but procedures applied in each NSI to assure quality and correctness of results.

The statistical quality in a large organisation, such as a NSI, depends on two main factors: the quality of the survey design and the managerial tools such as planning, coordination, capacity to involve cooperation with respondents or other data suppliers, accessibility of trusting subcontractors, availability of sufficient resources, flexibility of answering to unforeseen events and so on. In a word, organisation. These two factors are often viewed in separate contexts without merging the two groups of elements. The ex post quality analysis could highlight non excellent levels – for example in response rates – and go back to the reasons of the failure. Between these reasons, organisational weaknesses, such as timeliness of the planned phases, lack in trusting interviewers, failure in service contracts, budget unforeseen cuts, could be relevant. Minimizing “organisational concerns” could improve quality of data

¹ Eurostat Workshop on Supervisory and Control Systems (SCS) for National Accounts purposes (Luxembourg, 8-9 december 2009), see [8, 9, 11].

collection and reduce the necessity to adopt statistical techniques to recover missed data.

The theme is quite new for statisticians, and for official statistics too, aware of the relevance of quality process in collecting, editing and release statistics, but less in considering the importance of administrative procedures.

Nevertheless, at this seminar, many NSIs presented interesting papers, if not clearly in the matter requested, in connected area. The effect of this new approach is to connect different areas in NSIs, mainly the technical and the administrative ones, to merge the vocabulary and to contaminate the idea of an excellent quality statistical process design with the inevitable organisational problems and vice versa, a theoretically perfect procedure with the risk of failure in terms of quality.

As far as the matter is mainly concerning NSIs, it could be considered not completely known by private or academic researchers: the traceability and the work flow of transmitted or collected data are relevant clues to certificate the quality of statistical processes. And the availability of sufficient resources is a sign of a regular collection of data, instead, on the contrary, insufficient resources or approximate procedures could imply the suspect of manipulated statistics.

The link between the two points of view becomes very relevant when the object is National Account and correct results are basilar for the cooperation between European States, being the core for monetary, economic and political choices.

The proposal emerging from the seminar is to move towards a Supervisory and Control System (SCS) where the main scope is to assist the organization in achieving its objectives through well designed Internal Control System. So the key words were quality processes, planning, risk management, procedures, accountability, audit, delegation of authorities, separation of functions, accounts reconciliations¹.

To these two starting points (the Communication and the Seminar) other evidence of the European Commission changing model and behaviour in the field of Official Statistics could be added. For example, the traceability is a fundamental requirement in European Grants: more and more information are requested not only as results of the investigation but also in organisation, in planning and in the area of accountability. In many cases, an audit certificate does confirm the assessment of the grant responsible.

¹ [8, 9, 12]

3 An example

The two “starting points” are strictly connected. To clarify what is going to happen, it is useful to recall – and re-elaborate – an example given in the “Communication”:

The European Labour Force Survey (LFS) is the basis for the calculation of quarterly harmonised unemployment figures. (...) Policy makers, analysts and the public at large, however, need comparable unemployment data also at a monthly frequency. While for a few Member States such monthly estimates can be directly derived from the LFS, for most other countries this is not possible. For the latter cases, Eurostat has developed a method to produce monthly estimates by combining quarterly LFS results and monthly information on registered unemployed. Data on registered unemployed come from national labour market administrations. They are influenced by the specific administrative rules in each country. While their levels, therefore, are not comparable, their changes from month to month, however, can be used as an indicator for developments over the short-term. In the Eurostat methodology, the LFS provides the comparable quarterly benchmark for unemployment levels, to which the indicator of monthly movements based on registered data is linked. That way, the combination of survey results and administrative data allows a quick and efficient response to public information needs

This is an example of the new European system method to statistics.

The combination of two (or more) different sources imply a more sophisticated Managerial System than the present one.

In the case of Italy, if Istat did not carry out a monthly homogeneous estimation, the suggestion would be to use administrative data (INPS) and other sources (for example, data from temporary manpower agencies). This method implies a deep thought on the different definition and how to merge data. But not only. According to the second “input” given (the Internal Audit or the Court of Auditors requirements), the administrative and other sources have to be assessed, as far as the figures emerging from the whole survey are relevant for European Decisions.

Several elements of the proposed integrated model imply a change in the professional paradigm from "data-collectors" to "re-users of data". While data collected through traditional methods are under the control of the statistical institutes, this is much less the case for re-used data, and this entails certain risks: concepts and definitions may be changed by the owners of the data, certain data collections could be discontinued or altered, etc. In order to ensure that the legitimate interest of statistics is taken into account, the position vis-à-vis the owners of re-used data (administrators, regulators or others) has to be reconsidered and possibly strengthened.

There are considerable challenges of a technical and methodological nature. Standardisation and integration of formerly separated production processes will demand great efforts and an effective change management.

Furthermore, the quality assessment of statistics will become much more complex. As an example: traditional quality measures (e.g. sampling error) will become less relevant as data collection will make less use of sampling techniques. A new quality assessment methodology will therefore have to be developed. (From the Communication).

4 Istat focus

The situation in Istat could be shortly represented as follows. Istat holds a traditional Planning and Monitoring System where objectives, processes, results, costs and performances are under control. It is also well defined an advanced database, storing and evaluating the quality of statistical processes [10]. The two systems are well responding to the stovepipe model, but not enough flexible to evolve towards the integrated model. Nevertheless, they represent an excellent starting point and initial improving steps are ongoing through connection between the two systems and a third one (MAPROS (Statistical Process Mapping), where the outputs of each survey can be seen as input for other treatments. In a general way, how to move towards the integrated model is depicted in [12]. Excellent examples of integration are already involved in daily workflows of the National Accounts Division, where the experience of using and re-using statistical data has a large tradition [11].

5 Conclusions

The two facts described seem to suggest a significant transformation for Official Statistics¹. As any revolution, it does not occur suddenly and unexpected. Many practices are ongoing but, at the same time, the traditional approach should be revised. Moreover, there are areas where current behaviour is very close to the desired arrangement, but awareness and formalisation are lacking, as in the case of risk management.

The situation suggests to picture a process or a road map to be pursued in the next decade, for an integrated Supervisory and Control System.

¹ How the change impacts on a NSI's organisation is well depicted in [13].

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